



## AN INQUIRY INTO THE EPIDEMIOLOGY OF PEMPHIGUS NEONATORUM

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In recent years there has been a considerable increase in the incidence of pemphigus neonatorum, especially in nurseries in maternity hospitals and units. Cases and outbreaks have in the main been mild, with a very low mortality, but this does not lessen the administrative problems of isolation, quarantine, and ward closure. The rise in incidence of infection due to *Staph. pyogenes* not only in infants but also in nursing mothers, and bacteriological studies of infection in surgical operation wounds, war wounds, and industrial dermatitis, have led to an increased interest in the epidemiology of staphylococcal infections in general. The study of the epidemiology of pemphigus neonatorum and of other staphylococcal infections is rendered difficult by the ubiquity of the causative organism, and it is obvious that the application of any method whereby strains of *Staph. pyogenes* can be differentiated into types must inevitably lead, as in the case of *Str. pyogenes*, *Str. pneumoniae*, the typhoid bacillus, and *Salmonella* organisms, to more accurate knowledge of the sources and paths of spread of infection.

The most generally accepted criterion of actual or potential pathogenicity of staphylococci at present is the ability to produce coagulase, and as staphylococci may be golden, yellow, off-white, or white we have applied the term *Staphylococcus pyogenes* to coagulase-positive strains regardless of pigment production. The first acceptable differentiation of *Staph. pyogenes* into types was described by Cowan (1939), using a slide-agglutination technique whereby most strains of *Staph. pyogenes* were found to fall into three types and an atypical group among which he tentatively recognized five subtypes (personal communication). Differentiation of the subtypes is often difficult, as they are not always clear-cut, and a considerable amount of cross-reaction may occur owing to the presence of common antigens. In 1940 Christie and Keogh, using the same technique, succeeded in differentiating nine types, including Cowan's original three; their observations were based on reactions with absorbed and unabsorbed sera, and the organisms were classified according to the presence of major and minor agglutinogens, but they did not find it possible to eliminate the considerable antigenic overlap between different strains. A further development occurred in 1945, when Wilson and Atkinson described a method of differentiating types among *Staph. pyogenes* by means of bacteriophage action, evolved from the original observations of R. T. Fisk (1942) and

R. T. Fisk and Mordvin (1944); by this method they were able to recognize 21 types or subtypes and to apply the technique successfully to the investigation of several outbreaks of staphylococcal infection, in particular food-poisoning due to staphylococcal enterotoxin.

In the course of investigations to confirm and extend the work of Cowan and of Christie and Keogh, and to explore the possibility of obtaining more clear-cut results by agglutination methods, we were called upon to investigate outbreaks of staphylococcal infection causing pemphigus neonatorum and breast abscess in nursing mothers (Hobbs, 1944), food-poisoning due to staphylococcal enterotoxin (Murphy and Edward, 1944), and cases of sycosis barbae (Hobbs, Carruthers, and Gough, 1947). This provided an opportunity for testing experimental sera and for carrying out investigations on the epidemiology of staphylococcal infections, in particular pemphigus neonatorum.

In November, 1943, we were asked to investigate an outbreak of pemphigus neonatorum, affecting eight infants, in the main nursery of the maternity unit, City Lodge Hospital, Cardiff. This marked the beginning of a series of observations on the epidemiology of pemphigus neonatorum in the unit, which continued uninterruptedly for two years till November, 1945. During this period 2,719 infants were born in or admitted to the unit, of which 111 (4.1%) developed pemphigus neonatorum; all strains of *Staph. pyogenes* isolated from these patients were investigated serologically.

In addition, there occurred during the period of investigation 25 cases of staphylococcal conjunctivitis ("sticky eye"), either alone or associated with pemphigus neonatorum; cultures were taken from the infected conjunctivae for bacteriological and serological examination.

## Procedure and Technique

(a) *Collection of Specimens.*—The specimens examined came from the lesions, nose, eyes, and occasionally umbilicus of infected infants, from the nose of healthy infant in infected nurseries, from likely sources of infection such as the nose, throat, and skin of infants' mothers, nursing, domestic, and medical staff, from air and dust in the nursery, and from infants' blankets and gowns. New patients were visited as early as possible in order to collect fluid from intact bullae by aseptic puncture with sterile Pasteur pipettes drawn out to a fine capillary. If the lesions were already open and discharging, swabs



were taken from the exudate after initial cleansing with sterile gauze. Nasal and eye swabs for infants were made from a fine pliable copper wire with a very small pyriform pledget of cotton-wool. Specimens for culture from skin were taken from the thumb, the terminal phalanges of the index and middle fingers, and the palmar and dorsal surfaces of the hand with swabs previously moistened with quarter-strength Ringer solution. Dust samples consisted of floor sweepings, which were collected in sterile test-tubes and shaken up in quarter-strength Ringer solution; cultures were made from tenfold dilutions. For air-sampling blood-agar plates were exposed for one to three hours in the air of the ward during both quiet periods and periods of greatest activity. Blankets and infants' gowns were tested by soaking two small areas of about 12 sq. in. (75 sq. cm.) of each article in nutrient broth, cultures being made from the broth and from dilutions of the broth.

(b) *Laboratory Procedures.*—Agar plates containing 10% horse blood were the basic medium used for the culture and isolation of strains of *Staph. pyogenes*, but specimens from lesions were often cultured also on gentian violet (1/500,000) blood agar, especially if the presence of *Str. pyogenes* was suspected. Swabs still moist were inoculated direct on to blood-agar plates, but any which appeared to be dry were moistened with broth or quarter-strength Ringer solution. An ideal procedure was to incubate the swab in broth after inoculation of the plates. The broth culture after 18 hours' incubation was used for the tube-coagulase test (Gillespie, 1943), and if the direct plate showed no staphylococci the enrichment broth was plated out on to blood agar. By this method small numbers of staphylococci often missed by direct plating were isolated in almost pure culture. Following overnight incubation of the direct plate at 37° C. observations were made on the amount of growth, the types of organisms, and the proportion of colonies of *Staph. pyogenes*. From all cultures showing the presence of staphylococci at least two colonies were tested for their ability to produce coagulase by the slide-coagulase test introduced by Cadness-Graves *et al.* (1943), using human plasma. Pigmented strains which were coagulase-negative by the slide technique were re-tested by the tube method (A. Fisk, 1940). At least two coagulase-positive colonies from each culture were sub-cultured for serological typing. It was found advisable to

ave the blood-agar plates on the bench for a few days to e full development of pigmentation and colony gy. By so doing differences between types of colony more obvious, and such differences were frequently to correspond with different serological types, and often than one type was present on a plate. Serological typing carried out by means of the slide-agglutination technique ribed by Cowan (1939), using crude and absorbed sera m rabbits inoculated with vaccines prepared from Cowan's iginal three strains and from strains of additional types described by Christie and Keogh (1940). Agglutinating sera were also prepared against a number of freshly isolated strains which did not appear to fit into any of the hitherto identified types; these strains were cultured from various staphylococcal lesions during the course of the investigation. Many of the strains of *Staph. pyogenes* type Ib isolated from lesions during the second outbreak of pemphigus were typed by the bacteriophage method at the Public Health Laboratory, Oxford, and were regularly lysed by the same phage filtrates.

#### Prevalence of Pemphigus Neonatorum during the Period of Investigation

The maternity unit was housed in a 2-story block and consisted of a main nursery (Nursery 10) with 32 cots (later reduced to 16), a nursery for premature infants (10 cots), another 10-cot nursery, and five isolation nurseries (10 cots). In three of the six wards mothers and infants were nursed together. The unit had maximum accommodation for about 90 infants with their mothers, including isolation cases.

Prior to November, 1943, cases of pemphigus neonatorum in the unit had been rare, and had occurred singly and sporadically. Between November, 1943, and October, 1945, 132 cases of pemphigus neonatorum and staphylococcal

conjunctivitis occurred in the unit, and their distribution in the various wards and nurseries is shown in Table 1. It will be seen that 93 cases (70.5%) occurred in infants in Nursery 10, attached to Wards 10 and 11, while 29 cases (22%) occurred in infants in Wards 8 and 9; there were only two cases in premature infants. It is also to be noted

TABLE 1.—Distribution of Cases

No. of Ward or Nursery	No. of Cases of			Total Cases
	Pemphigus Neonatorum	Staphylococcal Conjunctivitis	Pemphigus Neonatorum + Staphylococcal Conjunctivitis	
2	4	—	—	4
6A	3	—	—	3
7	3	—	1	4
8/9	25	4	—	29
10	73	17	3	93
14	1	—	—	1
Totals.	107	21	4	132

that all 21 cases of staphylococcal conjunctivitis and three of the four cases of combined pemphigus and staphylococcal conjunctivitis occurred in Wards 8 and 9 and Nursery 10. As over 70% of the cases were among infants in this nursery the epidemiological investigations carried out were centred round it.

The present investigation began when three cases of pemphigus occurring in Nursery 10 were reported to the laboratory during the first week of November, 1943, and the unit was visited to take specimens for bacteriological examination. During the two succeeding weeks five further cases of pemphigus developed in this nursery, and as serological methods of identifying the infecting strains of *Staph. pyogenes* had already proved successful in tracing the source of a small outbreak of pemphigus neonatorum in a private nursing home it was decided to widen the scope of the inquiry in order to discover the source of infection and the mode of spread.

#### Investigations and Results

Coagulase-positive staphylococci, usually in pure culture, were isolated from the lesion of every case investigated, including both pemphigus and "sticky eye." Swabs from the lesions of many cases were examined on repeated occasions, and in infants with multiple lesions sometimes several swabs were taken from different infected areas of the body. All the strains were subjected to serological examination, and the infecting organism was typed in all but one of the 132 cases.

#### Distribution of Serological Types in the Lesions of Infected Infants

Fig. 1 shows the distribution month by month of the serological types of *Staph. pyogenes* isolated from all the cases in the maternity unit during the period of investigation. The total number of infants born in the maternity unit month by month during the period is also shown, and varied from 84 to 144, with a mean of 113.7. The number of cases of pemphigus and staphylococcal conjunctivitis per month varied from 0 to 22, with a mean of 5.5. In broad outline the chart shows a small sharp outbreak due to *Staph. pyogenes* type I which occurred early in November, 1943 (8 cases: 6 type I). This was followed by an outbreak due to type Ib which began in January, 1944, and continued with varying intermissions and recrudescences until May, 1945 (119 cases: 101 type Ib). Following an intermission of three months during which no cases occurred, there were indications of a third outbreak starting early in October, 1945 (5 cases: 4 type I), just as the investigation had to be terminated.

The first outbreak involved eight infants, all in Nursery 10, who were infected over a period of two weeks in November, 1943. *Staph. pyogenes* type I was isolated from the lesion of six infants; of the remaining two, one was infected with *Staph.*

*pyogenes* type I/II and the other with type IIIc. The latter infant was later reported to have been discharged from the unit with no evidence of pemphigus and to have been brought back one week later suffering from pemphigus and staphylococcal conjunctivitis. Type IIIc was also isolated from pus from the infected eyes and from the nose. During December no cases

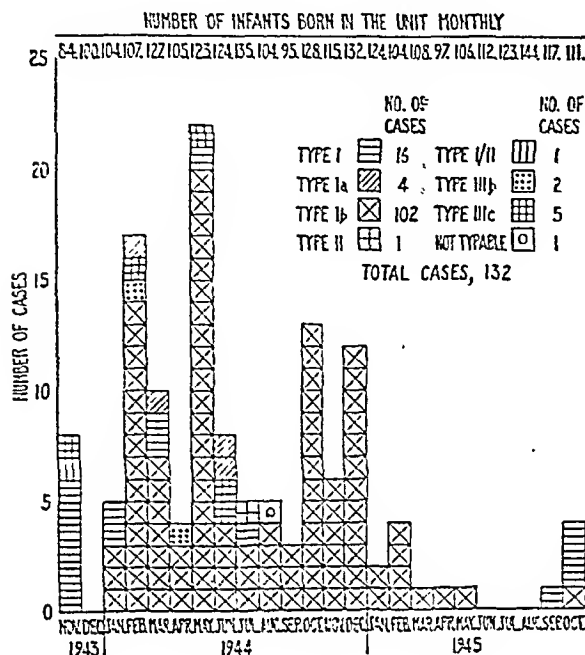


FIG. 1.—The serological types of *Staph. pyogenes* causing pemphigus neonatorum and staphylococcal conjunctivitis among infants in a large maternity unit month by month from November, 1943, to October, 1945.

of pemphigus occurred, but in January, 1944, there were five cases, in two of which infection was due to *Staph. pyogenes* type I. From the three remaining cases *Staph. pyogenes* type Ib was isolated, and this type became the prevailing cause of pemphigus neonatorum in the unit during the remainder of the period of investigation. In February there were ten cases of pemphigus, all due to type Ib, and seven cases of staphylococcal conjunctivitis, of which four were caused by type Ib. During March no cases of pemphigus occurred in Nursery 10, but there were seven cases of staphylococcal conjunctivitis, of which four were due to type Ib, two to type I, and one to type Ia. A sharp rise in the incidence of pemphigus took place in May, mainly affecting Nursery 10 in which 21 cases occurred, 20 due to type Ib and one to type I. The one case of staphylococcal conjunctivitis in May was due to type IIIc. Following this outbreak in May, Nursery 10 was closed for a few days at the beginning of July and was thoroughly washed and cleansed. The nursery was reopened under less crowded conditions and there were no further cases of pemphigus in it in July, but six occurred during August and September, all due to type Ib. A further rise in incidence in this nursery took place between October and December, when type Ib caused 17 cases of pemphigus, one case of pemphigus and conjunctivitis, and two cases of conjunctivitis alone. The next five months produced nine cases, all due to type Ib, of which seven occurred in Nursery 10; but no more cases of staphylococcal conjunctivitis were observed up to the end of the investigation. There were no cases of pemphigus during June, July, and August, 1945, but in September there was one case due to type I. When the investigation was terminated in October there had been three more cases in Nursery 10 all due to type I.

Table II gives the numbers of cases of pemphigus and staphylococcal conjunctivitis which occurred throughout the investigation in the various nurseries and wards, and also shows the type distribution of the strains of *Staph. pyogenes* isolated from the lesions. It demonstrates, as already pointed out, that

TABLE II.—Distribution of Serological Types of *Staph. pyogenes*

No. of Ward or Nursery	Illness	Serological Type								Total
		I	Ia	Ib	II	I/II	IIIb	IIIc	Not Typed	
2	P	2	1	1	—	—	—	—	—	4
6A	P	—	1	1	—	—	—	—	—	2
7	P	P	—	—	—	—	—	—	—	2
		C	—	—	—	—	—	—	—	
8,9	P	P	—	1	—	—	—	—	—	1
		C	—	23	—	—	—	—	—	
10	P	P	1	3	—	—	—	—	—	25
		C	—	3	—	—	—	—	—	
14	P	P	10	59	1	—	—	—	—	73
		C	3	9	—	2	—	—	—	
14	P	P	—	2	—	—	1	—	—	3
		C	—	1	—	—	—	—	—	
All	P	P	13	67	1	—	2	1	—	107
		C	3	12	—	2	1	—	—	
Total		P	16	102	1	1	2	5	1	132
		C	4	3	—	—	—	—	—	

P = Pemphigus neonatorum. C = Staphylococcal conjunctivitis.

type Ib, isolated from 102 (77.3%) of the 132 cases, was responsible for the great majority of the infections. It may also be noted that 73 (68.2%) of 107 cases of pemphigus and 17 out of 21 cases of staphylococcal conjunctivitis occurred in Nursery 10; between 50 and 60% of the infants born in the unit occupied Nursery 10.

#### Staphylococcal Conjunctivitis

A study of Table II shows that 87 (81.3%) out of 107 cases of pemphigus were caused by type Ib, and only 12 (57.1%) out of 21 cases of staphylococcal conjunctivitis were due to the same type; three out of four cases of combined pemphigus and conjunctivitis were due to type Ib. It would appear, therefore, that in an outbreak of pemphigus due to a particular serological type of *Staph. pyogenes* associated cases of conjunctivitis due to the epidemic type may occur, but there may also arise sporadic cases of conjunctivitis due to other serological types of *Staph. pyogenes* not prevalent as the cause of pemphigus, or indeed in the absence of pemphigus.

Swabs were taken from both eye and nose of nine cases of conjunctivitis, and seven showed the same type in eye and nose, the types being different in the remaining two. Swabs from four patients with coincident pemphigus and conjunctivitis yielded the same type from eye and lesion in each case, and in two cases from which nasal swabs were also taken the infecting type was found in the nose as well. When pemphigus and conjunctivitis occurred in the same patient, therefore, the double infection was caused by the same serological type of *Staph. pyogenes*. Also when conjunctivitis alone occurred the same type of *Staph. pyogenes* was present in the infected eyes and in the nose of a high proportion of cases.

#### Serological Types of *Staph. pyogenes* Isolated from Nursery Staff

Swabs were taken from the noses, hands, and occasionally the throats of the nursery, domestic, and medical staffs of the unit three times during the course of the investigation (Table III). The first of these occasions was in November, 1943, two days after starting the investigation of the first outbreak of pemphigus neonatorum in Nursery 10. Nose, throat, and hand swabs were taken from 15 members of the medical and nursing staff of the infants' nursery, and 10 (66.7%) were found to be harbouring *Staph. pyogenes* in one or more of the three sites. Four carried the epidemic type I, two harboured type IIIb, two type IIIc, and one each types Ia and Ib, all in the nose. *Staph. pyogenes* was isolated from the hands of seven members of the nursing staff, and all the strains belonged to the same serological types as were present in the noses of the individuals.

The second swabbing of the staff took place in February, 1944, when cases in the second outbreak due to *Staph. pyogenes* type Ib were increasing in number. Fig. 1 shows that the peak of this outbreak was reached in May, 1944. Nose, throat, and hand swabs were taken from 40 persons, including doctors, sisters, nurses, pupil midwives, and ward cleaners—the entire

TABLE III.—Summary of Results of Serological Examination of *Staphylococcus pyogenes* isolated from Infants and their Environment in Nursery 10 during Three Consecutive Outbreaks of Pemphigus Neonatorum (1943-5)

Source of Specimens	1st Outbreak— <i>Staph. pyogenes</i> Type I			2nd Outbreak— <i>Staph. pyogenes</i> Type Ib			3rd Outbreak— <i>Staph. pyogenes</i> Type I		
	Total Examined	No. showing		Total Examined	No. showing		Total Examined	No. showing	
		<i>Staph. pyo.</i>	<i>Staph. pyo.</i> Type I		<i>Staph. pyo.</i>	<i>Staph. pyo.</i> Type Ib		<i>Staph. pyo.</i>	<i>Staph. pyo.</i> Type I
Infants with pemphigus									
Lesion ..	7	7	6	56	56	52	3	3	3
Nose ..	7	7	6	56	51	29	3	2	2
Eye ..	6	4	3	56	46	30	3	3	2
Infants with conjunctivitis									
Eye ..	—	—	—	20	20	11	—	—	—
Healthy infants									
Nose ..	32	28 (87.5%)	11 (34.4%)	—	—	—	18	11 (61.1%)	2
Nursery staff									
Nose ..	15*	10 (66.7%)	4 (26.7%)	40†	29 (72.5%)	12 (30%)	48‡	33 (68.8%)	18 (37.5%)
Hands ..	15	7	4	40	11	6	48	10	5
Mothers									
Nose ..	5	2	2	—	—	—	3	3	1
Milk ..	4	2	1	—	—	—	—	—	—
Skin ..	2	1	1	—	—	—	—	—	—
Nursery dust		Present	28% of 18 colonies	—	—	—	—	—	—
Nursery air			Present	—	—	—	—	Present	Present
Blankets and gowns	8	6	1	—	—	—	—	—	—

\* One nurse (6.7%) harboured *Staph. pyogenes* type Ib in her nose. † Two nurses (5.0%) harboured *Staph. pyogenes* type I in the nose. ‡ Two nurses (4.2%) harboured *Staph. pyogenes* type Ib in the nose.

staff of wards and Nurseries 8, 9, 10, and 11. It appeared that most of the junior nursing staff had altered since the previous swabbing in November, 1943, as a regular change-over of pupil midwives took place every three months. Of 40 persons 29 (72.5%) harboured *Staph. pyogenes*; 28 of these were nasal carriers and one had a positive throat culture only. The epidemic strain, type Ib, was harboured by 12 persons (30%), type Ia by six persons, types IIIa and IIIb by three persons each, type I (5%) by two persons, type IIc by one person, while two persons carried unidentified types. Ten members of the staff had *Staph. pyogenes* in both nose and throat, and in eight the organisms in both sites were of the same type. Eleven persons showed *Staph. pyogenes* both in the nose and on the hands, and in nine instances the types were the same in both sites.

It was apparent that the percentage of the staff harbouring the first epidemic strain, type I, had declined from 26.7% to 5%, and that the second epidemic, type Ib, was now prevalent to a degree (30%) shown formerly by type I; in the first swabbing type Ib was found present in the nose of only one nurse (6.7%). These findings suggested that a high carrier rate among the staff of an infective strain of *Staph. pyogenes* would render the infant population of a nursery highly exposed to infection by that strain, and be followed by the appearance of clinical cases of pemphigus neonatorum and of staphylococcal conjunctivitis. An opportunity to test this hypothesis was provided by the occurrence of a small number of cases of pemphigus due to *Staph. pyogenes* type I in September and October, 1945. Following three isolated cases caused by type Ib in March, April, and May there had been a lull in the incidence of pemphigus throughout the unit during June, July, and August. Alterations in the technique of routine procedures that may have been responsible for this decline in cases are described in a later section. At the beginning of October, 1945, nasal and hand swabs were taken from 48 members of the maternity staff, more than half of whom were pupil midwives who had recently joined the staff and had not been swabbed previously; 33 (68.8%) were found to be harbouring *Staph. pyogenes* in the nose and 10 on the hands. Eighteen of the nasal carriers carried type I, eight harboured type IIIb, three type I/II, two type Ib, and two type II. Again the most prevalent type present in the noses of the staff was that giving rise to the fresh cases of pemphigus in the nursery. Of the total staff 18 (37.5%) harboured type I, and only two individuals (4.2%) carried type Ib, which had been responsible for cases throughout 1944 and the early part of 1945 and which was present in the noses of 30% of the staff in February, 1944. The first two swabbings of the staff had been carried out during the height of outbreaks of pemphigus, and it was impossible to decide whether the high nasal carrier rate of the epidemic strain was a cause or a consequence of the outbreak. The third swabbing, however, was carried out after a case due to a different type had occurred, following a period of three months during which there had been no cases of pemphigus or staphylococcal conjunctivitis. The presence of a high proportion of

nasal carriers of the infecting type among the staff at this early stage strongly suggests that a build-up of nasal carriers of a potentially infective strain occurs among the staff before the appearance of cases of pemphigus.

Twelve members of the nursery staff were swabbed on two or more occasions. Nasal swabs from five either showed non-epidemic types of *Staph. pyogenes* or were negative. Of the remaining seven, four harboured the prevalent epidemic type once, while the remaining three yielded the prevalent epidemic type each time they were swabbed. The numbers are too small for any deductions to be drawn regarding the frequency of change of serological type of *Staph. pyogenes* in the nose in relation to the prevalent epidemic type.

#### *Staph. pyogenes* in Noses of Healthy Infants in the Infected Nursery

In addition to swabbing the staff, nasal swabs were taken from all the healthy infants in Nursery 10 on two occasions (Table III). First in November, 1943, at the time of the outbreak due to *Staph. pyogenes* type I, nasal swabs were taken from 32 healthy infants in the nursery; 28 (87.5%) were found to be harbouring *Staph. pyogenes* and 11 (34.4%) carried the epidemic type I and were free from clinical infection. Type Ia was isolated from six infants, type Ib from three infants, and type II from two infants, while 13 strains could not at that time be typed. Seven of the infants harboured more than one serological type of *Staph. pyogenes*. The infants harbouring type I were scattered throughout the nursery and there was no concentration of infants in neighbouring cots showing the same serological type in their noses.

When, in October, 1945, after a period of three months' freedom from infection, cases of pemphigus due to *Staph. pyogenes* type I began to appear in Nursery 10, nasal swabs were again taken from all of 18 infants in the nursery. Swabs from five of the infants, ranging in age from 5 hours to 2 days, failed to yield staphylococci; of the remaining 13 infants, aged from 4 days to 2 months, 11 (61.1%) were heavy carriers of *Staph. pyogenes*. The types were fairly evenly distributed, no single type being predominant, and the high nasal carrier rate of type I among the staff was not at this stage present among the infants.

#### *Staph. pyogenes* in the Nursery Air and Dust

Blood-agar plates were exposed in Nursery 10 on two occasions—first during the outbreak of pemphigus in November, 1943, and again in October, 1945. On the first occasion five plates were exposed at cot level in different parts of the nursery from 2 to 5 a.m. and a second series from 7 to 10 a.m., periods of least and greatest activity respectively in the nursery. A total of approximately 3,000 colonies, representing bacteria-containing particles, were counted on plates exposed from 2 to 5 a.m. Plates exposed from 7 to 10 a.m. were too overcrowded for counting. The organisms on the plates were predominantly saprophytic cocci and bacilli, but *Staph. pyogenes* was present in small numbers. Of three colonies of *Staph.*

*pyogenes* subcultured for examination two were identified as type I. The second exposure of plates in the nursery in October, 1945, yielded approximately 2,000 colonies during the early morning period and approximately 10,000 colonies during the active period between 7 and 10 a.m. Again *Staph. pyogenes* was present only in small numbers, but type I, which was at that time the cause of pemphigus, was identified on plates from four different sites.

It was evident, therefore, that the epidemic strain of *Staph. pyogenes* was present in the ward air during both periods of exposure, but it was not possible from these investigations to estimate to what degree, although it appeared to be low.

Two samples of dust from the floor of Nursery 10 were examined in November, 1943. The samples were collected into sterile jars from the routine morning sweepings. Cultures yielded large numbers of organisms, mainly saprophytic; but *Staph. pyogenes* was present in considerable numbers in one sample, while the other yielded scanty colonies. Of 18 colonies of *Staph. pyogenes* examined serologically five were identified as type I, four as type IIIc, one as type Ib, while the remaining eight could not be typed. The epidemic type I therefore represented 28% of a random sampling of *Staph. pyogenes* in the floor dust of the nursery; the remaining identified strains belonged to types which were found in the noses of members of the nursery staff and of healthy infants in the nursery.

#### *Staph. pyogenes* in Infants' Blankets and Gowns

*Staph. pyogenes* was isolated from five out of six blankets from cots in Nursery 10 in November, 1943; type I was found on one blanket and types Ib, II, IIIb, and IIIc on the others. One blanket was re-examined after laundering, and *Staph. pyogenes* type I was isolated from nutrient broth in which part of the blanket had been soaked and also by shaking the blanket over exposed blood-agar plates. Two flannel gowns belonging to infants in Nursery 10 were examined after laundering; one gown yielded *Staph. pyogenes* type IIIb and an untypable strain, while no staphylococci were isolated from the other.

Table III gives a summary of the results of examinations of cultures from material taken in relation to the three outbreaks of pemphigus neonatorum in Nursery 10. It shows the regularity with which the epidemic types were found in the noses of a high percentage of the nursery staff, and elsewhere in the infants' environment, and suggests that widespread distribution of an infecting strain in the nursery environment may bear a causal relationship to the onset of an outbreak. Members of the staff swabbed during the second and third outbreaks included those engaged on nursing duties in other nurseries and wards of the unit, especially Ward and Nursery 8/9, in which 23 out of 24 cases of pemphigus and three out of four cases of staphylococcal conjunctivitis were caused by *Staph. pyogenes* type Ib.

#### Distribution of Infecting Types of *Staph. pyogenes* in Eye, Nose, and Umbilicus of Infected Infants

During the course of the investigation swabs were taken from 102 of the 111 cases of pemphigus neonatorum, not only from the lesions but also from other sites on the body, including the nose, eye, and umbilicus. Table IV shows the numbers of

TABLE IV.—Correlation Between Serological Types of *Staphylococcus pyogenes* Isolated from the Lesion, Eye, Nose, and Umbilicus of Cases of Pemphigus Neonatorum (Total Number of Cases Examined—102)

Sites	No. of Cases Examined	Same Serological Types		Different Serological Types	
		No.	%	No.	%
Lesion and nose ..	102	75	73.5	27	26.5
Lesion and eye ..	91	64	70.3	27	29.7
Lesion and umbilicus	19	15	78.9	4	21.1
Lesion, eye, and nose	91	55	60.4	36	39.6
Lesion, eye, nose, and umbilicus	16	5	31.2	11	68.8

cases from which the various combinations of swabs were taken and the numbers and percentages of cases in which strains of

*Staph. pyogenes* were serologically identical or of different serological types. In general it was found that there was a remarkably high association between the serological types of *Staph. pyogenes* present in lesion and nose, lesion and eye, and lesion and umbilicus, with a lower but still notable association between the types when more than one site was swabbed in addition to the lesion. Findings, already quoted, indicated the ubiquity of the infecting strain in the infants' environment, and these figures show that the wide dispersal extends also to the infants' healthy skin, upper air-passages, and exposed mucous surfaces such as the conjunctivae.

#### Serological Types of *Staph. pyogenes* Isolated from Mothers of Infected Infants

Apart from the nursery staff, consisting of doctors, nurses, and ward-maids, the only persons with whom the infants came into contact were the mothers, during breast-feeding. It was therefore decided to investigate serologically the staphylococcal flora of a number of mothers as a potential and intimate source of infection.

Swabs from the nose, throat, and in a few cases samples of the breast milk were taken from mothers of infected infants to see what relationship, if any, the serological types of *Staph. pyogenes* isolated from the mother bore to the type isolated from the infant. Swabs from the infants were taken from the lesion and from some or all of the following sites—nose, eye, and umbilicus. Table V shows the results of the examination

TABLE V.—To Show the Relationship Between Serological Types of *Staphylococcus pyogenes* Isolated from Infants with Pemphigus Neonatorum and from their Mothers

No	Name	Serological Types of <i>Staph. pyogenes</i> Isolated from					
		Lesion	Eye	Umbilicus	Nose	Throat	Breast Milk
1	Mrs. Cl. Baby Cl.	I			I IIIb, IIIc	—	IIIb
2	Mrs. Wo. Baby Wo.	I/II	I II		I, II, I	—	—
3	Mrs. Co. Baby Co.	I	I		I	—	I
4	Mrs. Jo. Baby Jo.	I*	I		I	I	—
5	Mrs. Je. Baby Je.	I	I		I	—	—
6	Mrs. Cr. Baby Cr.	I	Ib	Ib	Ib I, Ib	Ib	Ib
7	Mrs. Pe. Baby Pe.	Ib	Ib	IIIc	Ib, Ia Ia	Ia	Ia
8	Mrs. Ba. Baby Ba.	Ib	Ib	Ib, IIIc	Ib, Ia	—	—
9	Mrs. de H. Baby de H.	Ib	Ib	Ib	I II I	—	—
10	Mrs. Wi. Baby Wi.	I		—	IIIc II	—	—
11	Mrs. Mo. Baby Mo.	Ib	I	Ib	IIIb —	—	IIIb
12	Mrs. O'D. Baby O'D.	Ib	Ib	—	Ib, I Ib	—	—
13	Mrs. Pi. Baby Pi.	Ib†	Ib		IIIc Ib, I	I	I
14	Mrs. Ph. Baby Ph.	Ib	Ia	—	Ia Ia	Ia	Ia
15	Mrs. Bi. Baby Bi.	Ib	Ib, Ia	Ib, Ia	Ia Ib	—	—

\* Septic finger occurring after infection in her infant.

† Small septic lesion on breast following infection in her infant.

of strains of *Staph. pyogenes* isolated from 15 infected infants and from their mothers. In only six instances—viz., Nos. 1, 3, 4, 10, 13, and 14—was the serological type of *Staph. pyogenes* causing the infection in the infant also isolated from the mother; five of the six mothers harboured the organism in the nose, and in one (Mrs. Co., No. 3) it was found only in the breast milk. In the case of Mrs. Jo. (No. 4) the organism was isolated from the nose, the throat, and from a septic finger which occurred after her infant became infected with pemphigus, so it seems likely that she was infected by her infant. A similar explanation may account for the septic lesion in the breast of Mrs. Pi. (No. 13). If these two are eliminated, or even if not, the correlation of infecting strains in mother and infant is low. These findings, taken in conjunction with the results of the bacteriological investigations in Nursery 10, lend weight to the view that infection was spread in the nursery and was not transmitted to the infants by their mothers.

### Discussion

The results of the serological identification of strains of *Staph. pyogenes* isolated from the lesions of 132 cases of pemphigus neonatorum and staphylococcal conjunctivitis occurring in a large maternity unit over a period of two years show that there were three separate outbreaks, each due to a distinct serological type of *Staph. pyogenes*. The organisms causing the outbreaks were isolated not only from lesions but also from the eyes and noses of a large proportion of infected infants, from the noses of healthy infants in the same nursery, and from the noses of a large proportion of the staff. During one outbreak the epidemic type was also isolated from air, dust, bedclothes, and infants' gowns in the nursery. It was evident, therefore, that the epidemic types were widespread in the infants' environment, and the results of different surveys of staphylococcal types found showed that this high concentration of the epidemic type in the noses of the nursery staff was present not only at the height of an outbreak but also in the early stages of an epidemic.

It is accepted that the main reservoir of *Staph. pyogenes* is the upper respiratory tract of man, in particular the nasal passages; but the organisms may also be present on the skin of a considerable proportion of the population (Gillespie, Devenish, and Cowan, 1939; McFarlan, 1942), and higher carrier rates were found among hospital in-patients and nurses than among the general population (Miles, Williams, and Clayton-Cooper, 1944). In the present investigation 72 (70%) of 103 members of the staff swabbed on three different occasions were carrying *Staph. pyogenes* in the nose, and in 34 instances (33%) the strains isolated belonged to the epidemic type; 28 members of the staff who harboured *Staph. pyogenes* in the nose were also hand-carriers, and in 15 instances the strains cultured from the skin were identified as the epidemic type. No hand-carriers of *Staph. pyogenes* were found among the 31 members of the staff whose nasal swabs were also negative. There was therefore confirmation of the close association between nasal carriage and skin carriage of *Staph. pyogenes*. The high percentage of the staff found to be carrying the epidemic types was probably not an accidental congregation of persons harbouring those types, but more likely a gradual build-up of infection by a strain possessing the ability to implant itself and multiply in the nose when spread from person to person.

The possible sources of infection of the infant with *Staph. pyogenes* are those who come into contact with it, either directly or indirectly, and include mother, doctor, nurse, ward-maid, and laundress. The mother may infect her own infant during breast-feeding, but the evidence shows that the spread of infection takes place in the nursery. The contacts between doctor and infant after it has been born are in general irregular and transitory, and there is little or no evidence that he plays any part in the spread of infection. The same conclusion applies to the ward-maid, whose presence in the ward is of short duration with only indirect, if any, contact with the infants. The laundry is a potential source of infection, either through failure to rid blankets and infants' gowns and napkins of staphylococci or by infection during handling. The nurse is in regular and intimate contact with the infants, especially during toilet and hygiene, and the evidence suggests that she is the most important factor in the spread of infection. This evidence is based on the epidemiological, bacteriological, and serological findings, and as a result of visits to different maternity units and nursing homes in order to watch the procedure and technique of infant hygiene and nursing.

The possible paths of spread of infection are represented in Fig. 2, which shows infection spreading from the adult nose at the centre via hand, fomites, air, and dust to the infant's skin, nose, and eye at the periphery. In the present investigation *Staph. pyogenes* has been found to be so ubiquitous in the infants' environment that no precise conclusions could be drawn regarding the mode of spread. The serological types of *Staph. pyogenes* which were the cause of the outbreaks were isolated in cultures on repeated occasions from the sources shown in the centre and radii of the diagram, although infection of dust and air appeared to be low. The most probable path is via the nose and hands of the midwife or nurse to the infant's skin, but the infant's communal bath and towel also probably play an important part in the transmission of infection.

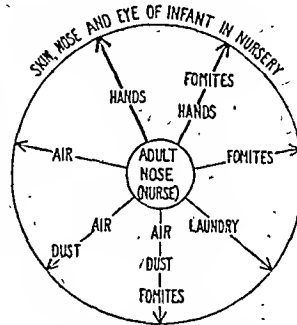


FIG. 2.—Potential paths of spread of infection in nurseries outbreaks of pemphigus neonatorum and conjunctivitis.

Knowledge of the possible paths of spread of infection alone will not suffice as a basis for the prevention or control of outbreaks of infection. Factors which facilitate the spread of infection must also be considered and steps taken to eliminate them. During visits to several maternity units and nursing homes in which outbreaks of pemphigus neonatorum had occurred, many such factors were noted. One of the chief among these was overcrowding and bad spacing of cradles or cots: in one large nursery capable of accommodating a maximum of 18, allowing a minimum of 25 sq. ft. (2.3 sq. metres) per cot, there were 18 infants. Insufficient ventilation and light, partly due to black-out conditions and the building of anti-blast walls were also noted as undesirable factors. In most of the units visited the wards and nurseries were cleaned by dry dusting, a practice which was immediately altered when attention was drawn to it. Associated with the overcrowding of nurseries the nursing staff was often inadequate, and too much of the toilet and hygiene of the infants had to be carried out by pupil midwives insufficiently supervised and still in an early stage of training with little or no knowledge of the nature of infection and modes of transmission. Other points facilitating the transmission of infection noted in different hospitals were: the communal changing-table covered with a towel on which infants were placed in turn; failure to disinfect the bath after use for each infant; failure to wash the hands before and after attending to an infant; toilet requisites handled by different nurses and used in common for all infants in the nursery. Masks were employed in all the maternity units and nursing homes visited, but in one large maternity unit masks were often worn covering the mouth only, leaving the nose exposed.

Until more precise knowledge is available of the path by which staphylococcal infections are spread in nurseries it is justifiable to recommend measures to prevent and control outbreaks covering a wider range than may later be found necessary. Benians (1943) showed that the mere closure of a ward in which an outbreak had occurred followed by cleansing and airing, was ineffective in terminating an outbreak, as fresh cases began to appear within three days of reopening the ward. It has also been pointed out by Elliott, Gillespie, and Holland (1941) that the use of masks, gowns, and rubber gloves alone did not have an observable effect on the spread of infection. Most of the



factors already noted as facilitating the occurrence and spread of infection suggest the obvious remedies—avoidance of overcrowding, adequate ventilation and natural light, a proper proportion of trained and untrained nursing staff with more supervision of the latter, and early training in the nature, sources, paths of transmission, and methods of prevention and control of hospital infections.

The ward or nursery should be cleaned by vacuum cleaner or by damp dusting. The infant's bath should be thoroughly disinfected either with undiluted lysol (M.R.C., 1941) or with 1% C.T.A.B. (Barnes, 1942) and washed after use by each infant, and well rinsed before again being used. So far as practicable a separate toilet outfit should be reserved for each infant, including the towel on which it is placed after its bath, if different from that with which it is dried. Consideration should be given to the changing of infants in their cots instead of on a communal changing-table, as is the practice in many maternity units, while the crib bath in an individual bath blanket has much to recommend it.

No member of the nursery staff—medical, nursing, or cleaning—should go on duty or enter the nursery if suffering from any acute upper respiratory infection or skin sepsis. Efficient masks covering both mouth and nose should be worn by all staff when in the nursery. Masks should be changed frequently, as they may become moist, rendering them inefficient and unpleasant to wear. The nurse's hands should be washed in soap and water and dried either with destructible tissue towels, which are again on the market, or on her own towel immediately before and after attending to an infant, and especially after every use of the handkerchief. Hamburger and Green (1946) have pointed out the importance of nose-blowing in the expulsion of *Staph. pyogenes* by nasal carriers, with infection of the hands and transfer from hands to secondary environmental reservoirs, such as clothing, bedding, towels, etc. This may be an important factor in the infant nursery as a source and mode of spread of staphylococcal infection, in view of the high percentage of persons in a semi-closed community, such as a hospital, who harbour *Staph. pyogenes* in the nose.

Members of the nursery staff who are aware that they are heavy nasal or skin carriers of *Staph. pyogenes* should be most meticulous in observing preventive measures even in the absence of staphylococcal infection in the nursery. Attempts to clear profuse nasal carriers of *Staph. pyogenes* with sulphathiazole snuff or ointment have not had the hoped-for success, but the application of penicillin ointment to the nostrils two or three times daily and sniffed in, recommended by Hobbs, Carruthers, and Gough (1947) as an adjunct to the treatment of sycosis barbae, may be more effective.

The numerous administrative and technical procedures necessary to prevent and control the spread of infection among infants in large nurseries in maternity hospitals—procedures which in many instances are not possible or practicable—give rise to consideration of the question whether the large infant nursery should not eventually be discarded in favour of the mother and infant being nursed together in a cubicle or in small wards. Apart from the respiratory and intestinal infections to which the newborn infant is so highly susceptible, it would not be exposed to the high concentration of infection which develops in a nursery in the earliest stages of an outbreak of pemphigus neonatorum, and the number of contacts, direct and indirect, would be very considerably reduced. The primipara, moreover, would have more opportunity for guidance and practice in the feeding, toilet, and hygiene of her infant. In any event the prevention and control of infection should be based on high standards of nursing technique and infant

hygiene as exemplified in Medical Research Council War Memorandum No. 11 (1944).

### Summary

An outbreak of pemphigus neonatorum and staphylococcal conjunctivitis affecting 132 infants in a large maternity unit over a period of two years is described.

Serological identification of strains of *Staph. pyogenes* isolated from the lesions of all the cases showed that there were three outbreaks, each due to a distinct serological type of the organism; there were also a small number of sporadic cases due to different serological types of *Staph. pyogenes*.

Investigations in one large nursery in which 93 of the cases occurred showed that the infecting strain was widespread in the infants' environment, and was isolated from the noses of a high proportion of the nursing staff, from the noses of healthy infants, from blankets and gowns, and from dust and air in the nursery.

The findings indicate that the infants were infected in the nursery and not from their mothers.

The evidence suggests that the main reservoir of infection was the nasal passages of the nursing staff, whence infection was spread to the infants, probably via the hands.

Recommendations are made for the prevention and control of staphylococcal infection in infant nurseries.

We gratefully acknowledge the facilities afforded to us for these investigations by Dr. John Jones, City Lodge Hospital, Cardiff, and the willing and valuable co-operation of Dr. Olwen Williams, Sisters Friday and Davies, and the staff of the maternity unit. We also obtained much valuable help and information from several other maternity units and private nursing homes.

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There are now 12,000 industrial canteens known to the Chief Inspector of Factories, and more than half of these are in factories employing fewer than 250 workers. The Industrial Welfare Society has produced an illustrated brochure (4s. 6d. post free) entitled *Canteens in Industry*, which takes the form of a guide to the planning and management of these enterprises. It was first published at the beginning of the war and has now reached its sixth edition, incorporating a large amount of wartime experience. Suggestions are made concerning site, accommodation, lay-out, internal construction, lighting, heating, ventilation, furnishing, and colour scheme. There is a chapter on food and diet in which a number of useful hints are given, as, for example, the great food value of oily fish, such as the herring and mackerel; the need for making soups a substantial dish, of nourishing quality and distinctive flavour; the help of the friendly and filling dumpling; other accessories in making the available meat go; popularization of vegetables, especially the lesser value of salads, particularly if they include ingredient such as a good portion of potato or as an alternative to sweets; and also the value of supplementing minerals and vitamins.

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# GALL-BLADDER COMPLICATIONS FOLLOWING RESECTION OF STOMACH FOR PEPTIC ULCER\*

BY

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Abnormal conditions in the upper abdomen which may occur after resection of the stomach for peptic ulcer may be considered under several heads. A detailed investigation into the occurrence and frequency of gastro-jejunal ulcers would be outside the scope of this paper. Occasionally, during the past five years, we have observed severe haemorrhage following gastric resection, but on no occasion was there demonstrable radiological evidence of ulcer. It was noted that the patients rarely complained of pain. Symptoms arising from internal strangulation of the small intestine by abnormal hernial rings are less frequent (for literature, see Suren, 1941).

Of common occurrence are less serious complaints, often of a temporary nature, as observed by Wangenstein (1944). He did not encounter serious disorders or anastomotic ulcers. Poor appetite and a feeling of satiety are common, especially after partaking of liquid food. It would be incorrect to ascribe these phenomena to over-filling of a stomach of reduced capacity; for most radiologists are acquainted with the rapid emptying which follows resection. A reasonable presumption would be that the liquid either fills the afferent loop of the anastomosis or interferes with the flow of pancreatic biliary juices from that loop. Symptoms may conceivably arise in this manner, and they can be anticipated and prevented by advising the patients to eat dry food. It is an outstanding fact that porridge and milk no longer agree with patients who, prior to operation, had lived almost entirely on that diet. Frequently there is an aversion to fatty foods. Finally, some patients are troubled in the early post-operative period by regurgitation of bilious fluid. It is inferred from these findings that the downward flow of bile is impeded in resections of the Billroth-II type. In many instances the resulting complications are slight and of a temporary nature. They may, however, be serious.

Stolte (1942) carefully observed 333 cases of ulcer in the Department of Medicine of the "Onze Lieve Vrouwe" Hospital at Amsterdam. Of these 333 patients 83 had previously undergone gastric resection and 26 had had gastro-enterostomy. Stolte found that gastro-jejunal ulcer was a complication in eight of those resected and in ten of those with gastro-enterostomy. Further, 22 patients after resection and four after gastro-enterostomy continued to have symptoms; but in no case could gastro-jejunal ulcer be demonstrated with certainty. The number of patients with abdominal symptoms after operation on the stomach is remarkably large in this series. Their complaints were serious enough to warrant their admission to the medical clinic after they had been operated upon.

We are greatly impressed with the fact that in Stolte's series severe unaccountable symptoms following stomach

operations were more frequent than those arising from proved anastomotic ulcers, and that they were proportionately more frequent after resection than after gastro-enterostomy. Stolte does not state whether he examined the gall-bladder in investigating his series. One sees a similar picture in a review by Kingma (1939) of 65 cases of primary resection operated upon according to the Billroth II method for perforated ulcer. Severe symptoms persisted in six cases; but in only one was gastro-jejunal ulcer (repeated haemorrhage) the probable diagnosis. In the remaining five the diagnosis was uncertain; four of the patients complained of pain and three found that fat did not agree with them. No special attention was paid to the gall-bladder in this investigation.

During the past few years we have learned that severe symptoms occurring after gastric resection by the Polya-Balfour-Reichel type of operation are frequently caused by gallstones. We have not found this fact stated in the literature which we have studied, nor do Wangenstein, Stolte, or Kingma mention it as a possibility. The following case is noteworthy.

## An Illustrative Case

Mrs. B. (Case 1), aged 36, was admitted to hospital on April 20, 1943. She had suffered from symptoms referable to the stomach since she was 16. The symptoms had an obvious periodic incidence, and during two pregnancies they were entirely absent. Pain was mostly referred to the left side of the abdomen, was unrelated to the taking of food, and was manifest in attacks lasting for ten or fifteen minutes. The patient did not complain of heartburn, nor did she vomit. In 1938 the pain disappeared when she was given ambulatory treatment elsewhere. In 1942 there was a slight recurrence. Since the autumn of 1942 the patient was never really free from pain.

Nothing of note was discovered on general examination. Some not very dark bile was found on duodenal intubation and no cholesterol crystals were seen in the bile sediment. Test-meal findings showed: free HCl 15°; total acidity 20°. There were no abnormal findings in blood or urine. Radiological examination of stomach and duodenum revealed "kissing ulcers" of the duodenal bulb. After the oral administration of tetraiodo-phenolphthalein in fractions, two of 3 g., a fair-sized gall-bladder was observed, duly filled with dye and free from stones.

On May 5 partial gastrectomy of the Polya-Balfour-Reichel type was performed. The post-operative course was complicated by severe pulmonary embolism on the nineteenth post-operative day. This complication was confirmed by observing a pleural friction rub over the foremost part of the right lower lobe. On June 20 she was discharged from hospital.

On April 12, 1945, the patient reported sick again. After the operation she had remained symptom-free for six months, except for nausea after food. In November, 1943, she had a violent cramp-like pain in the epigastric region after drinking home-made liqueur. From October, 1944, the attacks of cramp became more frequent. The patient did not become jaundiced, nor did she notice any darkening of the urine. She vouchsafed the information that these attacks of pain were of more sudden onset and of greater severity than the pain experienced before the stomach operation. "It is not my stomach," were her words. The pain was localized to the left subcostal region and did not radiate. Physical examination was negative; the blood and urine were normal. The previous operation rendered duodenal intubation impracticable. Radiography of the gall-bladder, using "biliselectan," revealed that it did not fill. A diagnosis of gallstones was made.

Cholecystectomy was performed on April 13. The gall-bladder contained thick bile and more than a thousand small stones of varying sizes. The post-operative course was complicated by slight infiltration of the right lower lobe, which responded to sulphathiazole. On May 2 the patient was discharged from hospital, and when she reported for medical inspection on Jan. 21, 1946, was in excellent condition and

\*This paper is dedicated to our friends and colleagues of the Expeditionary Force serving in the neighbourhood of Roosendaal in the winter of 1944-5.

free from pain. Milk and milk puddings do not agree with her, but she tolerates all other foods, even fatty ones.

We are reasonably certain that the gall-bladder was normal at the time of the partial gastrectomy. The first symptoms, presumably due to the gall-bladder, appeared six months after the operation, and one naturally surmises that there was some relationship between the resection and the development of cholelithiasis.

experienced before the operation. The history of Case 2 is less definite: the colicky pains which she had before her gall-bladder operation had certainly never occurred before the resection. All patients now complained of attacks of pain of short duration, recurring at intervals, sometimes long and irregular. The pain was often localized to the upper abdomen and on the left side. Slight transient jaundice occurred once only (Case 5).

TABLE I.—Details of Six Cases

Case	Age at Time of Resection	Sex	Date of Resection	Diagnosis of Ulcer based on	Type of Operation	Time between Stomach Resection and First Gallstone Complaints	Date and Findings of Gall-bladder Skiagram	(a) Date of Gall-bladder Operation (b) Time between Resection and Gall-bladder Operation	Findings at Operation
1 Mrs. B.	36	F.	5/5/43	Skiagram: two craters in duodenal bulb; gall-bladder normal	Polya-Balfour-Reichel. Affluent loop attached to greater curvature	6 months	12/4/45; not filled	(a) 13/4/45 (b) 23 months	Gallstones not to be felt at operation. After operation gall-bladder proves not to be inflamed. Thick bile with a good deal more than a thousand stones ranging in size from a pinhead to small mulberry stones
2 Miss C.	31	F.	29/12/41	Repeated stomach bleedings	" "	Some months	14/11/44 and 17/11/44; not filled	(a) 22/11/44 (b) 35 months	Chronic inflammation with stones; common duct somewhat wide. Many small mulberry-shaped stones in gall-bladder
3 C.N.A.	67	M.	20/9/43	Acute perforation of duodenal ulcer on 30/6/43	" "	18 months	30/5/45 and 31/5/45; slight filling. At bottom of gall-bladder many small stones clearly visible	(a) Not yet operated upon (b) Diagnosis made 20 months after resection	
4 A.v.B.	46	M.	July 1941; operation elsewhere	Long and typical case history. Heavy stomach bleeding; further data missing	Billroth II. Probably afferent loop attached to greater curvature	37 months	8/3/45 gall-bladder clearly visible. With patient in erect position, many stones visible, arranged in a horizontal layer in the mid-portion of the gall-bladder (swimming stones)	(a) 9/3/45 (b) 44 months	Gall-bladder not inflamed; conglomerates of mulberry-shaped stones
5 J.C.H.	40	M.	Sept., 1942	Skiagram: showed crater in duodenal bulb	Polya-Balfour-Reichel. Affluent loop as above	7 months	12/11/43; not filled	(a) 4/1/44 (b) 17 months	Gall-bladder not inflamed; mulberry-shaped stones
6 A.H.	30	M.	15/10/43	" "	" "	28 months	No skiagram	(a) 20/2/46 (b) 28 months	" "

TABLE II

	Column 1		Column 2		Column 3		Column 4	Column 5
	A. Number of Cases of Stomach Resection on Account of Ulcer	Hospital Mortality	B. Number of Cases of Gall-bladder Extirpation on Account of Stones or Inflammation Without Stones*	Hospital Mortality	C. Stomach Resection and Gall-bladder Extirpation done simultaneously	Hospital Mortality	Cases of Peptic Ulcer and Gallstones occurring simultaneously. For some Reason Only Stomach Resection carried out‡	Number of Cases of Gallstones perceived after Stomach Resection‡
1943 ..	68	0	45	1	0	0	—	—
1944 ..	40	0	44	0	3†	0	—	2
1945 ..	54	1	97	2	1	0	3	3‡
1946 .. (1st quarter)	7	0	29	0	1	0	0	1
Col. 3 .. ..	5		5					6
Total ..	174	1	220	3	5	0	3	

Mortality of all the cases of resection (A + C = 174 patients), 0.57%.

Mortality of all the cases of gall-bladder operation (B + C = 220 patients), 1.36%.

\* All the patients operated upon included (also bad cases with pancreatic necrosis and long-standing jaundice).

† Inclusive of one case of ulcer perforation in an otherwise normal gall-bladder.

‡ In one of these cases no operation so far.

§ Cases of this column are included in column 1 only.

|| Cases of column 5 are included in columns 1 and 2.

### Observations on Six Cases

Further observations are given in Table I. In none of these cases have we any exact knowledge of the state of the gall-bladder before stomach resection. There are, however, certain pointers to the improbability that any gallstones were present at the time of operation. Symptoms arose in all cases after periods of 6 to 37 months of freedom from pain. Patients Nos. 1, 3, 4, 5, and 6 said most decidedly that the nature of the pain was quite different from that

We can put forward important arguments (unpublished data) favouring the hypothesis that all gallstones, in our part of the country at any rate (i.e., North Brabant area of South Holland), originate as minute cholesterol particles, which aggregate to mulberry-shaped stones. All the stones found in our six patients belonged to these very young formations. This fact is in accordance with our supposition that these stones have originated only after the resection. That relief from pain followed cholecystectomy is very



strong evidence that the gallstones were the cause of symptoms in the five patients who were operated upon.

The diagnosis of cholelithiasis was entertained only after much hesitation in respect of our earliest patients. From Table I it appears that the gall-bladder was not visible in the skiagrams of three out of five photographed patients. Jaundice was always lacking at first. Further, after partial gastrectomy duodenal intubation (the findings of which manœuvre we consider valuable) is no longer applicable as an aid to diagnosis. At first we thought that the altered gastric properties, after gastrectomy, might interfere with the resorption of the contrast medium from the intestine. Later it became clear to us that oral cholecystography, even after gastrectomy, is a reliable procedure, and that a gall-bladder which is not filled—certainly after the examination is repeated—is strong evidence of the presence of gallstones. Sassen and Wijnen (personal communication) came to a similar conclusion when they examined radiologically the gall-bladders of a number of patients who had been operated upon by the Billroth II method. Normal filling of the gall-bladder was found in the great majority. These examinations were conducted for the purposes of information on patients without symptoms.

In order to estimate the incidence of gallstone formation following gastric resection we compare, in Table II, those cases observed after gastric resection with all gastrectomies for ulcer and all cholecystectomies performed for stones or inflammation in corresponding years. The first impression, no doubt, is that gallstones are so often encountered during operations for ulcer that their occurrence after a resection is a mere coincidence. The simultaneous occurrence of ulcer and gallstones was observed seven times (Table II, columns 3 and 4), although this association was not systematically sought for in 1943 and 1944. Gallstones following resection were observed only on six occasions. It is emphasized that the stones found together with ulcer were on four occasions of an old or very old type, and small cholesterol stones were present on three occasions. In this respect already the two series in Table II differ. The proportion of males to females also differs. The comparison is made in Table III.

TABLE III.—Incidence of Gallstones After Gastric Resection :  
the Sexes Compared

	Cases	Female	Male	Ratio
				F. : M.
Cholecystectomies on account of stones or inflammation	219	187	32	5.8 : 1
Resections on account of ulcer	174	30	144	1 : 4.8
Gallstones ascertained some months after resection for peptic ulcer	6	2	4	1 : 2
Gallstones found during resection for peptic ulcer	7	6	1	6 : 1

As in normal experience, there was a female preponderance in gall-bladder operations, and men had the larger share in stomach resections. In the group where stones were found at operation for ulcer the male/female ratio corresponds to that for the cholecystectomy group. In the group of gallstones following resection the male element predominates, approaching the male/female ratio for resections. Although our series is a small one and by no means conclusive there is presumptive evidence that in the condition of gallstones following resection for gastric ulcer the resection itself may play a part. The evidence becomes all the more certain when we bear in mind that of 32 males operated upon for gallstones in 3½ years three had already had resection of the stomach. (Our fourth male patient has not yet been operated upon and has not been included in this computation.) One out of ten males undergoing cholecystectomy had therefore had a previous stomach

operation. This high occurrence rate also suggests that the gastric resection may predispose to cholelithiasis. Nor can it be maintained that one male in ten in this part of Holland undergoes gastric resection.

### Discussion

There are five arguments in support of our view that resection of the stomach by the Billroth II technique may cause gallstones to develop: (1) the striking observation in the case of Mr. B.; (2) the evident discrepancy in the symptoms of our six patients (who developed gallstone complaints after resection) before and after the stomach operation; (3) the discovery of young stones exclusively; (4) the distribution of our cases between the sexes; (5) the fact that the gallstone symptoms always appeared shortly after the resection (6–37 months) may point in the same direction.

Even if this thesis is acceptable there are some problems still outstanding. It is not clear in what way the resection predisposes to gallstone formation. It is easy to visualize altered duodenal flow and pressure being reflected in the biliary system. Such alterations may explain the vague nature of the symptoms after many resections. It is possible that the precipitation of cholesterol is facilitated under the new conditions. If this hypothesis should be substantiated it would be interesting to know if there is any incidence of gallstones after the Billroth I type of operation.

It is especially important to know if the manner of attachment of the jejunal loop has any bearing on the formation of gallstones. Among the six cases under discussion the efferent loop was attached to the greater curvature on at least five occasions. This procedure has the advantage of virtually preventing pinching-off of the small intestine (Suren, 1941; Kummer, 1941). If, however, the manœuvre should involve the bile ducts in abnormal conditions it is doubtful if it would be wise to continue to use it.

It is difficult to understand why cases with gallstones following resection have not before been published. There was no mention of such a condition in the literature at our disposal. The diagnosis is undoubtedly difficult unless its possibility is always considered. The symptoms in all our cases were of colic; but the localization was uncommon for biliary colic and only once was there any jaundice. All the patients were referred with the provisional diagnosis "stomach cramps." A striking instance in point was Case 6. Four weeks after gastrectomy (Oct. 15, 1943) this patient acquired a small post-incisional hernia which was symptomless. On Feb. 11, 1946, he had a violent attack of pain in the epigastrium. Strangulation of the hernia was suspected and he was sent to hospital. At the operation the gall-bladder was purposely inspected, and on finding that it was full of mulberry gallstones it was removed. We believe that more cases of gallstones following resection will be discovered if they are systematically investigated.

The history of another of our patients (P.v.E.) is illuminating in that gallstones were not found, although the symptoms he presented suggested that probably they were present. He was born on March 12, 1917, and had had medical treatment for duodenal ulcer in 1939 and 1940 and gastrectomy on March 19, 1941, when he was found to have "kissing" ulcers of the duodenal bulb. The operation was after Polya-Balfour-Reichel, the gastro-jejunal anastomosis being effected with efferent loop at the lesser curvature. On June 15, 1943, he reported as an out-patient with symptoms of epigastric pain which had been present for one and a half years. Skiagrams showed a normal resection stomach without ulcer and a gall-bladder with moderate filling and without stones. A trial break-fast showed free acid 14°, total acidity 20°. On March 13, 1945, the investigations were repeated because of violent attacks of pain after taking milk, cabbage, peas, and beans. A fractional

test meal revealed no free acid. There were no obvious abnormalities of the stomach and gall-bladder on x-ray examination. Dietetic treatment was given. On Feb. 23, 1946, he reported again at the out-patient department. He had been free from symptoms for seven months, but during the preceding few weeks he had renewed attacks of pain, mostly after milk and porridge. Once more there was no abnormality of the gall-bladder. He was completely free of symptoms after some days of complete rest and frequent small meals with little fat and without milk.

### Conclusions

From a total of 220 extirpations of the gall-bladder and 174 resections of the stomach over a period of 3½ years it was observed that gallstones occurred on six occasions shortly after a resection. As a result we believe that it is necessary, when patients complain of pain after resection, to look for the cause in the gall-bladder rather than the anastomosis. Some arguments support the view that the Billroth II type of operation may further the formation of gallstones.

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## DIATHERMY DISSECTION OF THE GALL-BLADDER

BY

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Eight years ago I published, jointly, an illustrated article on Thorek's method of electrosurgical obliteration of the gall-bladder without drainage (Bailey and Love, 1939). Briefly, this entailed partial removal of the gall-bladder and coagulation by diathermy of the strip which was left *in situ* attached to the liver. The main advantage of this operation, as compared with the standard cholecystectomy, was that drainage was unnecessary. We reported a series of 129 consecutive and unselected cases with no mortality, and in only seven were there post-operative complications. These included four patients who developed infection of the abdominal wall, one whose wound broke down on the fourth day, and two cases of biliary fistula following drainage of the common bile duct. These fistulae eventually closed spontaneously. We mentioned that in some cases the gall-bladder possessed a more or less complete mesentery, so that it was possible to remove the entire organ without damage to the liver capsule. The gall-bladder bed was then coagulated with a diathermy button and the peritoneal edges were sutured over the exposed area. If the area was too wide to cover with peritoneum a detached piece of falciform ligament or an omental graft was sometimes tacked over the surface.

The very satisfactory results which followed the diathermy dissection of the gall-bladder in cases in which the organ was loosely attached to the liver prompted one to apply it as a routine in all cases suitable for a complete cholecystectomy. Exceptions are patients in whom a cholecystostomy is the more prudent measure, or occasionally the gall-bladder is so embedded in the liver that it is easier and safer to perform Thorek's operation.

Diathermy dissection of the gall-bladder is, as a rule, an easy operation, and differs from the standard cholecystectomy only in that, after identification and ligation

of the cystic duct and artery, a diathermy knife is used to divide the peritoneum on either side of the gall-bladder (Fig. 1). The viscus is then dissected from its bed with the diathermy knife, care being taken that the knife is applied to the gall-bladder rather than to the bed. Thus, Glisson's capsule is unlikely to be damaged, and subsequent seepage of bile and blood is reduced to a minimum. If necessary any raw areas from which bile or blood exudes are coagulated with a diathermy button (Fig. 2). During dissection of the gall-bladder from its bed a constant watch must be kept for the presence of a cholecysto-hepatic duct (Fig. 3). This is an uncommon anomaly—for example, Flint (1923), in his review of 200 cases of the anatomy of the bile ducts and vessels (in which only 69 followed the textbook description), did not record a case. Neuhof and Bloomfield (1945) describe two cases in which the duct measured about 2 mm. in diameter. In one case it was unrecognized, and a fistula resulted which closed in forty-five days, and in the other the duct was recognized at operation and closed with a purse-string suture. When the surgeon is satisfied that the gall-bladder bed is dry the area is covered by approximation of the peritoneal flaps, reinforced, if necessary, with a graft of omentum or falciform ligament. The wound is then closed without drainage.

Excluding cases in which drainage of the common bile duct, or very occasionally the gall-bladder bed, was considered necessary, I have during the past 10 years operated on 332 cases of gallstones. The procedures adopted were: cholecystostomy, 18; Thorek's operation, 81; diathermy dissection, 233.

*Cholecystostomy* was advisable in some cases of empyema of the gall-bladder, or when the viscus was buried in adhesions so that anatomical dissection was impracticable, especially if the patient was obese. In these cases safe surgery resolved itself into removal of calculi and drainage of the gall-bladder.

*Thorek's operation* was performed when the biliary tract could be exposed, so that the cystic duct and artery could be ligated with safety. When a fibrotic and contracted gall-bladder is partially buried in the liver removal of part of the viscus, with coagulation of the embedded portion, entails less risk than a complete cholecystectomy. It should be mentioned, however, that many of the early

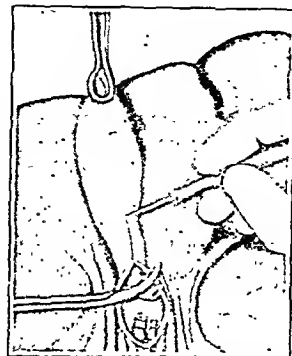


FIG. 1.—Division of the peritoneum with a diathermy knife in dissection of the gall-bladder.

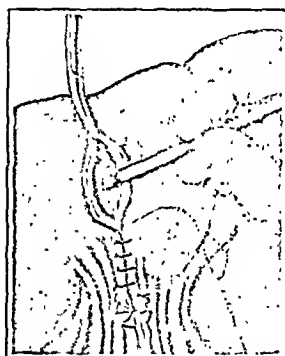


FIG. 2.—Coagulation of raw area with a diathermy button.

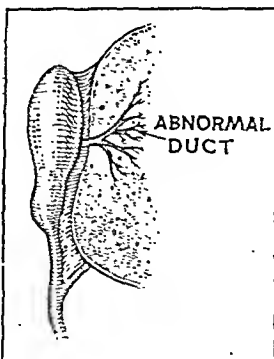


FIG. 3

cases in which Thorek's procedure was adopted would now, with increased experience, be dealt with by diathermy dissection.

*Diathermy dissection* was performed in 233 cases and two deaths occurred. The first fatality involved a somewhat feeble elderly male, who faded away a few days after the operation in what was apparently a combination of cholaemia, uraemia, and myocardial failure. The second fatality was due to failure to recognize the presence of a cholecysto-hepatic duct, and the history was as follows:

A woman aged 43 had a pre-operative diagnosis of gall-stones confirmed by a cholecystogram. The patient was somewhat obese, and the operation was rendered more difficult than usual, as adhesions between the diaphragm and upper surface of the liver prevented more than a moderate degree of rotation of that organ. However, there was not much difficulty in clearly exposing the junction of the cystic and common hepatic ducts, and the cystic duct and cystic artery were ligated in the usual manner. During diathermy dissection of the gall-bladder from its bed some discharge of bile was noticed, but this ceased when the raw area was coagulated with a diathermy button. Owing to the limited rotation inspection of the gall-bladder bed was somewhat restricted, but as it appeared to be dry the peritoneum was sutured over it and the wound was closed.

On the following day the patient complained of epigastric distress, and a tense swelling was obvious in this region. Some of the sutures were removed and sinus forceps introduced. About 15 oz. (425 ml.) of bile escaped, and a rubber drainage-tube was introduced. A biliary fistula developed, but there was no evidence of obstruction of the biliary ducts, and the faeces were well coloured. It was hoped that the fistula would close spontaneously, but after three months hope began to fade. It was proposed to temporize for another three months, and then, if necessary, dissect out the fistula and implant it into the jejunum. However, the patient developed menopausal melancholia, which was doubtless aggravated by her unfortunate condition. She became uncontrollable, constantly removing her dressings and making determined efforts to return to her home. Surgical intervention was obviously imperative, so the wound was reopened and the track of the fistula dissected from the abdominal wall and traced towards the under surface of the liver. The fistula was implanted in a loop of the upper jejunum. Three days later the wound broke down and the biliary discharge reappeared. The mental condition of the patient deteriorated and she died about one month later.

I was not at that time aware of the existence of the cholecysto-hepatic duct, and attributed the fistula to "slipping" of the ligature which was applied to the cystic duct. This was not very convincing, as the duct was easily identified and secured with No. 60 thread, which has a better frictional grip than catgut. On reviewing the case I now believe that the fistula was caused by division of an unrecognized cholecysto-hepatic duct.

#### Advantages of Diathermy Dissection

The average mortality of standard cholecystectomy in skilled hands is about 2%. Lung complications, including pulmonary embolus, account for the majority of fatalities. Both these conditions are predisposed to by restricted respiratory excursions. In the standard cholecystectomy a puddle of bile and blood collects beneath the diaphragm and the necessary drainage-tube causes further subphrenic irritation. Diaphragmatic spasm results, and inefficient aeration of the lungs predisposes to basal atelectasis. Also, as the piston-like action of the diaphragm is an important factor in maintaining an efficient venous circulation, impaired movements encourage venous stagnation, and associated risk of thrombosis and possible embolus accrues.

If Thorek's (1938) operation or diathermy dissection is employed, subphrenic irritation is reduced to a minimum. The risk of the above-mentioned complications is proportionately reduced, and the mortality is in the region

of 0.5%. In addition, convalescence proceeds more smoothly, tedious but non-lethal chest complications are uncommon, and thrombosis of the iliac or femoral veins is almost unknown. Also, the necessity for frequent removal of bile-soaked dressings is obviated, with the advantage that the patient is spared routine disturbances, and the time of the nursing staff is not occupied with the continual preparation of dressing trolleys. Finally, it is exceptional for the wound to heal other than by first intention.

#### Exploration of the Common Bile Duct

This procedure considerably increases the risk of the operation, and some authorities quote a mortality figure of 10% when drainage of the common duct is performed. The increased mortality is partly due to the fact that in many cases drainage is required when obstruction is present, as a result of which cholangitis and cholaemia are often associated complications. In addition, the insertion of a T-shaped tube into the common bile duct is time-consuming and necessitates intricate manœuvres under deep anaesthesia. However, palpation of the duct may reveal an obvious calculus which demands removal, and in other cases it is usually wise to explore the common duct if there have been attacks of colic or recurrent jaundice, or if obvious dilatation of the duct is discovered at operation. If exploration is necessary the cystic duct is usually slit up and the incision carried into the common duct as far as required. Through the aperture the duct can be explored with a malleable probe, which, in the absence of obstruction, should readily pass into the duodenum. Desjardin's forceps are useful for withdrawing calculi or debris from the duct.

At the operation doubt not infrequently arises as to whether the common bile duct should be explored or not. The surgeon is naturally averse to adding unnecessarily to the length and difficulty of the operation, but, on the other hand, it is even less desirable to overlook such a condition as a calculus impacted in the duct.

#### Choledochography

This is a simple procedure which provides valuable information concerning the condition of the common bile duct. Information regarding the calibre of the duct, the discovery of a filling defect due to a calculus, and the presence of obstruction from other causes such as pancreatic compression are of value to the surgeon who is pondering on the necessity for exploring the common duct.

*Technique.*—It is preferable that the choledochogram is taken before cholecystectomy is performed, as an intact cystic duct is more readily manipulated than a blind stump. Traction on the gall-bladder renders the cystic duct taut, and the wall is nicked with sharp-pointed scissors at a point about half an inch (1.25 cm.) from its fusion with the hepatic duct. A malleable cannula is the most suitable instrument for the introduction of the opaque medium, but an ordinary cannula or a short length of suitable rubber tubing may be used. The cannula, attached to a suitable syringe, is introduced through the cystic duct, and about 5 ml. of lipiodol is injected during a period of five seconds. As the last of the fluid is introduced the exposure is made and should be as short as possible. The film is ready for inspection within five minutes. It is important to remove metal retractors and unnecessary instruments from the field of operation immediately before the film is taken; otherwise opaque shadows may obscure the duct. During the interval of waiting the surgeon can perform appendicectomy if advisable, or else proceed with the gall-bladder dissection. In order to facilitate manipulation of the ducts the gall-bladder should be retained until a decision has

been reached as to the necessity for exploring the common duct. If exploration is deemed necessary the slit in the cystic duct is extended to permit the introduction of suitable instruments. In cases of infection or back pressure, drainage of the duct can be obtained, if necessary, by a T-shaped tube introduced through the opening. If exploration of the common duct is not required, then the cystic duct is divided and the distal end is ligated with silk or thread. Cholecystectomy is then performed.

By revealing a filling defect a choledochogram may prevent the surgeon from overlooking some condition which demands exploration of the duct. Thus a calculus may be more or less embedded in the wall of the duct and cause no appreciable obstruction to the passage of an instrument.

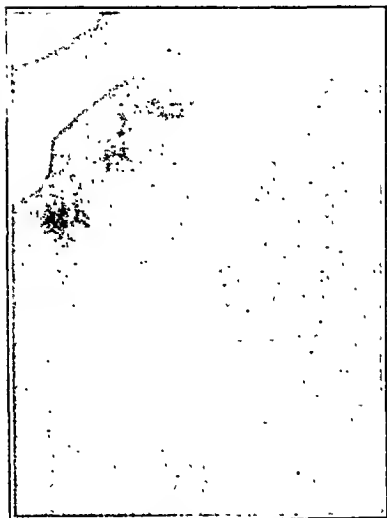


FIG. 4.—Choledochogram showing distended duct and patent lumen.

On the other hand, the choledochogram may indicate that although the duct is distended the lumen is patent, and consequently exploration is not necessary.

Fig. 4 illustrates such a case: the duct was about three times the normal size, but lipiodol flowed freely into the duodenum. An unnecessary exploration was therefore avoided. The condition was due to subacute pancreatitis and consequent compression of the duct. Simple diathermy cholecystectomy was per-

formed; the patient made a good recovery and has remained in good health.

### Post-cholecystectomy Syndromes

After removal of the gall-bladder, and possibly a handful of stones, the patient naturally hopes to be rid of symptoms. But disappointments following cholecystectomy are not uncommon, though most of them are preventable or curable. Briefly, some of the more important causes of post-cholecystectomy syndrome are as follows:

1. A calculus, or calculi, may remain undetected in the hepatic or common duct and give rise to further attacks of hepatic colic or obstruction. The hepatic duct should be explored if a stone is removed from the common duct, as retrograde migration of small calculi occasionally occurs. In some conditions, such as acholuric jaundice, small cinder-like stones are found in all the ducts, and irrigation of the hepatic duct is advisable in order to dislodge calculi which might not otherwise be detected. A choledochogram is a valuable precaution against overlooking a calculus in the common duct.

2. Chronic parenchymatous pancreatitis is often associated with infection of the biliary tract. Symptoms, including epigastric discomfort and flatulent dyspepsia, persist owing to deficiency of the external secretion, but they are relieved by the administration of a pancreatic preparation, such as "liquor pancreaticus," "panteric," or "pancrobilin." I referred to this syndrome many years ago (Love, 1933).

3. Spasm of the muscle of Oddi is alleged to be the cause of biliary colic which occasionally occurs after chole-

cystectomy. Cases apparently of this nature have been described by Maurice Lee (1946). Antispasmodics certainly relieve the symptoms, and pethidine, 25-50 mg., should be prescribed thrice daily, combined with an early morning saline aperient.

4. Dilatation of the stump of the cystic duct is apt to occur after cholecystectomy unless the duct is ligated within a quarter of an inch (0.6 cm.) of the common duct. Petersen (1946) records 42 cases, and states that the "re-formed gall-bladder" may be as large as a normal organ. I have on two occasions removed a single calculus from the stump of the cystic duct. In both cases intermittent jaundice was the predominant symptom, presumably due to exacerbations of infection around the stone and consequent pressure on the converging hepatic duct. A dilated cystic duct is usually buried in adhesions, and may be recognized only after probing through an incision in the common duct.

5. Conditions unrelated to the biliary apparatus may account for symptoms which persist after cholecystectomy. The appendix should always be removed during the operation of cholecystectomy, unless local conditions or the general condition of the patient preclude further operative intervention. The retention of a pathological appendix sometimes accounts for post-cholecystectomy symptoms. Presumably, when the gall-bladder is removed adjacent organs are scrutinized, in which case a peptic ulcer is recognized and receives appropriate treatment. Occasionally adhesions develop between the pylorus or duodenum and the gall-bladder bed. These are apt to cause angulation or even obstruction, but are unlikely to occur if the gall-bladder is removed by diathermy dissection.

### Summary

When cholecystectomy is performed diathermy dissection of the gall-bladder is the method of choice. In the large majority of cases this is a simple and safe procedure, and the dry abdomen can be closed without drainage, with the great advantage that subphrenic irritation and consequent spasm of the diaphragm are reduced to a minimum. As compared with the standard operation chest complications and pulmonary embolism are much less common—a fact which is reflected in the lower mortality and reduced morbidity.

The technique and value of choledochography are discussed, and a summary is presented of some of the causes of post-operative persistence or recurrence of symptoms.

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A report of the Joint Tuberculosis Council (copies may be obtained from the Hon. Sec., 1, Becket Street, Oxford) sets out its views on the organization of the tuberculosis service under the National Health Service Act. The Council advocates that the Minister of Health should appoint a Central Advisory Committee for Tuberculosis and that there should be at least one member on the Central Health Services Council with a special interest in tuberculosis. It suggests that the Minister should create a direct link between the Regional Hospital Authority and the Tuberculosis Dispensaries, and that the tuberculosis service should be co-ordinated on a Regional level, each Regional Board appointing a tuberculosis committee for that purpose. The board should also appoint a Regional tuberculosis physician. The Council emphasizes that the health visitors provided by local authorities should hold either the Certificate of the Tuberculosis Association or the Health Visitors' Certificate, or preferably both. Local health authorities should establish tuberculosis subcommittees empowered to delegate to local voluntary care committees some functions relating to prevention, care, and after-care. The Council regards such voluntary agencies as important in tuberculosis work.

# THE LONGEST SPAN OF LIFE BASED ON THE RECORDS OF CENTENARIANS IN ENGLAND AND WALES

BY

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In stating their aims and planning schemes of research contemporary gerontologists stress the primary importance of making old age stronger, "to add life to years, not just years to life." At present old age is considered to be a pathological condition because senile decay appears prematurely and is aggravated by disorders that are not necessarily associated with normal old age, such as arteriosclerosis, hypertension, "senile" heart, some degenerative changes of liver and kidneys, mental deterioration, certain metabolic disturbances and auto-intoxication, gastrointestinal auto-intoxication, hypertrophy of prostate, etc.

This problem of gerontology, however, cannot, for two reasons, be dissociated from the other gerontological problem—that of how to increase the span of human life. (1) Most old people cling very strongly to life. Old men have the same right to a normal and healthy existence as children or adults, even though their most useful period of life has ended. (2) Besides this factor there is a scientific reason. The development of science and medicine must proceed in spite of and with complete disregard to all possible complications of a social and political kind. For many scientists and medical research workers the problem of ageing is fascinating not only because it affects the well-being of every man and woman, but also, and often chiefly, because it is one of the greatest and most fundamental mysteries and riddles in biology and medicine, because present old age is considered abnormal, and because if this is so this abnormal process of life has to be made normal. Science and medicine will not rest until they solve the riddle of what is normal ageing and normal old age and what is the normal span of life.

From the point of view of longevity, the centenarians of the past and the present are of especial interest because the length of their life indicates the limit which is theoretically and potentially possible for every human being. With reservations, investigation into their ancestry and progeny might be useful in solving the genetical causes of longevity, while an examination of their mode of living, and of the functioning of their organism, with a post-mortem investigation, might contribute to some other problems of gerontology and geriatrics.

## Difficulties of Investigation

There are several difficulties in the scientific investigation of centenarians, particularly as to their exact age. The basic information should be obtained from certificates of birth and death, of which the former presents the greatest difficulty, since it is often absent or doubtful. Young (1899) has fully discussed this and some other difficulties.

In the present paper data on centenarians are given only from 1930 to 1945, it being presumed that in this period the information and documents were more accurate than in the previous years, since the people of this country have gradually been trained in this respect. These data have been obtained from the most reliable sources available—for

I should like to express my gratitude to Lord Nuffield for the grant which has made possible the establishment and work of the Gerontological Research Unit, and to Oxford University, Prof. A. C. Hardy, and Prof. E. G. T. Liddell for the kind hospitality extended to the Unit in the Departments of Zoology and Physiology.

the years 1930 to 1937 from the Registrar-General's *Statistical Reviews* for England and Wales, and for the years 1938 to 1945, as a personal communication, from the Registrar-General's Office at Somerset House, London. The dates of birth, however, were not verified by birth certificates, but were obtained from the persons who registered the deaths, which fact decreases the value of the data. These data have been divided into two periods, each of 8 years—namely, 1930–37 and 1938–45—and are summarized in Tables I and II. Examination of the figures in these tables reveals at once a constant and obvious fact—that the number of women centenarians is considerably larger than that of men, being about 4.4 times greater in the first period and about 4.9 times greater in the second period (Table I). Further, in the second period the actual

TABLE I.—Number of Centenarians for Each Year in Period I (1930–7) and Period II (1938–45)

Period I	No. of Centenarians		Period II	No. of Centenarians	
	Men	Women		Men	Women
1930 .. ..	18	43	1938 .. ..	16	93
1931 .. ..	15	76	1939 .. ..	22	90
1932 .. ..	15	94	1940 .. ..	20	102
1933 .. ..	19	91	1941 .. ..	18	91
1934 .. ..	6	70	1942 .. ..	12	79
1935 .. ..	28	66	1943 .. ..	21	92
1936 .. ..	14	82	1944 .. ..	21	85
1937 .. ..	21	79	1945 .. ..	18	93
Total .. ..	137	601	Total .. ..	148	725
Average per year	17.1	75.1	Average per year	18.5	90.6
Average per year per 20 millions of population	17.7	71.4	Average per year per 20 millions of population	18.3	83.4

TABLE II.—Total Number of Centenarians of Each Age in Periods I and II

Sex	Period	Age (years)												
		100	101	102	103	104	105	106	107	108	109	110	111	112
Men	I	59	31	21	14	9	2	1	—	—	—	—	—	—
	II	63	36	25	6	3	5	3	3	2	1	—	—	1
Women	I	264	155	81	46	22	20	5	3	4	1	—	—	—
	II	320	191	100	53	34	14	7	1	5	—	—	—	—

number of women centenarians is significantly greater ( $P < 0.02$ , Fisher's test for small samples) than that in the first period. The increase of male centenarians in the second period was only slight, and was statistically not significant.

## Limits of Longevity

From Table II it is clear that longevity of human beings might extend up to 109 and even 112 years. The age of 106–112 years has been reached by 11 (3.9%) out of 285 male centenarians and by 26 (about 2%) out of 1,326 female centenarians—that is, from both sexes a slightly larger relative proportion of men reached the oldest age. In favour of these data being of considerable value and comparative reliability is the fact that in each period investigated the annual figures of centenarians (Table I) are more or less constant, both for men and for women.

When calculated per year and per unit of the population (Table I), for 20 millions of men or women there were 17.7 male centenarians and 71.4 female centenarians in period I, and 18.3 and 83.4 respectively in period II. This fact indicates that the increase in the number of centenarians in period II cannot be explained by an increased population only, but appears also to be connected with increased longevity.

Ernest (1938), reviewing all the cases of centenarians which have been critically investigated by different authors and by himself, concludes that the longest reported span of human life was trustworthy in four cases only. "Two



of these four people lived over 110, one was nearly 112, and one over 113 years at death" (p. 55), residing in the U.S.A., Guernsey, Ireland, and Canada respectively. All the other cases of greater longevity reported in the literature, scientific and non-scientific, cannot be accepted as trustworthy. The distinguished Swedish gerontologist G. Backman (1945) also concludes that 113 years could be taken as the accurate age of the longest span of human life recorded, but that 125 years might perhaps be expected. Prof. I. Fisher (1923, p. 112), of Yale University, reports a comparatively recent case of life up to 120 years in Oregon, U.S.A., the case having been investigated by the Oregon Historical Society.

### Prolongation of Life in the Future

As to the possible prolongation of human life in future beyond the extreme age already reached by some centenarians (113 years), the scientists who studied this problem give different prophecies. Prof. Warthin (1929), of Michigan University, emphasizes that, according to the data of the U.S.A. Census Reports, "the increase in the average longevity is due to the saving of life through the prevention of extrinsic pathological death in the earlier decades of life, but that there has been no extension of the normal or biologic life limit" (pp. 166-7) . . . "It is therefore neither possible nor probable that the average longevity can be raised to the heights prophesied by the over-zealous and very inaccurate advocates of life extension" (p. 170). Warthin in this case refers to an extension of life up to 125-140 years.

Metchnikoff (1907), on the contrary, says that "we may predict that when science occupies the preponderating place in human society that it ought to have, and when knowledge of hygiene is more advanced, human life will become much longer" (pp. 226-7).

Prof. Fisher (1923) concludes that "it would be surprising if the future should not witness a further lengthening of human life, and at an increasing rate. Of course, there is a limit to the further increase of human life, but there is good reason to believe that the limit is still far off" (p. 103). . . . "If . . . notwithstanding all existing chances of death, it is possible for some persons to live beyond 120, the chances in the future for a larger proportion of such persons will be materially improved" (p. 112).

Prof. Simms (1946), of Columbia University, states that "there is at the time no proof for or against the possibility that we can some day extend our active life an extra one hundred or two hundred years with retention of youthful health, intelligence, and appearance" (p. 24).

A scientific and medical investigation of the span of centenarian life might, as already mentioned, be of great importance from several points of view. For example, histories of two long-lived families described by Weber

(1919) indicate heredity as one of the causative factors of longevity. His tables on pages 21 and 23 give the respective data of the span of life of the brothers and sisters in these two families. These tables are abbreviated and pooled in Table III of the present paper.

### A Social Problem

The question of centenarians is closely connected with one of the gravest social problems of our days—namely, the growing proportion of old people in the population. In the excellent report of the Nuffield Foundation (Rowntree, 1947) this is illustrated by a table (p. 3) prepared by W. A. B. Hopkin, a member of the staff of the Royal Commission on Population. The abbreviated data from this table are given in Table IV of the present paper. From

TABLE IV.—Population of England and Wales by Three Main Groups (thousands). (Abbreviated from Rowntree's Report, 1947, p. 3)

Year	Age			Total Population
	Under 15	Men, 15-64; Women, 15-59	Men 65, Women 60, and over	
1944 .. ..	8,671	28,382	5,396	42,449
1954 .. ..	9,086	28,080	6,143	43,309
1964 .. ..	8,440	27,894	6,811	43,145
1974 .. ..	8,081	26,692	7,804	42,577
1984 .. ..	8,043	25,547	7,944	41,534
1989 .. ..	7,886	25,071	7,848	40,805
1994 .. ..	7,679	24,872	7,504	40,055

this table it is estimated that by 1989 the number of old people of pensionable age will equal the number of children, while by the same year the number of persons of working age will be approximately three millions less than in 1946. The report adds (p. 2): "The trend revealed in Mr. Hopkin's figures may, however, be even more pronounced than the table suggests; for other authorities, among them the Registrar-General, have forecast that as early as 1971 the number of persons of pensionable age may equal, or even exceed, the number of children."

This position is considered to be very serious because at present helpless old people become a great burden on the younger working population. Such a position, however, will not necessarily be the same in future, as Metchnikoff and Fisher emphasize. It is probable that medicine and science will not only add years to the life of an old man but simultaneously will conserve his physical and mental vigour for a longer period. "One result of lengthening life will be a greater utilization of accumulated experience. We shall have less immaturity in judgment. . . . It will give to society a body of old yet hale men of experience, whose influence and worth cannot be measured" (Fisher, 1923, p. 111).

### Conclusions

In the data recorded in the Registrar-General's Office the certificates of birth of centenarians have not been checked, and therefore their age can be accepted only with some reservation. Since, however, these data were investigated during the latest period of 16 years, and as the figures investigated were constant in character, their value and reliability are probably still considerable.

According to these data, in England and Wales per 20 millions of male or female population there were each year on the average 17.7 male and 71.4 female centenarians in the period 1930-7, and 18.3 and 83.4 respectively in the period of 1938-45. Thus, unexpectedly, their incidence was regular and not very exceptional, and more women had a long span of life than men.

There was a statistically significant increase of female centenarians during the last eight years as compared with

TABLE III.—Two Long-lived English Families, Alexander and Kempe (Weber, 1919, pp. 21, 23)

Alexander (Quakers)			Kempe		
Name	Age at Death		Name	Age at Death	
	Yrs.	Mths.		Yrs.	Days
Ann Barber (mother) ..	86	7	Rev. J. E. Kempe ..	97	1
George William ..	88		Miss M. Kempe ..	87	326
Mary Barber ..	103	5	Rev. A. A. Kempe ..	96	246
William Dollin ..	81	11	Mrs. E. Mozley ..	103	*
Henry ..	74	9	Mrs. J. F. Martin ..	94	131
Samuel ..	82	3	Mrs. C. W. Davies ..	83	121
Frederick ..	93	10	Mrs. A. D. Benson ..	94	355
Elizabeth ..	100	*	Mr. C. N. Kempe ..	77	108
Sarah Ann ..			Mrs. E. B. Parish ..	86	104
			Mr. R. C. Kempe ..	85	9

\* Those marked by an asterisk were still alive at the time of publication of Weber's book.

a previous period of eight years, while a small increase in male centenarians in the last period was not significant.

During these periods the longest human lives recorded were 109 and 112 years, and this fact is in approximate accord with the conclusions reached by previous critical investigators for periods earlier than 1930.

Thus, theoretically and potentially, a span of life of 109–112 appears to be possible for a human being. As, however, the exceptional cases of longevity of human beings have occurred during the present time, when the process of ageing is abnormal, there is some possibility that the span of human life might be further extended when the process of ageing becomes a normal one.

There are some indications that the genetic factor is one of the causal factors of longevity.

Taking into consideration the primary aim of gerontology to make old age stronger and healthier, and not only longer, the prophecy of Metchnikoff and Fisher may be right—that in this way the *useful* period of human life might be extended and the community benefit by a greater utilization of the accumulated experience and wisdom of older people.

It is most desirable that scientific and medical investigation of cases of centenarians should be carried out by research workers.

I wish to express my gratitude to the Registrar-General and his Office, in particular to Mr. A. A. Dodge, for supplying me with all necessary data concerning published and unpublished cases of centenarians.

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## Medical Memoranda

### Relief of Pain in Childbirth

While acting as house-surgeons in Maryfield Hospital, Dundee, we obtained permission to try the administration of phenobarbitone and rectal ether for the relief of pain in childbirth as outlined by C. B. Lull and R. A. Hingson (1945).

The technique adopted was to give the patient a 5% sodium bicarbonate enema on admission. When her pains began to make her uncomfortable she was given 3 gr. (0.2 g.) of phenobarbitone, which was repeated in 1½-gr. (0.1-g.) doses as required. As soon as the pains became distressing—usually towards the end of the first stage—2½ oz. (70 ml.) of ether in 1½ oz. (42 ml.) of olive oil or mineral oil was administered rectally. This enema was given slowly, with the patient on the left side, care being taken to pass the catheter above the presenting part. This makes the patient feel very drowsy within a few minutes, the effect lasting for two to four hours. The rectal ether can be repeated in two hours if the effect is wearing off. If the patient is exhausted or it is suspected that the labour will be prolonged, 2 dr. (3 ml.) of paraldehyde may be added to the rectal instillation to produce a deeper sedative action.

**Results.**—In our series of twenty-five cases, mostly of primigravidae, we found that all received relief from this

treatment. All slept between their pains and also used their pains well. The multiparae admitted it was the easiest labour they had had, several of them requiring to be reassured that their baby had been born.

**Actions on the Mother.**—(1) Restlessness and distress were relieved so that they relaxed well between pains. They were in a state which was highly responsive to suggestion, and obeyed the instructions given by the attendant. (2) The pains continued with the strength and frequency which would have been expected if rectal ether had not been administered. (3) The pelvic floor relaxed well and the head advanced quickly. (4) The third stage was short, the average duration being 12 minutes, and after expulsion of the placenta the uterus contracted firmly and there was no case of post-partum haemorrhage. (5) The patients co-operated so well during the birth of the head that only three out of twenty-five required a perineal stitch. (6) There was no increase in the forceps rate.

**Effect on the Foetus.**—Every child cried immediately at birth, and was in no way affected by the sedation.

In conclusion, we found this method very satisfactory; it is safe for both mother and child, it is easy to administer, and it does not prolong labour.

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### Safety-pin in Larynx for Five Weeks

The presence of an open safety-pin in the larynx of a 2-year-old child for over five weeks seems unusual enough to warrant record.

#### CASE REPORT

On April 13, 1946, a practitioner was called to see a small boy aged 2 who was reported to have had some dyspnoea during the night. He was over-quiet and pointed to his throat. He cried when the throat was examined. The practitioner described the cry as "croupous and husky." Nothing abnormal was found in the throat or chest. The temperature, pulse, and respirations were normal. The next day there was some dyspnoea and a croupous distressing cough. Laryngeal diphtheria was suspected; 800 units of antitoxin were given and the child was sent to a fever hospital. He had been immunized previously.

On admission he was given 40,000 units of antidiphtheritic serum, but the medical superintendent did not consider it was a case of diphtheria; he suspected an early pneumonia, though signs in the chest were absent. The respiration was increased and there was difficulty in getting him to take food. Negative swabs were obtained from the nose and throat on April 14, 15, and 16. The patient was fairly comfortable till April 24, when symptoms of obstruction arose. He was put in a steam tent, but did not improve, and in view of the increasing dyspnoea tracheotomy was performed the next day. During the following two weeks various attempts to remove the tube were made, but without success.

I first saw him on May 10. He was quite unable to breathe through the larynx. There was no cry. An attempt at laryngoscopy with inadequate instruments showed a mass in the larynx. The child was transferred to a nursing home and a direct laryngoscopy was performed on May 21. The larynx was filled with a mass of granulation tissue. When this was probed a foreign body was seen. It looked like a coin, but gentle traction showed that it was fixed, especially at the posterior end. The anterior end was gently pulled on and the body removed. It proved to be an open brass safety-pin 7/8 in. (2.2 cm.) long. During the next fortnight the tube was changed daily, but there was still no airway through the larynx. Direct laryngoscopy showed the swelling to be much smaller, and the left vocal cord was visible. A few days later he cried for the first time, and in a day or two began to say a few words, and was soon talking freely, with the tube corked. The tube was finally removed on June 20, a month after the operation. A week later he went home looking fit and well and talking freely and, for his age, clearly. I saw him again in October and found him quite well, and breathing and talking normally.

I am indebted to the doctors in charge of the case for details of the early history.

E. S. BURT HAMILTON, F.R.C.S.Ed.

## Reviews

### RHEUMATOLOGY

*Medical Disorders of the Locomotor System, Including the Rheumatic Diseases.* By Ernest Fletcher, M.D., M.R.C.P. (Pp. 625; 262 figures. 45s., plus 8d. postage.) Edinburgh: E. and S. Livingstone. 1947.

This admirably documented and illustrated textbook of the chronic rheumatic diseases, including a chapter on medical diseases of bone, provides many references to the large amount of work being done on the subject, but the reiteration of "perhaps it may be" or "we suspect that" shows how obscure the subject is and how incomplete our knowledge. The problematical aetiology of these conditions precludes satisfactory classification, and it is possible to arrange them only in broad clinical divisions. The author has entrusted certain sections to other specialists—for example, that on fibrositis to Dr. Copeman and on radiology to Dr. Campbell Golding—but for the most part he writes from his own experience backed by study of the literature.

After preliminary chapters on anatomy and physiology, general aetiological factors, and radiology the author discusses acute rheumatism, and emphasizes the value of Coburn's massive doses of salicylates and sulphonamide prophylaxis as practised in the American Army. He then considers its relationship to chorea and the possibility of acute rheumatism and rheumatoid arthritis being variants of the same disease; his observations on the aetiology of the latter reveal how difficult the problem still is. He advocates the sanatorium regime for the treatment of rheumatoid arthritis and gives a full account of gold therapy. He then discusses the nodule and its significance, minutely describing the variety with the necrotic centre, which is characteristic of both rheumatism and rheumatoid arthritis. Writing of osteoarthritis he does not favour the infective theory of its origin. The injection of joints with lipiodol may be beneficial. The author attaches more importance to osteoarthritis of the spine as causing obscure pain than do some authorities.

Discussing fibrositis Copeman points out that the establishment in the course of any infection of "trigger points," which may in some cases persist and be reactivated, may explain its manifestations. He also describes his investigations into tender herniated fat lobules. The specific arthritides and gout are adequately discussed and there are excellent chapters on the possible causes of sciatic and brachial neuralgia, for which the author on the whole prefers conservative treatment. There are full discussions on pain and stiffness in the shoulder, back, and foot, and a final chapter on physical treatment. Spa treatment is only briefly mentioned for fibrositis and not at all for chronic gout. This book is a credit to British rheumatology and indispensable to specialists in the subject.

R. G. GORDON.

### SYMPATHETIC NERVE INFILTRATION

*Les Infiltrations du Sympathique. Techniques.* By Maurice Luzuy. Preface (Pp. 200; 24 figures. 375 francs.) Paris: ...

Dr. Luzuy records in this book his study of the effects of procaine (novocain) on sympathetic nerves. He discusses in detail the technique of and indications for sympathetic block, and the deductions which he has made and applied to the theory of sympathetic, cardiovascular, and visceral physiology and pathology. Prof. Leriche contributes a happily worded preface—and most suitably, for the methods and opinions of the book correspond closely to his own.

The technique described for the infiltration of each sympathetic area accords in general with the usual Anglo-American practice, but the author advocates a lateral path for the approach to the stellate ganglion, an anterior method for the infiltration of the carotid sinus, and Cotte's transvaginal approach for the injection of the hypogastric ganglion. Arnulf's method of infiltrating the preaortic plexus from the root of the neck, fully described, is not yet widely practised in this country. The first section of the book covers the effects of trauma. The author ascribes the efficacy of local infiltration anaesthesia in permanently relieving sprains of joints to an interruption in those

antidromic sympathetic vasodilatation influences which are said to be responsible for the symptoms of a sprain, and he attributes the later effects of trauma, including post-traumatic cyanosis, oedema, osteoporosis, and hypercalcification, to sympathetic disturbance and treats them successfully also by sympathetic block, though at a higher level, by infiltration of the appropriate sympathetic ganglion. The field covered by the second section, the application of sympathetic block to vascular disease, is that in which, more than in any other perhaps, surgery has been advanced by the school of Leriche, and Dr. Luzuy's arguments are well considered.

The evidence offered in the third section of the effect of splanchnic block in congenital pyloric stenosis, megaduodenum, acute dilatation of the stomach, gastric ptosis and atony, peptic ulcer, gall-bladder stasis, constipation, intestinal obstruction and strangulation, acute pancreatitis, and diabetes will not unreservedly convince all readers; and the records of the six patients treated by infiltration of the preaortic plexus for coronary disease do not fully prove the efficacy of that measure. The book ends with a description of the method of intravenous procaine injection and its success in the treatment of asthma. As Prof. Leriche explains in his preface, Dr. Luzuy is an enthusiast, and this book gains by that quality in vivacity what it loses in detachment.

IAN AIRD.

### THE ROTUNDA

*The Rotunda Hospital, 1745-1945.* By O'Donel T. D. Browne, M.B., M.A.O., F.R.C.P., F.R.C.O.G. (Pp. 296; 44 illustrations, a synopsis, and graph. 42s.) Edinburgh: E. and S. Livingstone. 1947.

Bartholomew Mosse opened the Dublin Lying-in Hospital for Poor Women on March 15, 1745. He died suddenly in 1759 at the age of 47. He had envisaged a "large impressive and suitable place of entertainment" alongside the hospital, but did not live to see the completion of the Round Room in 1767. From then on the name "Rotunda" was adopted, and the Rotunda Hospital embarks next week on the bicentenary celebrations which the war postponed.

Dr. O'Donel Browne has given a detailed account of the development of the hospital and of the contributions to obstetrics made by its Masters, setting his local theme against the wider background of the general history of midwifery. His book has six sections, each with its own references: the first 100 years; the second 100 years; the struggle against puerperal fever; operative midwifery; anaesthesia and gynaecology; eclampsia. This arbitrary division is unfortunate, and a great deal of dull detail makes the first two parts of the book heavy going. It involves repetition in each section, and it makes it difficult to assess the standing of any one Master, since his activities and the changes he brought about may be discussed under six different headings. This criticism may have been made at an earlier stage and may account for a final chapter listing the outstanding Masters. No one would quarrel with Dr. Browne's view that Mosse was the greatest Rotunda Master, and Fielding Ould, Clarke, Labatt, Collins, Macan, Smyly, and Tweed worthy successors. It is good to know that there were once 72 gallons of whiskey in one hospital, and at a cost of only £9 15s., but salaries and allowances for officers and servants are of less interest, and no one can make the minutiae of redecorations and extensions lively reading.

The section on eclampsia is better, and so is that on puerperal fever, though it is difficult to justify the equal emphasis on Oliver Wendell Holmes and Ignaz Semmelweis. Discussing operative midwifery and gynaecology, Dr. Browne has assessed fairly those fields in which the Rotunda advanced steadily and those in which it lagged through excessive conservatism. In his account of the application of anaesthesia to midwifery Dr. Browne has been uncritical. For much of his material he has obviously gone back to the original documents. Here he has copied a venerable error. "Simpson was knighted in 1870. His friend, Sir Walter Scott, wrote advising him that he should have as coat-of-arms 'a wee naked bairn' with the inscription: 'Does your mother know you're out?'" Sir Walter Scott died in 1832. These are minor criticisms of a book so well produced that it deserved better proof-reading. There may be argument about Dupey or Dupuy and about Ségault or Sigault, but the first Assistant Master to perform a successful caesarean hysterectomy in a patient's home ought not to be Bagot on one page



and Baggot later. There is probably nothing significant in the history of the Rotunda not included in Dr. Browne's story or in his excellent synopsis. His illustrations are numerous, well chosen, and well reproduced. Medical historians will find his book useful, but a shorter version with more carefully selected and differently presented material would appeal to a much wider circle of readers.

### THE N.H.S. ACT

*The National Health Service Act, 1946.* Being the Complete Text of the National Health Service Act, 1946, with an Introductory Explanation of the Act. By J. A. Scott, M.D., D.P.H. Together with an Index to the Act compiled by, H. A. C. Sturgess. (Pp. 93. 9s. 6d.) London: Eyre and Spottiswoode (Publishers), Ltd.

Two-thirds of this volume reproduce the text of the Act, the remaining third being shared equally by an introductory section, a summary of the Act, and an index to the Act. In the introductory section the author briefly considers the Government's social legislation for preventing individual poverty, and he sketches the main principles of the National Insurance, the National Insurance (Industrial Injuries), and the Family Allowance Act. Under the title "The planning proposals of the medical profession" he includes a paragraph on the B.M.A. proposals for a General Medical Service for the Nation and a summary of the Draft Interim Report of the Medical Planning Commission (1942). There follows a section in which health centres, including the model centre suggested by the Commission, are discussed at some length, and with the author's personal observations on the health centre concept thrown in. He stresses two trends in modern medicine: first, a strong desire to combine preventive and therapeutic work, and secondly a tendency for child health and maternal care to become separate specialties in the hands of different sections of the profession. In discussing the staffing of the "public health" part of health centres he contemplates that many of the whole-time officers engaged in maternity and child welfare and school medicine will wish to continue with their present work, and to that extent both general practitioners and specialists may only gradually have the opportunity to take part in the work, but "there is no inherent reason why the general practitioner with suitable experience should not undertake it, as he wishes to do." Notes on (1) the areas of Regional Hospital Boards, (2) the regional hospital surveys, and (3) the original White Paper on a national health service issued by the Coalition Government, in this somewhat topsy-turvy order, complete the introductory section.

In Part II he summarizes objectively and concisely the main provisions of the Act. It will be welcomed by those who seek a broad picture of the scheme. For the most part he avoids the pitfalls inherent in the translation of the Act's legal terminology into lighter and less tiresome reading. In two minor instances, however, the summarized version may be misconstrued in relation to the text of the Act. On page 25 it is stated: "Lists of medical practitioners providing general medical services will be published, and every doctor (who is not a paid assistant) in practice before the appointed day who duly applies is entitled to have his name on the list." The right of the practising doctor to have his name on the list is limited to the list of "the Executive Council for any area in which he is practising." On page 26 it is stated: "It is a duty of every Executive Council to arrange for the supply of drugs, medicines, and appliances from health centres or otherwise to everyone in the area entitled to general medical and dental services." The terms of clause 38 of the Act do not extend to everyone in the area entitled to general medical or dental services but to persons in the area receiving those services. From clause 38 (2) it appears that the Executive Council's arrangements are to ensure for those persons the supply of "proper and sufficient drugs and medicines and prescribed appliances" if ordered by the medical practitioner rendering general medical services (or by the dental practitioner in the case of general dental services). The index is masterly and certainly the most valuable part of the book.

The 1947 edition of the *Medical Register* has recently been published (22s., post free). Particulars given in tabular form reveal that on Dec. 31, 1946, there were 76,292 names on the Register—nearly half as many again as in 1927, when there were 53,591. In 1946 2,237 names were added and 1,092 removed for various reasons.

### BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

*Diseases of Children's Eyes.* By J. H. Doggart, M.A., M.D., F.R.C.S. (Pp. 288. 42s.) London: Henry Kimpton. 1947.

After discussing principles of examination, anatomy, developmental errors, and methods of treatment, the author considers eye diseases in children and their treatment. Many coloured illustrations.

*Old Age and How to Make the Best of It.* By R. A. Bennett, M.D. (Pp. 23. 2s. 6d.) Bristol: John Wright and Sons. 1947.

Comments, with quotations from the classics, on growing old.

*Current Therapies of Personality Disorders.* Ed. by Bernard Gluck, M.D. (Pp. 296. 17s. 6d.) London: William Heinemann. 1946.

Evaluation of various methods of psychotherapy by a number of different authors.

*History of the Abolition of State Regulation of Prostitution.* By Mmc. Legrand-Falco. (Pp. 30. 1s. 6d.) London: The Association for Moral and Social Hygiene. 1946.

The history in France is referred to particularly.

*Laboratory Instructions in Biochemistry.* By I. S. Kleiner, Ph.D., and L. B. Dotti, Ph.D. 2nd ed. (Pp. 245. 12s. 6d.) London: Henry Kimpton. 1946.

A manual of practical biochemistry for use in the laboratory, with space for notes.

*Nozioni di Immunologia.* By Prof. E. Carlinfanti. (Pp. 760. No price given.) Milan: Istituto Sieroterapico Milanese Scrafino Belfanti Editore.

An account of antigen-antibody reactions in diagnosis, therapy, and prophylaxis.

*Recopilacion de Leyes, Reglamentaciones, Decretos y Resoluciones Sanitarias.* Published by the Argentine Ministry of the Interior, Direccion Nacional de Salud Publica. (Pp. 928. No price.) Buenos Aires: Imprenta de la Camara de Diputados. 1945.

Laws relating to public health in Argentina.

*Jubilee Volume.* Dedicated to Emil Christoph Barell by the Scientific Workers of the Roche Companies. (Pp. 466. No price.) Basle: F. Hoffmann-La Roche. 1946.

Includes papers on the synthesis of certain vitamins and other compounds, on the furans, and on antibiotics.

*Dolores Mortales.* By Dr. Miguel Lopez Esnaurizar. (Pp. 65. \$15 M.M.) Uteha, Mexico: Editorial Conzalez Porto. 1947.

A monograph on the conduction of pain impulses by the autonomic nervous system.

*La Douleur.* By Dr. Paul Chauviard. (Pp. 128. No price.) Paris: Presses Universitaires de France. 1947.

A study of pain as a protective mechanism.

*Food Inspection Notes.* By H. Hill, F.R.San.I., and E. Dods-worth, M.R.San.I. 2nd ed. (Pp. 125. 6s.) London: H. K. Lewis. 1947.

A summary for public health students of the properties of healthy and diseased foodstuffs.

*The Problem of Fertility.* Ed. by Earl T. Engle. (Pp. 254. 21s.) Princeton University Press (London: Geoffrey Cumberlege). 1947.

A collection of papers on the factors affecting fertility in man and in animals.

*Textbook of Surgical Treatment.* Ed. by C. F. W. Illingworth, C.B.E., M.D., Ch.M., F.R.C.S. 3rd ed. (Pp. 644. 32s. 6d.) Edinburgh: E. and S. Livingstone. 1947.

Includes new sections on wound infections, penicillin in surgery, plastic surgery, facio-maxillary injuries, the use of protein in surgery, and the anticoagulant treatment of thrombosis.

*Notes on Clinical Laboratory Methods* By the Standing Committee on Laboratory Methods, University of Glasgow. 5th ed. revised. (Pp. 95. 3s. 6d.) Glasgow: John Smith. 1947.

An outline of laboratory methods in clinical medicine for medical students.

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## THE SPREAD OF STAPHYLOCOCCAL INFECTION

It is a truism that the control of epidemic infection must be based on exact knowledge of the paths of its spread. These have been fairly well known for many years in connexion with some infections. At the opposite extreme they remain conjectural even now in the case of certain virus diseases, because the presence of the agent in different materials cannot be demonstrated by any simple test. A special position is occupied by infections due to common bacteria of wide distribution, because their mere presence is not necessarily connected with a particular epidemic. Unless the epidemic strain has some special characteristic, it is impossible to decide whether, for instance, a carrier of the species concerned is to be incriminated. It is here that the definition of individual "types" within species has been found so valuable. The separation of such types, and epidemiological studies based on them, form a profitable pursuit in which workers in this country have led the world. Almost all that we know with certainty about the epidemiology of streptococcal infections is based on the determination of types defined by the late Frederick Griffith. McLeod's types of *C. diphtheriae* have also been helpful, and recently the phage typing of *Salm. typhi* and of *Staph. aureus* have enabled other workers to trace the sources of epidemics which could not otherwise have been elucidated.

Perhaps the most forbidding task of all has been to disentangle the migrations of staphylococci, particularly under institutional conditions. These organisms are so widespread that it might seem impossible to trace them to their source, even under conditions of epidemic spread. An opportunity for attempting this is furnished by outbreaks of pemphigus neonatorum among infants in maternity homes. These are not uncommon, and they are usually followed by wholesale swabbing and the resultant discovery of numerous carriers among patients and staff. Anyone who, having obtained such information, has then been somewhat at a loss to know how to interpret or act on it will be grateful to V. D. Allison and Betty C. Hobbs, whose paper appears in the opening pages of this issue, for having pursued such an investigation so thoroughly as to reach definite conclusions about the mode of spread of the epidemic. To enable such conclusions to be drawn, typing of the strains isolated was essential. The method employed was serological, based on the original types defined by Cowan, and the identity of a number of strains defined by this method was confirmed by phage typing.

This study was pursued over a period of two years in a large maternity home at Cardiff, and during this time in

three outbreaks there were 107 cases of pemphigus and 21 of staphylococcal conjunctivitis. The majority of cases in each outbreak were due to a single serological type: possible sources of infection could therefore be identified with some certainty. The organism concerned was found to be exceedingly widespread. It was recovered sometimes from air or dust, and from blankets and clothing. Among human sources the mothers could be excluded in the majority of cases, only 6 out of 15 being found to harbour the same type of staphylococcus. On the other hand, swabbing of the nursery staff on several occasions revealed a large proportion of nasal carriers, many of whom were infected with the same type as that producing pemphigus in the infants. Whether this state of affairs was a cause or an effect might have been uncertain had not swabs been taken from the staff at the beginning of the third epidemic, when only a single case of pemphigus had occurred. At this early stage no fewer than 18 (37.5%) of the nursery staff were already nasal carriers of type 1 *Staph. pyogenes*, the cause of the epidemic which followed. As the authors remark, this observation strongly suggests that a "build-up of nasal carriers of a potentially infective strain occurs among the staff before the appearance of cases of pemphigus." If this is indeed the mechanism underlying such outbreaks, it is at least practicable to define appropriate precautions. It is noteworthy that among the staff there was no skin carrier who was not also a nasal carrier; in other words, the ultimate source in the carrier is nearly always the nose, and the most elementary of all precautions is to obviate contamination of the hands from that source. Is it yet generally understood among nurses that the use of a handkerchief should be followed by thorough washing of the hands?

Other measures which may materially assist in protecting infants from infection are discussed in this paper. Over crowding, which was evidently a factor in the first of the outbreaks described here, must obviously be avoided, and good ventilation and lighting are necessary. Measures to allay dust are important, as in cross-infection of almost all kinds; in particular ordinary dry sweeping is to be condemned and a vacuum cleaner or damp dusting substituted. Then there are many technical details connected with the nursing care of infants which require regulation with the possibilities of cross-infection in mind, such as the sterilization of baths, and the use of separate toilet outfits and towels for each infant. The highly trained nurse will instinctively conform to such practices; for pupils the rule need to be precise and rigidly enforced. The authors make the interesting suggestion that infants would perhaps be better off with their mothers than congregated in a room separate from them, a system which can be commended from other points of view (see page 20). The treatment of carriers with sulphathiazole snuff has proved disappointing, and it is apparently concluded that attempts to clear up carriers by such means are not worth while. The addition of calcium penicillin to sulphathiazole used as snuff greatly reinforces its action, and the use of this mixture is worth considering if in any individual case it is deemed important to abolish the carrier condition. This paper with its very practical conclusions will be welcomed by those who have had to deal with such troubles in maternity

homes. So elaborate a form of investigation is rarely possible, but when once carried out with such thoroughness it almost removes the necessity for further efforts on the same lines.

## NEONATAL INFECTIONS

The stress which is now placed upon the prevention of ill-health, especially in young children, has caused renewed attention to be given to certain diseases and abnormalities, which in the past have received only sporadic consideration in medical literature and have seldom aroused more than a local and temporary interest. Neonatal infection is a case in point; and the recent Report<sup>1</sup> prepared by a highly competent subcommittee of the Scientific Advisory Committee to the Department of Health for Scotland is an important document, not only for its detailed and very practical recommendations for the prevention of such infections but because it focuses attention upon the conditions which endanger newly born babies, especially in maternity institutions, and upon the characteristic features of infective processes in the early weeks of life. There is no period in the whole life of man, from fertilization of the ovum to old age, when he is safe from the threat of bacterial assault; but the circumstances in which the warfare begins and is pursued, the constitution of the armies engaged, and the probable course of the battle vary materially from phase to phase of the person's life. In so far as neonatal infection is concerned it is well known that unhygienic conditions in the baby's environment, overcrowding, faulty nursing care, and the contact of the child with infected adults are the most important sources of danger; and it is unfortunately true that despite anxious efforts by the medical staffs and lay committees of maternity institutions to reduce these risks in the nurseries and wards of their hospitals the babies born in many institutions are seriously threatened. Most of our maternity hospitals were built at a time when it was the custom to house the babies in large nurseries, where the danger of cross-infection is considerable; and the increased demand by mothers to have their babies in hospital has accentuated conditions of overcrowding. But it is probable that faulty nursing care is a greater danger than faulty architectural design. Such a statement should not be interpreted as a criticism of the student nurses, who are for the most part conscientious, enthusiastic, and hard-working; indeed, our sympathy goes out to them in their daily struggle to achieve the impossible. Insufficient in numbers, harassed by examinations which stress theoretical book knowledge rather than practical proficiency, and sometimes irritated by rules and regulations long outdated, these women are driven to adopt a nursery technique which places a premium upon speed. The Report states that the preventive measure of greatest importance in dealing with neonatal infection is the routine observance of an orderly and unhurried basic nursing technique by a staff adequate in number and quality; and it recommends that a ratio of two nurses to three cots should be aimed at as a minimum in the nurseries. In the larger maternity hospitals and units there should be a basic permanent staff of trained nurses,

especially in the units for premature infants, sick infants, and infected infants, and there should be a trained nurse always on duty and an experienced sister, or sisters, in charge. At least one-third of the nursery staff should consist of permanent trained personnel, the remainder being trainees. These recommendations are in general agreement with those put forward by a subcommittee of the British Paediatric Association on neonatal mortality and on arrangements for newly born babies in maternity hospitals.<sup>2</sup> During the present shortage of nurses it is suggested that nursery nurses be recruited, where possible, as helpers in the nurseries, with appropriate scales of remuneration. Useful suggestions are made regarding the training of midwives, and Appendix 2 provides a detailed description of nursery technique as practised in the Aberdeen Maternity Hospital. It is interesting to compare this Appendix with the technique adopted by Beryl Corner.<sup>3</sup> A suggestion likely to meet with the approval of paediatricians is that part of the training of a sick children's nurse might be obtained in the nursery of a maternity hospital or unit for a period of, say, three months. In regard to architecture, the Report recommends that large nurseries should be replaced by a suite of smaller wards, preferably containing from four to six cots each. Special provision is needed for (a) sick infants (10 cots per 100 maternity beds); (b) premature infants born in the hospital or admitted from the district (10 cots per 100 maternity beds); and (c) the isolation of infants suffering from infective conditions (5 to 10 cots per 100 maternity beds). Some of these special wards should be capable of holding 4 cots each, and some should be single cubicles. It may be questioned whether the Report goes far enough in this section, and a strong case can be made by those who hold that mothers should have their babies beside them: when this is done "with simple precautions not only is the danger of neonatal infection less than it otherwise would be, but breast feeding and the relationship between mother and child are firmly and safely established in a physiologically natural manner."<sup>4</sup>

The most dangerous of the commoner types of neonatal infection are pneumonia and epidemic diarrhoea; but even "minor" infections such as conjunctivitis, septic spots on the skin, and the common cold are liable to develop into more serious infections, and are a source of danger to other infants. The pathologists of the two maternity hospitals mentioned in the Report considered that at least 30.7% and 16.1% of the total neonatal deaths in their hospitals were due to infection. These conclusions are in line with an earlier report by J. N. Cruickshank,<sup>5</sup> who in a survey of 800 neonatal deaths in a maternity hospital found that 29.75% were caused by infection. Premature infants, and those who suffer an injury at birth or neonatal asphyxia, are especially liable to fall victims, and the infection may then be a terminal complication. The clinical recognition of some types of neonatal infection presents difficulties, which probably accounted for the fact that in the two series of cases

<sup>2</sup> *Arch. Dis. Childh.*, 1943, 18, 62, 159.

<sup>3</sup> *Proc. roy. Soc. Med.*, 1946, 39, 383.

<sup>4</sup> Spence, J. C., *British Medical Journal*, 1947, 1, 125.

<sup>5</sup> *Med. Res. Cncl. Sp. Rep. Ser.*, No. 145, 1930, London.

mentioned above the diagnosis was made during life in only 16.1% and 17.6% respectively. There is, however, a general feeling among paediatricians that the higher figure is a more accurate estimate of the prevalence of neonatal infection in institutions.

Other subjects which receive consideration are the importance of breast feeding; the value of mothercraft instruction, and of better co-operation between hospital, health visitor, and family doctor; the paediatric staffing of maternity hospitals; record keeping and annual reports; the milk kitchen; and the prevention of infection when artificial feeding is essential.

## SURGERY OF THE GALL-BLADDER

It is a salutary if somewhat humiliating thought that in spite of the advancement of surgery the gall-bladder continues to present many unsolved problems. Thanks to a combination of more accurate diagnostic methods, more detailed planning of pre-operative treatment, improved technique, and the development of preventive measures against post-operative complications, the mortality of gall-bladder operations has fallen in a period of 20 years from about 4% to 1% or less. Nevertheless, there is still no agreement on whether a gall-bladder should be removed from the fundus downwards—as recommended by such a sound and experienced surgeon as Allen,<sup>1</sup> of Boston—or from the ducts upwards. The latter method is that usually taught in this country—the former probably the more commonly practised. On page 11 of this issue Love describes a refinement of cholecystectomy based on the partial removal of the gall-bladder, combined with electrocoagulation of the residual strip left on the liver bed, which he terms diathermy dissection. This procedure allows the raw area of the liver bed to be covered either directly by peritoneal flaps or by a pad of omentum or falciform ligament. If this effects, as is claimed, sufficient sealing of blood and bile vessels to prevent post-operative drainage there is no doubt the consequent avoidance of chest complications would render cholecystectomy a safer procedure.

The author's account in the same article of an abnormal duct from the gall-bladder to the liver draws attention to the well-known multiplicity of variations in the anatomical arrangement of the bile ducts and accompanying vessels, which, combined with difficulty of access, makes the more mechanical side of gall-bladder surgery so difficult. The recent spate of articles on repair of damaged bile ducts is unfortunately not all the result of war injuries. Here again the many ingenious methods of anastomosis described show that no general agreement prevails. Another important practical consideration arises from Love's article: should the common bile duct be opened as a routine during cholecystectomy or not? The pendulum appears to be swinging towards a more conservative approach to this problem, and most surgeons would probably consider a routine cholangiogram during operation an unnecessary procedure.

Battles are still being fought over the aetiology of cholelithiasis. The advocates of stasis and infection have recently met a doughty opponent in Robertson,<sup>2</sup> of the Mayo Clinic, who has produced a convincingly argued hormonal (sex-hormone) theory for gallstone formation. The contribution from Majoor and Suren on page 8 of this issue exhibits another aspect of this evergreen subject and may throw light on it. These Dutch workers, collecting their information during the difficult days of the

"occupation," draw their interesting deductions from their post-gastrectomy cases, in some of which gallstones have developed within six months to three years after operation. Their surmise that the interruption of normal duodenal flow leads to such changes in biliary physiology that cholesterol is precipitated in abnormal quantities has both practical and theoretical significance. The biliary apparatus and its contents—physiological and pathological—still offer a wide field for research.

## ANTISEPTIC TREATMENT

It is a source of enduring wonder to anyone who has followed the development of bacterial chemotherapy in the past fifteen years that the major forms of septic infection can now be treated more successfully than the minor. In the presence of a spreading cellulitis or septicaemia the indications for treatment are clear, and the results almost uniformly good. On the other hand, local septic infection, whether in a wound or elsewhere, cannot be overcome with anything like the same facility by the same or any other means. There are several reasons for this, among them the frequent presence of penicillin-resistant types of bacteria, such as Gram-negative bacilli, the relative inactivity of sulphonamides in wound exudates, and the relative inactivity of the bacteria themselves, their susceptibility to either of these agents being greatest only during active multiplication. Used intelligently, and only in the presence of susceptible infection, penicillin is of course an ideal antiseptic, but it is by no means applicable to every case, and the search continues for some other agent which will fill the gap left by its deficiencies.

A very considerable variety of antiseptics is still being experimented with, and to judge by the present literature on the subject the field is as open as it was fifteen years ago, though there is now a much firmer conviction that such treatment, properly applied, can be effective. Most of this literature is American, and it deals with almost every conceivable type of substance except the acridines. It is not easy to understand why workers in the U.S.A. disregard proflavine and the newer compounds such as 5-aminoacridine, the use of which for combating sepsis has received strong support from sources in Great Britain, the British Army, and Australia. It would be interesting if the mixture<sup>1</sup> or compound<sup>2</sup> of proflavine and sulphathiazole which has found favour here were included in some of the trials now proceeding in the U.S.A. An example of this type of work is that described by E. L. Howes,<sup>3</sup> who submitted various antiseptics first to tests for toxicity, which included addition to tissue cultures, application to the eye, intramuscular and intraperitoneal injection, and observations on effect on wound healing. Zephiran, parachlorophenol, and tyrothricin were eliminated from further trials as being too toxic. The substances surviving this stage were penicillin, streptomycin, and "sulfamylon" (better known as "marfanil"). These were submitted to tests of bactericidal activity and finally to clinical trial for wound treatment.

The technique employed for testing bactericidal activity in the presence of blood was the application of the antiseptic solution on a piece of filter paper for ten minutes to a heavily inoculated blood agar plate previously incubated for three hours. This method is open to criticism, because its results do not reflect capacity to kill various species of bacteria within ten minutes, as the author appears to suggest, but rather diffusibility into the medium and subsequent bacteriostatic action. As judged in this way

<sup>1</sup> *Ann. Surg.*, 1945, 121, 412.

<sup>2</sup> *Surg. Gynec. Obstet.*, 1945, 80, 1.

<sup>1</sup> McIntosh, J., and Selbie, F. R., *Lancet*, 1944, 1, 591.

<sup>2</sup> McIntosh, J., Robinson, R. H. M., and Selbie, F. R., *ibid.*, 1945, 2, 97.

<sup>3</sup> *Surg. Gynec. Obstet.*, 1946, 82, 1.

penicillin failed against Gram-negative bacilli and streptomycin against streptococci, but "sulfamylon" inhibited all species of organisms tested. The upshot of all these tests, together with some clinical trials, was to place "sulfamylon" first in order of merit, streptomycin second, and penicillin third, with a recommendation that the first two be used in combination.

Tyrothricin is the subject of an extensive clinical study by D. D. Kozoll and others,<sup>4</sup> who illustrate the effects of applying it as a wet dressing to septic wounds: some of these were conveniently bilateral, one side being treated and the other used as a control. The results in coccal infections were good; the growth of diphtheroids and *Ps. pyocyanea* appeared to be "encouraged." E. A. Brown and his colleagues<sup>5</sup> introduce a solution of carbamide peroxide in glycerine, which they propose to call "thenardol" after L. Thénard, the discoverer of hydrogen peroxide, as an antiseptic for various types of local infection. The main evidence presented in this paper comprises tests by the gar cup technique, a proceeding which does not in itself carry conviction even of potential *in vivo* activity, but favourable clinical results are also briefly mentioned.

### POLLEN ALLERGY

Reports of air-borne allergens causing dermatitis have appeared from time to time since 1918.<sup>6</sup> Such allergens may give rise to a contact dermatitis or, if inhaled, to an atopic dermatitis. Pollens are especially suitable for investigation as possible causes, since they are potent allergens and the times of their seasonal occurrences are known. Rowe in 1937<sup>7</sup> presented statistical data on 30 cases of allergic (atopic) dermatitis in which inhalant allergy was the chief or only cause, pollens being the dominant influence in 27. More recently Rowe<sup>8</sup> has described for the first time 6 cases of atopic dermatitis (eczema) of the hands as the sole or major manifestation of inhalant pollen allergy. He found 16 such cases out of 180 of atopic dermatitis of the hands that he has studied during the last eight years. The rash usually occurs on the backs of the hands and on the backs and sides of the fingers, less often on the palms and round the wrists. It is usually bilateral and fairly symmetrical. Often after the dermatitis of the hands has recurred for several years other areas of the skin—the face, the neck, the extremities, and very occasionally the body—may become involved. Rowe points out that, as in all cases of clinical allergy, the only evidence of sensitivity may be that obtained from the history, the onset or aggravation of the rash during the pollen season being especially suggestive. The skin tests may or may not be positive: treatment confirms or disproves the diagnosis. Other causes such as other inhalants, drugs, and foods must be excluded, as must the so-called "id" reactions and especially contact dermatitis.

The treatment is perennial desensitization with minute doses of all the pollens encountered during the months when the dermatitis persists, usually using 20 to 50 types. Since the skin tests do not indicate which pollens are the cause of the eczema, all the possible causative pollens are included in the desensitizing solution in order to be certain of including the offending ones. The initial dose is 0.1 ml. of an extract varying in dilution from 1:5,000,000 to 1:5,000,000,000. Injections are given every one to three days. An increase of the itching and dermatitis usually indicates an excessive dose, while with proper dosage there

is a decrease of the rash and the itching in two to three weeks. When there is a distinct improvement the dose can be gradually increased, especially after the pollen in the air has decreased. The dermatitis of the hands in the 6 cases recorded had existed from 3 to 18 years, with an average of 9.3 years. Satisfactory results were obtained in all 6 cases. Rowe appears not to have used inhalation to test any of his patients, and we wonder whether this might not have given a clearer indication of sensitivity than the skin tests. However, his studies are of considerable interest in this most difficult field, and his previous contributions to clinical allergy are such that his views merit the most careful consideration.

### SUNFLOWER-SEED PROTEIN

The sunflower, though grown in this country mainly for decorative purposes, is in many parts of the world a valuable source of food. The seeds are rich in oil, which is edible and readily extracted. The residual meal contains up to 50% of proteins, and should therefore be a valuable food for livestock if its constituent amino-acids are such as to endow it with a high biological value. Doubts on this point were recently expressed by Day and Levin,<sup>1</sup> who concluded that sunflower meal is more important as a source of the vitamin B complex than of protein. In support of this view the biological value of the protein was found by Mitchell, Hamilton, and Beadles<sup>2</sup> to be inferior to that of the soya bean, and in the same low class as that of oats, wheat, and barley. Block and Bolling,<sup>3</sup> however, agreed with Grau and Almquist<sup>4</sup> in claiming that the amino-acid analysis of the meal compares very favourably with that of beef muscle. Which of these conflicting views was to be believed? Experiments to clear up this point have now been reported by Grau and Almquist.<sup>5</sup> In this work the growth rates of chicks given South American sunflower meal as a source of protein were compared with the rates of others given casein or sardine meal. As a result the sunflower meal was found to be fully equal to these excellent sources of protein. Its biological value, moreover, was not improved by adding lysine—an amino-acid which is deficient in many cereal and oil-seed proteins. When given at a level equivalent to 20% of protein in the diet the sunflower meal was satisfactory as a complete source of amino-acids for the young chick.

If these results are duly confirmed the sunflower must rank high in nutritive value, particularly among vegetable foodstuffs. In a practical way its excellence has already been recognized in Soviet Russia and other parts of the world, where it is grown in large quantities. In our own country, however, its value as a possible alternative to more familiar crops must obviously depend not only on the food value per unit weight of seed but on numerous other factors, including the yield of seed per acre. Whether sunflowers deserve more attention than that already given by the backyard poultry-keeper, and could profitably take the place of other crops in well-tilled soil, is a question which only the expert agriculturist can decide. A plant which yields both oil and good quality protein, and which does not require tropical warmth or moisture for its cultivation, is, however, certainly worth intensive investigation. The plant-breeder should inquire into the possibility of evolving improved strains with larger seeds and higher oil content. The colonial administrator should not neglect the possibilities of the sunflower when faced with unpromising soil which is unsuitable for other crops.

<sup>1</sup> Surg. Gyrec. Obstet., 1946, 63, 323.

<sup>2</sup> New Engl. J. Med., 1946, 243, 468.

<sup>3</sup> Walker, I. C., J. Amer. med. Ass., 1918, 70, 897.

<sup>4</sup> Clin. Allergy, 1937, Baillière, Tindall and Cox, London.

<sup>5</sup> Arch. Derm. Syph., 1946, 53, 437.

<sup>1</sup> Science, 1945, 101, 438.

<sup>2</sup> J. Nutrit., 1945, 29, 13.

<sup>3</sup> Arch. Biochem., 1945, 6, 277.

<sup>4</sup> Ibid., 1945, 6, 287.

<sup>5</sup> Proc. Soc. exp. Biol. N.Y., 1945, 60, 373.



## THE FOUNDLING HOSPITAL CHILD WELFARE SCHEME

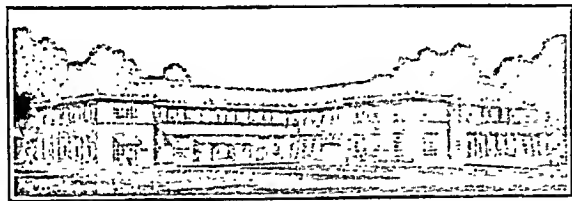
BY

D. H. GEFFEN, M.D., D.P.H.

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In the early part of the 18th century a certain Capt. Thomas Coram travelled the seas in the Merchant Navy, and during his voyages he was so shocked at the sight of the deplorable conditions under which children were living that he determined when he retired to do something to better their lot in his own country. In 1739 he found the means to achieve his purpose and in 1741 he rented a house in Hatton Gardens for destitute children. In 1745 he completed the building of the Foundling Hospital in Brunswick Square. Hogarth was one of the earliest governors and Handel was also a benefactor. Many will remember this building, which was pulled down within the last few years. It had charm of design and was one of the remaining features of early 18th century London. It was not, however, entirely suitable for the care of children. In 1926 the governors sold the site and buildings and moved temporarily to Redhill, later finding their permanent home at Berkhamsted.

Much controversy ensued on the future of the Brunswick Square site, and at one time it appeared as though St. Pancras would lose this open space, which would be utilized for building purposes. It was largely due to the efforts of Mrs. G. M. Trevelyan that nine acres of the area were made available as playing fields, and the governors were able to repurchase 100,000 sq. ft., to be known as Coram's Gardens, which they determined to use for the benefit of young children. They erected a residential nursery and a day nursery (see Fig.) for



children of the neighbourhood as a memorial to Capt. Coram on the site where he built the original Foundling Hospital, and together with these a model nursery school for some 80 children with a series of large rooms for the instruction of pupils in the care of babies and children. All the arrangements for the residential and day nurseries and the nursery school are ideal, providing ample playing space, a southern aspect, hygienic walls and floors, the most modern toilet arrangements particularly suited to young children, and window space of ideal proportions in a building of beautiful design.

When all these preparations were completed the war broke out in 1939, and it was decided that London was unsuitable for keeping a large number of children together in an area likely to be attacked by enemy action. The premises were requisitioned by the St. Pancras Borough Council and used as a rest centre, in which capacity they were of inestimable value. A year or two later, however, the need for day nurseries in London became of paramount importance to enable women to work. By arrangement with the governors the ground floor of the residential nursery was utilized by the St. Pancras Borough Council as a wartime day nursery, and the governors made available to the Council their furniture and equipment. At the end of the war it was possible to derequisition that part of the premises used as a rest centre, and in due course the nursery school block was opened and is now administered by the St. Leonard's Nursery School Committee with the help and support of the governors.

The next development was the need to find residential accommodation for babies, and by arrangement with the St. Pancras Borough Council the first floor of the day nursery has been made available for this purpose. A scheme has been agreed between the governors of the Foundling Hospital and the St. Pancras Borough Council whereby there shall be one matron, one doctor, and one kitchen staff for both the day and the residential nurseries, but the nursing staff will be separate. It

is hoped that within a matter of weeks the residential nursery will be open and receiving its first young residents. There will then be on the site a day nursery, a residential nursery, a nursery school, and teaching quarters ideal in design and efficiency.

### Teaching Centre

It became obvious that here was not only an opportunity for caring for young children by the many means now considered appropriate, but an excellent opportunity for teaching, for over the road is the Great Ormond Street Hospital for Sick Children with the Nuffield Institute of Child Health, and nearby is the London School of Hygiene and Tropical Medicine, both bodies keenly interested in teaching child welfare to doctors from both Britain and the Empire. The friendly help of Col. Nichols, secretary of the Foundling Hospital, made it easy for Prof. Alan Moncrieff, as Director, and for me, as lecturer on Public Health at the Institute of Child Health, to place a plan before the governors to complete their scheme for the care of children.

We suggested that the war-damaged building originally used as a canteen and later as a laundry should be repaired and converted to form a maternity and child welfare centre, with ultimate provision for a minor ailment clinic for school-children. A tentative ground plan was prepared by the architect. At this stage the governors are prepared to carry out the work to convert this derelict building into a maternity and child welfare centre provided the local authority will be responsible for its maintenance, staffing, and upkeep.

The governors of the Foundling Hospital placed this proposition before the St. Pancras Borough Council, and it received their immediate and whole-hearted support. The scheme links the governors' welfare work on the Foundling site with local authority activities and co-ordinates it with the Institute of Child Health at Great Ormond Street Hospital. It is anticipated that the staffing of the welfare clinic, and possibly even of the residential nursery, may in due course be carried out in conjunction with that hospital. In addition, this site would provide a training ground for postgraduate teaching at the Institute of Child Health for doctors studying for the Diploma in Child Health and for nurses as well. Co-operation already exists between the Institute and the St. Pancras Borough Council, for the medical officer of health of St. Pancras is lecturer at the Institute, the assistant medical officers of the Council are external tutors, and there is interchange of staff between the Institute and the Council's welfare medical officers—a scheme suggested in the report of the British Paediatric Association. This proposal to build a welfare centre will be placed before the Ministry of Health for approval and will be considered by them in conjunction with the L.C.C., which is the new health authority and will be responsible for child welfare in the near future.

Associated with the child welfare activities of the governors on this site there exist the residential schools at Berkhamsted and homes which they are administering for the care of women and children. Furthermore, a large area adjoining the site has been scheduled for the erection of one of the L.C.C.'s new schools, and the St. Pancras Borough Council has acquired many acres on which it has already begun to build blocks of modern flats. If this scheme is adopted there will be on this site and in the vicinity modern flats, a modern school, a nursery school, a residential nursery, a day nursery, a maternity and child welfare centre, a school clinic (possibly with a dental clinic), a swimming pool, nine acres of playing fields, and perhaps one of the clinics envisaged in the new Act for general practitioners—and this in the heart of London and in the centre of London's teaching district. It will indeed be a centre of health and health teaching, and an example of the finest type of co-operation between the Government, local authorities, teaching bodies, and voluntary associations.

The Board of Registration of Medical Auxiliaries has recently published the seventh edition of its *National Register of Medical Auxiliary Services*, which gives the names and addresses of persons engaged in work ancillary to medical science and practice. Medical practitioners may obtain a copy free from the Registrar, Board of Registration of Medical Auxiliaries, Tavistock House North, Tavistock Square, London, W.C.1.

## BARTHOLOMEW MOSSE

## FOUNDER OF THE ROTUNDA HOSPITAL

Next week the Rotunda Hospital is celebrating its bicentenary. An International Congress of Obstetricians and Gynaecologists will discuss such subjects as puerperal sepsis, eclampsia, and obstetric shock. There will be receptions, dinners, and sherry parties. Ireland always does these things well, and Dublin outstandingly so. According to Oliver St. John Gogarty, Dublin is "a state of mind," but it is a state of mind best appreciated within easy reach of O'Connell Street.

In the course of the celebrations, which the war prevented being held in 1945, the Congress will hear addresses by Mahfouz Pasha, from Egypt; Prof. Bernhard Zondek, from the Hadassah Hospital in Jerusalem; and many distinguished guests from the U.S.A., France, Belgium, Scandinavia, India, South Africa, Australia, Canada, and Great Britain. These and other notable visitors will in their turn be sure to hear some mention of Bartholomew Mosse. They will see his bust in the front hall of the Rotunda Hospital and the portrait which hangs in the board room. There is also an engraving, here reproduced, which he signed and which is in the possession of the Royal College of Physicians of Ireland.

Curran (1945) says that "Dr. Mosse was a man of quite unusual initiative," and that he showed "a magnificent recklessness . . . in the way he risked his reputation and personal fortune in his philanthropic venture." O'Donel Browne (1947), whose recent book is reviewed elsewhere in this issue (p. 17), pays tribute to "his dauntless courage and clear vision." Kirkpatrick in his book, and more recently (1945), has described how Mosse "boldly embarked on his great design." These three authors have told, from different points of view, the history of the Rotunda Hospital.

For the first full account of its remarkable founder it is necessary to go back to an unsigned article published in the *Dublin Quarterly Journal of Medical Science* at the time of the hospital's centenary. Its opening sentences could not, and should not, be paraphrased.

"Men will labour diligently for their own advancement, either directly or indirectly, and will even contribute liberally to the relief of distress; but how seldom do we see an individual devoting his time, his talents, bodily and mental labour, and his wealth, to the sole purpose of raising up an asylum for the relief of suffering, and, at the same time, for the improvement of his own profession, without the prospect—nay, we may say, without the possibility—of an adequate reward? And yet this was what was done, simply and without display, and, as will appear by the following memoir, under circumstances of unparalleled difficulty, by the founder and builder of the Lying-in Hospital in this city."

## Early Days

The Rev. Thomas Mosse, rector of Maryborough, Queen's County, gave his son, Bartholomew, who was born in 1712, a "genteel education." The young man was then apprenticed to John Stone, a Dublin surgeon. By the time he was 21 Bartholomew Mosse was said by the Surgeon-General to be "very well qualified to practise the art of surgery." For a while he had medical charge of men "drafted from Ireland to complete the regiments in Minorca," and later he studied midwifery in England, France, and Holland. Returning to Dublin,

he was admitted a licentiate in midwifery of the King's and Queen's College of Physicians on May 22, 1742. A year later he married his first cousin, Jane, a daughter of the Venerable Charles Whittingham, Archdeacon of Dublin. His first wife had died childless in 1734.

"In the course of his practice charity often demanded his assistance; and he hath often declared, that the misery of the poor women of the city of Dublin, at the time of their lying-in, would scarcely be conceived by any one who had not been an eye witness of their wretched circumstances; that their lodgings were generally in cold garrets open to every wind, or in damp cellars, subject to floods from excessive rains; destitute of attendance, medicines, and often of proper food, by which hundreds perished with their little infants.

"These distresses excited his compassion, and he resolved no longer to delay his endeavours to establish an hospital for poor lying-in women. Having communicated this humane and charitable

intention to a few particular friends who highly approved of his scheme, he took a large house in George Lane, which he furnished with bed and other necessaries, and opened the same on the 15th of March 1745, continuing to support it chiefly at his own expense, and constantly attending it in person until the apparent usefulness of it induced several well-disposed persons to encourage the undertaking by benefactions and yearly subscriptions, which encouraged him to enlarge his plan."

It was obvious that any enlargement would cost a great deal of money. Mosse proceeded to raise the money by "plays, lottery schemes, concerts, oratorios, etc.; and we may mention that he brought over Castrucci, the last pupil of Corelli, as an attraction to these concerts." It should perhaps also be mentioned that the first play arranged by Mosse for the benefit of the Lying-in Hospital was *The Conscious Lovers*. By August, 1748, he had a lease of £70 a year of the present site and a plan for a new hospital. The original Dublin Lying-in Hospital for Poor Women in the twelve and a half years of its existence had dealt with 3,971 deliveries at a total cost of

£3,913 13s. The maternal death rate was slightly more than 1%, the stillbirth rate 1 in 34, and the neonatal death rate 1 in 17. On the new site "he first, at the risk of his whole fortune, laid out and furnished a garden, with an orchestra coffee-room, and decorations, for the entertainment of the public in the manner of Vauxhall, near London, whereon he expended about £2,000. He then employed a band of music and soon found his expectations fulfilled by a constant resort of company during the summer season which produced nearly £400 annually."

## The New Hospital

The foundation-stone of the new hospital was laid by the Lord Mayor of Dublin on June 4, 1751. At this time, in his own words, Mosse was "barely worth £500" and well aware that the hospital would cost £20,000. So he promoted a lottery and sold many tickets, but "the Lords Justices would not allow the drawing." He went to London with a similar project in mind, and "his enemies raised many scandalous and fresh reports giving out that he had absconded for debt and could never return." Another lottery caused further difficulties and ended in his arrest at Holyhead. Nothing daunted, Mosse escaped through a window, persuaded two boatmen to take him some distance away, and "remained in a poor cabin of the wild mountains of Wales for some weeks before he would venture home."



Bartholomew Mosse

Despite these and other difficulties the building of the new hospital proceeded. Though not completed, it was opened on Dec. 8, 1757, and immediately admitted "fifty-two poor women, great with child, who attended in the hall with proper certificates for admission, and were all decently clothed in uniform at the expense of the hospital, each in a blue calimanco gown and petticoat, shift, handkerchief, cap, and apron." The Round Room, whose name has gradually passed to the hospital itself, had yet to be built, but Mosse was a sick man.

"Having greatly impaired his health by intense study and application of mind, by his close attention to the business of the hospital, by constantly superintending the building, and by several fatiguing journeys to London, to forward his schemes, he did not long enjoy the pleasure arising from the success of his labours, for he grew so ill in the beginning of the winter of 1758, that he was obliged for the most part to confine himself to his chamber. Several physicians attended him, but, finding all their endeavours ineffectual, they advised him to return into the country. On this occasion Alderman Peter Barre made him the kind offer of his house at Cullenswood (about a mile from town), which the Doctor readily accepted; and there, on the 16th of February following, he departed this life in the 47th year of his age, and was interred at Donnybrook, leaving the new hospital a monument to posterity of his surprising perseverance, diligence, and ingenuity, and indeed one of the most superb architectural ornaments of the great and elegant city of Dublin."

Bartholomew Mosse was followed as Master by Fielding Ould. In a brief lifetime he succeeded in accomplishing what he set out to accomplish.

We are indebted to the Royal College of Physicians of Ireland for permission to reproduce the engraving of Bartholomew Mosse

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## SEPTCENTENARY OF BETHLEM

Bethlem mental hospital, which was discussed in these columns last week (June 28, p. 935), celebrated the 700th anniversary of its foundation on June 28. A commemoration service was held in the Lady Wakefield Chapel, conducted by the Bishop of Croydon and attended by the Lord Mayor of London as senior governor. The association of Bethlem with the City of London was further emphasized at a luncheon when the principal speech was made by Mr. Ralph Ashteton, Member of Parliament for the City, who, recalling the fact that Bethlem began its existence in the reign of Henry III as a monastery, said that formerly the physician of the soul and the physician of the body were often one and the same person, and suggested that the separation of these functions which modern science had brought about was in many respects unfortunate. Sir Arthur Rucker, deputy secretary of the Ministry of Health, responded for the guests. Later in the afternoon a garden party in the grounds of the hospital was attended by H.M. Queen Mary, who planted a tree to mark the occasion. Demonstrations were given in the occupational therapy department and in the Lord Wakefield treatment and research unit. The visitors included many psychiatrists from various parts of the country.

## CLINICAL TRIALS OF STREPTOMYCIN

Doctors in southern England, including the London area, wishing to propose cases of acute military tuberculosis or tuberculous meningitis for admission to a Medical Research Council trials centre for streptomycin treatment should, from July 4, make their request through the Emergency Bed Service, London (Monarch 8515: day and night service). The Service will be kept fully informed of the number and type of cases which can be admitted to each centre, and where a bed is available will direct the inquiry to the appropriate medical officer. It should be emphasized that the number of cases which it will be possible to admit for treatment during the period of the present tests is still limited. Trials of streptomycin in tuberculous meningitis in children aged up to 8 are also being made, under the Council's authority, at the Alder Hey Children's Hospital, Liverpool, and the Royal Hospital for Sick Children, Glasgow, as was indicated in a recent annotation (June 7, p. 814).

## DR. ANGELUS

## A NEW PLAY BY JAMES BRIDIE

The work of a medical playwright always holds a special interest for his colleagues. James Bridie's new play, *Dr. Angelus*, was given its first performance in Edinburgh last week. Ranging over the medical curriculum, Bridie has shown us the romance of the dissecting-room in *The Anatomist* and, while the clergyman slept, has drawn in heroic lines the drama of the laboratory and tilted at some theories of eugenics. *Dr. Angelus* takes us through the medium of the far-from-chromium-plated consulting-room of a Glasgow general practitioner (of Edinburgh training) into the realms of psychopathology. This eccentric gentleman successfully murders his mother-in-law and his wife on the entirely logical grounds that women of their mediocre intellectual and other qualities are a handicap to the full development of his capacities and are at the same time insured for useful sums of money. This he accomplishes by the simple expedient of persuading them that they are ill and "treating" them with spectacular doses of antimony. As part of the "build-up" designed to prevent any unenlightened interference with his plan he takes into partnership an earnest and simple-minded young Englishman, a product of Durham University and St. Thomas's Hospital, and cajoles him into signing the death certificates. As a further precaution he calls in, at a last-minute consultation, Sir Gregory Butt, whom he endeavours to deceive with details of careful clinical investigation and an appearance of affectionate solicitude, albeit perfunctorily and contemptuously, since he shrewdly guesses that worldly considerations will ensure that Sir Gregory will take none but evasive action in the face of a very fishy and unsavoury business. In the end his schemes suffer the frequent fate of those of mice and other men. Fate steps in, taking the shape of the Glasgow C.I.D. and a lady patient, who conceives a dislike for Dr. Angelus and an affection for the young doctor, largely because he recites the Hippocratic Oath to her at the psychological moment. Mrs. Corcoran, the patient, happens most inconveniently to be the wife of an insurance agent.

These contrivances provide full scope for the familiar pawky satire. The poor young Sassenach, Dr. Johnson, barely misses an abrupt and early termination to his career by innocently telling Sir Gregory Butt that his experience in Glasgow has not impressed him with "provincial medicine." The pompous, sanctimonious humbug that is the outward sign of the Angelus megalomania provides a whole rack of pegs on which to hang verbose latinity. The mother-in-law is not "dying" but "hovering on the brink of dissolution." The acting of every one of the small cast of eight is of a high order. Mr. Alistair Sim, one fancies, may well have been in the author's mind when he wrote the play. The appearance, gestures, and diction which gave such a fascinating twist to the parts of the detective in the film *Green for Danger* and the author in *Hue and Cry* are turned to good account in portraying the unctuous insincerity of Dr. Angelus. The one really dramatic incident in the play occurs almost at its end when Angelus is trapped and arrested, and Mr. Sim rose to it magnificently. The dawning realization by the maniac that the whole concept of a super-intelligence mastering Fate was but an illusion, finally shattered by a pair of handcuffs, is brilliantly acted. It reflects in no way on the other members of the cast to mention the admirable performance of Mr. George Cole as young Dr. Johnson and that of Mr. Archie Duncan in the smaller part of the police inspector, more representative perhaps of Scotland than of Scotland Yard.

The play, which is first-class entertainment, is described in the programme as a "psychological thriller." How the author regards it is not easy to guess from his whimsical reference to it in a first-night speech as "this wholesome little play." One suspects parody. However that may be, its main appeal is cerebral and not thalamic, and those who go expecting flesh-creeping thrills will be disappointed. The doctor who sees it will appreciate the professional touch in the clever and subtle picture of a psychopathic type and the not too unkindly tilts at the foibles he often notes in his colleagues.



## Nova et Vetera

### PAEDIATRICS FOUR HUNDRED YEARS AGO

Those who have followed the latest development and plans in paediatrics and child health may find it enlightening to study a work on children's diseases first published in 1545. It is *The Regiment of life, whereunto is added a treatise of the pestilence, with the Booke of children*, by Thomas Phaïre. Like Shakespeare's, the name has several variations. Sir Frederic Still in his *History of Paediatrics* gives the following: Phaer, Phayer, Phayre, etc. The volume from which these extracts are taken is a later edition which is in the medical library of Bristol University. It is stated on the title page to be, "newly corrected and enlarged," and was "Imprinted at London, by Ihon Kyngston and Henry Sutton, dwelling in Paules Church-yard. Anno Domini 1553." It is the first work on paediatrics written by an Englishman, and one of the first medical books to be published in English. The author finds it necessary to apologize for not using Latin:

"But my purpose is here to doo them good that have most nede, that is to saye children: and to shewe the remedies that God hath created for the use of man, to distribute in englyshe to them that are unlearned parte of the treasure that is in other languages, to provoke the [them] that are of better learning, to utter their knowledge in suche lyke attempts: fynally to declare that to the use of many, whyche oughte not to be secrete for luere of a fewe.

I intend in this boke . . . to treat only of the thyngs necessary, as to remove the sicknesses, wherewith the tender babes are oftentimes afflicted, and desolate of remedye, for so much as many do suppose that there is no cure to be ministred unto the by reason of their weakenes. And by yr [their] wayne opinion, yea rather by a foolish feare, they forsake many that myght be well recovered, as it shall appere by the grace of God hereafter in this lytl treatyse, when we come to the declaration of the medicines."

Phaïre strongly advocates breast-feeding, not only on his own account but also as a part of traditional wisdom.

"The Poet Virgyl . . . being thoroughly expert in the priities of nature understode right wel how great an alteracion everything taketh of the humoure by whiche it hath his alymente and nourishing in the youthe: whiche thing also was considred and alleged of many wyse Philosophers: Plato, Theophrastus, Xenophon, Aristotle, d Plinie, who did al ascribe unto the nourement as muche effect more, as to the generacion. . . .

Wherefore as it is agreing to nature, so is it also necessary and comly for the own mother to noure the owne child. Whiche if it maye be done, it shall be moste commendable and hoisome, if not ye must be well advised in takyng of a nouree, not of ill complexion and of worse maners: but suche as shalbe sobre, honeste and chaste, well fourmed, amiable and chearefull, so that she may accustom the infant unto mirth, no dronkarde, vicious nor stutyshe, for suche corrupteth the nature of the chylde."

His "Remedies appropriate to the encreasing of milke in the brestes" are very much like the formulae of some of the modern proprietary lactagogues:

"Parsneppe rotes, and fenelle rotes, sodden in broth of chickens, & afterwarde eaten with a little fresh butter." Or, "The powder of earth wormes dried and dronken in the brothe of a neates tongue." "These thynges have propertie to augment the milke, dylle, anyse scede, fenelle, cristall, hore-hounde, fresh chese, hony, lettuse, beetes, myntes, earette rotes, parsnepes, the dugges or udder of a cowe or a shepe, goates milke, blaunched almondes, ryce porrage, a coves iounge dried and made in powder, potched egges, saffrō, and the iuice of roasted ycale dronken."

The list of diseases mentioned is fairly comprehensive:

Apostumes of the brayne, Swellyng of the head, Scalles of the head, Watchyng out of measure, Terrible dreames and feare in the slepe, the falling cvyll called in the greke tonge epilepsy, the Palsey or shakyn of members, the Crampe or spasmus, Styfnesse of limmes, Bloud-shotten eyes, Wateryng eyes, Seabbynesse and ytehe, Disease in the eares, Neasing out of measure, Bredyng of teeth, Canker in the mouth, Quinsie, or swellynge of the throte, Coughes, Streytynesse of wynde, Feblenesse of the stomake and vomityng, Yeaxyn or hicket, Colyke and rumbling in the guttes, Fluxe of the belly, Stoppyng of the belly, Wormes, Swellyng of the navill, the Stone, Pyssyng in bedde, Brustyng, Fallyng of the fundament, Chafyng of the skynne, Smal poekes and measilles, Feuers, Swellyng of the coddess, Sacer ignis or ehingles, Burnyng and scaldyng, Kybbes, Consumption, Leanenesse, Gogle eyes.

Many of his descriptions reveal a keen observation, for instance:

"Of Wormes. There be divers kinds of wormes in the belly, as long, short, round, flat, and some small as lice. . . . In the long & roūd the paciēt commonly hath a drie cough, paine in the belly and about ye guttes, somtyme yeaxyn [hicough], and trembling in ye nighte, & starte sodainly and fal aslepe agayne, other whyles they gnasshe and grynd their teeth together, the eies waxe hollowe with an eygre loke, & have great delyte in slombing and silence, very loth when they are awaked. . . . Many have but small desyre to meate, and when they desyre they cate very gredelye . . . the hole body cōsumeth and waxeth leane the face pale or blew: somtyme a fluxe, sometimes vomite and in some the bellye is swollen as stiffe as a taberet.

The long and brode wormes are known by the signs that is to say yellownesse or whitishnesse of the eyes, intollerable hunger, great gnawynge and grypyng in the belly, specially afore meate, water coming out at the mouth, or at the fundament, continuall ytehe and rubbing at the nosethrilles, sonken eies and a stinkyng breath, also when the person doth his easement there appeareth in the donge litle flat substances muche like the seedes of eucumers or gourdes.

The other lesser sorte are engendred in the great gutte and may well be known by the excedyng ytehe in the fundament within, and are oftentimes sene comyng out with the excrementes: they be called of phisicians ascarides."

The treatments recommended are scolitabotanē or herbe coralline, gall of a bull, colocinth, aloes, and wormesede.

Again, of Chafynge of the skynne: "In the flankes, arme-holes and under the eares, it chaunceeth oftentimes that the skynne fretteth either by the chyldes owne uryne or for the defaute of wasshyng or els by wrapping and keping to hote." Of "Watching out of measure," or sleeplessness. Phaïre says:

"Slepe is the nouryshment and fooode of a sucking child, and as much requisite as ye very tente, wherefore whā it is deprived of the naturall rest, all the hole body falleth in distēper: erudite and weakenes, it proceedeth commonly by corrupeion of the mylke, or to muche abundance, whiche overladeth the stomake, and for lacke of good dygestion, vapours and fumes aryse into the head, and infect the brayne, by reason wherof the child can not slepe, but turneth and vexeth it self w crying."

The treatment which he recommends would not find favour nowadays: "If you can gette any syrupe of, popye, geue it to the chylde to licke . . . also an oymnt made of seede of popy and the heades." Of Terrible dreames and feare in the slepe:

"Oftentimes it happeneth that the chylde is afraid in ye slepe, & somtymes waketh sodainly, & sterteth, somtymes shrieketh and trembleth, whiche effect cometh of the arysing of stynkyng vapours out of ye stomake into the fantasie, and senes of the brayne." The prevention of this: "take hede that the chylde sleepe not with a full stomake, but to beare it about wakyng, tyl part bee dygested and whan that it is layde, not to rocke it muche for overmuch shaking letteth digestion and maketh the childe many tymes to vomite."

Other treatments are, for Brustyng (i.e., hernia), caused by "greate cryng and stoppyng of the breath, byndyng to straighte, or by a fall or of to greate rockyng and such like . . . the guttes fall downe into the eod, which if it be no utterly incurable, may be healed after this forte. First lai the paciēt so upon hys baeke, that his heade maye be lowe than his heeles, than take and reduce the bowles with your hande into the due place, afterwarde ye shall make a plaiste to be layde upon the eoddes, & bounde with a lace round about the baeke."

Fallyng of the fundament: "The gut called of the latine: reetum intestinum, falleth out at the foundament, and can no be gotten in agayne without peine and labour . . . let the child sit in a hote bath made of the decoction of mallowes holyhocke, lyneseede, and the rootes of lilyes, wherein y shall bathe the foundament with a softe eloute or a sponge and whan the place is suppld thruste it in agayne."

Finally, for Smal poekes and Measilles, Phaïre gives advice which can scarcely be bettered even now: "The best and most sure helpe in this ease is not to meddle with anye kynde o medicines, but to let nature work her operacion."

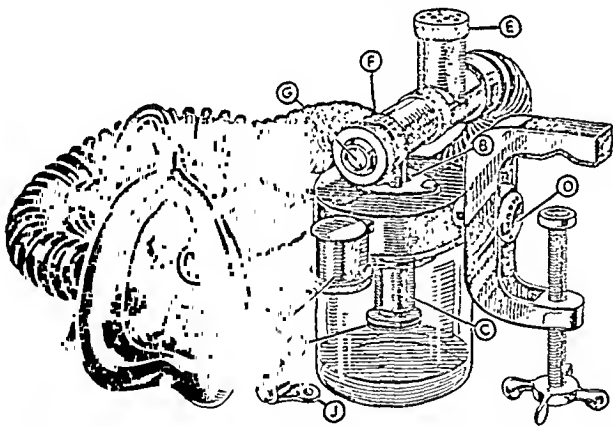
## Preparations and Appliances

### SAFETY APPARATUS FOR ADMINISTERING TRILENE-AND-AIR ANALGESIA

DRS. A. L. HYATT, T. H. GARDENER, and JOHN ELAM write: Purified trichlorethylene ("trilene"), which has proved a satisfactory anaesthetic agent in general surgery, has a special value in obstetrics for obtaining both anaesthesia and analgesia. Trilene, in therapeutic doses, is pleasant to inhale, causes little or no nausea or vomiting, does not interfere with the normal contractions of the uterus, and, so far as our experience goes, does not appear to have any harmful effect on mother or baby. Its chemical formula is somewhat akin to that of chloroform, and it is possible that "delayed chloroform poisoning" may occur after the administration of trilene, though no cases have yet been reported. Cardiac irregularities have been noticed with some frequency under full trilene anaesthesia, but not when trilene is administered to obtain analgesia in obstetrics.

Given a safe apparatus, it appears that trilene analgesia can be safely administered by the midwife. Dr. Hyatt, of Barnet, has designed such a machine, which is produced by Messrs. Seibe Gorman and Co., Davis Road, Tolworth, Surrey, and which is described below.

*Description of Apparatus.*—Trilene is poured through the filter-cap, A, while the apparatus is held in an inverted position. Air is inspired through four air-holes, B, passes down through an outer tube, C, and then over the surface of the trilene and up another tube inside the tube C, thence to the rubber tubing and facepiece. D shows a spring ratchet; E is an expiratory valve; F shows variable air adjustment and G a locking device for extra air. H is a locking device for the bottle; J a key to fit G and H, and L shows an antispill device.



The special advantages associated with the new apparatus are: (1) it cannot be overfilled; (2) liquid trilene cannot reach the patient; (3) the bottle cannot be unscrewed (except by using the key); (4) the midwife could not make the percentage of trilene too strong, as this is prevented by a locking device; (5) the proportion of air over trilene is always a constant factor, owing to the air inlet design, and is not altered by depth of inspiration; (6) the clamp is designed on a spring ratchet and is perfectly stable in any position; (7) a graduated scale of extra air\* is calculated from 0-10 and set to an arrow.

Two of us (T. H. G. and A. L. H.) have administered trilene to 300 patients in their own homes without once failing to obtain adequate analgesia, and without the slightest harm to mother or baby. At Wellhouse Hospital, Barnet, trilene-and-air analgesia has been in use since the autumn of 1941. The number of cases receiving this form of analgesia has been limited by the necessity for training midwives in gas-and-air analgesia. Dr. Canwarden, of St. Luke's Hospital, Guildford, reports, after having two of Dr. Hyatt's machines in use at this hospital: "The patients are most enthusiastic about trilene analgesia, and I have done a matter of a dozen forceps deliveries, with the patient giving her own anaesthetic."

\* This does not mean percentage of trilene to air.

Drs. Greig and Goodheart, of St. Helier Hospital, Carshalton, have kindly carried out an investigation to enable a comparison to be made between the degree of analgesia obtained from trilene and air (from the new machine) and that given from the standard Minnitt apparatus. They consider that the results obtained are not yet convincing from the obstetric angle, as the number of cases was too small. The midwives in charge noted no effect on labour contractions from trilene. Drs. Greig and Goodheart conclude: "We are very pleased, and would always elect to have a trilene machine for convenience of transport, convenience of maintenance, and cheapness; and, of course, the trilene machine scores over anything else of the kind in being capable of different concentration, especially in being capable of concentration to full anaesthesia. We want to do a lot more of these cases rather quickly."

## Reports of Societies

### ACUTE OTITIS MEDIA

At a meeting of the Section of Laryngology and Otology of the Royal Academy of Medicine in Ireland on May 15, the President, Dr. T. G. WILSON, welcomed Mr. GEOFFREY H. BATEMAN, of St. Thomas's Hospital, London, who read a paper on "The Place of Chemotherapy and Penicillin in the Treatment of Acute Otitis Media."

He said that for years he had been sceptical of the claims made for chemotherapy, and cited cases in which mastoid operations were necessary after the otitis media had apparently been cured. He showed statistics to illustrate the difference in the results of those cases treated with the sulphonamides and penicillin and those untreated. In the sulphonamide group the incidence of mastoid operations was higher and the duration of stay in hospital longer, but there was a reduction in the number of cases with dry ears that later developed otorrhoea. He thought that sulphonamide therapy had little effect on the course of otitis media, but would frequently cause an ear to become dry even in the presence of an infected mastoid. It was therefore necessary not to pronounce a cure until the hearing had completely returned, with full lustre of the membrane. He recommended x-ray examination if response to treatment was not satisfactory after three to four days, since this would be invaluable as a control if skiagrams were later required.

Dr. T. O. GRAHAM said he was a strong supporter of the use of sulphonamides and penicillin in the prevention of complications in otitis media. In their hospitals to-day a mastoid operation was rare, due to the fact that the general practitioners were well tutored in the use of penicillin and sulphonamide and gave them adequately and early. Their very low figure of mastoid operations might possibly be due also to the fact that their organisms were less virulent, but he considered it a dangerous thing to preach that sulphonamides and penicillin should not be used in cases of otitis media.

Dr. A. FAGAN said that in his earlier days myringotomy was quite common, but since the advent of the sulphonamides and penicillin that operation had practically disappeared. However, though the advent of sulphonamide had lessened the occurrence of acute otitis media here, it should be borne in mind that this had coincided with the compulsory examination of school-children. Dr. R. R. WOODS said that the incidence of the mastoid operation had always been much higher in England than in Ireland, and suggested this might be due to different bacteria or different types of ears. Since the advent of chemotherapy the incidence of mastoid operations had diminished to about one-fifth of what they previously were. On the whole he did not think the speaker's figures comparable with those in Ireland.

*Health Bulletin*, issued by the Chief Medical Officer of the Department of Health for Scotland, appears for the first time in its 5½ years' existence free of its confidential cover. It records an address on infantile cerebral palsy by Dr. Earl Carlson, of New York, an article on the psychosomatic aspects of chronic sickness by Dr. J. L. Halliday, a lecture on anaemia in infancy and childhood by Dr. G. B. Fleming, as well as an interesting review of influenza in Scotland.

## Correspondence

### General Knowledge and General Practice

SIR,—As one who has been for some time seriously concerned about the matter which Dr. D. N. Baron raises (June 21, p. 902) and has even endeavoured, in a recent book, to provide some small means to help the doctor to fill the important gaps which Dr. Baron mentions, I am glad to see the subject brought out into the open in your columns. For the successful conduct of medical practice in a living society among patients whose lives must be fitted into the social pattern it ought to be abundantly clear that the doctor must know something about the anatomy, the physiology, and the pathology of society, as well as having some conception of the manifold incidentals—the arts, the humanities, and the philosophies—which colour his patients' lives. The possession of such knowledge is one of the characteristics of the good doctor. It often distinguished the "old-fashioned" G.P. from his scientific successor, however much the latter might tend to feel superior to the former, and it may well be one of the reasons why, even nowadays, academic prowess does not always presage success in the daily work of medicine.

It is all to the good that we should wake up to the fact that the medical school, even where it is nominally part of a university, tends to isolate its students from those in other faculties. It is inevitable that those in the later stages of a six-year course should mix little with those taking a three-year course in other subjects, but even in his first preclinical years the medical student's first allegiance is usually given to the hospital in which his future lies rather than to the university or college in which he is spending his present. Where the hospital medical school contains its own preclinical department, so that the student not only loses the need to be associated with a university but is even robbed of contact with students who are doing biology or physiology for a B.Sc. degree, the position is obviously worse.

An important contribution to the present situation has been the custom by which the youngster takes his first M.B. before leaving school. It may be in keeping with the baser materialism of to-day to regard the two years between matriculation at 16 and university entrance at 18 as wasted unless they are used in anticipating the first university year, but it is in those years that the young man or woman could not only learn the beginnings of the arts, the humanities, and economics but could develop that interest in them which would enable him, or her, to make full use of any incidental opportunities which might turn up during the medical student years.

It might be a useful immediate remedy to insist on the last two years at school being spent in real education; most good schoolmasters would co-operate. At the same time there is every reason why throughout the medical curriculum some attention should be given to these ancillary subjects. They are, in the full sense, part of social medicine, and it is encouraging to know that one British university at least is planning to teach a little sociology to both preclinical and clinical medical students. What we must avoid is the pretence that the individual who is interested can learn this sort of thing after he qualifies. He will be too busy at the wrong hours, and there is always some little constraint and restraint which hedges in the doctor. He is separated from his fellows on the human plane by the actual or potential professional relationship which subsists between the doctor and the layman. Most of all, unless he has learnt something of the elementary grammar of humanity before he is 25, he is going to find it hard to read profitably in the book of mankind. Shaw had a phrase for us in *Man and Superman*: "Not educated—only college pass-men." Surely the doctor is the last of all men who should merit such a description.—I am, etc.,

Colchester.

JOHN D. KERSHAW.

SIR,—Is it too much to hope that the advocates of the mass production of medical practitioners—I use the designation deliberately—will ponder the letter of Dr. D. N. Baron (June 21, p. 902)? There must be a considerable number of doctors who feel as Dr. Baron does, and from time to time attention has been drawn in the *British Medical Journal* to the need for a wider general education among the entrants into the profession. I go further than Dr. Baron and maintain that, in the

case of the medical specialist even more than of the general practitioner, the first prerequisite is, in his own words, "the broad cultural background." Perhaps I may be permitted to quote from an unpublished essay which I wrote some five years ago:

"Let us pass to another aspect of the place in human affairs of biology and medicine. With the tendency to reduce all life to equations or formulae, we are apt to move along in one direction and develop one-track minds. In particular I refer to the cult of specialization which is growing. I do not decry specialization in science or medicine because for present-day civilization such specialization fills local or momentary needs; but, if I may be allowed to borrow a military expression, such specialization should be regarded merely as the 'tactics' of life, and more and more attention will need to be paid to the broader 'strategy' of life, towards which we should bring a broader mental equipment."

Medical men have been accused in the past, and still continue to be accused, of narrowness of outlook, of extreme professionalism; it is a charge which it is difficult for us to answer and one which is not wholly unmerited. This is all the more remarkable when medical education and training have been thought to be the most liberal education of all. But it is not only medicine which has to face up to this charge. As Prof. Whitehead once wrote:

"The fixed person for the fixed duties, who in older societies was such a godsend, in the future will be a public danger. In the second place, the modern professionalism in knowledge works in the opposite direction so far as the intellectual sphere is concerned. The modern chemist is likely to be weak in zoology, weaker still in his general knowledge of the Elizabethan drama, and completely ignorant of the principles of rhythm in English versification. It is probably safe to ignore his knowledge of ancient history. Effective knowledge is professionalized knowledge, supported by a restricted acquaintance with useful subjects subservient to it. This situation has its dangers. It produces minds in a groove. Each profession makes progress but it is progress in its own groove."

"The effect of scientific thought during the nineteenth century was to attempt to subject all phenomena to measurement and classification: this has been the result of centuries of the growth and perfection of mathematics, and we passed from mysticism and philosophy to the cult of exactitude."

It is small wonder, therefore, that one of our sanest present-day medical writers, Prof. Major Greenwood, was impelled to write in his *Epidemics and Crowd Diseases*:

"I suppose the man who first exposed an animal to a high pressure of life-giving and life-sustaining oxygen and saw it go into convulsions and die had a shock. Perhaps the great biochemist who a quarter of a century ago showed that animals supplied with all the necessary energy and building stones in the form of chemically pure proteins, fat, and carbohydrate, and the appropriate inorganic material—everything Victorian scientific hearts could desire—did not thrive may have passed through a moment of painful perplexity."

And now what next? We are still at the stage where we are unable to measure or classify all the aspects of existence, and so we are in danger of falling back upon philosophy once more for our explanations, as witness the growth of new and specialized sciences and philosophies. Perhaps we may be reaching a stage of regression or stagnation such as has occurred in the past, and this may even be a good thing to enable us fully to assimilate and use the plethora of "scientific" food set before us and to avoid the obvious danger of scientific indigestion. If I am right in thinking this, the need for a broader based education for us all—doctors and scientists alike—becomes more important.—I am, etc.,

Elton, Notts.

V. L. FERGUSON.

### Care and Treatment of Elderly and Infirm

SIR,—The report of the B.M.A. Committee on the Care and Treatment of the Elderly and Infirm (*Supplement*, June 21 p. 133) is a promising but somewhat utopian document. One or two rather pressing questions remain totally unanswered by it. The first of these—Who is going to organize and run the geriatric departments?—will be hard to answer, since there are as yet only a mere handful of geriatric specialists. A second follows logically: How and where are we going to train our future workers in this field?

At present the average medical and nursing standards in the chronic and senile hospitals are low. Many changes will be necessary to give them either the equipment, the atmosphere or the prestige which should belong to training schools. To

take one practical example: many chronic hospitals have no physiotherapy department, yet physiotherapy is one of the corner-stones in the treatment and rehabilitation of the aged. With such a department, properly run, the famous 40, 40, 20 ratio is not difficult to attain; without it the physician is troubled. This has been my own experience.

Similarly, specialists must be easily accessible. An ortho-aedic surgeon, an ophthalmic surgeon, and a neurologist are essential. I cannot recollect any mention of this vital necessity for team work being stressed in the report. Finally the mechanism for admission and discharge of patients, with arrangements for following them up, will need careful attention. The present municipal hospital practice is far from satisfactory in this respect, so that special machinery must be created with the new long-stay annexes when they are formed. One last word: most of this report is concerned with the 5% of old folk in hospitals or institutions. Will it help the general practitioners who look after the remaining 95%?—I am, etc.,

Purley, Surrey.

TREVOR H. HOWELL.

### Health of Young Workers

SIR.—In the leading article entitled "Whither Industrial Medicine?" (June 14, p. 853) mention is made of the importance of health supervision of juveniles in industry. "In this field alone," you state, "industrial medicine could make a significant contribution to positive health." It may therefore be of interest to note certain recommendations recently made by the Central Advisory Council for Education (England) in the publication *School and Life* (H.M.S.O., 1947). This Advisory Council was appointed by the Minister of Education, under Section 4 of the Education Act, 1944, to advise him "upon such matters connected with educational theory and practice as they think fit." By agreement with the Minister the Advisory Council addressed itself first to the transition from life at school to independent life, and, in this connexion, has proposed measures for supervising health during the early years of employment: medical examination on entry should apply to all boys and girls up to the age of 18, and should lead to treatment, supervision, and guidance for all those found to be unfit; and to give effect to this the duty of making such an examination should be transferred to the school health service, which should also be responsible for treatment and supervision.

In view of the definite challenge to industrial medicine so clearly presented in your leader it would be of value to hear further opinions on the subject from those both interested and personally taking part in health supervision of young persons at school, in the home, and at work.—I am, etc.,

Loughridge, Birmingham.

C. H. HOSKYN.

### Treatment of the Maladjusted Child

SIR.—Even if the statistics of the paper by Drs. Elizabeth G. W. Barker and W. Liddell Milligan (June 7, p. 805) are not good, nevertheless I do not doubt the sincerity of their work and I am sure they are getting results. But two questions arise from their excellent work—namely: (a) Is a mental hospital better than schools or hostels for maladjusted children? (b) Do the children not come into contact through the patients with psychological "mechanisms" and attitudes to life which will cause more serious maladjustment in later life?

The authors did not state what conclusion they drew from the fact that they were receiving requests for admissions from all over England. Three conclusions will be difficult to exclude—namely, (a) ignorance by the source of the most modern methods of treating maladjustment; (b) correct knowledge at the source but in absence of any place, such as schools or hostels, to put them; (c) economy. As things stand at present the Portsmouth people are to be congratulated, but would a villa for the children alone not be much better than the convalescent female villa? It would then be logically difficult to put the convalescent females among the children.

So-called psychosis in children (of normal intelligence) is practically always the result of provocation, overstimulation, or frustration in different directions, but it reacts well to association with trained adults in an environment where provocation and frustration are removed, even in cases with poor heredity. Uneducated grandparents excepted, there can be few people more provocative to children than psychotic females.

In my opinion the best methods of training the maladjusted child (of normal intelligence) are in this order: (a) Out-patient attendance by father, mother, and child at child guidance clinic; (b) removal of father, mother, and children to a hostel (with the father going out to work from the hostel) for short periods, to be repeated in association with attendance at a child guidance clinic for longer periods; (c) removal of child to a residential school for maladjusted children accepted by the Ministry of Education; (d) removal of the child to a hostel (but local authority hostels have a long way to go before they reach the standard of efficiency of staffing, organization, and of material at the disposal of the good mental hospitals); (e) mental hospitals as an expedient or emergency.—I am, etc.,

Westcliff, Essex.

JOHN A. MCCLUSKIE.

### Health of Children Attending Day Nurseries

SIR.—I am certain that Dr. F. Gray's letter (June 21, p. 899) will have inspired many medical women to take up their pens. I had hoped that the time had come when we could be accepted by our male colleagues as useful members of the profession. There are many women who believe they have a useful social function outside the home. Why such women should be denied the pleasure of marriage and children is something I cannot understand. I will not take time to refute Dr. Gray's conclusions, but I consider that those medical men who have worked with women doctors, nurses, pharmacists, etc., will know that they are neither "masculine" nor "irresponsible," and I am disgusted that a responsible journal like the *B.M.J.* has thought fit to publish such a letter.—I am, etc.,

London, N.W.5.

BARBARA SIMONDS.

SIR.—From the business-like description of the masculine woman and her failings one may infer that Dr. F. Gray (June 21, p. 899) is in no position to appreciate the emotional difficulties experienced by one who has been trained for a "man's" job and is condemned by nature and society to reverse all her training and attempt the art of home-building and child-rearing. Certain women cannot help their lack of femininity any more than some men can remedy their lack of typically masculine characteristics. Each can only find out by experience what he or she can do competently, and in doing it make a true contribution to the sum of human happiness. Women are often acutely aware of their incompetence to understand a child's outlook, and they are not necessarily "irresponsible" in making a decision to place the children in the care of others who are willing, or are qualified by the State, to undertake part of the training that as mothers they have not been taught to understand.

If housework were considered by men to be a dignified occupation and child-rearing looked upon as a creative art, then the weaker members of the so-called stronger sex might find themselves eminently qualified to be home-builders, while their more robust wives became wage-earners. A good deal of masculine "ill-health and laziness" would thus be avoided, and the need for day nurseries considerably lessened.

A wife's lack of ability to be a "good mother" is the husband's greater opportunity to be a "good father." Marriage is a complementary status, each partner requiring of the other something necessary to the expression of individuality. If the true spirit of marriage is maintained, a right outlet for the energies of both should be established with no prejudice attaching itself to any job that either partner undertakes, so long as the aim and object of both is to create and maintain a home for their offspring. Zealots of health unfortunately lay themselves open to the error of putting asunder those whom a creative force has joined together, thereby lowering the strength of compassion to a nebulous pity which drains away mankind's capacity to evolve a higher form of life.—I am, etc.,

Newcastle-upon-Tyne.

G. M. LANGHAM-HOBART.

SIR.—The flood of letters abusing the day nurseries that Dr. Margaret E. McLaughlin's paper (May 3 and 10) has unleashed require a close scrutiny. I feel that the majority of them are inspired by a ferocity arising from a political prejudice and that they are much out of line when compared with the

usually well-conceived publications that are so characteristic of the English medical man's sane outlook.

Dr. McLaughlin's careful paper collapses on two most important points:

(a) The control group of children are those who live at home. Now these children come from a better type of home both from the point of view of mother's character and also financial stability, and they are therefore not true controls. Nobody is going to deny that the children living at home under the care of their mothers will be finer and fitter than the poor little soul bundled out of home at 7.30 a.m. come sun, come rain, inadequately washed, and often inadequately fed. But what are we going to do with the illegitimate child of the mother "forced to go to work"? These represent the majority of the children in day nurseries of which I have experience, not the absurd picture of the masculine mother in Dr. F. Gray's letter (June 21, p. 899). The "business executive" does not send her child to the day nursery. The day nursery children are certainly much better looked after in the nursery than allowed to run riot in the streets with the penny bun for lunch, or looked after by an already overworked neighbour.

(b) It is of course agreed that children *en masse* are more prone to infections one from the other. Why not, therefore, agitate against the kindergarten that the middle-class parents use? Obviously because it is unnecessary—unnecessary because those children come from a healthier and wealthier home than their more unfortunate brothers and sisters and can therefore withstand the onslaughts of infectious illness. Yet the day nursery and the kindergarten are strikingly similar. This, to my mind, proves that it is not the day nurseries that are at fault but rather the homes from which the nursery children are drawn.

I come now to my final point. In no papers that I have seen has there been an attempt to stamp out nasopharyngeal infections in the day nursery. Surely a healthy nose and throat will give the child a greater chance of avoiding infectious illnesses. Why not administer a routine nose drop as soon as the ubiquitous mucopurulent stream is seen tracking down the upper lip?

I should like to end with an appeal for a saner and less prejudiced outlook on the question of the children of the mother "forced to go to work." It will become even more urgent in the future as more and more women go into industry.—I am, etc.,

London, W.C.2.

J. Z. GARSON.

### Treatment of Acute Mastitis

SIR,—While agreeing with Dr. J. MacLeod's treatment of acute mastitis (June 14, p. 865) by penicillin intramuscularly, I feel that routine stilboestrol is neither necessary nor desirable. I avoid using stilboestrol unless a milk fistula is present and the mother has stopped breast-feeding. From the figures given below the result is gratifying. The value of breast-feeding cannot be overrated, and we must avoid using any method whereby milk production is likely to be curtailed. The breasts can be adequately emptied by a breast pump.

The prevention of acute mastitis begins before the baby is born. Although the hygiene of the nipple is well known to the profession, it is sadly neglected in certain areas. In the majority of cases the aetiological factor is ascending infection from the nipple through the ductal system by *Staphylococcus aureus*, probably originating in the patient's skin. The use of penicillin cream during lactation is not desirable. It may have detrimental effects upon the baby, producing stomatitis and interfering with sucking. The introduction of penicillin has revolutionized the treatment of acute mastitis. It is no longer necessary to make large radial incisions into the breast to break down loculi to produce one abscess cavity from which pus can freely discharge on to the surface. The complications occurring after this method are haemorrhage, secondary wound infection delaying healing, and milk fistula. Frequent and repeated dressings are, both painful and tiring for the patient. Secondary suture means another operation and anaesthetic.

The principles of treatment of mastitis by penicillin are based on the pathology of the condition. All cases of mastitis and breast abscesses commence either as a diffuse suppurative or segmental mastitis. Penicillin acts by producing a localized suppurative mastitis. Depending on the quantity of pus present, either complete resolution or a chronic pyogenic abscess may occur. Thus, penicillin produces changes of chronicity, and when nature fails in severe cases to absorb the pus it is essential to realize this early and evacuate the abscess. I have used several methods to evacuate

the pus, having localized it in necessary cases by giving penicillin, 100,000 units in 1 ml. saline, twice daily for two to three days.

Penicillin Given I.M. b.d. in All Cases	No. of Cases	Organisms	Average No. of Days for Healing to Occur	Remarks
Incision and open drainage	20	<i>Staph. aureus</i>	16	1 milk fistula, 2 haemorrhage, 1 secondary infection with <i>Bact. coli</i>
Incision, with primary suture of wound, with corrugated rubber drain through it	3	" "	14	Slow healing of incision
Incision, evacuation of pus, instillation of penicillin solution, and primary suture	2	" "	12	1 recurrent abscess
Incision, dependent drainage, and primary suture of wound	3	" "	12	Low grade infection of healthy area
Incision, instillation of penicillin through penicillin tube, and primary suture around tube	3	" "	10	Residual induration
Incision, penicillin tube through dependent area, and primary suture of wound	3	" "	11	Low grade infection in healthy skin
Tenotomy incision and penicillin tube	20	" "	7	Induration
Multiple tenotomy incisions and penicillin tubes	1	" "	7	"
Secondary suture	..	Nil		

As the results of tenotomy incisions and penicillin tubes have been uniformly good in the 21 cases, I trust you will allow me more space to describe the methods. The smallest possible incision is made over the centre of the abscess with either a tenotomy knife or, a narrow Bard Parker scalpel. The pus is gently expressed, and a narrow rubber tube stretched on sinus forceps is introduced into the abscess cavity. No suture is required to hold the tube in position, as the skin contracts tightly on it. Penicillin solution, 2,000 units per ml., is injected down the tube until the abscess cavity is filled. The tube is then spigoted. Penicillin, 100,000 units per ml. in saline, is given i.m. twice daily. The contents of the abscess cavity are aspirated twice daily and replaced by penicillin solution. After two to three days the aspirated fluid is clear and usually sterile. The tube is then removed and a penicillin dressing applied. In the event of the resulting cavity filling up again the contents can be gently expressed through the resulting sinus. Healing is generally complete on the sixth day, leaving a residual thickening in the breast. A good support is all that is now required, and after one to two weeks the thickening will have completely disappeared. If desired, short-wave diathermy will hasten this process.

In the presence of multiple abscesses separate tenotomy incisions and penicillin tubes for each abscess treated as above will give similar results.

I wish to thank Mr. Hugh Reid and Mr. A. C. Brewer for allowing me to carry out this treatment on their patients.—I am, etc.,

Liverpool.

R. MARCUS.

### Treatment of Acute Osteomyelitis in Children

SIR,—It would appear from the letter of Drs. J. Trueta and M. Agerholm (June 21, p. 899) on the treatment of acute osteomyelitis in children by penicillin that they have approached the paper by Messrs. T. Twistington Higgins and Denis Browne and Dr. Martin Bodian (May 31, p. 757) with an air of complete disbelief. Having seen some of the results obtained at the Hospital for Sick Children, Great Ormond Street, and at Oxford, I am convinced of the efficacy of both the methods that are being advocated, but "each in its own place." It would seem to be wiser to take this broader view rather than to read more into the text than is apparent. Many of the remarks of Trueta and Agerholm appear rather out of context, especially those relating to surgery. Only two, or possibly three, of the Great Ormond Street cases warrant classification as "open surgery"; two could properly be described as cases of incision of superficial abscesses in an area in which the Oxford method is hardly applicable—as examples, in fact, of the time-honoured method of "free incision and free drainage" of a pointing abscess.

Aspiration is difficult, but the fact that repeated aspirations were needed does not imply that the method was unsuccessful. Many aspirations were needed in order that the amount of pus



present should constantly be minimal. Is it indeed certain that new pus does not form after drilling of a bone? With regard to dosage of penicillin: That advocated by Great Ormond Street does seem to be unnecessarily low. Presumably this is because the series was begun at a time when there was a dearth of the drug, and the dosage was continued because it was found to be adequate. It is a fact that immediate improvement occurred (i.e., within 24 hours) in the majority of the cases. Penicillin must obviously be given to infants by intermittent injection, and the fewer these are the better, provided that an adequate concentration be obtained and the best possible results, for trauma undoubtedly upsets infants and makes handling of them more difficult as regards feeding, etc.

Mobilization does not really form a large part in the treatment recommended. It is rather a suggestion that complete immobilization is unnecessary, and that simple methods are adequate in the acute stage. Certainly there would be little weight-bearing in the infant age group, and it is probable that the risk of pathological fracture is less than the dangers and difficulties involved in plaster immobilization in infants. With regard to positive blood cultures: this may be rather a false percentage, for no doubt some difficulties were experienced in obtaining some or sufficient blood in all cases. This point is not made clear in the article.

It would seem reasonable to accept, with reservations, the principles both of the Great Ormond Street and the Oxford series. It might be wise to use the Oxford method in older patients with severe infections, while the Great Ormond Street technique seems certainly to be adequate in the less severe cases, and in all infants in whom operations should not be undertaken too lightly, and in whom the difficulties of feeding, hydration, and so on have such an important bearing on the ultimate recovery. A dosage scheme dependent upon body weight would appear to be rational and desirable. Such a scheme has been started by Great Ormond Street in this series, and, though it has not yet attained general acceptance, it would seem to be more reasonable than a mere routine dosage for any patient of any weight and any age.—I am, etc..

London, W.1.

IAN P. TODD.

### Myiasis of Palpebral Conjunctiva

SIR.—I was interested to read Dr. T. E. M. Wardill's letter (May 3, p. 615) regarding myiasis of the palpebral conjunctiva. The following case came to my notice recently and may be of interest.

#### CASE REPORT

A soldier aged 20 reported sick on the evening of May 27 with an inflamed eye of a few hours' duration. He told the medical orderly that he could feel something moving about under the lid, and as the orderly could see something moving on the conjunctival surface he informed me.

On examination an acute conjunctivitis of the affected eye was evident, and on evertng the lids, to my surprise, a number of very tiny maggots were just visible. With characteristic dislike of light they wriggled away into the conjunctival fornices, but eventually half a dozen maggots were removed by wiping the palpebral conjunctiva with cotton-wool. One maggot was examined on the point of a needle, and its form was then clearly discernible. On questioning the man he stated that a fly had buzzed into his eye at 10 o'clock that morning, and the eye had become inflamed in the afternoon.

Following removal of the maggots his eye became more comfortable and the following day was quite normal.

The predominant fly around here is *Musca domestica*, but I am unable to say whether this might be the culprit or not.

I am indebted to Lieut.-Col. D. B. Seymour-Price, R.A.M.C., for permission to publish this case report.—I am, etc.,

P. DRANSFIELD,  
Lieutenant, R.A.M.C.

M.E.L.F.

### Acute Non-specific Diarrhoea and Dysentery

SIR.—I read the article by Dr. G. R. Kershaw on the above subject (May 24, p. 717) with pleasant anticipation, hoping to gain some new light on this difficult subject. I was disappointed to find that he appears to have drawn his conclusions after a few years' clinical observation, controlled by only a few full pathological investigations, and with an incomplete knowledge of the extensive literature already published. I have been investigating these cases at sea, as occasion offered, over the last twenty years. In most epidemics I have plated out the faeces, picked off non-lactose-fermenters, and put them through the appropriate sugar media, and tested their agglutination with

standard dysentery and salmonella antisera. I have never identified any pathogen from these cases.

In my paper in the *Lancet* (1938) reviewing this subject the question of chills, cold drinks, etc., was considered, but, after careful investigation, was not thought to be the whole answer and no pathogen was found. My bacterial results were checked by the late Prof. Eyre, of Guy's Hospital. Drinking water was excluded after a research on the *Bact. coli* content of water in ships' tanks extending over a period of 18 months (Royds Jones 1936). I note that Dr. Kershaw also exonerates water (after two analyses). Knowledge gained during the war when carrying troops in convoy allowed us to go a stage further (Royds Jones 1943) and exclude food, water, and a food handler "carrier." It was due to this last letter that I was asked to meet the Director-General of Hygiene at the War Office, who kindly supplied me with a large quantity of media for an extensive research. Unfortunately owing to the progress of the war our route was changed, and we never again got these large epidemics in which 400 to 600 men were affected in one night, and I have not been able to proceed further. Incidentally, the majority of men affected were those sleeping in mess decks, both in hammocks and on the deck, and not those sleeping on open decks, where chilling would have been greatest, although some patients came from each.

My tentative suggestions at the time were either (1) a virus as the cause, or (2) a saprophyte becoming pathogenic at this temperature, for which there is some experimental evidence—Kligler, I. J. (1936), and Robertson and Weld (1932). I discussed the virus theory with a few first-class virus workers, and they at that time were inclined to discredit the suggestion. However, both American and Canadian workers had published papers suggesting a virus as the cause. Now British authorities are more inclined to favour this theory, as witness several articles published recently and your own annotation (Feb. 1, p. 187) about six months ago. I regret that I cannot give exact references to the recent literature, as I am now at sea.—I am, etc..

Banbury, Oxford.

H. M. ROYDS JONES.

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### Primary Malaria in London

SIR.—The article by Drs. C. Blaxland Levick and M. E. MacGregor (May 31, p. 764) on "Primary Malaria in London Children" prompts me to write and bring to your notice a further case of this illness in an adult which I encountered during the week of publication of the original article.

The patient was a woman, aged 36, residing in Kensington and a Foreign Office Civil Servant employed at Eastcote. I saw her at home first on Thursday, May 22, 1947, when she was complaining of nausea with frequent vomiting, frontal headache, and lachrimation, back pain, and sweating. It was her belief that she had some form of "gastric 'flu.'" Her temperature was 101.4° F. (38.5° C.). The following day she was little better, and her temperature had dropped to 99° F. (37.2° C.).

On Saturday, May 24, she was moved to friends in Hampstead who were able to look after her better. She was feeling very much better, apyrexial, and thought she had recovered. Sunday evening, however, she developed a recurrence of her symptoms, which were now very much more definite in character and followed the typical stages of malaria, the temperature rising to 102.4° F. (39.1° C.).

Blood slides which were taken the following day when she was apyrexial proved negative; but those taken next day in the middle of a rigor were kindly examined for me by Dr. H. O. Hughes at the Middlesex Hospital, who reports that the films showed scanty trophozoite ring and amoeboid forms, and gametocytes of *Plasmodium vivax* (benign tertian malaria). She has since been given mepacrine and remained free of symptoms.

Her history is interesting. Apart from travelling to and from her work daily she had not been out of London since last Christmas. She was born in India and resided in Calcutta till 1937, when she came to this country, and never had any form of antimalarial therapy given her at any time. The only illness in the past had been German measles, and 3-day fever when she was a schoolgirl aged 12—that is, 24 years ago, and a most unlikely factor in this illness. Her only contact with malaria

was this March, when a friend staying with her had a relapse in her home.

I hope that this case will help further in stressing the fact that primary malaria can be a factor in diagnosis in this country at the present time, where malarial carriers are more numerous and the *Anopheles maculipennis* known to be present.—I am, etc.,

London, W.11.

DAVID A. FERMONT.

### Congenital Hepatic-duct Malformation

SIR,—The case of congenital hepatic-duct malformation recorded by Dr. Frank Riggall (June 7, p. 824) emphasizes the fact that children born without bile ducts, or with the bile ducts so malformed that they do not communicate with the intestine, survive much longer than one would expect. In Riggall's case the child lived for ten months, and in a large series of these cases reviewed by Stolkind<sup>1</sup> there was one where the child survived for 15 months. The question of operation is worth while considering in cases of atresia, for it may be found that sufficient of the common duct is present to allow of anastomosis to the duodenum. In these cases jaundice is usually present at birth or shortly afterwards, but according to Ladd and Gross<sup>2</sup> 2-3 weeks may elapse before the icteric tinge appears, "whereas the stools are always clay coloured or white from birth." Further, they state that if operation is delayed for 4-6 weeks from the date of birth there is little chance of error in differential diagnosis.

Anastomosis of the duct to the duodenum is carried out over a small piece of tubing—somewhat after the method of Sir James Walton<sup>3</sup>—and silk is used for suturing. Vitamin K and ox bile salts are administered beforehand in the hope of diminishing oozing.

Ladd and Gross emphasize the danger of post-operative disruption of the wound, and advise the use of silk and silkworm gut for stitching the abdominal wall. In 45 of their cases nine patients were found to have a patent hepatic or common bile duct connected with the intrahepatic ductal system but not with the duodenum; 6 out of 9 cases survived the operation and were in excellent health 12, 8, 7, 5, 4, and 3 years respectively after operation.

Dr. Frank Riggall is to be congratulated on taking the trouble of publishing his interesting case in the *British Medical Journal*.—I am, etc.,

London, W.1.

MICHAEL J. SMYTH.

#### REFERENCES

<sup>1</sup> *Brit. J. Child. Dis.*, 1939, 36, 115.

<sup>2</sup> *Abdominal Surgery of Infancy and Childhood*, Saunders, Philadelphia and London, 1941.

<sup>3</sup> *A Textbook of the Surgical Dyspepsias*, p. 571, London, 1923.

### E.C.T.

SIR,—Your correspondent who explains (June 14, p. 858) his reactions to E.C.T. is to be highly congratulated for the enlightened description of his experience, and his article should do much towards alleviating the acrimony at present being expressed on the subject. His important contribution lies in the cognizance that the treatment produced a psychosomatic reaction which he himself "identified as the physical reactions to fear," as it is likely that it is through such identity that he escaped from his troubles. His "memory images" are obviously symbolic expression, which would have been better to have undergone elucidation at the time.

I hope I conflict with neither physicist nor psychiatrist when I understand that E.C.T. in this particular case acted by bringing wholly repressed material to a nearer level to conscious appreciation, and that it is probable that it is through such measures that benefit is obtained in all cases that respond to such treatment. Your correspondent's observations emphasize the further benefit to be obtained by the attendance of a psychiatrist to take advantage of the probability of such response.—I am, etc.,

Tipton, Staffs.

L. H. EUNSON.

### Causalgia of the Face

SIR,—I read with interest Mr. J. A. W. Bingham's report of two patients suffering from causalgia of the face (June 7, p. 804). Our knowledge of this condition is so incomplete that individual experience is well worth recording. I cannot agree, however,

with his conclusion, "that when sympathectomy relieves causalgic pain and tenderness it does so by interrupting the sensory pathway." It is not proved that sensory (afferent) fibres travel to the spinal cord by way of the sympathetic chain, and secondly one can see that pressure on the superior cervical ganglion can stimulate efferent fibres passing through. "Novocain" block of these fibres at a lower level would produce a temporary paralysis in their peripheral course and distribution and so prevent the occurrence of pain as noted.—I am, etc.,

Salé, Cheshire.

C. H. CULLEN.

### Reiter's Disease

SIR,—The annotation on Reiter's disease (Dec. 7, 1946, p. 865) summarizes the present state of the knowledge of this condition very well. A few points noted in four cases by me (subject of communication elsewhere) are worth mentioning. Though you have quoted several writers as correlating the disease with bacillary dysentery, Jackson's contrary opinion, which has also been quoted by you, seems to be confirmed by my four cases, none of which had any relationship with bacillary dysentery. Further, in India we see bacillary dysentery cases literally by thousands, and yet there are no authentic records of Reiter's disease. Had the two conditions been aetiologically related there would surely have been more cases of Reiter's disease in this country.

The categorical statement made by you that "... there is no relation to sexual intercourse" is not wholly correct. Kristjansen<sup>1</sup> described his case in detail in 1930 where the infection was traced to a girl of 16 who for two years had had a yellow vaginal discharge. This girl had also infected another man at about the same time, and the second victim developed only an uncomplicated urethritis lasting three months. In neither man was the gonococcus or any other organism found. The girl herself was examined and found to have had only an inflamed vagina, but gonococci were not demonstrated in her either. The sexual relationship in these two cases is clear. One of my four cases also developed the condition after extramarital coitus.

Neutrophil leucocytosis has been reported in all the cases, but one of my cases had an eosinophilia of 4 to 7% in a total leucocyte count of 11,000 to 13,000. This may mean that allergy is a factor in the disease. This case went through the gamut of bilateral conjunctivitis and polyarthritides, and the eosinophilia persisted over the earlier part of the illness. The patient did not have any parasitic infection or infestation. The possibility of allergy being aetiologically responsible is strengthened by the observation of Forbes<sup>2</sup> that his case was associated with dental sepsis. Junghans<sup>3</sup> tells about a case in conjunction with a furuncle in the upper lip, while Frühwald<sup>4</sup> described two cases, in one of which the first sign was urethritis and, in the other, joint pain in the left foot. The example of erythema nodosum being the result of a variety of infective processes may be mentioned as a possible parallel to the incidence of Reiter's disease following upon non-specific infections.

In none of the four cases observed was the complement fixation test for gonococci done, but gonococci were not found in any of the exudates by the usual staining methods. The tests were repeated many times and under varying clinical conditions.—I am, etc.,

Bangalore.

P. N. BARDHAN.

#### REFERENCES

<sup>1</sup> Kristjansen, A. (Translation by C. Rasch) (1930). *Ugeskr. Læg.*, 92, 275.

<sup>2</sup> Forbes, D. (1946). *British Medical Journal*, 2, 859.

<sup>3</sup> Junghans, O. (1918). *Dtsch. med. Wschr.*, 44, 1304.

<sup>4</sup> Frühwald, R. (1927). *Jadassohn's Handbuch der Haut- und Geschlechtskrankheiten*, vol. 21, p. 478.

### Physical Therapy of Mental Disorder

SIR,—It seems to the mind of an ordinary physician a great pity that there should be a need for bitter and violent controversies on the subject of psychiatry; I refer to the article written by Dr. D. W. Winnicott (May 17, p. 688) and to the replies by Drs. W. Malcolm Millar, Dr. A. Spencer Paterson, Dr. A. Lionel Rowson, Dr. A. N. Hardcastle, and Dr. E. E. Feldmesser (June 14, pp. 861 and 862). Whatever the rights and wrongs of it all may be, it seems to me that always should we be able safely to look to, and to accept, the findings and dicta of fully recognized and really experienced psychiatrists.





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In my opinion, for what it is worth (I am not a psychiatrist), Dr. Winnicott's article is full of flaws, of wishful thinking, and of aggression. He condemns absolutely the modern physical methods of psychological medicine and is severely taken to task for it, as he should be. If I, practising my own methods of dealing with the emotional problems and upsets in children and in their parents, do not accept the principles of child guidance, and if I disagree in the main, as I certainly do, with most child psychiatrists and do not recognize the need for many of these, I am entitled to my opinion and quite free to say so. But if out of hand I condemn the whole movement and paint it as quite absurd, I think I should expect to be regarded as aggressive and, in all probability, somewhat frustrated: and I should certainly be incredibly foolish.

I scarcely think that Dr. Winnicott would be prepared to accept without retort my own condemnation (which, however, I do not offer) of the use of psycho-analysis in children, save in those cases which I personally would regard as uncommon. I think I should expect him automatically to express the view that I knew nothing about it.—I am, etc.,

London, W.1.

MAURICE L. YOUNG.

### After-care of Psychiatric Casualties

SIR.—Most doctors are aware of the establishment about three years ago of the official after-care scheme for men and women discharged from the Services for psychiatric reasons. This scheme has been organized by the National Association for Mental Health at the request of the Ministry of Health with the co-operation of the Service Departments, and has provided social supervision for psychiatric casualties as part of an attempt to help them to readjust to civilian life—for 11,500 patients up to date. The original procedure was that the Service hospitals notified the after-care scheme of those patients who agreed to accept after-care, at the same time informing the patient's own civilian doctor. Subsequently many discharged ex-Service men and women have been brought into the scheme from a wide variety of hospitals and social agencies. In recent months, in response to many requests from other social agencies, Ministry of Labour, Pensions, and Health officials the scheme has accepted responsibility for a number of civilians who are in difficulties in ordinary life because of psychiatric disabilities. It is hoped that the experience gained in this social service will eventually be integrated into the official medical services of the State.

Whereas every effort has been made to see that the general practitioner has been fully aware of the interest of the social workers in his patient, this has not always proved possible. For instance, many patients on discharge from the service have moved to new districts and have not arranged for medical attention for many months after moving; some belong to that floating population which never remains for long with any individual doctor; others belong to the psychotic fringe hostile to any form of medical attention, yet nevertheless much in need of help. It has occasionally happened that doctors have felt that their relationship with a patient has been encroached upon by the social worker, of whose credentials they have not always been aware. In the great majority of cases doctors have been happy to use the services of our psychiatric social workers and have co-operated actively, but misunderstandings have occasionally arisen.

May I emphasize that this service is intended as an ancillary to medical measures, to aid in the patients' readjustment to life; and we regard it as of the utmost importance that good relationships should be maintained with general practitioners. Clearly, if misunderstandings occur, it hampers the efforts of both parties, and it is the patients who suffer. We have therefore arranged that each new patient referred to the scheme will be the subject of a letter written by the social worker to the doctor concerned. If the doctor has any comment to make or objection to raise he can do so at the outset, bearing in mind that after-care is a voluntary arrangement entered into by the patient himself. If doctors feel any doubts or questions about the validity of the work which the social workers are undertaking, we should be glad if they would ask the social worker concerned to call on them at their convenience to give a full explanation of what the service can offer. If further explana-

tion is needed, I and others of my medical colleagues who are active in this Association will be only too glad to get in touch with the doctors concerned.—I am, etc.,

KENNETH SODDY,

Medical Director,

London, W.1.

National Association for Mental Health.

### Factors in the Aetiology of Skin Cancer

SIR,—I should like to ask Prof. J. A. Ryle and Dr. W. T. Russell whether the conclusions to be drawn from their interesting and instructive paper (June 21, p. 873) may not be subject to certain qualifications. Their figures refer to deaths from skin cancer, but the mortality rate from that disease is very low, probably less than 2%, while the disease itself is very common and accounts for a high proportion of all primary cancers.

Prognosis in skin cancer depends largely upon the size of the lesion, and negligence is probably an important factor in relation to death from this cause. I should, in the ordinary course of events, expect neglect of a symptomless lesion to be higher in unskilled workers and labourers (IV and V of the Registrar General's social classes) than in the other groups. Do these figures therefore review a fair sample from which to assess the social or occupational factors in the aetiology of skin cancer?—I am, etc.,

Leeds.

JOHN T. INGRAM.

### Ulcerated Nasal Septum

SIR,—As medical officer to a large engineering firm, and during routine examinations of men who were working on a pickling vat containing sulphuric acid, I found that eight men were suffering from ulceration of the nasal septa. For treatment I tried petroleum jelly and lanolin, but the result was far from satisfactory. I changed the treatment after four days to cremor penicillin with "phenoxetol," and within forty-eight hours there was a definite improvement, and in twelve days with the exception of one case, the other cases were completely cured.—I am, etc.,

Birmingham.

JOSEPH RADNOR.

### Calculation of the Colour Index

SIR,—It was inevitable that the publication of Dr. R. Elsdon Dew's paper (May 24, p. 723) would lead to your receipt of at least one letter calling for the abolition of the colour index. Admirable and well-meaning though Dr. H. Levy's intention may be, the widespread adoption of his suggestions (June 21 p. 903) in routine haematology would be regrettable, as no only does the use of the haematocrit involve vein puncture in a case where the life of the patient may later depend on the integrity of that vein for blood transfusion, but it tends to convert the haematologist into a mathematical robot. Haematology, no less than clinical medicine, is a science, and diagnosis should depend on the observation and experience of the haematologist, who, noticing for example marked polychromasia, "ghost-cells," scanty platelets, and other abnormalities in a routine blood count, then proceeds to carry out reticulocyte counts, fragility and haematocrit determination, and so forth as his judgment backed by his clinical findings may dictate.

During the war years, when the country was flooded with innumerable varieties of lend-lease colour standards, each with its own level of normality, the use of the term "grammes %" was probably justifiable and even desirable. The colour index of the Haldane scale is ideally suited for routine purposes, a with certain well-known exceptions normality is represented by unity and values outside the range 0.9 to 1.05 are—give accurate counting—probably pathological and certainly worth further investigation. The colour index is also a valuable guide to treatment of anaemias, where to subject the patient to repeated vein punctures would be wholly unjustifiable. An improvement in the science of haematology should follow the lines of establishing specialist haematology departments in hospital laboratories, where the worker recognizes the abnormality by reason of his or her wide experience of the limits of normality.

Finally, the use of nomograms is to be condemned. The laboratory worker, whether he holds qualifications in medicine, science, or laboratory technology, is essentially a scientist, and any attempt to convert him into an automatic machine should be resisted at all costs. The slide rule and the centrifuge must not replace the microscope.—I am, etc.,

Liverpool.

WILLIAM K. TAYLOR.

### Temporary Hydronephrosis

SIR.—The rate at which a hydronephrosis develops is an observation which can rarely be made, but I can assure Drs. Bruce Fowler and Eric Frankel (June 21, p. 887) that recovery from hydronephrosis does occur even when it results from chronic obstruction to the outflow of urine. This is well illustrated by one of my cases of carcinoma of the prostate, which on routine pyelography was found to have a bilateral hydronephrosis of considerable size.

Difficulty in micturition had been observed by the patient for several months, and acute retention had supervened, so that it is unlikely that the hydronephrosis was of recent development when it was discovered. It was actually demonstrated ten days before a suprapubic cystotomy was performed, and the diagnosis confirmed by section. Drainage of the bladder was continued for two months, after which time, under the influence of stilboestrol, he was able to pass urine freely. Intravenous pyelograms showed no trace of the hydronephrosis, and the suprapubic opening was allowed to close.

This case was originally seen at the end of 1943, and he still remains quite well on a maintenance dose of stilboestrol, with no evidence of renal damage.—I am, etc.,

Farnborough, Kent.

C. C. COOKSON.

### State Medical Service in New Zealand

SIR.—May I, in fairness to both sides, be allowed the courtesy of your columns to add a footnote to the quotation of your correspondent, Sir Ernest Graham-Little (May 3, p. 611), from the *St. Mary's Hospital Gazette*?

I should like, in turn, to quote from a letter of Mr. Aleck Bourne which appeared in the *St. Mary's Hospital Gazette* of April-May, 1947. In this he said: "I predict that in twenty years' time the profession will look back on these past years and ask themselves how the present system of unco-ordinated muddle could ever have been allowed to exist so long as it has." This is the judgment of one of our most distinguished doctors and social reformers, who has perhaps contributed more in a practical way to the improvement of our health services than the great majority of people concerned with the new Act, whether in favour or otherwise.—am, etc.,

E. C. LIVINGSTON.

London, W.2.

Co-Editor, *St. Mary's Hospital Gazette*.

### Another Name

SIR.—It gives me great joy to see a letter from Dr. M. C. T. Leilly (June 21, p. 903) redolent of all his "mylophobia"—if I may coin a term to describe the mental attitude of those addicted to tilting at windmills. I feel as he does about the word "abmengnosia," but I am uncertain whether it is my mattering of the classics that is responsible. I feel that a word has no claim to be added to the language of Shakespeare: it is clumsy or ugly, no matter how pure its descent from nose of Plato and Cicero; and conversely that words, like roses, should not be condemned simply because they are hybrids. And "abmengnosia" seems to me to be both clumsy and ugly.

It is hard to suggest an alternative term. I for one would be occasionally to abandon Greek and Latin, and draw on our own literature: the term "Cheshire Cat Complex," conveniently abbreviated to "C.C.C.," might describe the condition, but if we must stick to the classics, could we not give up the German habit of stringing words together until the resulting error is like a train of empty goods wagons, a thing without beauty, unity, or grace? A phrase is necessary to describe this state of mind, and I suggest *Mens sibi conscia amantiae*, which seems simple enough and is already three parts familiar.—I am, etc.,

Colchester.

J. N. FELL.

\* This correspondence is now closed.—Ed., B.M.J.

## POINTS FROM LETTERS

### The Tsetse Fly

Dr. G. PRENTICE (Fort Jameson, N. Rhodesia) writes: In the *Journal* of March 22 I turned to the letter (p. 388) on groundnuts in East Africa—not because specially interested in groundnuts but because it appeared to be from my old friend, Dr. J. B. Davey—to find that it dealt with another matter in which I have great interest, to wit, the tsetse fly problem. . . . Unless game can be driven to an altitude considerably over 4,000 ft. (1,220 m.), to drive them from one area into another (unless an unpeopled area) is sheer folly. They will only increase and multiply and sooner or later repeat the spread-out we have seen under protection whenever the costly measures required to hold them back are relaxed. At an altitude of 6,000 ft. (1,829 m.) I have never seen a tsetse fly, and there are excellent and extensive areas at about that height within the tropical belt. This great adventure in the production of fats for Britain deserves everything that can be done to make it a success. The animals destroyed to make success possible need not be wasted. In place of the "anthropological experts" I suggest canning experts, and that all meat not essential to the maintenance of the workers be canned or made into biltong and shipped home. Why search the Antarctic for whale meat when Britain owns the largest ranch probably in the world? . . . In Southern Rhodesia there are those who decry the policy there pursued, feeling as they do that the slaughter of wild animals is a very sorry business. But this extensive slaughter need never have taken place had the clean territories left us by the rinderpest epidemic been retained: and early warning was given that, when the time did come for indiscriminate slaughter to save human beings and domestic stock, the blame would lie not with those who opposed protection but upon those who put sport above everything else. There are two great scourges in Africa that, left to themselves to fight it out, might do so to the benefit of mankind in the long run. One is trypanosomiasis, which kills human beings and domestic animals. The other is rinderpest, which kills domestic animals and wipes out big game. Where it sweeps a district clean of game not a tsetse is to be seen. Now, our authorities have done everything in their power to prevent or eradicate rinderpest, which only slightly affects man, and I have never known of a fatal infection. Wild animals bring along tsetse; tsetse spreads trypanosomiasis; industries are impeded and human lives lost. . . . I fancy anyone clamouring for big game protection to the present Government would be barking up the wrong tree. Well then, why not add meat to the fat which the nut scheme envisages? Pack all the meat at present on the hoof where the clearings are to be, and to save the workers and feed the home folk do the same for ten miles around the groundnut areas—a first-rate health measure for home and here.

### Shortage of Nurses

Miss JOAN MCCALLUM (London, S.W.19) writes: With reference to the letter of "Surgeon Commander, R.N." (May 24, p. 740) on the shortage of nurses: During seven years in Q.A.R.N.N.S. I frequently carried out instructional duties. I should like to point out the following facts to the Commander. (1) The orderly after his initial six weeks' training did not always enter the wards for practical experience but was allotted to non-nursing duties—i.e., pushing trolleys of medical stores, fire-watching, and messenger duties. This spoiled and deadened the enthusiasm of my keenest pupils. (2) When the orderly did enter the wards, he was at once taught to tremble and kneel down before the all-powerful god of paperwork, and so again missed practical experience. How can these men be suitable for inclusion on the *Register*? . . .

### Financial Independence

Dr. W. CRAIG (Halifax) writes: The interests of the public and the interests of medical men already in State service (this is often overlooked) depend upon a strong independent profession. Independence in the long run is only possible if this includes financial independence, and the latter disappears the moment one's total remuneration comes from one source. This explains the paradox that, while N.H.I. has on the whole been a good thing for public and profession, its 100% extension would not be a good thing, as it would mean a profession not independent but wage-slave in type. Beware of attractive initial terms!

### Tobacco

Dr. D. A. HERD (Leeds) writes: Allow me to congratulate Dr. Lennox Johnson on his excellent letter "Tobacco" (June 7, p. 827). Nowadays one sees health posters: "Spitting Spreads Disease," "Don't Cough," "Don't Spit," etc. If the public were advised "Smoke less," or better, "Don't smoke at all (except in your own house)," a great deal of the unpleasantness of smoking and spitting would be eliminated, and the benefit to health and mankind immeasurable.

## Obituary

### WILLIAM FIELDING ADDEY, M.D., F.R.C.P.

Dr. W. F. Addey died on June 20 at Otley, near Ipswich. He was born on April 23, 1872, the son of an Irish farmer; his mother was an Englishwoman. He was educated privately in Manchester, and after leaving school was taken abroad by his mother, who was then a widow. He lived in Belgium, Germany, and France, and acquired a good working knowledge of both French and German. He was in Paris during the year when the hundredth anniversary of the fall of the Bastille was celebrated. The scenes he witnessed there made a deep impression on his youthful mind and did much to confirm the liberal outlook on social questions which was characteristic of him. In 1893 he matriculated at University College. Here he came into contact with, and was influenced by, E. V. Lucas, G. K. Chesterton, and A. E. Housman.

He soon decided that the profession of medicine would offer the opportunities he sought for service to his fellows. He obtained the degrees of M.B. with honours in medicine, in 1900, B.S. in 1901, and M.D. in 1902; in 1925 he took the M.R.C.P. and ten years later was elected to the Fellowship. Addey acted as house-physician to Sir Frederick Roberts and as house-surgeon to Sir Rickman Godlee. His period of training before he went into general practice lasted for nine years, and he then joined a group of practitioners in Croydon with Dr. Parsons-Smith as the senior member. During the first world war he served for two years with the R.A.M.C. in France. When he was demobilized in 1919 he began to practise in Ipswich, where he found ample scope for applying his skill as a general and consulting practitioner. He was elected to the staff of the Suffolk and Ipswich Hospital, and later became consulting physician to it. He had been a member of the British Medical Association since 1903; and among other posts he held the office of president of the Suffolk Branch, 1932-3; representative in the Representative Body, 1934; and chairman, East Suffolk Division, 1935-6.

The claims of practice left him little time for engaging in his hobbies, the chief of which was sailing. These of his friends whom chance favoured will not soon forget the delightful experience of sailing with him in his yacht from the village of Pinmill near Ipswich to Harwich Harbour and back again between the wooded banks of the Orwell Estuary. He was fond of music, and he had a good collection of sets of the English classical authors, for he early acquired a love of literature. He keenly enjoyed foreign travel.

A friend writes, on behalf of his colleagues in Ipswich: We wish to give expression to our sense of the worth of the late Dr. Addey and of the loss we have sustained by his death. He came among us in middle life and soon made his presence felt in a way that was wholly acceptable to us. His advice was widely sought, particularly in cases of affections of the heart; he had made a special study of electrocardiography and had contributed valuable papers on the subject to the medical Press. His quick perceptions, his habit of thorough investigation, and his calm, considered judgment made him a helpful consultant. He had delightful personal attributes, including a keen sense of humour, which endeared him to all. A charming host and an equally charming guest, he combined the qualities of a great gentleman and of an able doctor. The efforts he made to carry on his work during the trying years of the recent war stand out as a shining example of tireless self-sacrifice. A serious illness about two years ago compelled him to retire from work, but after a gallant struggle he regained sufficient strength to resume his consulting practice. His end came suddenly and peacefully; after the busy life he led he has well earned his rest. We offer our sincere sympathy to his widow and two daughters in their bereavement.

Mr. DAVID JOHN EVANS, or "D.J." as he was known to so many of his associates, died on May 20. He was in his early fifties, but an extremely active clinical life had for the last ten years been interfered with by ill-health: periods of intense surgical activity, which in earlier days had been his routine, were followed by recurrences of his complaint, and yet he bore

these setbacks cheerfully. After receiving his medical education at Birmingham University, where he qualified in 1913, he served in the R.A.M.C. and then went to China. From 1922 he was assistant professor of oto-laryngology at Shantung Christian University. He returned to England after five years, but his work in the mission field had left its stamp on "D.J." and moulded his manner of life. After obtaining the F.R.C.S. in 1927 he joined the staff of the Birmingham and Midland Ear and Throat Hospital, and a year afterwards that of the Queen's and United Hospital; ill health caused him to give up the latter appointment. For many years he was aural surgeon to the Birmingham education committee and a consultant to several charitable institutions. He was honorary secretary of the Birmingham Central Division of the British Medical Association from 1930-5, and chairman of the Division in 1935-6. He had been an active member of the Association for twenty-eight years.

Dr. FREDERICK CANT, who was 85, died on May 22 at his home in Woodley, near Stockport. At the age of 22 he came from London as an assistant to Dr. Smith of Woodley after being apprenticed to Dr. New for four years. A student of Owen's College, Manchester, he qualified in 1888, and was for twelve months a resident at Stockport Infirmary. During his apprenticeship he had attended more than 200 midwifery cases, an experience which proved invaluable in his long career as a family doctor. On the death of his principal, he took over Dr. Smith's practice. In those early days he paid all his visits on horseback but was one of the first to take to motoring. He was medical officer of health for Bredbury and Romily U.D.C. for 48 years, retiring when a full-time M.O.H. was appointed in 1938. He was also district medical officer to the Board of Guardians and the Post Office, and served as medical officer for one part of the Manchester Ship Canal during its construction. Dr. Cant joined the British Medical Association in 1890 and was also at one time president of the Stockport and District Medical Society. In 1915 he was elected the second chairman of the newly formed Hyde Division, a division inaugurated on the eve of the first world war. He held office for three years and gave valuable service as chairman of the Local Medical War Committee. He acted as M.O. to the 6th Battalion of the Cheshire Volunteers. Dr. Cant was a devout churchman and for many years a churchwarden of St. Mark's Church, Bredbury.

Mr. WILLIAM EVERETT died suddenly at the Royal Hants County Hospital on June 15 at the age of 56. Mr. Everett qualified M.B., Ch.B. at Edinburgh University in 1917 and took the F.R.C.S.Ed. two years later. He had been house-surgeon at the Edinburgh Royal Infirmary and demonstrator of anatomy at the University. He was later R.S.O. at Bradford Royal Infirmary and had contributed a number of articles on surgical subjects to this and other journals. He had been a member of the British Medical Association for twenty-seven years.

K. M. R. writes: By the sudden death of William Everett the profession has been severely hit, for his technical skill and his wise and often inspired judgment placed him in the front rank. It will be difficult to replace him in the county where his work was done. For nearly twenty years he had served on the honorary staff of the Royal Hants County Hospital, Winchester, and his long and ever lengthening waiting-list spoke eloquently of his popularity. A wide circle of professional friends had grown to know his skill and ability, and to depend upon him in a way that is not often experienced. These will feel his loss acutely. This confidence was shared in a high degree by his patients, for he had in generous abundance the power to instil confidence at very short notice. His surgical judgment was unfailing, and his technical ability was of a very high order. He was a joy to watch, and a model worthy of the closest emulation. Those who have had the good fortune to work as his house-surgeons have recorded with pride and gratitude their lasting indebtedness to him. His appetite for work was hard to satisfy and remained with him even when indifferent health made his long operating lists a heavy burden. His loyalty to colleagues who had sent patients to him made it difficult for him to delegate work, and he strove to the very end to reduce the grotesque numbers on his waiting-lists, a struggle which was doomed to failure, for his popularity never ceased from growing, and as the years passed he became more and more in demand. He was a great surgeon and one who would have found himself in the front rank wherever his work was done. But he will be mourned and missed for more than professional qualities. So many will recall with gratitude his outspoken opposition to injustice. Many more will recall his loyal friendship and the ease with which he gave the benefit of the doubt to what was good, rejecting the less good. His interests were wide. In earlier days he had played golf from







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vitamin C 20 mg.	iron 68 mg.		

References: Shortage of space precludes list of references, but full documentation may be obtained on application to Clinical Research Dept. 26 B.



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At an ordinary meeting of the Council of the College, held on June 12, with Sir Alfred Webb-Johnson, Bt., President, in the chair, it was announced that a Supplemental Charter had been granted to the College, giving power, among other things, to co-opt additional members of the Council, to conduct a special Final Fellowship examination in ophthalmology and otolaryngology, to grant a Fellowship in Dental Surgery, and to institute faculties in the College.

The following were co-opted members of the Council for the ensuing year: Dr. H. Guy Dain (General Practice), Mr. G. F. Stebbing (Radiology), Mr. V. E. Negus (Otolaryngology), Dr. A. D. Marston (Anaesthetics), Mr. George Black (Ophthalmology), Mr. R. V. Bradlaw (Dental Surgery), Mr. L. Carnac Rivett, subject to the result of the Council election (Gynaecology and Obstetrics).

Mr. R. J. McNeill Love was appointed as representative of the College on the British Social Hygiene Council.

Diplomas of Fellowship were granted to the following successful candidates:

J. McA. McArthur, A. S. Bullough, R. Petticrew, K. G. Rotter, A. W. L. Kessel, P. Chisholm, P. E. Hutton, S. L. M. C. Pitt, V. Crawford, G. R. Crawshaw, M. H. ... R. E. Shaw, H. M. Lewis, M. T. ... Wheelton, K. W. Wilkinson, B. B. ... P. Choyce, R. Anthonis, D. B. Brown, R. T. Campbell, M. Chaudhuri, L. P. Clark, R. L. Cooke, J. B. Curtis, E. T. Dick, J. L. Dowling, Marjorie O. Dunster, S. M. Ghosh, N. O. K. Gibbon, W. Girdwood, A. J. P. Graham, R. T. Grime, W. G. Hendry, J. P. Herdman, C. Hollenberg, B. Lewin, G. M. Lewis, E. T. McCartney, S. T. McCollum, D. McIntosh, A. M. Mair, H. L. C. Maitland, P. E. Marchand, R. P. Melville, H. D. Moore, E. J. Nangle, S. M. Nawab, G. E. Nevill, J. S. Peters, S. F. Reid, R. B. Scott, R. A. Stephen, H. D. A. Sutherland, R. A. R. Taylor, G. J. Walley.

Diplomas in Anaesthetics were granted, jointly with the Royal College of Physicians of London, to the following successful candidates:

D. V. Bateman, O. H. Bslam, C. H. Boyd, W. H. F. Boyd, P. R. Bromage, E. K. Brownrigg, R. Bryce-Smith, J. E. Bulow, D. Canter, A. A. Cilliers, R. B. Clayton, F. E. Clynyck, S. W. Coffin, E. R. Coleman, P. B. Conroy, C. J. Corcoran, G. Curá, R. M. de Gregory, A. B. Eastwood, I. C. W. English, J. U. Forbes, A. Fraser, Eileen McC. Gibson, L. J. Goggin, J. Gordon, A. H. Grace, P. W. S. Gray, H. Grenville, J. H. G. Halliday, J. K. Harper, A. W. Hind, A. C. Holms, H. R. Hudd, G. Hughes, R. McD. S. Keir, J. Lapraik, C. H. Leveck, J. K. Lewis, Mary E. Lloyd, R. E. Loder, J. M. MacCormack, R. M. Mackenzie, R. L. McMillan, S. A. Mason, J. G. Matheson, E. T. Moersch, P. H. Moore, W. B. Neff, G. S. Ostlere, W. J. Patterson, J. Psaila, H. J. Richardson, Hilda Roberts, J. D. Robertson, F. R. Russell, C. F. Scurr, E. Thomas, T. C. Thorne, C. E. Tudor, Ambrosine B. Vaughan, Patricia E. Wallace, Mary Watson, H. L. J. Wilson, G. P. Williams, T. M. Williams, T. N. P. Wilton, E. H. Winterbottom, Luise Wislicki, R. B. Wright.

A Diploma in Medical Radio-diagnosis was granted, jointly with the Royal College of Physicians of London, to R. L. T. Hill (Glasgow).

A Diploma in Child Health was granted, jointly with the Royal College of Physicians of London, to S. Ray (Calcutta Medical School).

A series of lectures on anatomy, applied physiology, and pathology will be delivered at the College from Monday, June 30, to Thursday, July 31, and from Monday, Sept. 1, to Tuesday, Sept. 16 (Saturdays and Sundays excepted), at 3.45 p.m. and 5 p.m. each day. The fee is £16 16s. Fellows and Members of the College and Licentiates in Dental Surgery will be admitted for £12 12s. Admission cards may be obtained from the assistant secretary of the College.

#### ROYAL COLLEGE OF PHYSICIANS OF IRELAND

At the meeting of the President and Fellows of the Royal College of Physicians of Ireland held on June 6 Dr. Eamonn de Valera and Dr. J. Browne Fleming were admitted Fellows and Dr. P. M. Alston, Leslie Doyle, Leslie Fridjoh, Alan P. Grant, George Gregg, John Hayes, P. D. J. Holland, W. Dillon Hughes, Sean D. McGrath, Harry O'Flanagan, and Bethel E. R. Solomons Members of the College.

#### ROYAL COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS

At a meeting of the Council of the College, held on May 31 with the President, Mr. W. Gilharr, in the chair, it was announced that the Rt. Hon. Field Marshal Jan Smuts, P.C., had accepted an invitation to become an Honorary Fellow.

To mark the grant of the Royal Charter of Incorporation on March 21 the following four surviving signatories to the Articles of Association, whereby the College was founded, were elected to the Honorary Fellowship: Prof. J. M. Munro Kerr, Prof. C. G. Lowry, Sir Even Maclean, and Sir William Fletcher Shaw.

The following were elected to the Council to replace those retiring in statutory rotation: As Representatives of the Fellows, D. Baird (Aberdeen), Alice Bloomfield (London), G. I. Strachan (Cardiff). As Representatives of the Members, J. A. Stallworthy (Oxford), A. M. Sutherland (Glasgow), R. J. Wotherspoon (Glasgow).

A standing committee of the Council, to be known as the Australian Regional Council, has been set up in Australia, with Dr. F. A. Maguire (Sydney) as chairman, to act as a representative committee of the council of the College in discussions and negotiations affecting the practice of obstetrics and gynaecology in Australia.

Prof. B. T. Mayes (Sydney) will act as honorary secretary of the Australian Regional Council.

The following were admitted to the Fellowship of the College:

M. D. Black, J. S. Howell, J. Jhirad, T. N. MacGregor, R. Newton, G. D. Shaw, G. S. Smyth, H. S. Waters, B. Williams.

The following were admitted to the Membership of the College:

D. Ballantine, Margaret R. Biggs, W. S. Campbell, J. B. Cochrane, S. J. Cohen, H. V. Corbett, A. Davis, J. R. Dickinson, Bessie Dodd, Morag Dods, R. C. Gilt, Jean L. Hallum, R. F. Lawrence, T. H. Lawton, J. M. McBride, R. A. E. Magee, M. K. O'Driscoll, S. S. F. Pooley, L. J. Quinn, R. B. Salter, P. C. Thomas, Kathleen M. FitzG. Worrall, J. L. Wright.

## Medical Notes in Parliament

### V.D. in British Forces

Dr. SEGAL, on June 25, discussed the incidence of venereal disease in British Forces overseas. He said the British soldier was less prone to V.D. than the soldiers of any other Allied force. He believed statistics which had been given lately in the House of Lords (*Journal*, June 14, p. 867) were unreliable, because though they dealt with incidence of the disease over 12 months per 1,000 men in a Command they failed to take account that these men were in a mobile state through postings and replacements, so that their numbers were considerably increased. The real problem was how far risks of infection had been taken for every recorded case of disease. With wide dissemination of knowledge, with well-known methods of prophylaxis and early treatment, and with a relatively low proportion of relapses and recurrences, the figures actually given were symptomatic of a general loosening of moral ties which affected many countries beside our own. He asked how the Secretary for War explained a rate of incidence of V.D. in the Far East six times as high as in the Middle East. 'Why was the rate in Germany and Austria to-day almost five times as high as in the Middle East? More could be done in regard to the branches of the Services which dealt with the moral and cultural well-being of men in the Forces, and welfare activities by civilian agencies should be encouraged more, even in occupied territories.'

Mr. JOHN FREEMAN, replying for the War Office, said Dr. Segal's approach to the problem was correct. The difficulty could only be overcome by making conditions in the Services overseas such that the temptation leading to this scourge was less likely to arise. There tended to be a periodic rise in the incidence of the disease after a war, and a peak period which the Forces had now perhaps passed. For the first quarter of 1946 the Rhine Army figures were 30.4 per 1,000; for the second quarter 41.8; for the third quarter 44.6; for the fourth quarter 41.8, and for the first quarter of 1947 30 per 1,000. He hoped the decline would be accelerated. The increase in the middle of 1946, the reduction at the end of last year, and in the beginning of this year were substantially reflected in the Commands. These were terrible figures, but lower than for a similar period after the first World War, although men were now more ready to report this disease. He could not give a clear answer to show why the incidence of the disease should be lower in the Middle East, but Service conditions there, substantially removing the men from female companionship, had a great deal to do with it. In Germany, Austria, and the Far East conditions were conducive to V.D., and its incidence among the civilian population was high. Only recently had the Army started to make progress in controlling sources of infection in the Far East. It had more civilians doing welfare work abroad than it had during the war. It was obvious that, although medical methods could limit the seriousness of the problem, the way to eliminate it was by a moral, educational, and welfare approach.

### Central Purchase of Hospital Equipment

Mr. HAYDN DAVIES, on June 26, asked the Minister of Health to what extent it was proposed to obtain equipment and supplies for hospitals under the National Health Service by centralized purchase in place of the present system of purchase by individual hospitals; and whether a similar policy would be applied to installation and maintenance services.

Mr. BEVAN answered that hospital equipment and supplies covered a wide range. For some items, there might be advantage in central purchase. But where present methods of supply and servicing worked satisfactorily it was not proposed, at the outset of the new Service, to interfere with them. For the time being central purchase would be limited to major

equipment which was in short supply, and various other items which might be found to lend themselves to central purchase on grounds of economy or better efficiency.

### Negotiations with the Minister

On June 26 Dr. SEGAL asked whether any interim report would be issued to the House on the progress of negotiations with the Negotiating Committee of the medical profession; and when this interim report could be expected.

Mr. BEVAN said there would be no such issue. He expected that these negotiations would remain confidential until the outcome was known.

Dr. SEGAL asked to be assured that if an interim report was received it would first be circulated to M.P.s rather than be issued for private circulation among 55,000 qualified members of the medical profession.

Mr. BEVAN said the negotiations were with the profession about the conditions under which they proposed to serve in a national service. They did not directly concern M.P.s. The matter was essentially one for the medical profession in the first instance and afterwards for the House of Commons if it wished.

## EPIDEMIOLOGICAL NOTES

### Food-poisoning at Birkenhead

Over a hundred people at five different parties in the Birkenhead and Wirral area were taken suddenly ill in the course of Saturday, June 28. All required treatment, and 72 were admitted to three hospitals. Except for a few cases all were discharged to their homes on the following day.

It was soon clear that the only item of food common to the four wedding parties and a child's birthday party was a large trifle. At one party 5 people in a group of 6 ate the trifle and were affected; the only one who did not eat the trifle was not affected. Further investigation showed that a woman and her child who ate the trifle after scraping off the cream which covered it were also affected. This suggested that it was the body of the trifle rather than the cream layer which was infected.

Bacteriological investigation revealed *Staph. aureus* as the organism probably responsible. It was recovered from the patients, from the trifle, and from a scone on the eye of one of the employees who prepared the trifle. Typing has not yet been completed.

### Discussion of Table

In *England and Wales* there was a fall in the notifications of most infectious diseases; the decreases included measles 2,739, acute pneumonia 87, and cerebrospinal fever 14, and the only increase of any size was scarlet fever 103.

A small rise in the incidence of scarlet fever was recorded throughout the country; the largest increase was Glamorgan-shire 27. No change occurred in the local trends of diphtheria. The only variations in the returns for whooping-cough were an increase in London 31, and a decrease in Surrey 46.

There were large decreases in the notifications of measles in many areas: the largest falls were Essex 332, Lancashire 265, Yorkshire West Riding 261, London 166, Derbyshire 147, Southampton 137, Lincolnshire 130, Middlesex 124, and Surrey 111.

Of the 12 cases of paratyphoid fever, 10 were notified in Durham (Gateshead C.B. 4, Blythdon U.D. 5, Stanley U.D. 1). A new outbreak of dysentery in Berkshire involved 18 persons Abingdon M.B. 11, Abingdon R.D. 6, and Hungerford R.D. 1).

In *Scotland* there was a decrease in the notifications of acute primary pneumonia 92, whooping-cough 37, scarlet fever 30, and diphtheria 8. Of the 39 cases of dysentery 19 were notified in Edinburgh.

In *Eire* a rise occurred in the incidence of diarrhoea and enteritis 29 and of measles 17. These rises were mainly due to the experience of Dublin C.B.

In *Northern Ireland* only slight changes were reported in the incidence of infectious diseases.

### Week Ending June 21

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 870, whooping-cough 1,07, diphtheria 220, measles 10,632, acute pneumonia 328, cerebrospinal fever 39, acute poliomyelitis 44, dysentery 47, smallpox 7, paratyphoid 11, typhoid 7.

## INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended June 14.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1947					1946 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	49	2	26	2	—	44	4	17	3	1
Deaths .. ..	—	—	1	—	—	4	4	1	—	—
Diphtheria .. ..	195	17	38	15	4	262	18	99	25	13
Deaths .. ..	2	—	—	—	—	1	—	1	—	—
Dysentery .. ..	48	5	39	1	—	146	20	48	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Encephalitis lethargica, acute .. ..	—	—	—	—	—	3	1	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Erysipelas .. ..	—	1	21	4	1	—	—	34	13	2
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Infective enteritis or diarrhoea under 2 years .. ..	—	—	—	47	—	—	—	—	24	—
Deaths .. ..	83	6	24	8	6	41	6	9	3	5
Measles* .. ..	10,796	515	151	149	16	4,415	1,081	660	36	23
Deaths .. ..	4	—	1	—	—	4	2	1	—	—
Ophthalmia neonatorum .. ..	68	4	16	—	—	63	7	14	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Paratyphoid fever ..	12	—	—	—	—	4	—	1(A)	—	—
Deaths .. ..	—	—	—	—	—	—	—	1(B)	—	—
Pneumonia, influenzal ..	380	17	2	2	8	505	27	9	—	2
Deaths (from influenza)* .. ..	4	—	1	—	—	11	4	—	—	—
Pneumonia, primary ..	—	—	129	20	—	—	—	141	10	—
Deaths .. ..	—	12	—	6	3	—	28	—	11	8
Polio-encephalitis, acute .. ..	3	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Poliomyelitis, acute ..	31	4	2	8	—	12	—	1	3	1
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Puerperal fever .. ..	—	1	21	—	—	—	1	17	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Puerperal pyrexia† ..	124	4	10	—	4	134	5	14	3	2
Deaths .. ..	1	—	—	—	—	—	—	—	—	—
Relapsing fever .. ..	—	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Scarlet fever .. ..	833	73	96	21	30	866	85	187	24	20
Deaths .. ..	1	—	—	—	—	—	—	—	—	—
Smallpox .. ..	—	—	—	—	—	2	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Typhoid fever .. ..	4	—	—	1	—	7	—	1	7	3
Deaths .. ..	1	—	—	—	—	—	—	—	—	—
Typhus fever .. ..	—	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Whooping-cough* ..	2,062	262	108	51	13	1,625	150	86	28	27
Deaths .. ..	10	1	1	3	—	8	2	—	1	1
Deaths (0-1 year) ..	395	44	63	41	17	337	50	54	22	22
Infant mortality rate (per 1,000 live births) ..	—	—	—	—	—	—	—	—	—	—
Deaths (excluding stillbirths) .. ..	4,111	613	554	198	96	4,189	647	557	193	129
Annual death rate (per 1,000 persons living) ..	—	—	11.5	12.5	—	—	—	12.3	12.4	—
Live births .. ..	9,932	1,660	1,218	391	272	8,778	1,371	1,123	338	280
Annual rate per 1,000 persons living ..	—	—	24.5	24.7	—	—	—	22.6	21.7	—
Stillbirths .. ..	252	32	29	—	—	230	32	33	—	—
Rate per 1,000 total births (including stillborn) ..	—	—	23	—	—	—	—	29	—	—

\* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

## Medical News

### The Lister Institute

The report of the Governing Body of the Lister Institute of Preventive Medicine, which has just been published, records that the Council has re-elected to the Governing Body as its representatives Prof. H. R. Dean, F.R.C.P., Sir Paul Fildes, F.R.S., and Sir Henry Dale, F.R.S. Research units housed at the Institute are the Bacterial Chemistry Unit, the National Collection of Type Cultures, and the Blood Group Research Unit, all of the Medical Research Council, and the Blood Group Reference Laboratory of the Ministry of Health. A survey of the scientific work carried out during the year refers to Mr. Standfast's examination of the characteristics of *H. pertussis* to discover whether the organism undergoes dissociation due to inherent or environmental factors and whether these influence the potency of vaccines. Miss Spooner, studying the reactive substances found in transfusion material, has been concentrating chiefly on the liberation of histamine and adenosine from the perfused lung when such substances are given intravenously; and she and Dr. M. G. Macfarlane have been investigating the chemical changes in muscles during and after ischaemia. The results suggest that the changes leading to clinical shock after the release of a tourniquet may arise from the failure to re-establish the cycle of carbohydrate metabolism. Dr. Duthie, working with organisms of the subtilis group, has shown that the maximum production of penicillinase is obtained only when penicillin is added continuously during the growth phase of the bacteria, and he is investigating the possibility of producing an antiserum against staphylococcal penicillinase. Drs. Mackay and Kekwick have developed a procedure (suitable for large-scale production) for separating immune globulins from human plasma. Preliminary tests by the Medical Research Council indicate that the product is prophylactic against measles. Investigations into nicotinamide are being continued by Dr. Elinger and his colleagues, who have published two papers in this *Journal* (Oct. 26, 1946, p. 611, and May 17, 1947, p. 672).

### Ex-Service Nursing Orderlies

Correspondents in our columns have recently debated whether Service-trained nursing orderlies should be admitted as State registered nurses without obtaining civilian qualifications, with a view to mitigating the shortage of nurses. The Department of Health for Scotland now announces that opportunity will be given for ex-Service men and women nursing orderlies with first-class qualifications to become State registered nurses after an intensive course of one year's duration instead of the normal three years'. The General Nursing Council for Scotland will allow ex-Service men and women to sit for the examinations if they were Class I nursing orderlies, or the equivalent, in the Forces and had two years' experience of nursing under a State registered nurse. Three such courses have started at Stracathro Hospital, Angus, the Law Junction Hospital, Lanarkshire, and Ballochmyle Hospital, Ayrshire; a fourth is being planned. Temporary nursing employment before the opening of the course will be found for those who want it. Men and women in the Forces should apply through Service channels; those who have been demobilized should write to the Chief Nursing Officer, Department of Health for Scotland, St. Andrew's House, Edinburgh.

### Buckston Browne Prize

The council of the Harveian Society of London has selected "The Mental and Physical Effects of Pain" as the subject for the next Buckston Browne Prize essay. The prize, consisting of a medal and £100, will be awarded for the best essay on the above subject and is open to any member of the medical profession, under 45 years of age, registered in the British Isles or the Dominions. Essays must be submitted by Oct. 1, 1948. Further particulars may be obtained from Sir Cecil Wakeley, K.B.E., C.B., D.Sc., F.R.C.S., 14, Devonshire Street, Portland Place, London, W.1.

### B.C.G. in Norway

At a meeting of the Tuberculosis Association of Norwegian Doctors, a resolution, unanimously adopted, included this statement: "The Tuberculosis Association of Norwegian Doctors recommends to the Department for Social Affairs the promotion of proposals for a law dealing with general B.C.G. vaccination of school-children of the national schools at school-leaving age, army recruits, and other young people, as well as of other population groups which are particularly exposed to infection with tuberculosis."

### Exhibition at the Bodleian

An exhibition of books and manuscripts on medicine, surgery, and physiology has been opened at the Bodleian Library, Oxford (admission free). An illustrated catalogue (price 1s.) is available. The manuscripts include works by Hippocrates, Galen, Isaac Judaeus, Albucaasis, and Avicenna.

### R.S.M. Awards and Elections

Sir Alexander Fleming and Sir Howard Florey were joint awarded the Gold Medal of the Royal Society of Medicine on July 1. Prof. R. R. Macintosh was awarded the Hickman Medal in Anaesthesia. At the same meeting the following were elected Honorary Fellows: Sir Edward Mellanby, Dr. C. M. Wenyawer, Prof. Naguib Mahfouz Pacha, of Cairo, and Prof. Einar Key, of Sweden. The following Officers were elected for the session 1947-8: president, Sir Maurice Cassidy; immediate past president Sir Gordon Gordon-Taylor; hon. secretaries, Mr. W. A. Pool and Dr. A. T. M. Wilson; hon. treasurers, Dr. Charles Newman and Mr. L. R. Broster; hon. librarians, Mr. E. K. Martin and Dr. Thomas Hunt; hon. editors, Mr. Eric A. Crook and Dr. E. F. Cullinan.

### Visit of Czech Pathologist

Prof. Herman Siki, Director of the Department of Morbid Anatomy at the University of Prague, is visiting this country under the auspices of the British Council, and delivered a lecture on "Lesser Known Histological Methods for Routine Use in the Laboratory" at the meeting of the Association of Clinical Pathologists at Cambridge on June 27. He is attending the meeting of the Pathological Society at Newcastle on July 4-5 and will then return to London.

### Discoverers of Paludrine Honoured

Drs. F. H. S. Curd, D. G. Davey, and F. L. Rose were presented with the Gold Medal in Therapeutics of the Society of Apothecaries on June 17 at the Apothecaries' Hall by the Master of the Company Dr. C. Thackray Parsons, for the joint research which culminated in the discovery of paludrine. Dr. Davey has also been awarded the Chalmers Medal by the Royal Society of Tropical Medicine and Hygiene. At the age of 34 he is the youngest recipient of this medal.

### For Discovery of BAL

Prof. Rudolph Peters, M.C., F.R.S., who produced BAL early in the recent war, has been presented with the United States Medal of Freedom and Silver Palm.

## COMING EVENTS

### Royal Medico-Psychological Association

The 106th annual meeting of the Royal Medico-Psychological Association will be held in the Winter Garden Lecture Hall, Eastbourne, on Wednesday, Thursday, and Friday, July 9, 10, and 11, under the presidency of Dr. W. Gordon Masfield. The proceedings will open with the annual general meeting on July 9, at 11 a.m., when the officers for 1947-8 will be elected and other business transacted. At 2.30 p.m., Dr. Masfield will be inducted to the office of president and will deliver an address, and at 7.30 p.m. for 8 p.m., the annual dinner will be held at the Grand Hotel. On July 10, at 10.15 a.m., Dr. Geoffrey Evans and Dr. Noel Harris will present papers on "The Place of Psychiatry in Medicine," and at 2.15 p.m. there will be papers by Dr. Donald Stewart on "The Relation of Society to Occupational Health," and by Dr. John Thwaites on "Psychiatry in Relation to General Practice." On July 11, at 10.15 a.m., a paper by Mr. F. C. Webster, Architect to the Board of Control, and Dr. J. J. O'Reill on "The Planning of Modern Psychiatric Units," will be presented and at 2 p.m. the Child Psychiatry Section will meet at Public Health House, The Avenue, Eastbourne.

### Urology

The seventh congress of the International Society of Urology will be held at St. Moritz, Switzerland, from Aug. 25 to 28, with the following programme which shows in parentheses the names of the British contributors to the discussions. Aug. 25, "The Aetiology of Primary Renal Calculus" (Mr. H. P. Winsbury-White); Aug. 26, "The Diagnosis and Treatment of Renal Tuberculosis" (Mr. Hamilton Bailey, Dr. Cuthbert Dukes, Mr. David Band "Transplantation of the Ureter" (Mr. Arthur Jacobs). Aug. 27, general excursion and meeting. Aug. 28, "The Use of Sulphonamides and Penicillin in Urology" (Mr. J. G. Yates and Mr. Clifford Morson); "Hormone Therapy in Cancer of the Prostate" (Mr. Clifford Morson, Mr. Hamilton Bailey). Aug. 29 there will be excursions to sanatoria. Further particulars of the congress may be obtained from Mr. Clifford Morson, O.B.E., F.R.C.S., 86, Brook Street, London, W.1.

### Abernethian Society

Prof. John Fulton, Sterling Professor of Physiology in the University of Yale, will deliver an address on "Harvey Cushing and His Books" before the Abernethian Society in the Clinical Lecture Theatre of St. Bartholomew's Hospital, London, E.C., on Thursday, July 10, at 5.30 p.m.



## Presentation of Prizes

Sir Frederick Ogilvie will present the prizes in the library of the London Hospital Medical College on Wednesday, July 9, at 3 p.m.

## Pure and Applied Chemistry

The eleventh International Congress of Pure and Applied Chemistry, which the war prevented from being held in 1941, will be held in London on July 16-24, in conjunction with the also sponsored Centenary Celebrations of the Chemical Society. Lord Verhulme will preside. Further information may be obtained from the Hon. Organizer, the 11th International Congress of Pure and Applied Chemistry, 56, Victoria Street, London, S.W.1.

## Medical Hydrology

The annual meeting of the International Society of Medical Hydrology will be held at Rheinfelden, Switzerland, from Sept. 11-15, with the following programme: Sept. 11, first medical discussion, "Spa and Climatic Treatment for Children"; Sept. 12, papers on "Peripheral Vascular Disorder," followed by "Balneotherapy Non-rheumatic Diseases," at Schinznach Bad; Sept. 13, "Spa treatment in Rehabilitation after Accidents and War Injuries," to be held at Baden; Sept. 14, Further papers, at Basle; Sept. 15, beginning of excursion through the Engadine, due to last eight days, with a supplemental three days in the Bernese Oberland, if so wished. Further details may be obtained from the honorary secretary, International Society of Medical Hydrology, 28, The Circus, Bath, England.

## SOCIETIES AND LECTURES

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.—Tuesday, July 8, 6.15 p.m. Moynihan Lecture by Dr. W. K. Livingston (Professor of Surgery in the University of Oregon): Physiological Responses to Wounding. Thursday, July 10, 6.15 p.m. Hunterian Lecture by Prof. H. Jackson: Role of Anatomy in Symptomatology of Lumbar Disk Protrusions.

## POSTGRADUATE DIARY

INSTITUTE OF LARYNGOLOGY AND OTOTOLOGY, 330-2, Gray's Inn Road, W.C.—Tuesday, July 8, 5 p.m. Mr. V. E. Negus: The Nose, Nasopharynx, and Paranasal Sinuses.

## APPOINTMENTS

QUEEN MARY'S HOSPITAL FOR THE EAST END, Stratford.—Honorary Assistant *stretic Surgeons*, H. H. Fouracre Barns, F.R.C.S., M.R.C.O.G., B. G. ers, F.R.C.S. Ed., M.R.C.O.G.

LONDON COUNTY COUNCIL.—The following in the Council's in health services are announced: in parentheses: *istants Medical Officers*, J. Aminoff (F.R.C.S. Ed.); M. W. near, M.R.C.S., L.R.C.P. (Cane, M.B., B.Chir. ley); R. M. Jones, M.B., B.S. (Long Grove). *ouis*, F., F.R.C.S., Accident and Orthopaedic Surgeon, St. Margaret's *spital and Great Western Hospital, Swindon.*

## BIRTHS, MARRIAGES, AND DEATHS

Charge for an insertion under this head is 10s. 6d. for 18 words or less. *ra words 3s. 6d. for each six or less. Payment should be forwarded with notice, authenticated by the name and permanent address of the sender. It should reach the Advertisement Manager not later than first post Monday morning.*

## BIRTHS

NES.—On June 22, 1947, at St. Anne's Nursing Home, Nottingham, to Edith (née Flinn), wife of Dr. H. G. Barnes, a daughter.

TECHER.—On June 23, 1947, at Chertsey Hill Nursing Home, Carlisle, to Edith, wife of Tom Fletcher, M.D., F.R.C.S., of Papcastle, Cockerham, son and brother for Gaim and Nigel.

FRITH.—On June 22, 1947, at the North Oxford Nursing Home, Oxford, to Lucie, wife of Dr. R. C. I. Griffiths, of Newport Pagnell, a daughter.

R.—On June 22, 1947, at Newcastle-on-Tyne, to Marie Barbara (née Ivey), wife of Dr. Leonard H. Lake, of 79, Holly Avenue, Jesmond, Newcastle-on-Tyne, 2, a daughter—Janet Havelock.

AREN.—On June 4, 1947, at Fernbrae Nursing Home, Dundee, to Pat (née Taylor), wife of Mr. L. L. Bill McLaren, R.A.F., a son—Andrew Hood.

## MARRIAGE

WYFORD—SETON.—On June 18, 1947, at Kilmarnock, Ayrshire, W. Cowan Wyford, I.R.C.S., L.R.C.P., to Mary Stewart Seton, S.R.N.

## DEATHS

WYLL.—On June 26, 1947, at Riversdale, Fielden Park, West Didsbury, Manchester, Charles Philip Brentnall, M.C., F.R.C.O.G., Honorary Surgeon, Mary's Hospitals, Manchester, aged 56 years. The very dearly loved husband of Muriel Young Brentnall.

RAY.—On June 14, 1947, at Amarah, Lower Bourne, Farnham, Surrey, American Findlay, M.D., D.Sc., F.R.C.P., in his 70th year. Funeral private. American and Canadian papers please copy.

THIRTS.—On June 17, 1947, at Bath, Francis Howard, Companion Order of St. John, Chevalier Order of Leopold I, M.D., F.R.C.P., M.R.C.S., R.C.P., D.M.R.E., L.M., formerly of 4, Stanhope Gate, Park Lane, London.

ATT.—On May 31, 1947, in Gloucester, Havelock Thos. Lippman, M.C., D.McGill, F.R.C.S. Ed.

E.—On June 22, 1947, at 60, Kewstoke Road, Bristol, 9, Ethel, wife of de Coverly Vcale.

## Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

## Stammering

Q.—A boy aged 10 stammers badly. He started stammering at the age of 4 after removal of tonsils and adenoids. He is not a mouth-breather, and had training by an elocutionist for about a year without improvement. He is very intelligent and good at studies and games. Will you kindly discuss in detail the examination and treatment, as stammering is not discussed in most textbooks?

A.—First, any remediable physical disorders should be attended to, particularly if they are in the ear, nose, or throat area. These latter troubles do not cause stammering but they may delay the patient's recovery. Then it is essential in a young child to determine by observation which hand Nature intended him to use for his most skilled actions, and to see to it that he writes with that hand, whether left or right. Do not attempt corrective training; there is no justification whatever for forcing him to conform with the majority. If, however, the habit of writing with the non-dominant hand has been well established, any change may cause too great an upheaval. Speaking generally, the reversal can be made without serious disturbance if the child is less than 12 years old, provided that he is blessed with reasonable educators.

The next step is to induce all those coming into contact with him—and particularly parents and school-teachers—to refrain from treating the child's stammer and to ignore it so far as is possible. The teaching of elocution is likely to make many stammerers worse and it is doubtful if it is ever a help. Speech treatment can be carried out satisfactorily only by qualified speech therapists, who now form a recognized branch of medical auxiliaries and undergo a three-years training and after their final examination receive a standard diploma. The family doctor rarely has the knowledge and never the time necessary to treat this disorder. The speech treatment consists in a fairly complete re-education of the whole speech process, beginning with a "detensing" of the patient by instruction in complete bodily—and if possible mental—relaxation. Further treatment varies with the case and is too technical and detailed to outline here. In every case, however, a psychiatric survey should be made to ensure that serious psychological factors are not perpetuating the stammer. When present their treatment should be attempted at the same time as that of the speech itself. A brief outline of the problem of stammering will be found in the *Survey of Child Psychiatry*, edited by R. G. Gordon and published by the Oxford University Press.

## Psychology of Make-believe

Q.—Children between the ages of 2 and 5 are prone to pretend they are other children. My son, nearly 3, occasionally insists that he is his cousin, and that his name is Bobby and not David. He also pretends that his parents are his aunt and uncle respectively—Bobby's parents. Can this be explained by a psychologist; and is it wise to encourage this play-acting? In all other respects the child is normal and plays with friends of his own age.

A.—Young children who pretend that they are other people have a way of solving their difficulties by this means. Sometimes it is obvious how this is done; for example, when a child has an imaginary companion whom he invests with all his "naughty" characteristics, so escaping the uncomfortable sense of guilt which he would otherwise experience. In the same way it may be useful to have an extra imaginary set of parents, for children are often afraid that their angry wishes may do harm to the parents whom they love, and so they invent "whipping-boys" of various sorts. Certainly such make-believe is no sign of abnormality but a natural defence mechanism making for mental health.

### Fat Injections for Scars

**Q.**—*Can you give me any information as to the use of injections of fat for the removal of unsightly scars?*

**A.**—Injection of fat for the improvement of depressed scars is commonly used by quacks. The result is not impressive. The fat is usually absorbed or becomes a hard fibrous mass which can be felt or seen beneath the scar. The result is rarely as good as that obtained by careful excision and resuture, attention being paid to the contour and light-catching properties of the scar by building up subcutaneous tissue to secure a smooth surface.

### Fissured Lip

**Q.**—*A patient has suffered from a fissured lip at the angle of the mouth for six months. It heals for a few days but quickly breaks down. Lip salves and collodion have been tried without success. There is no oral sepsis (complete dentures), and the general health is good. Can you suggest a cure?*

**A.**—Fissures at the angle of the mouth which are infected may sometimes be induced to heal by the local use of penicillin. In intractable cases, however, where the fissure keeps breaking down, the only cure often is to excise the fissure and to suture, keeping the sutures in place for longer than the normal period to ensure that stretching of the mouth will not cause breakdown in the area before complete healing has taken place.

### Increasing the Size of the Breasts

**Q.**—*A "show-girl" is anxious to increase her breast measurements; small doses of oestrogen and progesterone have no effect. Is this a safe treatment and is it likely to be effective? If so, what dosage should be given and at what intervals? There is a history of salpingectomy in 1932 when she was 19, both ovaries were left in situ. Would this influence the effect of the treatment?*

**A.**—It is usually possible to produce breast enlargement with oestrogens, providing the breast tissue is inherently capable of response and an adequate dose is given. The effect might be enhanced by giving progesterone in combination with oestrogen, but progesterone alone is unlikely to be of value. However, oestrogen therapy, either local or systemic, is not advised because its effect is temporary and when it is withdrawn the breasts not only return to their former size but tend to be less firm and shapely. The changes are rather like those occurring in pregnancy, including darkening of the areola and increased vascularity; afterwards the breasts assume the appearance of those of a multipara. Moreover, the increased size cannot be maintained by giving oestrogens for an indefinite period because ill effects, such as menstrual disturbances, endometrial hyperplasia, pituitary and ovarian depression, and breast changes similar to those of "chronic mastitis," may occur. As an alternative to hormones, physiotherapy should be tried, especially arm exercises to develop the pectoral muscles and increase the blood supply to the breasts. Swimming might be particularly effective. The advantage of this type of treatment is that it can be continued regularly for an indefinite period. Salpingectomy does not affect the breasts.

### Scabies Infection of Anus

**Q.**—*Have scabies mites been noted in the rectum or urine? Inquiries show that most cases of infection in Natal are due to natives sleeping in sacking, and that the parasite is often found around the anus.*

**A.**—The scabies mite has only been found living in the horny layer of the skin and never in the internal organs. Very occasional dead and partly macerated specimens have been demonstrated in the urine and sputum, but this was almost certainly due to contamination. It would be interesting to know just what the questioner means when he states that "inquiries" reveal that infections with scabies in Natal are usually due to natives sleeping in sacking. All other investigators have shown that, while an occasional infection from fomites may occur, transmission is due in the majority of cases to personal contact. Coarse material like sacking would be most unlikely to harbour *Sarcoptes* in any numbers. Was the alleged heavy infection with parasites round the anus confirmed by finding the mites

themselves? Other investigators have found that, while impetiginous lesions are common in the buttocks, a comparatively small number of mites occur in this region, while much larger numbers, giving rise to few clinical symptoms, are seen on the hands and wrists.

### Renal Function Tests

**Q.**—*Is it possible to correlate specific renal function tests with specific renal lesions; for example, the water concentration test with damage to the tubules?*

**A.**—Although renal function tests are helpful in assessing the state of the kidneys, our knowledge of renal function is not yet sufficient to allow of our correlating specific renal function tests with specific renal lesions. Too many imponderables exist to make this possible. Theoretically it would seem that the water concentration test would throw light on the state of the kidneys, but too much weight should not be attached to the findings. It is quite possible that, with an increase of knowledge of the physiology of the kidneys, what is now theoretical may become practical.

### First Pregnancy after Nephrectomy

**Q.**—*A patient, aged 40, just married, is anxious to have a child. She had one kidney removed at an early age. What are the hazards of a first pregnancy under these conditions?*

**A.**—Although many women with only one kidney go through pregnancy without suffering any ill effect, the combination of conditions must always give rise to some anxiety because the safety margin is small. The outlook in any case depends to some extent on the indication for the nephrectomy, and especially on the health and efficiency of the remaining kidney. Before advising this woman, renal function tests and also pyelography should be carried out. If the results are satisfactory the patient should be told that in the event of her becoming pregnant she will require careful supervision. The chief risks are pyelitis and any sort of toxæmia, and if these occur and do not respond immediately to conservative measures the pregnancy should be terminated.

### Hormones and Carcinoma of Prostate

**Q.**—*Is there any proof that testosterone has converted a benign growth of the prostate into a malignant one? In view of the fact that stilboestrol causes regression the possibility seems obvious.*

**A.**—There is no proof or indication, either clinical or experimental. The inhibitory action of stilboestrol on carcinoma of the prostate does perhaps raise the possibility, as do also the hypertrophy and hyperplasia of the prostatic epithelium which result from testosterone administration under certain conditions. However, apart from the absence of objective direct evidence, it is recognized that there is a malignant neoplastic stimulus (of uncertain character), as well as a hormone stimulus, involved in the induction of carcinoma of the prostate. Thus Huggins found that even when bilateral adrenalectomy was superimposed on bilateral orchidectomy, so that all androgenic stimulation was eliminated, a relapse from carcinoma of the prostate could not be halted indefinitely.

### Urinary Incontinence

**Q.**—*A male aged 34 complains of urinary incontinence, which started four years ago. The condition was first noticed at night and has become progressively worse. Examination of urine, urinary tract, and bladder has proved negative. Belladonna and ergot pills have been of help; is there any danger in their prolonged administration? What further treatment and investigations do you advise?*

**A.**—The diagnosis in this case is obscure and little can be said about treatment until it has been elucidated. The symptoms might fit in with a prostatic lesion, but the patient's age makes the presence of an ordinary enlargement extremely improbable. It is possible, however, that he has what the American urologists call a "prostatic bar"; this is generally missed by the inexperienced cystoscopist. It is important to know whether there is any residual urine, and a catheter should be passed after he has made every effort to empty his bladder.

It is quite likely that residual urine will be found and that this accounts for the lack of control. A small perurethral resection would then probably bring about great improvement. It is to be assumed that the possibility of a lesion of the central nervous system has been eliminated. In this case the incontinence first became marked by night, and it is unlikely, therefore, that it is functional. There is no objection to continuing the only treatment which so far has been effective.

#### Acute Rheumatism and the Heart

**Q.**—Cases have been reported in America of cardiac damage following acute rheumatism treated by salicylates. I understand that rheumatic fever in an adult does not cause permanent cardiac damage provided the heart was previously healthy. At what age can it be assumed that rheumatic fever is unlikely to inflict permanent damage on the heart?

**A.**—Cardiac involvement probably occurs in every case of acute rheumatic fever or acute rheumatism, and this may lead to permanent cardiac damage. Neither the incidence of cardiac involvement nor the tendency to permanent damage appears to be influenced by the administration of salicylates in any form. First attacks of rheumatic fever are less likely to inflict permanent damage in subjects over 15, and in subjects over 20 the risk is slight. However, any prognostic assessment on these grounds is unwarranted unless the full clinical picture is borne in mind. In addition, it would be unwise to assume that the benign course of adult cases will be an unchanging feature of the disease for all time.

#### Wassermann Reaction of Cadaver Blood

**Q.**—On admission to hospital a patient's Wassermann reaction was negative. At the subsequent necropsy a Wassermann test done on blood taken from the body gave a positive reaction. This result was held to be valueless, as blood from a cadaver is always Wassermann positive. If this is correct, what is the explanation?

**A.**—Cadaver blood occasionally, but not invariably, gives a false positive Wassermann reaction; not uncommonly serum obtained from a corpse is anticomplementary. There is no satisfactory explanation of either phenomenon. In view of the fact that the reaction was negative during life and positive after death, it should be borne in mind that a considerable proportion of false positive results of Wassermann tests done in this country are due to faulty technique or inexperience.

#### Sulphonamides and Mepacrine

**Q.**—What are the incompatibilities of the sulphonamides and f. mepacrine when administered by the oral route? Do these drugs damage the liver? Can they be given together without fear of incompatibility or liver damage? If not, how can these risks be overcome?

**A.**—Para-aminobenzoic acid should not be given with sulphonamide drugs because of therapeutic interference, and it is advised that saline purges, thiopentone, phenazonum, midopyrine, phenylhydrazine, gold, and arsenical compounds be avoided when sulphonamides are being given. Some recommend that pamaquin should not be given with mepacrine. In practice, however, there are few serious incompatibilities of sulphonamide drugs or mepacrine given orally. In therapeutic dosage their damaging effect on the liver is negligible. Sulphapyridine and mepacrine may be given together.

#### Eclampsia a Toxaemia ?

**Q.**—What evidence is there for the toxaemia theory of eclampsia? Have samples of systemic or portal blood from such cases ever been given to other individuals, or to experimental animals, with the production of significant symptoms?

**A.**—The view that eclampsia is a manifestation of a toxaemia was elaborated during the late nineteenth and early twentieth centuries. It was based on observations such as the following: regenerative changes in various organs, especially liver and kidney, were rather similar to those produced by chemical poisons; the wide distribution of lesions suggested that the causal agent was in the circulation; the occasional finding of

what were considered similar lesions in the foetus was also thought to favour the idea of a toxin which had crossed the placenta; the organ most constantly found to be damaged was the liver. Nevertheless, a toxin has never been demonstrated and, if there is one, its origin remains unknown. Systemic blood, serum, urine, and extracts of placentae from eclamptic women have been injected into various laboratory animals, and numerous experiments of this kind are reviewed by J. Whitridge Williams in *Obstetrics*, 4th edition, 1920. What were at first thought to be significant effects in the animals were later shown to be serum and foreign-protein reactions. Further and better-controlled experiments of this kind did not provide evidence of the presence of any special toxin. Systemic blood from women suffering from eclampsia has also been transfused into women suffering from haemorrhage, without producing any special symptoms. J. B. deLee in the 4th edition of *The Principles and Practice of Obstetrics* mentions that Bumm carried out work of this kind in 1922.

### NOTES AND COMMENTS

**Leuconychia.**—Dr. ALICE E. B. HARDING (London, S.W.) writes: Belatedly reading the *Journal* of May 17, I have seen the answer on leuconychia (p. 705) and find it unacceptable. Some years ago I noticed that though my finger nails are patterned to an unusual extent with transverse white marks, my toe nails show no linear deposits at all. I considered the question of exposure to light as one of the possible factors, and to test this theory I kept my finger nails painted with a deep-coloured nail varnish for three months. The varnish was removed as necessary with acetone and reapplied with the usual soft brush. The white markings gradually faded, and at the end of the three months had gone completely. During this time my cuticle toilet was carried out as usual each night. When I finally (and thankfully) discarded the varnish, many marks returned within a week; their number and size seem to vary with the general state of my health, and are greater during the winter than the summer, when, as is the case with every doctor, I am more apt to be "run down" and tired. It would seem that there is a constitutional factor concerned, but that the actual deposition is determined by exposure to light.

**"Susceptibility" to Lousiness.**—Dr. K. M. TOMLINSON (Leamington Spa) writes: In your expert's reply (June 14, p. 871) upon the above subject he postulates that those people who consider themselves more susceptible to flea bites are the more sensitive by nature and therefore more likely to notice bites. In Southern California in the dry season flea bites cause considerable and widespread distress to susceptible patients. Howard Eder reports that all susceptible patients treated with large doses of thiamine hydrochloride (he used 10 mg. three times a day to begin with, and then a maintenance dose of 10 mg. daily) obtained relief while so saturated. On desaturation he noted that their susceptibility returned, but relief was again obtained on further treatment. It was my intention to try the effect of thiamine saturation on patients with other infestations, such as scabies, to note whether the irritation became less. This would infer a similar distaste for thiamine on behalf of the acarus. The timely warning of the toxicity of thiamine hydrochloride by Reingold, Haley, Fleischer, and others dissuaded me from experiment in such a relatively simple and easily cured ailment as scabies. It might, however, be worth while for any medical man who is markedly susceptible to fleas, mosquitoes, etc., to try the effect of thiamine hydrochloride on himself. Fortunately I am not a suitable guinea-pig.

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SUPPLEMENT TO THE

LONDON SATURDAY JULY 5 1947

## REGIONAL HOSPITAL BOARDS

## CHAIRMEN AND MEMBERS

In December last (*Journal*, Dec. 28, 1946, p. 1000) the Minister of Health defined the areas for which Regional Hospital Boards would be responsible under the National Health Service Act. On June 27 he published an order setting out the constitution of these Boards. The Boards will organize and develop the hospital and specialist services in their respective areas, though ultimate control will remain with the Minister. The Boards will later appoint Hospital Management Committees for the local administration of all hospitals except teaching hospitals. The chairmen have been appointed for a period ending March, 1950; one-third of the other members will retire at the end of each year beginning in March, 1949. They will be eligible for reappointment, and the term of office of future members will be three years. All the appointments are honorary. We list below the chairmen and members of the Boards.

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## MEDICAL ORGANIZATION IN DENMARK GENERAL PRACTICE

BY

K. H. BACKER

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The development of medicine in Denmark has involved the working power of general practitioners being employed to a great extent in organizing out-patient care. The specialization of medical science, in itself likely to counteract this development, has resulted in an organized collaboration between the specialists and the general practitioners, the position of the latter being maintained as the bed-rock of out-patient care. The fact that the sickness benefit clubs, as supporters of the social sickness insurance, could already bring their influence to bear towards the end of the last century has been a determining factor of this development.

In 1892, with State approval, the sickness benefit clubs were obliged to grant their members *free* medical care by general practitioners, whereas medical care given by specialists was a voluntary benefit. The obligation to grant *free* medical care debarred the sickness benefit clubs from confining themselves to covering the expenses of the members in part according to the refundment scheme. This obligation forced them to enter into contracts with the doctors, and these contracts were made with the general practitioners. As the number of sickness benefit clubs increased—they now include three-quarters of the population—the position of the general practitioners became more important. One reason was that the number of specialists at the outset was so small that the out-patient care could base itself on their co-operation to a small extent only; besides, specialist care was more expensive than general-practitioner care.

The contract negotiations between sickness benefit clubs and doctors gave the latter a share in determining the organization of out-patient care. It was conducive to the general practitioners' keeping their central position, even after specialization within medical science had grown apace. To some extent, I suppose, it was due to the numerical superiority of the general practitioners—you could not do without them—but it was also due to systematic endeavours to organize the medical care service on the "family doctor" principle. This principle has been and is accepted unanimously by general practitioners and specialists as well as by the sickness benefit clubs.

### The Family Doctor

According to the "family doctor" principle each family has its regular doctor, a general practitioner, to whom the members of the family always apply first for medical care. On his advice and reference a specialist may be consulted; when the specialist treatment has been finished, the patient is sent back to his family doctor with an account of examinations and treatment, if any. The same mode of procedure is adopted by hospitals and similar institutions in relation to the doctor admitting the patient to the hospital—normally the regular doctor of the family. This scheme has some advantages and some disadvantages. It limits specialist care to what is "necessary"; and it results in the family doctor's getting a thorough knowledge of his patients in the course of time, not only of their state of health but also of their social conditions, their milieu—knowledge of great medical importance which cannot easily be concentrated in one person if the service is not organized on the family doctor principle.

In contrast to the family doctor scheme is the medical care service, which does not attach importance to the establishment of a regular relationship between families and general practitioners, and which permits of free choice of doctor for each new case of illness and consultation with a specialist without reference to a general practitioner. Such a service does not make a point of limiting specialist care to what is "necessary"—i.e., to the difficult cases for which a non-specialist dare not be responsible. The result is that specialist care is given more frequently. This may at first sight appear an advantage. The fact that some cases will be treated by a specialist even when it is unnecessary may not change this view; nor



may the fact that some cases, although applying to a specialist, will not really be treated by one, for the same patient may have symptoms, and suffer from illnesses, coming under different specialties, and for practical reasons a corresponding number of specialists will not always be available to the patient.

The conclusive objection to such a service, however, is that the thorough knowledge of patient, family, and milieu, which in the family doctor scheme is concentrated in the regular doctor of the family, cannot be gathered by one person if the family doctor scheme is abandoned. Reports from hospitals and other health units, tuberculosis centres, medical laboratories, x-ray clinics, specialists, etc., which are now all collected in the family doctor's file, and which together with the family doctor's own observations constitute, when co-ordinated, immensely valuable material for judging the state of health of each patient, would be scattered to the four winds of heaven.

This is, in a nutshell, the supreme merit of the family doctor scheme, and it far exceeds anything that may be advanced in favour of its rival. At the same time I should like to point out that the family doctor scheme is the more rational, not only from a medical but also from an economic point of view. The education of the specialist is normally more prolonged than that of the general practitioner, and it is more difficult; in fact it cannot be obtained without a considerable contribution on the part of the doctor. So it is only reasonable that the services of the specialist should be more expensive than those of the general practitioner and that they should be employed only where "necessary."

#### Sickness Benefit Clubs

The sickness insurance of persons of small means is based upon voluntary membership of approved subsidized sickness benefit clubs. The total income of these clubs was in 1942 about Kr.107 million, about Kr.70 million of this being contributions and Kr.23.6 million State subsidies. The income limit for membership of sickness benefit clubs is at present Kr.6400 in Copenhagen, Kr.5700 in the provincial towns, and Kr.4700 in the country. The limit is based upon the taxable income. Children under the age of 15 years are insured in virtue of the contributions paid by their parents.

The benefits of the clubs are partly compulsory (provided by law): free medical care (not including specialist care, however), free hospital treatment, daily allowances according to special rules (up to Kr.6 a day against payment of a corresponding extra contribution), and free midwife and medical assistance on confinement. Other benefits are voluntary (to be fixed in the rules of the sickness benefit club): for instance, specialist care and medicine, dental care, nursing at home, etc. The voluntary benefits are often granted to a too small extent or not at all.

The payment of the sickness benefit clubs for general-practitioner care is made according to an agreement between the organizations of the clubs and the doctors. In all towns a fixed amount is paid per year per member, at present Kr.9.30 per member over the age of 15, nothing for children under that age. Married couples are considered as two members. The rates are now to be increased by about 50%. In the country the doctors are paid for services rendered—for instance, per consultation Kr.3.35, journeys up to 2 km. Kr.6, plus Kr.0.70 for each additional kilometre begun. Conveyance allowance is granted in the rural districts. Additional rates are allowed for special examinations and various surgical operations. The cost of medical care per member per year is somewhat higher in the sickness benefit clubs paying for services rendered than in those paying a fixed amount per year, at present on an average Kr.13 to Kr.14.

Patients have free choice of doctor. In Copenhagen the number of doctors participating in the sickness benefit club service is by contract limited to one doctor for 1,500 members. However, the proportion at present is 1 to 1,700. Outside Copenhagen the doctors' right to participate in the service is not limited; in the country, however, it is subject to the provision that the members must choose their doctor within a distance of 10 km. if practicable. The average number of members per doctor is somewhat lower in the country than in Copenhagen (about 1 to 1,200 to 1,300).

Practices may be bought and sold everywhere except in Copenhagen. The price of a practice amounts to approximately the gross income of one year.

#### Two Types of Club

We distinguish between class I sickness benefit clubs, which pay the doctors a fixed amount per year per member, and class II sickness benefit clubs, which pay for services rendered. In all class I clubs and in some class II clubs the members have to choose their doctor for a calendar year at a time, according to the agreement between sickness benefit clubs and doctors. A married couple must have the same doctor, and he then becomes the doctor for all the children too. It is the family doctor principle with the regular doctor-patient relationship that is operative here. It may be added that the relationship is not so regular that it cannot be broken in case of disagreement between doctor and patient. In some class II clubs, however, the members are entitled to change their doctor during the year. Few people avail themselves of this right, partly because these clubs are situated in country areas where the possibility of changing to a new doctor is small.

The method of payment of class I is that generally used in club practice, and in recent years it has had an ever-increasing extension at the expense of that of class II. It implies, too, the regular relationship between the insured persons and their doctor. It cannot be denied that the fixed annual amount is more closely related to the "family doctor fee" formerly much used in private practice. Nor can it be denied that the family doctor is more independent in his work when he is under no obligation to account for the number and nature of his services.

#### "Compulsory Reference" by General Practitioners

It is one of the most important assumptions of the family doctor scheme that specialist care can only be given through the sickness benefit club when the patient is referred by the general practitioner. This "compulsory reference" has been framed by sickness benefit clubs, general practitioners, and specialists in agreement. I am convinced that the sickness benefit clubs have realized the many advantages of the family doctor scheme, but it would not be unreasonable if economic factors had made themselves strongly felt. Specialist care is more expensive than general-practitioner care, and the clubs have wanted to grant only "necessary" specialist care, and have left the decision to the general practitioners.

This agreement between the three negotiating parties—sickness benefit clubs, specialists, and general practitioners—has in Denmark afforded a very firm basis for the family doctor scheme. In this connexion it has been a great help that the Danish sickness insurance from the start was planned as a family insurance automatically including children under the age of 15 years, and it has always been independent of whether or not the beneficiary was a wage-earner in a special employment. Insurance services in other countries did not permit of voluntary insurance of children and members of the family who were not wage-earners until much later. The balance of the Danish family doctor scheme has made it more viable. It has among other things involved the organization by central and local bodies of preventive tasks based on the family doctor scheme, in the first place assigning diphtheria vaccination to the general practitioners, later on general health care of expectant mothers, and now general health care of children from 0 to 7 years. In most other places these tasks are assigned to doctors and institutions specially appointed and set up for the purpose.

#### Regulations Governing Specialists

Besides the agreements between sickness benefit clubs and doctors the family doctor scheme has been consolidated by certain provisions in the collegiate rules of the Medical Association. Thus a doctor having a certificate of competence for a specialty and wanting to furnish specialist service is not allowed to render general-practitioner care. We have been aiming at a clear definition of general practitioners and specialists because we wanted organized collaboration on the family doctor principle. The provision does not apply to private patients, but they are treated less consistently on this principle than the club patients and must consequently put up with the draw-

backs of not having a regular doctor. In the Medical Association's rules is a provision to the effect that a specialist, when a patient is referred to him in writing, shall directly inform the referring doctor of the result of examination and treatment; he must not refer the patient to other doctors without the consent of the referring doctor; and he must leave the further treatment of the patient to the referring doctor as soon as the specialist treatment is finished.

It is hardly an exaggeration to say that the family doctor scheme has been carried through more consistently in Denmark than in most other places. This is partly due to the fact that the sickness benefit clubs have adopted this scheme and have given it a dominating position by their growth. It is also due to the fact that Denmark is well provided with general practitioners who have received a good and uniform education. The specialization of medical science has of course led to an adaptation of the family doctor scheme to the requirements of the age. Here we have been faced with the same problems which Great Britain is now trying to solve through organization.

### Problems of a Health Service

1. *General practitioners must have sufficient time for their work and for continued studies.* It must be admitted that it has been somewhat difficult to attract the attention of the sickness benefit clubs to this requirement. The principal method of payment is, as mentioned, a fixed amount per year per member. This amount has hitherto been very small; with the present price level it is Kr.9.30 per member per year, any person over the age of 15 being regarded as one member, and children under 15 being covered by the breadwinner without additional fee. This has resulted in an expansion of practices to a higher level than desirable. The work itself has made greater demands—of quality as well as quantity—and the patients as well as the doctors have every reason to regret that generally the doctors have not the necessary time for their work.

However, some understanding of this state of affairs on the part of the sickness benefit clubs is now perceptible; recently it has been possible to carry on discussions on the basis that a practice of average size—i.e., about 1,500 patients—should yield a reasonable net income, which it has not done so far. At the same time the parties have agreed about appropriate measures to prevent excessive enlargement of practices. That means one step nearer the aim of sufficient time; and it will be possible to continue this development so far as the number of available doctors allows.

2. *Up-to-date laboratory services should be available to the general practitioners.* We are on the point of having solved this question in a way satisfactory to the doctors as well as to the population. As early as 1922 the general practitioners in Copenhagen established their own central laboratory, which since then has developed into a large institution rendering the general practitioners all the technical assistance they need for examinations. Doctors may send material for examination, or they may send their patients to the laboratory for investigation of metabolism, for electrocardiography, test meals, etc., and for production of material for examination (blood tests and the like), where this is best done at the laboratory.

The laboratory is operating to the complete satisfaction of everyone. At the outset we had a central laboratory with branches, but we found that the distances in Copenhagen (scarcely 1 million inhabitants) made it unnecessary, for the central laboratory in fact was situated in the centre. Outside the capital the numerous public hospitals are operating as laboratories for the doctors in a similar way.

The technical assistance rendered to the general practitioners by the laboratory seems in England to be one of the arguments for group practice. In Denmark we did not feel tempted to change over to this form of practice because we know from experience that a really efficient laboratory cannot nearly be utilized to its capacity by the ten doctors supposed to constitute a group; and a laboratory which is not quite efficient can hardly be adequate.

3. *X-ray services should be available to the general practitioners.* In Copenhagen the sickness benefit clubs pay for x-ray examinations on patients referred by general practitioners to the many private x-ray clinics, most of which are fully efficient. Outside the capital x-ray examinations are under-

taken at the public hospitals, which are situated within easy distance even of the country population. It seems as if in England this question is to be solved by health centres equipped with x-ray services, but in view of the above it will be understood that we have been under no temptation to try this solution. Here the same thing may be said to apply: ten doctors cannot nearly utilize a really efficient x-ray clinic to its capacity; and a clinic that is not fully efficient does not solve the problem.

4. *Clinical assistance by specialists, for examination as well as treatment; should be available to the general practitioners.* In this field the Danish National Health Service is still insufficient. This is due partly to the fact that we have not got the desirable number of specialists all over the country, partly to the fact that the sickness benefit clubs have been too reluctant to pay for the necessary specialist care, having to grant only free general-practitioner care under the Act. The sickness benefit clubs have shifted the expense of specialist care on to the public hospital service, apart from specialist care for eye diseases and diseases of ear, nose, and throat. For these specialties there is an ample number of specialists all over the country; and the sickness benefit clubs have an agreement with them according to which the members receive free specialist care when referred for such treatment by their family doctor.

So far as I can see, another argument for group practice is that it is easier to collaborate with specialists attached to the group. If the non-specialists of the group are to make a contribution themselves, however, ten doctors will not be able to utilize the specialists to their capacity. Ten doctors may utilize an eye specialist and an ear, nose, and throat specialist provided that they refer every case of illness within these specialties. As regards the other specialties it will not be possible according to Danish experience. All the talk about group practice in England has not failed to stir some mind in the small country over the North Sea; but outside the few who are always excited about anything that is brand new the idea has not met with enthusiasm.

### Specialist Diagnosis for Out-patients

As regards the other specialties the doctors often have to send their patients to hospitals in order to have them examined and treated by specialists. Since in many cases this is done merely because the doctor, in spite of laboratory and x-ray facilities cannot solve a diagnostic problem, the hospital service has considered allowing the hospital specialists to make the diagnosis and advise out-patient care so as to avoid the expense of hospital admissions. Only in the capital may the general practitioners to some extent be in consultative collaboration with the practising specialists.

The medical profession would prefer a further development and extension of this scheme, for we have some hesitation in contributing to the increase of out-patient departments by attaching specialist care to the hospitals. Even if the specialist care supposed to be afforded by hospitals in the form of out-patient service is meant merely to help doctors to make the diagnosis (after which the treatment is referred to the general practitioners), diagnosis often involves therapy; and then you are well on the way to the out-patient clinic or health centre. This development is hastened by the fact that some forms of treatment require hospital equipment and other auxiliary services, and are therefore already undertaken at the hospital in the form of out-patient care. Apart from specialist care requiring the auxiliary services of the hospital, we want this care to be given by practising specialists, because in that way one can be sure that the patient is in fact treated by a specialist. The large out-patient departments will always have a considerable staff of young doctors completing their training. They very often have to work rather independently without the clinic's specially trained doctors' being able to supervise the work of each person. So it is somewhat problematic—as circumstances are in Denmark at least—to talk about specialist care in connexion with out-patient care. For that reason and because we are of opinion that the work of the specialist as well as that of the general practitioner in most cases is done best in private we have so far as possible tried to avoid a development of actual out-patient departments—and with success in so far as there are out-patient departments in the capital only. The

are few, however, and in the form of closed departments which do not receive patients who have not been referred by their doctor. As the sickness benefit clubs in the capital are now more than willing to grant specialist care by practising specialists, it seems possible to have all specialist care (apart from that requiring hospital treatment) assigned to the practising specialists. It is to be hoped that a corresponding development will prove possible outside the capital.

Having a developed family doctor scheme—an organized collaboration between the general practitioners and the medical laboratories, the x-ray clinics, the practising specialists, and the hospitals. We consider this arrangement sound. Even if the system is far from being perfect in various points, we are under no temptation to change it. Nor do we feel any great pressure from the public or the politicians, though I dare say we are prepared for it. It is a consequence, I suppose, of our not being so anxious to "socialize" the doctors, which may be explained by the fact that Danish doctors have been subject to a gentle process of socialization over several years by their relation to the sickness benefit clubs. The final result has been that "few have too much and fewer too little."

Under these circumstances it has even been possible to plan a pension scheme for the Danish medical profession, a scheme which is now ready for implementation. It rests upon provisions in the agreements between the public hospital service and the hospital doctors and between the sickness benefit clubs and the doctors participating in the service, according to which pension contributions are paid by the hospital service and the sickness benefit clubs into the "Pension Fund of the Medical Association," which together with a financial body administers the subscriptions and the payment of old age and invalidity pensions. Being incorporated in these agreements, the scheme is compulsory for all the doctors covered by them—i.e., the great majority of Danish doctors.

It is evident that the problems involved in the organization of medical care differ in Britain and Denmark, but even so this account may be of interest to doctors in England. The ends aimed at in Britain—time for the doctors, technical assistance, clinical assistance by specialists, in brief, an effective medical scheme—may also be gained through the channels followed in Denmark without changing the form of practice from individual to group practice and without making a civil servant of the doctor, provided that a sufficient number of doctors is available. It does not matter then whether the sickness benefit club or the State is the doctor's employer.

### RADIO-ACTIVE SUBSTANCES BILL

This Bill was recently discussed in the House of Lords (May 24, p. 747). Clause 5 prevents the use for therapeutic purposes of apparatus which produces radiation except under licence of the Minister of Health. The British Medical Association is advised that this would cover radio-active substances, deep x-ray therapy, short-wave therapy, ultra-violet and even radiant heat lamps. This restriction does not relate to the use of such apparatus for medical, surgical, or dental diagnosis, but it strikes a blow at the principle that once on the *Register* a practitioner should not be prevented by law from treating patients by any method without restriction.

In 1945 the Association appointed a special committee to consider this problem. That committee recommended to the Ministry that the use of radio-active substances should be restricted for an experimental period of, say, two years, after which these substances should be available, as other therapeutic substances are, to all registered medical practitioners. In brief, the restriction should operate only during an experimental period to enable adequate knowledge to be gained of the dangers and necessary protective measures. Representations are being made to this effect.

### RETURN TO PRACTICE

The Central Medical War Committee announces that the following have resumed civilian practice: Dr. M. P. Leahy, at 39, Harley Street, W.1 (Langham 4012); Mr. Harold Park, F.R.C.S., at 40, Wilbury Road, Hove, 3, Sussex; Dr. James S. Young, M.R.C.O.G., at 37, Harley Street, W.1 (Langham 3556).

## HEARD AT HEADQUARTERS

### Anonymity on the Air

About thirteen years ago the General Medical Council expressed the view that registered medical practitioners "should broadcast anonymously." The phrasing is a little ambiguous, but the meaning was that if registered medical practitioners felt compelled to take to the air they should not have their names announced. The appearance of television has reopened the question. May a medical practitioner allow his lineaments to be revealed on the television screen? Suppose by some extraordinary development that all broadcasting were accompanied by television, is a medical practitioner on facing the microphone plus the television camera to wear a mask or to have a coat dropped over his head like a criminal under public arrest? People naturally like to know who is talking to them, and the same applies in broadcasting. The Central Ethical Committee of the Association some time ago discussed this question and presented to the General Medical Council a considered case for permitting practitioners, when giving broadcast talks on medical subjects, to appear in television and to be announced by name. But two committees of the General Medical Council have now shaken their heads over the proposition and see no reason to modify the opinion expressed in 1934. Advertising by any professional man, of course, is to be deplored, but apparently other professions do not carry the embargo to this extent. It does seem a little anomalous when a Brains Trust or other debating team is on the wireless to have men in other professions duly announced while the medical representative, if there is one, is referred to mysteriously as a well-known physician (or surgeon, or psychiatrist, as the case may be). At one and the same time it gives the anonymous individual an undue importance and casts a slight slur upon him.

### The Scottish House

It is interesting to learn that the Scottish Committee is considering an appropriate commemoration of the officers and officials, past and present, of the Association in Scotland in the Scottish House in Edinburgh. Scotland has produced some great leaders, several distinguished Presidents, and a number of men who have made their mark at Headquarters in London, including the present Chairman of the Representative Body. Dr. Craig's long and able Scottish secretaryship, which has lately ended, should have some outward and visible reminder in the place where he worked. The Scottish House of the Association was opened at almost the same time as the Tavistock Square premises in London. No. 6, Drumshugh Gardens was first taken, and then, two years later, No. 7, and the two houses were turned into one at the first floor so as to provide an excellent conference room for 300 people. It is in this room that it would be interesting to have panels with the names of those who have served the Association in various official capacities north of the Tweed.

### The G.M.C. Bill

The draft Medical Bill for a procedure reformed in many respects has passed through its final stage of approbation by the General Medical Council. There have been conferences between the B.M.A. committee and the Defence Societies on the one hand and the Legislation Committee of the G.M.C. on the other. Some of the points which the outsiders suggested have been accepted, and others have not been pressed because of the desirability of getting an agreed Bill if possible. Any considerable divergence of view would have spoiled the Bill's chances of success. The points incorporated in the Bill are mostly small but useful ones, as, for example, the requirement that if an appeal is lodged by a practitioner against the direction to erase his name the direction shall be suspended until the appeal is determined. Justice has, in the main, at least of late years, always been done by the G.M.C., but the new measure will help to ensure not only that justice is done but that justice appears to have been done.

## Correspondence

### Evidence for Spens Committee

SIR,—I am given to understand that the B.M.A. has lent its services in the form of the use of its address, and part of its secretariat, to further a wholly pernicious inquiry for the latest Spens "Gestapo committee." I must protest strongly against the terms of the document issued by this Evidence Committee. It would appear that the B.M.A. is rapidly descending the slippery slope towards becoming a collecting house for evidence for the enslavement of the profession.

Why should it be necessary to set a "ceiling" to the earnings of any person in a free service? Does not the profession realize that all the codification, classification, and Nazification in this and other documents can only lead to enslavement of the profession and populace? When are we as an Association going to realize the gravity of the situation whose coming we are assisting by these questionnaires, etc.? It is to be hoped that consultants will have nothing to do with this, and they will not be led by the usual timid *vis a tergo* of our so-called leaders.

There are still many doctors sufficiently alive to the dangers of National Socialism to deprecate the all too apparent eagerness of the Association to co-operate with the Government in the establishment of a bridge-head of the full-time salaried State service. The circular letter to consultants certainly did not make it clear that this information was sought solely for the benefit of whole-time servants of the State. It is high time that the mechanism of the Association was brought to bear wholeheartedly on protecting the independence of independent practitioners, by whom, and presumably for whom, the Association was founded.

Let us have a bold lead and less of the Duke of Plaza Toro and a little more resistance to encroachment on liberty.—I am, etc.,

London, W.1

DAVID HALER.

\*\* The Secretary of the B.M.A. comments: The new Spens Committee is concerned only with the range of remuneration of consultants and specialists engaged in a public service on a full-time basis, and not undertaking private practice. The Committee has been instructed to pay due regard to the financial expectations of consultants and specialists in the past; it must therefore obtain reliable information. The previous Evidence Committee carried out a similar inquiry to the satisfaction of general practitioners. The word "ceiling" does not imply that a practitioner will be unable to earn more than that figure.

### Regional Hospital Boards: Salaries

SIR,—We are informed (*Supplement*, June 7, p. 116) that the Minister of Health proposes to offer salaries of between £2,000 and £2,500 for the appointments of chief administrative medical officers of the fourteen hospital boards. It is to be hoped that the Association will oppose these salaries, even to the extent of black-listing the posts if necessary. These fourteen appointments will be among the very highest in the field of medical administration. In other professions a man who reaches the top of the tree does not rest content with £2,500. Are these fourteen men who will administer the nation's hospitals to be considered of less value to the community than are judges? A judge receives £5,000 a year. The Association recently drew up a suggested scale of salaries for medical officers of health and other full-time salaried officers. On this suggested scale the M.O.H. of a large county or city would earn £3,000. The whole scale would be thrown out of focus if the administrative medical officer of a regional hospital board received only £2,500.

Although clinicians and administrators sometimes make the mistake of disparaging each other, the general public is—not unwisely—more and more tending to equate the two, to think that the doctor who specializes in paediatrics or neurology is worth about the same as the doctor who specializes in hygiene or administration. Consequently, if these low salaries are offered to the leading specialists in administration, we can expect sooner or later that similar salaries will be offered to

outstanding clinicians. Are the chief administrative officers of the National Coal Board paid as little as £2,500 per annum? If not, why should the medical administrator receive less than the administrator in other fields?—I am, etc.,

A MEDICAL ADMINISTRATOR.

## Association Notices

### Nathaniel Bishop Harman Prize

The Council of the British Medical Association is prepared to consider a first award of the Nathaniel Bishop Harman Prize in the year 1948. The value of the prize is approximately £100.

The purpose of the prize is the promotion of systematic observation and research among consultant members of the staffs of hospitals who are not attached to recognized medical schools. It will be awarded for the best essay submitted in open competition. The work submitted must include personal observations and experiences collected by the candidate in the course of his practice. A high order of excellence will be required. No study or essay that has previously been published in the medical Press or elsewhere will be considered eligible for the prize.

Any registered medical practitioner who is a consultant member of the staff of a hospital in Great Britain or N. Ireland and is not attached to a recognized medical school is eligible to compete. If any question arises in reference to the eligibility of a candidate or the admissibility of his essay, the decision of the Council shall be final.

Should the Council of the Association decide that no essay submitted is of sufficient merit, the prize will not be awarded in 1948 but will be offered again the year next following this decision, and in this event the money value of the prize on the occasion in question shall be such proportion of the accumulated income as the Council shall determine.

Each essay must be typewritten or printed in the English language, must be distinguished by a motto, and must be accompanied by a sealed envelope marked with the same motto and enclosing the candidate's name and address.

The writer of the essay to whom the prize is awarded may be requested to prepare a paper on the subject for publication in the *British Medical Journal* or for presentation to the appropriate section of the Annual Meeting of the Association.

Essays must be forwarded to reach the Secretary, British Medical Association House, Tavistock Square, London, W.C.1, not later than Dec. 31, 1947. The prize will be awarded at the Annual Meeting of the Association to be held in 1948. Inquiries relative to the prize should be addressed to the Secretary.

CHARLES HILL.

Secretary.

### Diary of Central Meetings

JULY

- 22. Tues. Council, 11 a.m.  
Annual Representative Meeting, 2 p.m.
- 23. Wed. Annual Representative Meeting, 10 a.m.  
Annual General Meeting, 12.30 p.m.
- 24. Thurs. Annual Representative Meeting, 10 a.m.

### Branch and Division Meetings to be Held

EAST HERTS DIVISION.—Wednesday, July 9, 2.30 p.m. Visit to Messrs. Allen and Hanbury's factory at Ware.

LANCASHIRE AND CHESHIRE BRANCH.—At Chester Town Hall Thursday, July 10, 2.30 p.m. Annual meeting. Election of Officers etc.

METROPOLITAN COUNTIES BRANCH.—At B.M.A. House, Tavistock Square, W.C.1, Tuesday, July 8, 2.30 p.m. Eighty-ninth Annual General Meeting. Agenda: Report of Branch Council for the year 1946-7; report of Branch representatives on Central Council 1946-7; report as to elections of officers for 1947-8; address by incoming President.

SHROPSHIRE AND MID-WALES BRANCH.—At Eye, Ear, and Throat Hospital, Shrewsbury, Tuesday, July 8, 3.15 p.m. Clinical meeting Mr. S. W. G. Hargrove: "Hoarseness."

WORCESTERSHIRE AND HEREFORDSHIRE BRANCH.—At Herefordshire General Hospital, Hereford, Thursday, July 10, 2.30 p.m. Annual meeting.

### TRADE UNION MEMBERSHIP

The following amendment is made to the list of "closed shop" authorities:

County Borough Councils: Add Barnsley.

Non-County Borough Councils: Delete Barking.

LONDON SATURDAY JULY 12 1947

## CHOICE OF DRUGS IN THE TREATMENT OF DUODENAL ULCER\*

BY

A. H. DOUTHWAITE, M.D., F.R.C.P.

Physician to Guy's Hospital

much has been written during the last quarter of a century on the dietetic control of duodenal ulceration, whereas the rational use of drugs has been to a great extent ignored. It is on the latter therapeutic measure that I present the following observations.

## Belladonna

The use of belladonna in the treatment of duodenal ulcer has been practised widely for 25 years. Experiments on animals, and later on human beings, led to the belief that the drug caused a considerable reduction in acid output by virtue of a paralysing action on the vagal nerve-endings. Thus Bennett (1922) emphasized the value in this respect of washing the stomach with a dilute solution of atropine before meals. It soon became standard practice to give belladonna or atropine, usually 5 minims (3 ml.) of tincture of belladonna before alternate two-hourly feeds (Ryle, 1923) and 1/100 gr. (0.65 mg.) of atropine sulphate hypodermically at night. Ryle stated that belladonna given in this way would cause dry mouth, laxation of the pylorus and thus reflux of duodenal contents, and modification of the gastric acidity more than that produced by alkali. Schick (1910) declared that its chief value lay in overcoming pylorospasm, and Crohn (1918) refers to the transient and poor effects of atropine on gastric acidity.

No serious criticism of the use of belladonna as an acid pressant arose until in 1938 Davidson and Nicol communicated to a meeting of the Gastro-Enterological Club the results of experiments which showed that even toxic doses of atropine had no constant or marked influence on gastric acidity. Later Nicol (1939) published a paper reiterating that atropine failed to influence gastric secretion and that its value lay in its antispasmodic action.

If belladonna has in fact any action in reducing gastric secretion it can only be by virtue of its paralysing the vagal terminations. It follows, therefore, that only reflex secretion would be abolished, whereas the more important and lasting humoral secretion would be untouched. On theoretical grounds one would expect some diminution in acid output to be produced by belladonna, the degree of change being influenced by the character of the food—appetizing or monotonous—the personality of the subject, and the period of time following ingestion of food. It would be inconceivable that a therapeutically effective reduction of acidity could be produced by belladonna in any dosage.

In order to confirm Nicol's work I investigated the effect of *l*-hyoscyamine on the test-meal curves of 25 patients with hyperchlorhydria and duodenal ulcer. It will be

remembered that the action of belladonna is largely due to atropine, and that atropine is racemic hyoscyamine. Furthermore, the peripheral effect of atropine is almost entirely due to its *l*-hyoscyamine component. As it is this action which concerns us, and as the

central stimulant effect of both *d*- and *l*-hyoscyamine is unwanted, the latter drug was clearly one of choice. Hyoscyamine sulphate, 1/80 gr. (0.8 mg.), was given by mouth night and morning for three days. On the fourth day, an hour after the morning dose had been taken, the test-meal was given. It will be appreciated that this is high dosage, equivalent in alkaloid value to 36 min. (2.1 ml.) of tr. belladonnae per dose. Within 36 hours it produced persistent dryness of the mouth, thirst, and dilatation of the pupils. Duodenal ulcer pain, if previously present, disappeared as soon as these signs were manifest, yet it will be seen from Figs. 1a, 1b, 2a, and 2b that the effect on acidity was so slight that it is highly improbable that it would have influenced the pain. Although in a few instances the depression of acidity was more than that shown in these graphs, in no case was it great or prolonged.

If, then, it be agreed that the effect of belladonna on gastric acidity can be disregarded, why is it that it does

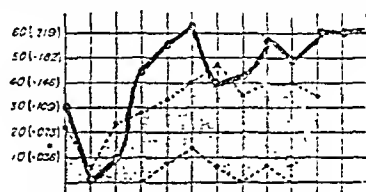


FIG. 1a.—Case of duodenal ulcer. Curve of free HCl during gruel test-meal.

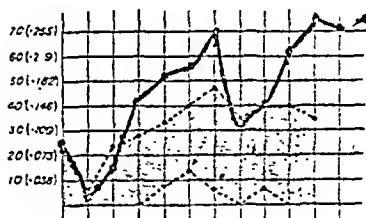


FIG. 1b.—Curve from same patient as Fig. 1a taking hyoscyamine.

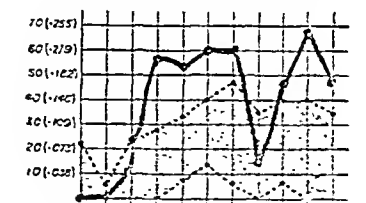


FIG. 2a.—Further case of duodenal ulcer. Gruel test-meal.

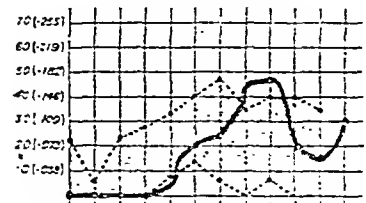


FIG. 2b.—The same as Fig. 2a during hyoscyamine treatment.

\* Based on a communication to the Brighton and Sussex Medical-Surgical Society on April 3.



in fact relieve pain? Of such action there can be no question provided that adequate quantities be given. No benefit is derived from belladonna unless persistent dryness of the mouth is produced by it. The customary dosage is therefore useless. In practice it will be found that 30 min. (1.8 ml.) of the tincture of belladonna, 1/100 gr. (0.65 mg.) of atropine sulphate, or 22 min. (1.3 ml.) of liquid extract of hyoscyamus given four-hourly will be effective. Yet more efficacious is 1/120 gr. (0.54 mg.) of *l*-hyoscyamine twice daily (Douthwaite, 1939).

It is well known that the belladonna alkaloids have a pronounced effect on the motility of the gastro-intestinal tract, especially in the direction of quelling abnormal contractions. It is also usual to note excessive gastric peristalsis, often combined with pyloric spasm, in patients suffering from duodenal ulcer. Furthermore, rapid emptying of the stomach is common not only during the active phase but also during periods when healing of the ulcer seems to be established. Numerous observers have noted how this hypermotility is abolished by full doses of atropine. It can be demonstrated radiographically, and was noted by Wolf and Wolff (1943) in their experiments on a patient (Tom) with a gastric fistula. They showed, furthermore, that atropine resulted in a great prolongation of emptying time.

If it can be accepted that the pain of duodenal ulcer is due to abnormal contractions of muscle fibres in the stomach or duodenum, or both, the benefit conferred by belladonna can be understood. There are two schools of thought in regard to the pain-producing factor: the one favouring muscular contractions and increased tonus, resting on the observations of Bolton (1928), Christensen (1931), Hurst (1911), Ryle (1926), and Poulton (1928); the other stressing the importance of acidity, based on the work of Palmer (1926), and recently of Bonney and Pickering (1946). The evidence derived from careful clinical experiments by the latter school certainly presents convincing grounds for the belief that a certain level of acidity, varying from case to case, will, if reached, be directly responsible for ulcer pain. This does not, however, exclude the possibility that the muscular contractions may also cause pain or, in fact, may be the usual excitant of pain production. An argument often put forward is that if an intragastric balloon fails to record a rise of tension coincident with pain, increased muscular tonus cannot be incriminated. Such a conclusion is not justified. Only if an increase of gastric tonus as a whole should occur would one expect it to be registrable manometrically. Localized spasm could not possibly influence the tension within the balloon, yet it might well give rise to pain.

The "acid hypothesis" fails to explain certain common features of pain in uncomplicated duodenal ulcer—namely:

- (1) Its occurrence at 2–3 a.m. and its spontaneous subsidence even if no food or alkali is taken. The chart of gastric acidity (Fig. 3) taken during sleep shows it to be lower at 2 a.m., which was the hour when pain usually awakened this patient.
- (2) Its spontaneous subsidence before meals if the meal is postponed.
- (3) Its lessening or disappearance within half an hour of lying down.
- (4) Its relief from the application of heat to the abdomen. This is known to inhibit gastric

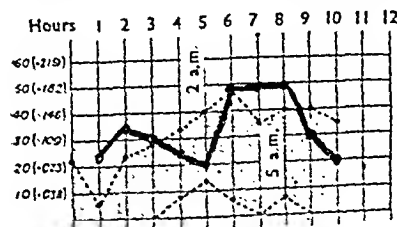


FIG. 3.—Duodenal ulcer. Free HCl curve during night. Samples removed hourly.

and intestinal peristalsis (Bisgard *et al.*, 1942). (5) Its rapid relief by  $\text{CO}_2$ —producing antacids, whose effect on acidity is transient as compared with the non-gas-producing antacids such as trisilicate. (6) The invariable relief afforded by full doses of belladonna alkaloids.

It is reasonable also to assume that the pain of gastric and duodenal ulcer has the same mechanism of production; yet in the former case gastric acidity is usually within normal limits and there may, in fact, be no free hydrochloric acid throughout digestion.



FIG. 4.—Chronic duodenal ulcer. Note hypertonicity and pronounced peristalsis after four weeks' milk-drip.



FIG. 5.—The same as Fig. 4, one day later, an hour after hyoscyamine sulphate, gr. 1/80 (0.8 mg.).

Finally, a positive argument in favour of the muscular tension theory is afforded by radiographic observations. The radiographs (Figs. 4 and 5) of the stomach of a sufferer from duodenal ulcer were obtained within 24 hours of each other. Continuous pain was being experienced while

taking Fig. 4, in which a series of peristaltic waves are seen. In Fig. 5 gastric tone and motility are strikingly lessened as the result of 1/80 gr. (0.8 mg.) of hyoscyamine sulphate. The patient was entirely free from pain. Numerous observations have shown the same sequence of events. It follows from this that the operation of vagotomy for duodenal ulcer is wholly unjustifiable. Belladonna can achieve all the good results claimed for such surgery without the danger and permanent mutilation it entails. It is probable that two factors produce pain in peptic ulcer—abnormal muscular contractions, and a chemical stimulus provided by hydrochloric acid. The justification for the use of belladonna is thus established. We have now to consider the control of acidity.

### Antacids

No matter what views are held on the mechanism of peptic ulcer pain production, it is common ground that free hydrochloric acid is of great importance in preventing the healing of the ulcer. It is reasonable, therefore, to seek to neutralize this acid so long as an ulcer is present. Once healing has been secured the need is far less, if indeed it exists at all. It should be noted here that Ryle and Bennett (1937), from a follow-up of 100 students subjected to test-meal analysis in 1921, concluded that there was no association between degrees of gastric acidity and the development of dyspeptic troubles.

In point of fact all the drugs commonly used to neutralize gastric hydrochloric acid have such a transient action as to be valueless. The fleeting action of sodium bicarbonate, calcium and magnesium carbonate, and tribasic phosphates is too well known to require further emphasis. Experiments carried out by E. B. French and myself on patients with peptic ulcer (Douthwaite, 1939) showed, furthermore, that aluminium hydroxide gel and magnesium trisilicate when given hourly failed to neutralize hydrochloric acid for more than a quarter of an hour. The former when given by continuous drip, 1 oz. (28 ml.) hourly, was likewise ineffective. Figs. 6a, 6b, and 6c illustrate the short action of these substances. It is true

One of the reasons for the transience of antacid action in cases of duodenal ulcer is that the stomach empties so quickly. The same conclusion was reached by Nicol (1939) in respect of the fact that hourly feeds of milk fail to produce neutralization.

He also showed that neither hourly nor two-hourly feeds of milk foods, vegetable purée, eggs, and fish, in conjunction with carbonates, would cause lasting depression of gastric acidity; in fact, two-hourly feeds containing more protein are more effective than hourly milk meals.

The only satisfactory way to neutralize gastric hydrochloric acid for days on end is to give milk by drip-feed through a Ryle's tube passed into the stomach. Five pints (2.84 l.) given in 24 hours may be completely effective, as is shown in Figs. 7a, 7b, and 7c. The patient is seldom intolerant of this treatment, especially if the tube be passed through the nose. It is withdrawn and cleaned twice a week, and the drip can be discontinued at the end of three to four weeks. When such treatment is impracticable the next-best measure is to give 1/2 oz. (14 ml.) of olive oil (this delays emptying and reduces acid output) and 1/2 oz. (15.5 g.) of magnesium trisilicate in 8 oz. (227 ml.) of milk two-hourly, between two-hourly main feeds. These should consist of porridge, egg, milky foods, bread-and-butter, fruit juices, purée of fruit and vegetable, fish, and chicken. In fact, if chemical irritants—for example, mustard, spices, vinegar, and alcohol—are avoided and if other food is free from gross roughage, all the common foods may be safely taken from the beginning of treatment. If a milk-drip is used, then three meals a day may be given in addition to the milk.



FIG. 7a.—Duodenal ulcer. Gruel test-meal (1/4-hour samples).

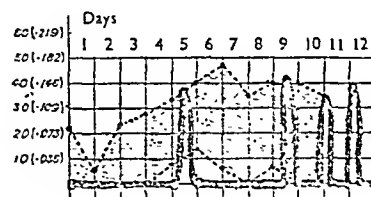


FIG. 7b.—Same case as 7a. Continuous milk-drip, 5 pints (2.84 l.) in 24 hours for eight days; thereafter in daytime only. First rise of acidity due to interruption of drip. The later rises coincided with nights when the drip was suspended.

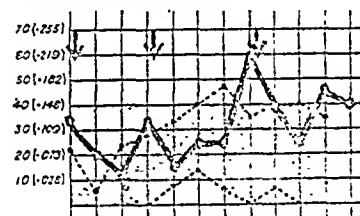


FIG. 7c.—Shows the feeble antacid effect of 5 oz. (142 ml.) of milk given hourly.

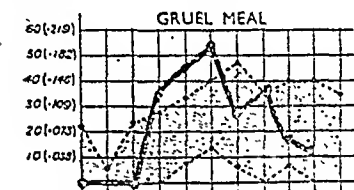


FIG. 6a.

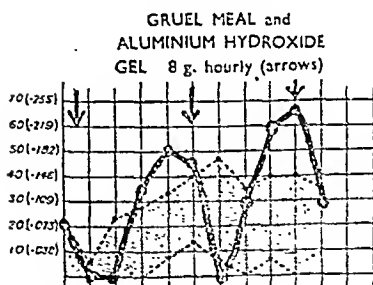


FIG. 6b.

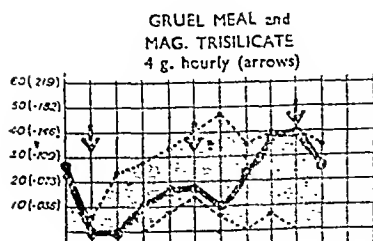


FIG. 6c.

Figs. 6a, 6b, and 6c.—Free HCl curve showing the transient effect of aluminium hydroxide and magnesium trisilicate.

that in a long series one meets with instances in which one or other of the antacids appears to have a prolonged action, but it is the effect on the majority which is of importance.

### Anxiety

After considering hypermotility and hyperacidity, our third and last problem is the control of anxiety, the effects of which are inimical to healing. This has already been done in part by blocking vagal impulses with hyoscyamine. The choice of a suitable cerebral sedative is not a matter of great difficulty. Phenobarbitone answers the purpose in the majority of cases. It may, however, prove unsuitable by causing skin rashes, fever, giddiness, and incoordination. More commonly it produces intense depression of spirits and disinclination to co-operate in the full treatment of peptic ulcer. Yet again, it may

completely fail to relieve anxiety and restlessness unless given in excessive doses. If 1 gr. (65 mg.) thrice daily fails to produce the desired effect it is wiser to change the drug than to increase the dosage. It should be borne in mind that phenobarbitone is an indifferent hypnotic, and that at night it is usually necessary to give a more potent soporific—for example, "sodium amytal," 3 gr. (0.2 g.).

When phenobarbitone fails a state of mental and muscular relaxation can be achieved by the use of cannabis indica. This drug has fallen into undeserved disrepute because of the danger of addiction, and even more because its preparations are often inert. The former risk is very slight when cannabis is used therapeutically for a limited period. It is certainly far less than that entailed by the use of opium and its derivatives. Taken by a patient resting in bed, and thus removed from any suggestion of conviviality, it produces a languorous state and sense of well-being, without the flights of imagination for which it is taken by the addict. Furthermore, it does not cause constipation, and the appetite is unimpaired. In fact, it may lend enchantment to the dietary.

Extractum cannabis (*B.P.C.*) is the preparation of choice; the tincture has a most unpleasant taste, and its resin is precipitated by the addition of water. The recommended dose of 1 gr. (65 mg.) is too small to be effective. Four times this amount should be given in capsules four times daily. The frequency of administration is adjusted to the result. It will allow of continuous drip-feeding in patients who would otherwise be intolerant of it. It is seldom necessary to give the drug for longer than two weeks, and a supply should never be left in the patient's charge. I have used the physiologically tested extract and have found it to be active, but it is as well to procure only a small stock at a time and to keep it at a low temperature—10° C. The effectiveness of the drug in inducing, presumably by central action, relaxation of the stomach is well illustrated by Figs. 8a and 8b. Symptomatically this patient suffered



FIG. 8a.—Chronic duodenal ulcer with clinical signs of stenosis. This is masked in the radiograph because of powerful peristalsis.

from pyloric obstruction, yet the emptying rate, determined radiologically, was rapid. The second radiograph (Fig. 8b), taken after treatment with cannabis at the same time, after a barium meal, shows that the rapid emptying was the result of hyperperistalsis and that true obstruction was present. This was confirmed at operation.

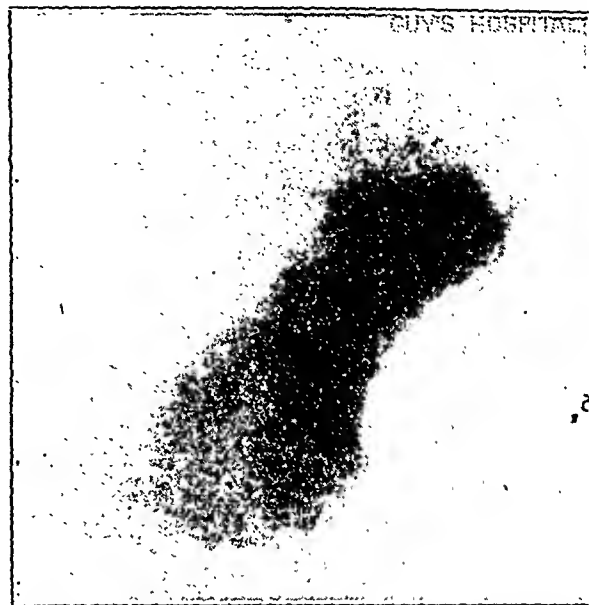


FIG. 8b.—Same case as 8a when taking 4 gr. (114 ml.) of ext. cannabis four times daily. Stomach relaxed; stenosis revealed.

### Harmful Drugs

In conclusion a brief reference to chemical substances which may aggravate symptoms of ulcer should be made.

**Tobacco.**—Experimental evidence favours harmlessness smoking to patients with chronic ulcer. Neither rate of emptying of the stomach nor acidity can be shown to be appreciably affected. As against this it is a spontaneous observation, countless sufferers from duodenal ulcer that the pain, in the active phase of the disease, will always be produced or, present, aggravated by the smoking of a single cigarette. Again on inquiring into change of habits preceding a relapse, he often does one find that the only prophylactic measure which has lapsed has been abstinence from tobacco. It may well be that direct irritation of the gastric and duodenal mucosa is set up by pyridine, furfural, and acrolein, which are present in tobacco smoke and which are swallowed in saliva. I have no doubt that smoking should be limited—a pipe after breakfast and another after dinner—throughout the life of the patient.

**Mustard, vinegar, curry, and strong alcoholic drinks** and the like are chemical irritants and should clearly be avoided. For the same reason chloral hydrate is an unsuitable hypnotic for the sufferer from peptic ulcer.

**Aspirin.**—The possibility that aspirin might act as an irritant to the gastric mucosa, and thus cause melaena, was raised to me some years ago (Douthwaite, 1938). Later, Lintott and (Douthwaite and Lintott, 1938) carried out gastroscopic observations to determine whether this was in fact the case. They were able to show that an inflammatory reaction developed around particles of aspirin lying on the lesser curvature in 80 of subjects. The greater-curvature mucosa failed to show this change, no doubt because it is more protected by mucus. The failure of Wolf and Wolff to produce an aspirin reaction in the mucosa of Tom may be attributed to this fact or to their subjects belonging to the 20% resistant group. Since our communication on this matter confirmatory evidence has been plentiful. We were able to show that calcium aspirin in solution was entirely free from harmful effects. When the drug is indicated it is this form which should be prescribed.

### After-treatment

Drugs have but little place in therapy once the ulcer has healed. That is to say, after two months of thorough treatment it is seldom necessary to add drugs to the advice we give for the regulation of the patient's habits. Adequate time for meals, thorough mastication, extra food between meals, avoidance of chemical irritants, nine hours in bed nightly, and the refusal to attend to the telephone during

meals or at night are far more important than dietary schemes, which are unnecessary, and drugs.

We know that the high gastric acidity persists and that the exaggerated peristalsis often subsides if the patient is free from worry and stress. The first sign that it is returning is usually that of vague discomfort before food or of waking in the night for no apparent reason. I believe that this gastric unrest precedes duodenal ulceration. If I am right its prompt control should prevent the relapses which hitherto have been a reproach to our therapeutics. Therefore, when such early symptoms are noticed, or again during periods of mental fatigue, worry, and stress, the administration of belladonna alkaloids should be resumed and be continued until the patient has been symptomless for a week. It is especially the night dose which is of value. Alkaline or antacid preparations have no place in therapeutics at this stage: they mask symptoms and encourage relapse.

### Summary and Conclusions

The value of belladonna and its correct administration in treatment of duodenal ulcer are described. The relationship of ulcer pain to acidity and hypermotility is discussed. The use of antacids is considered. The value of phenobarbitone and cannabis indica is described. Reference is made to certain substances in common use which aggravate peptic ulceration.

Belladonna reduces gastric and duodenal spasm and the emptying rate of the stomach. It does not affect acidity. To be effective the dose must be large enough to cause persistent dryness of the mouth. The operation of vagotomy is unjustifiable. Alkalis and other antacids have such a transient and variable effect on gastric acidity that they might well be discarded as of little value. If given they should be combined with the administration of olive oil. Their danger lies in the masking of symptoms while the disease progresses. Continuous milk-drip-feeding often completely neutralizes free hydrochloric acid in the stomach. Cannabis indica is a valuable sedative for use in the acute phase.

The cannabis indica used in these experiments was kindly supplied by British Drug Houses, Ltd.

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Dr. Simon Flexner, who was born in 1863 and died in 1946, is commemorated in a pamphlet issued by the Rockefeller Institute for Medical Research, printing speeches delivered on June 12, 1946, at a memorial meeting. In 1902 the Board of Directors requested Dr. Flexner to state his views on the establishment of a research institute, and in 1903 he went to New York to take charge of the Rockefeller Institute's pathological laboratories, becoming Director of the Institute in the same year. One of the speakers quotes from a speech he made in 1933: "There are no closed compartments in nature into which man, animals, and plants can be separately placed. All are related organically and, as we may say, united physiologically and pathologically. . . . If, therefore, we would learn, and through learning grow more powerful and effective to prevent and cure disease, to lengthen life and to increase happiness through security in all its various forms, then we should endeavour to advance in biological knowledge, which alone can free us still further from the evils of disease."

## BORNHOLM DISEASE IN THE TROPICS

BY

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An outbreak of Bornholm disease occurred at Aden in the late hot season of 1946. Between Aug. 17 and Oct. 25 we saw 35 cases. This malady has at various times been reported from Northern Europe, U.S.A., Britain, Southern Australia, and more recently from Egypt. So far as we are aware only one previous outbreak of the disease has been reported in the Tropics (McDaniel, 1944), although conversation with Service colleagues has indicated that it is not unknown in parts of tropical India and in Singapore. Aden, although a busy port of call on the East-West routes by sea and air, is nevertheless a relatively small and well-defined community, or rather collection of communities, and eminently suitable for studying an epidemic. All our cases were treated in the R.A.F. hospital, with the exception of two admitted to neighbouring sick quarters, two seen at their home (family of an R.A.F. officer), and one Arab taxi-driver who attended as an out-patient.

The same basic syndrome, with minor variations, has been described under many titles—"epidemic muscular rheumatism," "devil's grip," "epidemic myalgia," "Bornholm disease," "epidemic myositis," "epidemic pleurodynia," and "acute benign dry pleurisy." The condition is infective in origin and almost certainly primarily a lesion of the diaphragm, the exact nature of which is not clear. In view of this we have preferred to retain, for the present at least, the somewhat meaningless title first given to the syndrome by Sylvest (1934)—namely, "Bornholm disease."

With the exception of one case (the Arab taxi-driver) the outbreak was confined to personnel of the Services and their families. The age incidence, therefore, was such as might be expected from any condition affecting the Forces (Table 1). The incidence among officers and other ranks was: officers,

TABLE 1.—Age and Sex Incidence

Age:	0-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45+	Total
Males . .	0	1	6	16	3	2	0	2	0	30
Females	0	1	0	1	1	1	1	0	0	5
Total	0	2	6	17	4	3	1	2	0	35

6; officers' families, 3; other ranks, 24; other ranks' families, 2. The ratio of British officers to other ranks in Aden is approximately 1:13. The relatively high incidence of the disease found in officers is thus in accordance with the Egyptian experience of Scadding (1946), who noted a "more common incidence among officers than among other ranks."

### Clinical Features

**Mode of Onset.**—The onset was usually abrupt, with pain, headache, and some degree of fever as the most constant features. Only five cases suffered from upper respiratory tract catarrh, for periods varying between a few days and three weeks, before the onset of classical symptoms. Two cases had prodromal colic and diarrhoea, while a further two complained of lumbar backache for a few days previous to the attack. It is difficult to assess the significance of these various prodromata, since the commonest ailments seen in Aden are probably upper respiratory tract

infection, non-specific diarrhoea, and short-term fevers giving rise to various combinations of aches and pains.

**The Pain.**—The onset of pain was usually sudden and came on either at rest or after exercise. Thus one patient attributed his pain to the fact that he had spent an afternoon on the beach throwing stones. Another was seized with pain after riding, while several had been taking more violent exercise—for example, soccer and hockey. It seems most likely that these were all *post hoc ergo propter hoc*. As a rule the most acute pain was felt at the onset, although in a few cases (see below) an equally if not more severe attack was experienced in a recurrence. Two types of pain were observed. The first and most common was described as "sharp," "cutting," or "knife-like," while the second was of a constrictive nature, one patient saying that the sensation was like having "tight webbing strapped round the lower chest." The pain was always worsened by respiratory effort, as in deep breathing, coughing, and yawning, and even by movement in bed. The position of greatest comfort in bed varied. Quite a number preferred lying on the affected side, while an equal number preferred to lie flat on the back. A few cases achieved comfort from being propped up in bed, and some from lying on the sound side. The pain was felt along the right or left costal margin, in the epigastrium, or in various combinations of these sites. In a few cases tightness across the anterior chest was present. Two cases had no complaint of pain, but only a febrile upset consistent with the disease, and both developed orchitis in convalescence. The actual site of pain at the onset is shown in Table II. It will be seen from this table

TABLE II.—Distribution of Pain at Onset

Site of Pain	No. of Cases
Right costal margin .. .. .	6
Left .. .. .	4
Epigastrium .. .. .	8
Right and left costal margin .. .. .	4
Right costal margin and epigastrium .. .. .	3
Left .. .. .	3
Right and left costal margin and epigastrium .. .. .	Nil
Tightness, anterior chest .. .. .	2
" + epigastrium .. .. .	3
Febrile upset only .. .. .	2
Total .. .. .	35

that there was no particular predilection for any one of the sites usually involved. Spread of pain was observed in 11 cases. Of these, eight showed final involvement of both costal margins and epigastrium, while two showed spread from the epigastrium to one side, and one from one side to the epigastrium. Referred pain was relatively common, being present in 11 cases. In several instances this was actually more severe than the pain around the lower chest. The sites affected were: shoulder-tip (bilateral), 3 cases; shoulder-tip (unilateral), 5; interscapular, 2; umbilicus to groin, 1 case. The shoulder affected was in direct relation to the side of the lower chest affected. The duration of the pain is given in Table III. It will be seen that 24 of the 33

TABLE III.—Duration of Pain in Days

Days:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	23
Cases:	—	4	8	2	4	1	5	—	2	—	2	1	—	1	1	—	1	1

cases were entirely free from pain in from two to seven days. The longest recovery time was 23 days. It should be noted that these times are for *complete* clearance of the pain. Exacerbations were of frequent occurrence, but there was no real instance of relapse. In several cases the initial pain had almost, but never entirely, disappeared before recurring in an equally and sometimes more severe form.

**Headache.**—Headache was present in 18 of the 35 cases. In 11 it occurred at the onset, while in the remaining seven it came on in from two to seven days. The post-onset headaches were always more severe than the others, and almost amounted to a definite complication. The pain was excruciating, being frontal in three instances and generalized in four. In one case (D. M. P.—see below) the headache was associated with signs of meningeal irritation and was severe enough to warrant lumbar puncture. The cerebrospinal fluid, although showing a very slight increase in pressure, was normal in every other respect. The duration of the headache in its severe phase varied from one to four days, but occasionally the patient was left with a "heaviness" or dull ache for several days longer.

**Pyrexia.**—With one exception every case was pyrexial at the onset. Twenty-two had temperatures not exceeding 100° F. (37.8° C.), seven between 100° and 102° F. (37.8° and 38.9° C.), and five over 102° F. The highest temperature noted was 105° F. (40.6° C.), but the higher temperatures were never sustained beyond a single recording. The chart usually showed a fairly rapid return to normal, 28 cases being normal within four days, 32 within seven days, and 34 within 12 days. The pulse rate for the most part was in accordance with the temperature.

**Sore Throat.**—Fourteen patients complained of soreness of the throat in the initial phase. All of these presented a generalized inflammation of the fauces without exudate. Throat swabs were examined in six of these, with the following cultural results: *Staph. albus*, 1 case; *Staph. aureus*, 1; non-haemolytic streptococcus, 1; haemolytic streptococcus and *Str. viridans*, 1; *Staph. albus*, non-haemolytic streptococcus, and *Str. viridans*, 1; no growth. 1. Throat swabs were also examined in six cases without sore throat, the result being: *Staph. albus* and non-haemolytic streptococcus, 3 cases; non-haemolytic streptococcus, 2; *Staph. albus*, 1 case.

**Other Symptoms.**—Anorexia was fairly common (21 cases). Nausea was present in two cases, vomiting in one. In two cases cough with sputum was troublesome in the acute phase. Pain in the lower limbs was observed in one case. The bowels showed no great change from the normal, diarrhoea being present in six cases, constipation in five.

**Physical Signs.**—Examination of the chest revealed no abnormal signs, except in one case in which a very distinct pleural rub developed on the sixth day of the disease and lasted for eight days. The rub was unusual both in its intensity and in its wide distribution over the chest, and it could be demonstrated by palpation as well as by auscultation. It seems probable that it was due to a super-added fibrinous pleurisy. Repeated clinical and radiological examination showed no signs of any effusion. Subcostal tenderness was present in 16 patients—unilateral in 10, bilateral in three and epigastric in three. Upper abdominal guarding and rigidity were noted in only four cases. Cutaneous hyperaesthesia was not a feature of this outbreak, but was observed in four cases. It was localized to the costal margin and corresponding lower part of the chest.

**Radiological Findings.**—X-ray films of the chest were taken in 25 of the cases, while 21 were screened in the acute phase of the illness. The diaphragm was freely mobile in every case, and no abnormality was found in the lung fields.

**Haematology.**—Twenty-four cases were subjected to blood examination, comprising red cell count and haemoglobin estimation, white cell and differential count, and erythrocyte sedimentation rate. The red cells varied between 4.2 and 5 millions per c.mm. and the haemoglobin between 80% and 100% (Sahli). The colour index was



invariably around 1. There was no abnormality in the red cells, and no abnormal cells were present. These findings are in accordance with those obtained in healthy persons in Aden. The white cell counts were: Under 8,000 per c.mm., 2 cases; 8,000-10,000, 10; 10,000-12,000, 10; 12,000-13,000, 2. Differential counts showed that any increase in cells was in the polymorphonuclears. Lymphocytes, monocytes, and eosinophils showed no departure from normal. The erythrocyte sedimentation rates (Westergren method) in the acute stage of the illness were:

0-15 mm. in 1st hour	No. of Cases
15-20	5
20-30	4
30-40	6
40-50	2
50-60	4
60-70	2
	1

The erythrocyte sedimentation rate, noted at weekly intervals, showed a return to normal in periods varying between seven and 21 days, thus revealing a very distinct lag behind clinical clearance. In the cases developing orchitis in convalescence (see below) a distinct rise in the E.S.R. was noted in six instances, while in a further six the progress of the E.S.R. to the normal figure was uninterrupted. (Note: 0-15 mm. in the first hour was regarded as a normal figure for men in Aden.) Blood culture was carried out in only one case. The culture remained sterile.

**Complications.**—Orchitis was by far the most outstanding complication, occurring in 12 of the 30 male cases. It was always unilateral, and affected the right and left sides equally. There was usually an accompanying mild febrile reaction. The day of disease on which the orchitis developed is shown in Table IV. The orchitis cleared for

TABLE IV.—Development of Orchitis in Relation to Day of Disease

No. of cases	Day of Disease												
	1-7	8	9	10	11	12	13	14	15	16	17	18	19
..	—	1	—	1	—	3	1	—	—	4	1	1	1

the most part in two to six days, only one case lasting as long as 10 days. There was no apparent corresponding ovaritis in any of the female patients. Headache developing after the onset was, as already stated, of such intensity as to be classed as a complication, and was present in seven cases. Actual encephalitis or meningo-encephalitis, which has been reported in other outbreaks, was not observed by us. Pleurisy has also been described as a complication. One case (see above) developed a marked pleural rub, which we considered to be due to a fibrinous pleurisy. Physical signs disappeared in eight days and x-ray findings were normal.

#### A Personal Account of the Disease

One of us (D.M.P.) developed the disease, and it is considered worth while to include his personal account of the illness.

"The first sign of illness was noticed in the morning of Sept. 2, 1946, when upper abdominal pain commenced. The pain was quite localized in the central epigastrium; it was of a constant aching character and slowly progressive in severity, aggravated by movement as a whole. By 2 p.m. there was so much discomfort that I was unable to walk about, had no appetite, and felt ill. Aspirin was taken without effect. By 6 p.m. the pain had moved to the right costal margin and was definitely affected by movements of the diaphragm. There was also a constant aching sensation in the right shoulder-tip. The temperature was 101.8° F. (38.8° C.). A slight irritating cough appeared and there were the usual pyrexial symptoms of headache, giddiness, etc. Later that night there was a short rigor

followed by profuse sweating. Sleep was impossible owing to general discomfort.

"The next morning the temperature was 103.8° F. (39.9° C.) and the pain was severe in the right lower chest and back. There was marked cutaneous hyperaesthesia of the anterior chest and upper abdomen. During the day the temperature fell to 101.8° F. (38.8° C.) and pain subsided, being noticeable only in the lumbar region. On Sept. 4 I felt perfectly well again. My appetite returned, the cough disappeared, and apart from slight backache there was no discomfort. The temperature was normal.

"In the early hours of the 5th the pain in the right side of the chest returned, exactly the same as before. The temperature was 99.4° F. (37.4° C.). By midday the pain in the right side ceased and was replaced by a similar pain in the left lower chest, with aching in the left shoulder-tip, and aggravation of the symptoms occurred with diaphragmatic movements. By 2 p.m. the temperature was 101° F. (38.3° C.), and the pain, particularly in the left shoulder area, was very severe. A hypodermic injection of morphine, 1/4 gr. (16 mg.), gave relief. At about 8 o'clock the same night headache over the vertex began. It was quite the worst headache I have ever experienced, and lasted until the middle of next day. Recovery started on Sept. 7 and was uneventful apart from persistent right-sided headache and vague right chest pain, which lasted for a further week."

Physical examination revealed no abnormal signs other than tenderness, present at first in the epigastrium and along the right costal margin, and later along the left costal margin. X-ray examination and screening of the chest showed no abnormality. *Staph. albus* and a non-haemolytic streptococcus were cultured from the throat. On Sept. 9 the E.S.R. was 21 mm. in one hour and the total white cell count 12,000 per c.mm. (78.1% neutrophils). On Sept. 18 the E.S.R. was 7 mm. in one hour and the total white cell count 10,200 per c.mm. Lumbar puncture on Sept. 6—that is, at the height of the headache—showed the cerebrospinal fluid to be completely normal.

#### Treatment

Treatment was performed symptomatic. The milder analgesics such as codeine and aspirin were largely used and found of some value. Likewise the salicylate group of drugs often gave relief, and these combined with a nightly barbiturate became the routine line of treatment, with the hypodermic injection of morphine, 1/4 gr. (16 mg.), reserved for especially severe cases. The patient was made comfortable in bed in the position he himself chose, and he had what he wished to eat. The appetite usually recovered quite quickly. The headache was often of such severity as to justify the prescribing of morphine. Orchitis was treated simply by rest in bed and the use of a suspensory bandage.

#### Differential Diagnosis

In its epidemic form Bornholm disease is unlikely to be confused with other conditions, but sporadic cases or cases occurring at the start of an epidemic may give rise to considerable difficulty.

(a) *Pleurisy* has obviously to be considered, but the unilateral nature of this condition, together with the absence of chest signs in Bornholm disease, is usually sufficient differentiation. Scadding (1946), however, detected a pleural rub in 11 of his 20 cases, and indeed used the name "acute benign dry pleurisy" for the disease.

(b) *Upper abdominal emergency* has been reported as being simulated by Bornholm disease. Although a few of our cases presented upper abdominal tenderness and muscular guarding there was never any great difficulty in deciding that the case was not an acute abdomen.

(c) *Infective hepatitis* in the pre-icteric stage can give rise to real difficulty. Here we have an illness characterized by pain, tenderness, and sometimes muscular guarding below the right costal margin, by pyrexia, and by general upset. The pain, however, has never the same relation to respiratory effort, and nausea and vomiting are much more constant. The development

of jaundice and the presence of bile in the urine about the fourth to seventh day finally clinch the diagnosis.

(d) *Malaria* was an occasional difficulty, especially those cases showing pyrexial symptoms with pain in the left side and tenderness on palpation below the left costal margin without obvious splenic enlargement. The practice of examining blood films for malaria parasites in all cases of pyrexial illness usually, but not always, provided the answer.

### Epidemiology

The outbreak reported here occurred in the late hot season in Aden, and the weekly incidence of cases, in terms of onset, is shown in Table V. A study of meteorological charts revealed no significant climatic changes from previous years.

TABLE V.—Weekly Incidence of Cases (in terms of onset)

Week ending	No. of Cases	Week ending	No. of Cases
Aug. 23 .. ..	3	Sept. 27 .. ..	3
" 30 .. ..	6	Oct. 4 .. ..	1
Sept. 6 .. ..	9	" 11 .. ..	0
" 13 .. ..	7	" 18 .. ..	1
" 20 .. ..	4	" 25 .. ..	1

The causal agent has never been discovered. The clinical picture, the nature of the complications, and the failure to demonstrate any constant bacterial agent suggest a virus infection, although the mild leucocytosis encountered invariably showed an increase in the polymorphonuclears. The mode of spread, too, is somewhat vague. The various modes postulated have been direct by droplet infection and indirect by infected water, infected food, or insects. In Aden there are several well-defined communities. These include the British Services, Indian Services, European civilians, Indian civilians, and the local native population (chiefly Arabs and Somalis). As previously stated, the outbreak was confined to the British Services, with the exception of the single case in an Arab. The water supply is derived from deep wells and is very pure. It is examined bacteriologically at regular intervals at many points and has always been satisfactory. Moreover, the supply is common to the entire population, and it is difficult to conceive why, if the infection were water-borne, virtually the Services alone should be affected. The native population use goats' milk chiefly. The Europeans use cows' milk, drawing their supplies from two main sources—a civilian dairy-farm and a Services dairy-farm—but there is considerable interchange between the two. No cases of the disease occurred in the staffs of the respective dairies, and bacteriological examination of the milks was satisfactory at the time of the outbreak. Food-borne infection was considered, since food supplies to the British Services, civilians, Indian Services, and natives were all from different sources. An interesting feature in this respect was seen in one camp where a unit of Cingalese troops were living in proximity to an Indian unit. The Cingalese were on British Service rations, while the Indians had their own special dietary. Two of the Cingalese detachment developed the disease, while no cases occurred among the Indians. It must be stated, however, that in spite of the close proximity of these units there was practically no "mixing" between the two. Another most interesting fact was that while the medical staff of the Indian hospital in Aden saw no cases of Bornholm disease, they *did* have an outbreak of mumps among Indian personnel at that time. The R.A.F. and civilian authorities did not have a single case of mumps. The importance of this will be realized when one states that the Indian authorities had several cases admitted with orchitis which they presumed, in view of their epidemic, to be complications of "missed" cases of mumps. Insect-borne disease is unlikely, since Aden is comparatively free from most of the usual pathogen-carrying insects.

While infection conveyed by milk or food cannot be excluded, it seems more likely that the spread is direct by droplet infection. The disease is known to occur in Egypt (Scadding, 1946), and Aden is reached in less than 24 hours from there by the usual air route, thus making the introduction of infection, even with the shortest incubation period, easy. There is surprisingly little "mixing" between Service and civilian personnel in Aden, so that an epidemic in one would not necessarily pass readily to the other. The case of the Arab taxi-driver may be significant, for here was a native, having his own particular diet including goats' milk, who developed the disease in a fairly severe form. Droplet infection would seem the most obvious mode of spread in this instance. There was one example of family infection—an R.A.F. officer, his wife, and two children all developing the disease at varying times within eleven days. At the height of the outbreak five of the hospital staff, including one medical officer, one nursing sister, and three nursing orderlies, all in close contact with cases, developed the disease. Furthermore, one patient, who was in hospital with a left-sided pleural effusion for about three months, contracted Bornholm disease affecting chiefly the right side and complicated by the later development of orchitis. He had been nursed in a general ward which included several cases of the disease, and was almost certainly cross-infected. Lastly, the incidence of faucial inflammation at the onset in 14 cases would seem to lend support to the view that the mode of spread is direct from case to case by droplet infection. The incubation period appears to be a short one. Huss (1934) found it to be about four days, and such evidence as we had agreed with this finding.

### Summary

An outbreak comprising 35 cases of Bornholm disease occurring in Aden in the late hot season is described.

The clinical picture, with minor variations, approximated to the classical syndrome.

Blood examination showed only a slight polymorphonuclear leucocytosis and a raised E.S.R.

Radiological examination showed no deviation from normal.

Orchitis was the most outstanding complication, being present in 12 of the 30 male cases. Dry pleurisy complicated one case, while headache of such severity as to be classed as a complication was present in seven.

The epidemiology is discussed. Direct droplet infection is considered the most likely mode of spread, although food or milk-borne infection cannot be excluded.

Our thanks are due to Group Captain G. P. O'Connell for permission to publish this report; also to Flight Sergeant P. Gaul for his technical assistance with the laboratory work.

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The beliefs and rituals of primitive races, by their remoteness from our experience, the obscurity of their significance, and their monotony, are sometimes dull to read about to any but anthropologists; the beat of distant drums, exciting at first, falls on soon-tired ears. Mr. Lewis Lett, in *Savage Tales* (Wadley and Ginn, Dominion House, Bartholomew Close, London, E.C.1: 8s. 6d.), has adopted the form of the short story and used it with considerable imagination to record the myths and customs of some of the Papuan tribes. From many years' experience of living among them he has acquired a remarkable facility at penetrating the native mind and reveals its passions, fears, and aspirations in the setting of the natives' daily life and as part of the characters of individual men and women. His book is the more valuable in that he records in an attractive manner a way of life that is gradually disappearing as the white man's civilization encroaches upon it. The opportunities for intimate contact with the Papuans that he has enjoyed will never recur.

## A NOTE ON THE CAUSATION OF SUDDEN DEATH

BY

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One of the duties of a procurator-fiscal in Scotland is to investigate all cases of death from any form of violence, as well as all sudden deaths and deaths from unknown or suspicious causes. In most cases this is done by private inquiry—though provision is made by statute for fuller inquiry into certain deaths from industrial accidents and other causes—a procedure possessing certain advantages over the coroner's inquest. Part of the procedure initiated by the procurator-fiscal is an examination of the body by the casualty police surgeon, with or without a necropsy, and this note is based on an investigation to elucidate the cause of 1,694 cases of sudden, violent, and suspicious death from 1931 to 1945.

These cases fall into two groups—those in which the actual cause was definitely ascertained post mortem (572) and those in which external examination alone was carried out (1,122). From the former I have deducted 45 cases of newly born children, many of them stillbirths, or non-viable foetuses. On the other hand, many cases of suicide were not subjected to post-mortem examination because the cause of death was obvious—hanging, gunshot wound, cut throat, etc. In suicide, wherever there was doubt as to the cause, a necropsy was done; so all suicides are added to the number of cases where the cause was definitely ascertained. This gives a total of 823 (post-mortem cases (572 less 45), 527; cases of suicide not coming to necropsy, 296), or nearly one-half the total cases, over a period of 14 years. An analysis of these is detailed below.

### Non-violent Group

Of the 823 cases 200 were due to non-violent causes, with the addition of 24 cases of infants under 2 years which have been considered separately because of a tendency to certain special types of death they exhibit. The remaining 599 were due to external agencies, suicide accounting for 365 cases and other external causes (accidental or intentional) for 234. The non-violent group consisted of:

	Cases	Infants
Deaths due to cardiovascular degeneration ..	104 (52%)	
Deaths due to diseases of the respiratory system ..	26 (13%)	17
Deaths due to diseases of the nervous system ..	33 (16.5%)	2
Deaths due to diseases of the gastro-intestinal system ..	15 (7.5%)	
Deaths associated with pregnancy ..	9 (4.5%)	
Other causes ..	13 (6.5%)	5
	200	24

*Diseases of the Cardiovascular System.*—The cardiovascular cases—104 (52% of the total)—form much the largest group, though not so large as in some previously reported lists of causes of sudden deaths. They were grouped as follows:

Coronary atheroma and thrombosis ..	51	} 59.5% of total
Rupture of heart ..	3	
Myocarditis—fibrous or fatty ..	25	
V.D.H. ..	4	
Intracerebral haemorrhage ..	13	
Ruptured aortic aneurysms ..	6	
Pulmonary embolism ..	2	

The first three groups may be considered together. Many cases showed gross atheromatous changes of the coronary arteries, so that these could only with difficulty be cut with a knife; others showed localized atheromatous changes in the arteries, and still others only small isolated plaques—

in all causing such narrowing of the lumen that in some an acute cardiac ischaemia and death, probably from ventricular fibrillation, resulted and in others the narrowed area formed a nidus for thrombus formation and cardiac infarction. If death did not occur at once it might follow in a few days from rupture of the heart through the softened area supplied by the thrombosed vessel, as in the three cases mentioned. Cases showing temporary recovery resulted in myocardial changes, diffuse or localized, with impaired cardiac function. In four cases this fibrosis resulted in a cardiac aneurysm, but in no instance did this rupture. Included in this group are four cases of gross enlargement of the heart which on section showed fatty degeneration of the muscles. One case of coronary embolism was seen in which there were many vegetations on the aortic cusps and a raw area where one of these had become detached; it was found plugged in the right coronary artery, and was about the size of a grain of rice. In four others the main lesion was valvular—two mitral stenosis and two aortic stenosis and incompetence. These also showed evidence of fibrosis of the myocardium. There were 13 cases of cerebral haemorrhage (apart from subarachnoid haemorrhage), and all of them gave evidence of arteriosclerosis with concomitant enlargement of the heart. Eight showed that the haemorrhage arose in the neighbourhood of the internal capsule and five were cases of pontine haemorrhage. Possibly the more rapid termination in cases of pontine haemorrhage resulted in a greater proportion of those being investigated as sudden deaths than in the ordinary cases, which are usually seen by a doctor before death occurs. Of the six cases of ruptured aneurysm three were saccular aneurysms of the aorta; the other three were dissecting aneurysms arising from atheromatous ulceration. Of two cases of pulmonary embolism which came to necropsy one resulted from a thrombosis of varicose veins extending into the iliac veins; the other followed 10 days after a confinement.

*Diseases of the Respiratory System (26 Cases).*—Of these deaths 19 resulted from pneumonia, mainly of the fulminant influenzal haemorrhagic type, which in two cases caused death within four hours of apparent onset; two were due to bronchiolitis and one to status asthmaticus. Four were the result of haemorrhage from tuberculosis, death being due to asphyxia from intrabronchial clotting rather than to the actual blood loss.

*Diseases of the Nervous System (33 Cases).*—Cases of subarachnoid haemorrhage form more than one-third of this group. In only a few was it possible to demonstrate the actual congenital aneurysmal dilatation of the vessel—though it is interesting to note the finding of an unruptured aneurysm the size of a hazel-nut in a case in which death was due to violence. The youngest subject in this series was 10 years and the oldest 59. The following table shows the usual age distribution of cases of this type.

	Present Cases	Magee's 150 Cases
Under 20 years ..	3	9
20-30 ..	1	76
30-40 ..	2	56
40-50 ..	5	9
Over 50 ..	2	—

Six cases occurred in asylum inmates and were due to exhaustion from acute mania, five were cases of cerebral softening from cerebral thrombosis, and three were brain tumours with acute oedema of the brain. There were three cases of fulminant cerebrospinal meningitis—two in brothers who took ill within two days of each other, each dying after less than one night's illness. The third died after eight hours' illness and showed the typical

Waterhouse-Friderichsen syndrome with gross haemorrhage into both adrenals. Of the others, one was a case of general paralysis of the insane in which death was due to idiosyncrasy to arsenical drugs, one of status epilepticus, and one of hydrocephalus.

**Diseases of the Gastro-intestinal System (15 Cases).**—Acute perforations accounted for nine cases, intestinal obstruction for four cases. One case resulted from haemorrhage from a gastric ulcer, and one from colitis which suggested mercurial poisoning, but all analyses were negative.

**Diseases Associated with Pregnancy (9 Cases).**—Four of these resulted from toxæmias of pregnancy; four were the result of abortions—three from sepsis and one from air embolism; and one was an ectopic gestation.

**Other Causes (13 Cases).**—The only interest of these 13 cases lies in one case of Addison's disease, two where starvation was the cause, and two others where in the presence of lymphatism and absence of any other apparent cause the deaths were attributed to status lymphaticus.

**Infant Cases.**—In addition to the 200 cases above listed there were 24 post-mortem examinations on infants. These have been kept separate because the majority of these are of one type. The usual history is that a young child is put to bed after a feed, either apparently quite well or with only a mild catarrhal cold, and in the morning is found dead in its cot. These infants are frequently proved to have died from pneumonia. A dramatic occurrence was in twins 4 months old. Twin A had a very mild cold the previous day, and there was no history of any further illness. Twin B had no history of illness at all. At 8.30 a.m. the mother tucked both children in their cot, apparently well, and went to her washing-house to soak in her clothes. On her return at 9.30 both twins were dead. At necropsy both were found to have had pneumonia, Twin A in a more advanced stage than Twin B. Of the 24 cases in this group 12 had pneumonia: four were due to asphyxia, probably overlying; two to cerebrospinal meningitis; one to a hepatoma, and one to total infarct of the kidney. The other four were one case each due to cerebral haemorrhage (from labour), colitis, bronchitis, and status lymphaticus.

#### Deaths due to External Agencies

This group of deaths, numbering 599, occurred from the following causes:

Suicides (necropsy) .. .. .	69
Suicides—examined externally only .. .. .	296
Injuries, wounds, and burns .. .. .	150
Associated with anaesthetics .. .. .	32
Asphyxias, drowning, strangulation, etc. .. .. .	20
Poisonings .. .. .	21
Other causes .. .. .	11

**Suicides (365 Cases).**—It will be seen that suicides form a large proportion of the total. The interest of this group lies in the method chosen and in the evidence of imitation in the recurrence of similar methods of self-destruction about the same time, especially noticeable in the coal-gas and precipitation groups. "How oft the sight of means to do ill deeds makes ill deeds done." The following is an analysis of the methods adopted:

Coal-gas .. 144 (40%)	Hanging .. 14 (3.8%)
Drowning .. 123 (33.6%)	Cut throat .. 14 (3.8%)
Poisoning .. 37 (10%)	Gunshot wounds .. 12 (3.2%)
Precipitation .. 18 (4.9%)	Trains .. 3 (0.8%)

As is usually seen, coal-gas provides the majority of cases, though cases of drowning approach the same figure, perhaps from the proximity of harbour, sea, and rivers in the area. Of the 37 cases of poisoning, lysol caused 18, again illustrating the usual habit, 11 were due to narcotics (barbiturates, chloral, bromides, and chloroform), three to prussic acid (occurring in two chemists and a laboratory

attendant), two to corrosive sublimate, and one each to arsenic, strychnine, and aspirin. The other types of suicide call for no comment.

**Deaths due to Injuries and Wounds (150 Cases).**—These generally are of little pathological interest. Head injury was responsible for 90, rupture of organs for 28, multiple limb injuries for 12, and fracture of the spine for 6; nearly all the cases in these groups were caused by motor-car accidents.

**Deaths Associated with Anaesthetics (32 Cases).**—Of these cases 17 could be attributed directly to the disease which created the necessity for operation or to post-operative shock—for example, gangrene of leg, two cases (one with aortic thrombosis); cancer of breast and stomach, uterus, and prostate; toxæmia from pelvic abscess and gangrenous appendicitis; and post-operative haemorrhage, from a venous cyst and from gastrectomy. Of the cases where the anaesthetic played a major part in the cause of death three followed the inhalation of blood in throat and nose cases and two from the inhalation of vomit. One was a case of circumcision with status lymphaticus and one with hydrocephalus which collapsed on being given 1 1/2 oz. (14 ml.) of ether for the purpose of taking an encephalogram. In six cases—two of tonsillitis, one of mastoiditis, one of tuberculous nodes of the neck, one of antral suppuration, and one for the change of a plaster casing—the anaesthetic alone appeared to be responsible for the collapse. Two cases followed the application of a 2% amethocaine hydrochloride (decicain) spray—one a tumour of the lung and the other a case of bronchiectasis. The anaesthetic was given to permit of a bronchoscopy, and in both cases generalized convulsions set in within a few minutes and death occurred very shortly afterwards.

**Deaths from Poisoning (21 Cases).**—Six of these were accidental deaths from carbon monoxide from stoves or coal-gas: seven were the result of asphyxia in alcoholic coma; four were caused by drinking the synthetic methanol; and one each from phosphorus (rat paste used as an abortifacient), hydrocyanic gas (in a ship fumigator), quinine (also used as an abortifacient), and lysol applied externally as a dressing in mistake for eusol.

**Asphyxias, Drowning, etc. (20 Cases).**—These include 15 cases of accidental drowning, one accidental strangulation, and four cases of choking on foreign bodies—two in lunatics (a bun and an oatmeal pudding being the offending agents) and two in children from a bean and a particle of food.

**Other Causes (11 Cases).**—Of the 11 cases so classified two resulted from tetanus, two from pyæmia, and two from septic abortion. One case of oedema of the glottis occurred in a schoolboy who was kicked on the neck in a game of football and died within 20 minutes.

An interesting feature of this group is that in 16 of these cases of death from all classes of violence a charge of murder or culpable homicide followed. Three were in children murdered by an insane mother by coal-gas; three were head injuries; three resulted from strangulation—two manual and one with a handkerchief; two from cut throats; and one each from fracture of the spine, stabbing, shot-gun wound, and lysol—this last in a child murdered by its mother, who also committed suicide with lysol.

#### Cases Not Examined Post Mortem

Of the 1,122 cases in which external examination alone was carried out, 296 suicides have already been dealt with: 12 others related to newly born children and are discounted for reasons previously stated. This leaves 814 cases, of which 404 were cases of sudden death, 305 cases of injury, etc., and 105 infant cases. In a great number the cause of

death was not conclusive, so it is undesirable to base any conclusions on the figures; but experience of large numbers of these cases allows an examiner to group the probable causes of death with reasonable accuracy for registration purposes.

Cases of sudden death .. .. .	404 cases
Cardiovascular group .. .. .	357
Respiratory diseases .. .. .	21
Nervous system diseases .. .. .	8
Gastro-intestinal diseases .. .. .	3
Miscellaneous causes .. .. .	15

Here the outstanding feature is the proportion of deaths (85%) attributed to cardiovascular causes. This is not surprising when one considers that most of these were of people collapsing in the street or at work, or found dead in bed. In ordinary times many of these cases would have come to necropsy, but as nearly half occurred during the war years, when post-mortem examinations were reduced to a minimum, they were ascribed to the most likely cause as adjudged from the previous history and mode of death. In all, 318 deaths were thus considered to be due to coronary thrombosis and myocarditis: 11 to valvular diseases; 22 to cerebral haemorrhage; one to ruptured aneurysm, and five to pulmonary embolism.

*Deaths from External Agencies (305 Cases).*—These deaths were due to the following causes:

Injuries:	101
Fractured skulls .. .. .	25
Ruptured organs .. .. .	25
Fractured limbs and spine .. .. .	14
Burns .. .. .	2
Exposure .. .. .	4
Other causes .. .. .	70
Drowning .. .. .	22
Accidental carbon monoxide asphyxias .. .. .	36
Associated with anaesthetics .. .. .	6
Poisons .. .. .	

The first point of interest here is the comparison of the accidental deaths from inhalation of carbon monoxide—22 cases plus six that came to necropsy, 28 (16%) in all—with the 144 (84%) such cases due to suicide. The six poison cases were all due to alcohol. Nearly all of the 36 deaths associated with anaesthetics were due to the condition necessitating anaesthesia or to post-operative shock or haemorrhage—hence necropsy (especially in the war years) was not done. For example, 13 were cases of malignant disease and 7 were abdominal emergencies. Three special cases may be noted: one of tetanus which ended in death during a spasm while receiving chloroform; another that of a child of 23 months with a tuberculous lesion of the skull who received 40 ml. of a 0.5% solution of "novocain," followed by a nitrous oxide, oxygen, and ether anaesthesia, in which the local anaesthetic was certainly in excess of a safe dosage; and a third case, that of a man suffering from a deflected septum who had this treated locally with a swab of adrenaline dipped in cocaine crystals and died in convulsions within a few minutes, presumably from poisoning by cocaine owing to idiosyncrasy to the drug.

*Infant Cases.*—The 105 infant cases show the same tendency as the post-mortem cases: 55 were regarded as due to respiratory causes—50 to pneumonia and 5 to bronchitis—21 were asphyxial deaths, mostly accidental over-laying; 13 were due to convulsions, nine to prematurity, and five to acute infections—measles (three) and whooping-cough (two).

### Conclusion

Exact inferences may not be drawn from the figures given, but there seem to be three points which deserve some emphasis: (1) the outstanding predominance of cases of cardiovascular degeneration as a cause of sudden death—461 (76%) out of 604 cases; (2) the frequency of pneumonia as a suicidal agent; and (3) the frequency of pneumonia (50%) as a cause of sudden death in young infants.

## HEMIPLEGIA IN YOUNG ADULTS

BY

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Strokes in the elderly are usually regarded as a manifestation of cerebral vascular disease, while in the young adult they are usually thought to be due to some extraneous cause. The purpose of this paper is to emphasize both the obscurity of aetiology and the frequency of strokes in young adults.

The cases selected for study are all instances of unilateral pyramidal palsy seen in Service personnel between the ages of 20 and 40 at the E.M.S. Neurological Centre, Winwick, between 1940 and 1946, and also four civilians of the same age group admitted to the Warrington General Hospital between 1944 and 1946; in all 35. Nineteen of these patients had only minor degrees of hemiparesis, and in these a convincing cause was found. Thus, seven occurred among 30 consecutive cases of cerebral tumour, six among 30 consecutive cases of disseminated sclerosis, three cases of congenital hemiparesis had been accepted by the recruitment board, and two cases of hysteria and a hemiparesis due to syringomyelia completed the total. It so happened that the onset of the palsy in all these 19 patients was insidious.

The remaining 16 patients with more severe palsies all had a sudden stroke; of these, two men suffered cerebral emboli during the course of rheumatic mitral stenosis with pulmonary infarcts (Case 20) and bacterial endocarditis (Case 21). Another in retrospect presumably had suffered a Herxheimer reaction during the treatment of secondary syphilis (Case 22); a fourth must have had a cerebral aneurysm, as his stroke occurred 10 days after a sub-arachnoid haemorrhage; and a woman (Case 24) aged 29 developed a hemiplegia whenever an overdose of insulin was administered in treatment of her diabetes mellitus. A case similar to this last was described by Fischer and Florman (1943), though their patient eventually suffered from a cerebral embolus. It is of interest that Case 21 eventually recovered from the endocarditis after treatment with penicillin, though he was left with an almost useless left hand and spastic leg and auricular fibrillation; while Case 22 recovered sufficiently to be conscripted three years after his stroke.

Eleven of the severely palsied cases were not so readily diagnosed. Of these, two convalescent Service men (Cases 25 and 26) who had no pyramidal signs were at first labelled hysteria; however, they both claimed unilateral loss of sense of position and a field defect on the same side. An almost identical Service case was described by Stewart, Randall, and Riesenman (1943) and diagnosed by them as hysteria. However, in reconsidering these three patients it appeared remarkable that all of them should have mimicked so closely the symptomatology of a vascular lesion in the posterior portion of the internal capsule, and when Case 25 was re-examined two years later the signs were unaltered, except that he had developed choreiform athetotic movements of the affected shoulder and a pneumo-encephalogram demonstrated localized cortical atrophy. Six months after his stroke Case 26 wrote that his condition was stationary. It seems possible that had the frequency of strokes in young adults been appreciated at the time both Cases 25 and 26 would have been differently labelled.

Three of the cases under review had sepsis in the jugular vascular bed on the same side as the brain was affected—namely, in Case 27 a tuberculous gland on the right side of the neck, in Case 28 a Vincent's ulcer on the left tonsil, and in Case 29 a right-sided chronic otitis media. Dowman



(1926) and Purdon Martin (1944) have described strokes in this age group due to cerebral venous thrombosis, and Symonds (1937, 1940) has stressed the importance of sepsis in the middle ear and nasopharynx as a cause of thrombophlebitis of the Rolandic veins. Another soldier (Case 30) gave a history of an unexplained femoral phlebitis six years previously, and at the time of his stroke he was under investigation for an obscure painful lesion in the left lung.

Elkington (1935) described the cases of three young adults whom he concluded to be suffering from cerebral haemorrhage because of the site of the lesion, the suddenness of the onset, and the finding of slightly xanthochromic fluid on lumbar puncture in two who had no other signs of subarachnoid haemorrhage. He compared them with a woman of 27 who died from a pontocerebellar haemorrhage resulting from telangiectasis in this region and another woman, described by Gordon Holmes (1931), who developed a left homonymous hemianopia from an arteriovenous aneurysm in the calcarine fissure. The cases here examined resembled Elkington's in the sudden onset and the site of the lesion, and resembled other vascular accidents in the fact that their condition has changed very little during the period of one to four years they have been under observation. However, abnormality of cerebrospinal fluid was a rarity. Case 25 had a slight increase in globulin and a gold curve of 1221110000, and Case 31 had seven lymphocytes per c.mm. in the cerebrospinal fluid.

It seems probable that Case 31 had a cerebral haemorrhage, as at the time of his stroke he suffered a transient glycosuria and albuminuria. This patient, a soldier aged 30, is of interest as two months previously he had suffered from infective hepatitis. Lescher (1944) and Stokes, Owen, and Holmes (1945) describe four cases of cerebral haemorrhage complicating this disease. In Lescher's case the same time interval occurred as in Case 31. The neurological signs in Case 31 were consistent with a lesion in the right internal capsule, but this lesion was presumably more extensive, as he developed epileptiform convulsions and a pneumo-encephalogram seven months after the stroke showed extensive atrophy of the right cerebral cortex. Stokes *et al.* in describing the necropsy of their Case A state: "The brain contained an area of softening lateral to the right lateral ventricle and a large haemorrhage into the right caudate nucleus." Had this patient survived he would presumably have presented an almost identical clinical picture to Case 31, except for the site of the palsy.

No other patient showed evidence that the vascular atrophy was due to haemorrhage. One patient at least, a housewife aged 26, presumably had a cerebral embolus, for on admission she was found to have a cloudy wedge-shaped area lying on either side of a pair of vessels in the upper temporal sector of the left retina. These vessels were somewhat obscured near the disk; peripherally, the artery was seen to be empty and the vein normal. It is suggested that this woman's sudden loss of consciousness the day before admission had resulted from an embolus which had broken up in the left internal carotid artery. The smaller part lodged in the retina and the larger part occluded branches of the left middle cerebral artery. The patient had prolonged unconsciousness, which after about ten days gave place to complete aphasia, right-sided spastic paralysis of face, arm, and leg, and loss of sense of position in these limbs. Later, absence of the nasal field was demonstrated in the right eye, presumably due to the local lesion in the retina.

None of these nine obscure cases had any abnormality of the urine, and the cardiovascular systems appeared healthy except that in three Service men when stress was shown during examination a high blood pressure was found

(150/100 in Case 25, 150/100 in Case 26, and 140/100 in Case 31), normal pressures being recorded at other times in these patients. Another associated finding was recent evidence of pulmonary disease; thus, Case 25 was at the time of his stroke convalescent from pneumonia, and Case 30 during the month preceding his stroke had had three attacks of left-sided pleurisy and was found to have x-ray evidence of infiltration of the left mid-lung zone. A patient not previously mentioned was found to have radiological evidence of spreading though symptomless pulmonary tuberculosis, and another stated that two years previously he had had pneumonia. French authors, such as Hartenberg (1930), Trotot (1935), and Vidal (1942), stress the occurrence of hemiplegias during artificial pneumothorax refills, but the transient nature of these catastrophes argues a different aetiology from that in the group under review.

### Summary and Conclusion

It would seem that strokes resulting in permanent hemiplegias are not such a very uncommon accident in young adult life. Although many of these patients show evidence of cardiac disease likely to give rise to emboli, the majority have no such condition. It would appear that this phenomenon may be due to either a venous thrombosis in the Rolandic system of veins or a haemorrhage, thrombosis, or embolus in the cerebro-arterial system. Sepsis in the jugular vascular bed, recent pulmonary disease, and a tendency to abnormal elevation of the blood pressure are frequent associated findings.

I wish to thank Dr. Fergus R. Ferguson for help and advice in the treatment of these cases, Dr. T. S. B. Dick for the notes of the one case I did not see, and Mr. A. S. Kerr for performing the pneumo-encephalograms; also Dr. A. V. Harvey, Regional Officer of the Ministry of Health, for permission to publish.

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The first number of *Nutrition, Dietetics, Catering* is an attractive illustrated journal, to appear quarterly, issued by the British Dietetic Association and the Food Education Society (annual subscription 10s.: Newman Books, Ltd., 356-366, Oxford Street, London, W.1). It is intended to provide the latest news on dietetics for catering managers, canteen supervisors, and others responsible for the preparation of food, as well as medical men, and Sir Jack Drummond hopes, in a foreword, that it will contribute to banishing sodden cabbage and the other evils of bad cooking from our tables. As he points out, the standard of cooking in many of our hotels, hospitals, and institutions is deplorably low and we should be more ashamed of it than we are. Prof. Marraek draws attention to the fact that foods may have a nutritive value not apparent from the content of their various nutrients, and comments that the moral of recent investigations is that "animals, human or other, need food—not vitamins or other separate nutrients." An interesting observation made by Prof. Yudkin is that adolescence in the West African is delayed longer than is commonly believed. The psychological changes associated with puberty in girls occur at the age of about 16 or 17, and he thinks it likely that unsatisfactory nutrition is a possible cause. Mrs. Palmström, comparing Norwegian food with English, remarks that though it is similar it is often prepared differently and is eaten at different times of the day. There is no sign of war weariness in Norway. The people are strong and healthy—the women in fact probably working harder than they do in England. She points out that there are many factors contributing to this state of affairs, and wonders if the diet plays any part, in particular the relatively high consumption of meat and fish in conjunction with bread. The journal also includes news items, book reviews, and schemes for training in dietetics.

# STRESS FRACTURE OF A METATARSAL IN A YOUNG CHILD

BY

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The following case is reported because of the early age of incidence.

## Case Report

On July 23, 1946, a woman brought her child aged 4 years 9 months to hospital, stating that until the previous day the child had been well; she then complained of pain in her right foot on walking, and it was noticed that she limped. No history of trauma was elicited. There was nothing of note in the child's previous history; walking had never troubled her before.

On examination the right foot was mildly swollen but not bruised, and there was tenderness along the shaft of the second metatarsal. The appearance of the left foot was normal. She had a mild genu valgum. There was no clinical evidence of systemic disease. A skiagram (Fig. 1) showed: (1) A cuff

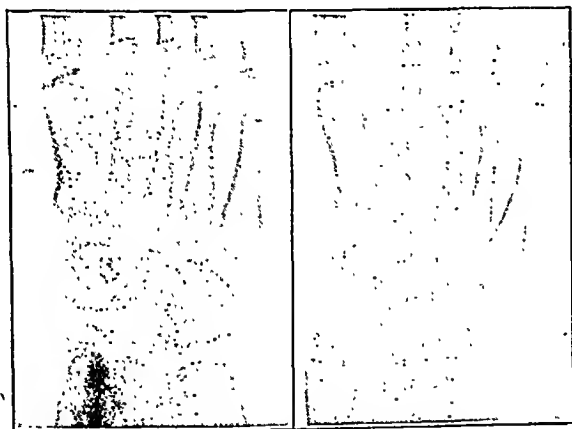


FIG. 1.—Skiagrams taken on day of admission, showing appearance of the second metatarsal shaft.

of fine new bone formation around the mid-shaft of the second metatarsal except for a small annular area of absence of bone in contact with the cortex. It appeared as if the bone was surrounded by a ring of tissue translucent to x rays.

This appearance has been noted by Sayle Creer (personal communication) in a number of cases of stress fracture of the metatarsal, and he wonders if it masks a very small crack. (2) New subperiosteal bone formation in contact with the whole length of the metatarsal shaft except for the annular area described in (1).

In view of the patient's age a tentative diagnosis of periostitis, possibly tuberculous in origin, was made and a short leg unpadded plaster cast was applied.

On Aug. 30 the plaster was removed and the appearance of the child's foot was normal, the swelling and tenderness having disappeared. A skiagram revealed a clear fracture line across the metatarsal shaft with some separation of the fragments. The fracture showed good union. On Sept. 2, after a fortnight out of plaster, the foot appeared normal and a skiagram showed consolidation of the fracture with nothing to distinguish it from an ordinary "traumatic" fracture.

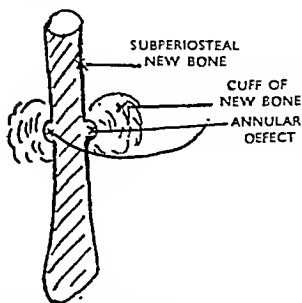


FIG. 2.—Diagram of the second metatarsal shaft as seen in Fig. 1.

## Discussion

The condition was regarded as one of stress fracture of the metatarsal on the following grounds: (1) The sudden onset of pain on walking without previous trauma. (2) Swelling of the foot (but no bruising) and tenderness of the affected metatarsal shaft. (3) X-ray appearances: the solution of continuity of the shaft and the consolidation of the fracture seen on Aug. 30, and the initial annular area of absence of bone in contact with the metatarsal shaft surrounded by a cuff of new bone. No cortical "nick" or hair-line fissure was seen: both were suggested as criteria for diagnosis by Hartley (1943), but as the skiagram on Aug. 30 showed a fracture line it is probable that the hair-line fissure was visible at some earlier stage. There is little doubt that had there been no displacement of the fragments the final skiagram would have shown complete restoration to normal architecture—said to be characteristic of "march fracture." (4) It occurred as a single lesion in the commonest bone affected by stress fracture; the other bones showed no lesion, nor was there evidence of general bone disease. (5) There was no evidence of systemic disease. No previous report of a case of stress fracture of a metatarsal occurring at such an early age was discovered in the literature. Several cases of stress fracture of the tibial shaft have been recorded in young children (Hartley, 1942); and Roberts and Vogt (1939) reported a case in a child aged 4. Stress metatarsal fractures have their maximal incidence in adolescents and young men, particularly soldiers—the incidence being so great in soldiers that the condition has been described as an occupational disease associated with military training.

My thanks are due to Mr. R. Ollerenshaw and Mr. W. Sayle Creer for their assistance and advice in the publication of this case.

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## Medical Memoranda

### Prevention of Peritoneal Adhesions by Transplantation of Amnion

Various procedures have been suggested to prevent adhesions following repeated laparotomy. The main object is to secure normal peristalsis. Glinn, Hoehne, and other authors recommended the intraperitoneal administration of soft paraffin and similar substances; for a time camphor was employed. It was established, however, that the mixture of fats and chemical compounds was noxious. Some workers, believing adhesions to be due to the absence of fibrinolytic ferments, suggested administering Pregel's pepsin solution or "leucoferment." Mayert and Feldmann tried to prevent adhesions by air insufflation. All these procedures have been criticized.

A case is reported here in which defective peritoneum has been replaced by sterile amnion to prevent new adhesions. For this operation only those cases should be considered in which deficiencies of the peritoneum, with severe adhesions, cannot be repaired by the older procedures because they are so extensive and deep that the body itself is incapable of repair. The transplantation of amnion is intended to provide a moist gliding surface ensuring natural bowel movements. Four suitable patients have been found in the course of four years whose condition necessitated the operation.

Though the problem of adhesion formation has been clarified, there is no reliable method of prevention or treatment. It has, however, been shown that besides asepsis, control of bleeding, and delicate manipulation of the tissues, the replacement of peritoneal defects is the most important factor in prevention. We believe that sterile amnion fulfils these requirements. Transplantation of sterile amnion in the course of gynaecological operations was performed in this country

as early as 1937 by K. Burger. Only intact amnion obtained in the first stage of labour should be used for this purpose. Histological examination has shown that there is a close relation between human peritoneum and amnion. To investigate the question of how long sterile amnion can be preserved, pieces of sterile amnion were put in Ringer's solution at 2° C. and then removed severally at six-hour periods and histologically examined. No change occurred in the peritoneum or in the amnion at the end of the first six hours. Nevertheless we performed our laparotomies simultaneously with the caesarean sections in the same operating theatre; thus the amnion remained in the physiological solution only for a few minutes.

We treated four cases with amnion transplantation. The first patient attempted suicide by shooting himself in the belly. In two cases evisceration due to a war injury has caused adhesions. The fourth patient had a stomach perforation followed by hernia of the abdominal wall.

#### CASE REPORT

He was 32 years old in 1940 when his ulcer perforated. The perforation was sutured 18 hours later. The wound separated, and secondary healing lasting many weeks occurred. One year later reconstruction of the abdominal wall was tried, but unfortunately the bowel was injured during this operation. A faecal fistula formed through which faeces were continuously passed. He suffered severe pain, and a chronic ileus developed. Two further operations were performed to relieve the ileus and to close the fistula.

He came to our ward in 1943 with a marked intestinal obstruction which could be relieved by conservative measures. He had constipation lasting for 4 to 5 days at a time and responding only to the simultaneous administration of hypertonic sodium chloride, "doryl," and "prostigmin." A pregnant woman belonging to the same blood group and having a contracted pelvis, with no other indication for caesarean section, was available. Operation was performed on the man simultaneously with the caesarean section. We removed the scar and liberated the intestinal adhesions. In the vicinity of the fistula there were a peritoneal defect measuring about 40 cm. in length and two other defects measuring 15 cm. each. These areas were covered with pieces of amnion, which were held in place by catgut stitches. Primary healing ensued, and the patient left the ward on the twelfth post-operative day. He has been followed up. He is a journeyman mason and has fully recovered.

We have operated similarly on three other patients with small peritoneal defects. They also healed by primary intention. One of them still complains at times. The patients have been followed up for 2 to 3 years. Amnion transplantation should be performed rarely, and only in cases which cannot be repaired by any other method.

ANDREW KUBANYI,  
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### Bilateral Chronic Suppurative Otitis Media with Complications

Mrs. R., aged 34, was admitted to hospital on Nov. 18, 1946, with a diagnosis of bilateral chronic suppurative otitis media complicated on the left side by: (1) Mastoiditis. Sclerotic mastoid (no swelling or oedema over mastoid). (2) Polypi, granulations, and cholesteatomata of the middle ear cavity. (3) Extradural abscess of the middle fossa. (4) Fistula of the external semicircular canal. (5) Lateral sinus thrombosis, extending down the jugular vein.

#### CASE HISTORY

**Past History.**—Known to have had attacks of bilateral otorrhoea since the age of 12. Attacks had lasted 3–6 months, with remissions of up to three months between. Not accompanied by pain or giddiness. Had measles, scarlet fever, and chicken-pox during childhood; not known whether complicated by otitis media. Scarlet fever *aet.* 10. "Rheumatic chill" lasting three weeks *aet.* 19. "Nervous breakdown" *aet.* 19.

**Present History.**—Six weeks before admission she was taken ill with giddiness and generalized headache. After 2–3 days pain in her left ear began and with it otorrhoea and giddiness on pressure over the tragus. All this subsided in a week, but during the next four weeks she did not feel too well and had attacks of giddiness. The ear continued to discharge and her head "felt queer" although there was no severe headache and no earache.

Seven days before admission she was taken ill with sudden severe pain in the ear and considerable headache and giddiness. During

the next seven days she felt hot and had repeated "shivering attacks." No vomiting. During the first week of the illness, however, she had vomited repeatedly.

**On Admission.**—Giddiness on pressure over tragus. Polypi and granulations removed from meatal wall and roof of attic. Lumbar puncture: Normal fluid; pressure normal; culture sterile. There were some signs of meningism but these were not very marked. High fever. Drowsy. Nystagmus, particularly on looking to right.

Put on penicillin 20,000 units three-hourly (total: 1,440,000 units) and sulphathiazole 1 g. four-hourly for three days (total: 18 g.).

**X-ray Report.**—Acellular type of mastoids and therefore difficult to assess degree of infection, but some infection is present in left mastoid. No cholesteatoma.

**Ophthalmologist's Report.**—No signs of any papilloedema. Disks normal.

By Nov. 24 she had failed to respond to treatment despite the fact that the temperature fell dramatically during the first 24 hours. Still showed signs of meningism. Lumbar puncture: Clear fluid; pressure 120 mm.; Queckenstedt test normal on both sides though sluggish—

no great difference between the two sides; fluid sterile on culture and containing only 5 cells per c.mm. Blood count: W.B.C., total 19,200; polymorphs 66%, lymphocytes 25%, monocytes 9%. Smear normal.

**Operation.**—Nov. 25. Left radical mastoidectomy. Hard sclerotic type of mastoid. Caries found in mastoid antrum and middle ear, which was full of cholesteatomata. Extradural abscess of middle fossa and fistula of wall of external semicircular canal. Forward lateral sinus exposed and considered doubtful but not opened. Wound left open.

On Nov. 27 she still had a high swinging temperature. Mastoid reopened. Bone removed posteriorly more than half-way to occiput. Sinus found thrombosed for 1 in. (2.54 cm.) posteriorly to upper knee. Septic clot removed and sinus opened until free bleeding was obtained: Internal jugular and common facial veins ligatured in neck.

Culture of pus obtained at first operation now showed a pure growth of *Proteus*. She was therefore put on sulphathiazole 1-g. four-hourly for six days (total: 42 g.). Three days later the temperature, which was still high and swinging, fell to normal and remained down. Signs of meningism disappeared after the mastoidectomy. The nystagmus disappeared slowly after the second operation and the general condition gradually improved. The ear still discharges. She left hospital on Dec. 24, 1946, with the wound completely healed but a slight serous discharge from the meatal cavity.

#### DISCUSSION

Although the patient was severely ill there was no swelling or oedema over the mastoid process because she had an acellular sclerotic mastoid. In these cases the infection spreads inwards and backwards and so she developed an extradural abscess, fistula of the external semicircular canal and lateral sinus thrombosis.

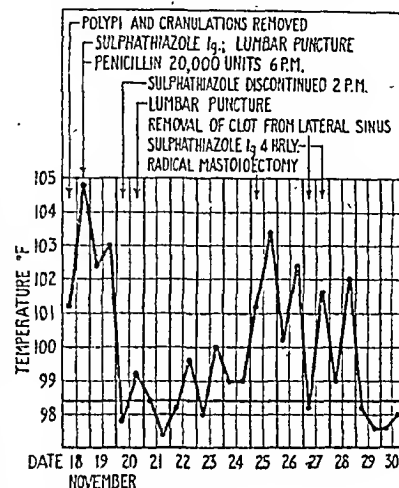
As meningitis was suspected she was put on full doses of penicillin and sulphathiazole, but these failed to arrest the progress of the disease. The mastoid was of the acellular sclerotic type, and when entrance to the antrum was effected pus gushed out and was obviously under great tension. Culture of pus showed the organism to be *Proteus*, which is penicillin resistant.

A very anterior lateral sinus—hence more ready infection of sinus. When the sinus was opened and septic clot removed the patient made a steady but sure recovery.

#### CONCLUSION

Chronic otorrhoea is a common malady. When intracranial complications develop treatment with penicillin alone or in combination with the sulphonamides does not arrest the disease and surgical intervention is necessary.

A. MACKENZIE ROSS, M.D., D.L.O.



## Reviews

### TWO HEALTH SERVICES

*Health Reform in New Zealand.* By Douglas Robb. (Pp. 104. No price.) London: Whitcombe and Tombs.

*The Doctor and Tomorrow. The Future of Medical Service in Australia.* By Arthur E. Brown, M.B., B.Ch., F.R.A.C.S. (Pp. 136. 3s.) Sydney: F. H. Johnston Publishing Company Pty., Ltd., 34, Jamieson Street.

These two books from the Antipodes are timely and welcome because they are very relevant to the problems which our profession is facing here. Australia is proposing to nationalize medicine; New Zealand did it, more or less, over five years ago. Dr. Robb and Dr. Brown write with authority, for they both occupy prominent positions in the practice and organization of their profession. Both are firm believers in the need for a full medical service freely available to every citizen. Dr. Brown carefully examines the various ways in which Australia might do this; Dr. Robb regretfully comes to the conclusion that the New Zealand way has proved to be a very expensive failure.

The New Zealand Social Security Act of 1938 provided for everybody a free general practitioner service and part payment of hospital treatment. From the outset there was friction between the Government and the B.M.A., and there seems to be small prospect of any early agreement. Dr. Robb ascribes the defects of the scheme largely to the fact that "its impetus was political and its conception almost entirely so." Much of the friction has arisen over the amount and method of medical remuneration. There are no fewer than five ways in which the citizen can obtain medical service. (1) In a few rural areas the doctor is paid by whole-time salary. (2) If the doctor is willing to accept the method he can be paid by a capitation fee of 15s. a year with no limitation of his list. This method, though making some progress, has always been strongly opposed by the B.M.A.; in the first six months after the Act came into operation only some 50 doctors out of nearly 800 had accepted patients under this method. (3) "Fee for service." Here the patient signs a form acknowledging that he has received a service, and the doctor collects monthly from the fund 7s. 6d. for each form. Though not approved by the B.M.A. this method is being freely used. (4) "Refund" plan. The patient pays the doctor his private fee (usually 10s. 6d.), for which he is given a receipt, and with this he gets a refund of 7s. 6d. at the post office. (5) "Token" plan. Here the patient pays the doctor a token fee of 3s. and the latter collects the refund of 7s. 6d. It is not the financial side of the system which makes Dr. Robb so dissatisfied with it, for he believes the general practitioner under any of these arrangements to be better off than he was in the days of bad debts. He dislikes the "fee for service" because it "results in many trifling things being done by the doctor at 7s. 6d. a time that ought to have been done by a nurse or secretary." His fundamental complaint about the service is that it is uncoordinated and far from comprehensive. He grants that some few remote areas formerly under-doctored are now better off, but the tendency still is for doctors to gravitate to the cities. A curious factor in the constantly mounting cost of the service is the great proportion of the income of the fund that is spent on drugs and appliances. It is now 13s. 6d. a head, compared with 16s. 10d. for the general medical service. It would be interesting to know if this "free for all" supply of medicine has lessened the demand at the chemists for proprietary medicines.

Dr. Robb realizes that a country so thinly populated as New Zealand has many difficulties in providing a really full service as compared with Britain. He alludes with envy to some of the features of our new Health Service Act, but he is still hopeful that a really good service may emerge in his country. He is confident that with genuine co-operation between the Government and the profession something infinitely better than the present system could be evolved. He does not absolve the doctors from a share of the blame for the present situation: they should have shown more initiative instead of leaving the politicians to take all the credit (if any). This book is intended mainly for the New Zealand layman, and the author reminds

his readers that "the profession did not conceive or initiate the present system."

Dr. Brown's book deserves the earnest attention of all who are interested in the future of the profession, and especially of those who are concerned with the negotiations on the new National Health Service. The author is convinced that the world-wide movement towards a medical service freely available for all is one which, far from being resisted or thwarted by the profession, should be warmly welcomed. There is much information in the book about the gradual approach of Australia to this problem, but to the reviewer the most striking feature is Dr. Brown's analysis of the various methods of remunerating the profession—not because Dr. Brown is unduly concerned with finance, for he is an idealist and enthusiast, but because he believes that the success or failure of any scheme will greatly depend on the method of remuneration of the doctor. There is no other so cool, logical, and lucid an examination of the methods available known to the reviewer. The fact that the author decisively approves of payment by salary makes it all the more desirable that those who have come to a different conclusion should consider the opposing arguments, especially when they are maintained so competently and so modestly as they are here. There is no ideological nonsense about Dr. Brown. He says that he has been driven inexorably to the conclusion that only by this method can doctors be distributed "in accordance with public needs." He rules out capitation because it profits the doctor to take on more patients than he can manage and does nothing towards solving the distribution problem. As for payment per service, he rejects "any form of practice which leaves medical men and women as private traders in competition with each other."

Dr. Brown is concerned entirely with a future in which free medical service will be available to all. He does not hide his fears of a bureaucracy which fosters uniformity; he does not regard lay control as a serious danger. His main fear is of the politician, and he says, "the prospect of an inferior, badly conceived, politically devised service is a far more dangerous prospect for the public than it could ever be for the medical practitioner." Dr. Brown is to be congratulated on a courageous and lucid examination of a thorny subject. There will doubtless be many attracted, as the reviewer has been, by the logic of his advocacy who will feel that he has not given sufficient weight to the pressure which the politician will be tempted to bring to bear on a profession, no matter how or how well paid, once it has surrendered its status as a free profession.

ALFRED CON.

### GENETICS

*Human Genetics.* By Reginald Ruggles Gates. Volumes I and II. (Pp. 1518; illustrated. £5 for the two volumes.) New York: The Macmillan Company. 1946.

Probably no one except Prof. Gates could have written this book, but, fine though the result is in some ways, we wonder whether anyone, even Prof. Gates, should ever have made the attempt. He covers the whole field chapter by chapter, and there can be few human inherited abnormalities, as well as many other inherited differences, that he does not describe. His knowledge is encyclopaedic and the 5,500 references successfully guide the reader to the key papers and books on each subject. There is an admirable index of 90 pages with full cross-references. It is the text that raises the suggestion whether the author has been too ambitious.

When Prof. Gates is discussing subjects especially familiar to him, and to which he himself has contributed, he presents us with a lucid, balanced, and well-digested summary. The chapter on the blood groups, for example, is excellent. When he was writing the book our knowledge of the rhesus factor had not attained its present clarity, but he explicitly recognized that a successful synthesis was imminent and few outside the ranks of the professional serologists could have achieved so much. One man, however, can have only a second-hand acquaintance with most of this vast subject and its scattered literature, and in many chapters the sureness of touch seen in that on the blood groups is lacking. The running commentary is often a complex and exhausting mixture of the historical, the pathological, the clinical, the genetical, the purely descriptive and the statistical. Some out-of-date opinions seem to have been included from

the previous version of 1929. Sometimes erroneous or fantastic speculations are given the same emphasis as thorough and competent researches and surveys. For example, the account of spina bifida starts with a consideration of experimental work on the frog, followed by a reference to its anatomical features. The author then refers to an instance of three cases in one sibship and a theory of the relationship of the occult to the manifest condition. After that he digresses to its possible relation to the erect posture, with a remark on sex limitation. Next he discusses a study of its relation to nocturnal enuresis, the author of which considered this latter condition to be a simple recessive. Finally he mentions some other deformities with which spina bifida may be associated, and interpolates a paragraph on its frequency in the population. The inquirer who wishes to know whether spina bifida is inherited and, if so, how will not be much wiser, though his attention is directed to useful references from which he may find the answer for himself. In the chapter on the inheritance of normal mental differences, after a few brief references, Prof. Gates starts with an account of Hurst's hypothesis of six factor pairs, but does not point out that a scheme involving six factor pairs would fit almost anything and would be difficult enough to establish even with many thousands of observations on a self-fertilized plant.

One opinion should not be allowed to pass without challenge. On p. 213, in dealing with the usual recessive form of retinitis pigmentosa, Prof. Gates says: "Obviously those transmitting this very serious defect should not have children." If he means that a couple who have had an affected child have a one-in-four chance that any further child will also be affected and would therefore be wise to refrain from having more, many will agree with him, but presumably he means that an affected person or a known carrier should not have children; yet for every such person at least 100 others, quite unsuspected, are carrying and transmitting the gene. The eugenic effect of such abstinence is negligible and there is a far stronger case for the opposite opinion: that a sufferer from a rare recessive defect or a known carrier should not be deterred from parenthood provided he does not marry a blood relative and—as will nearly always be the case—so long as no affected child appears.

In some places this book is clear and authoritative, in others obscure, and in a few misleading. It is unsuitable for the student, but the expert will value it highly.

J. A. FRASER ROBERTS.

## EXAMINING THE EYE

*Clinical Methods of Neuro-Ophthalmologic Examination.* By Alfred Kestenbaum, M.D. (Pp. 384. \$6.75.) New York: Grune and Stratton. 1946.

This well-produced book, an important and welcome addition to the rather limited literature on the subject, contains a large amount of clearly presented and accurately classified information not generally available in textbooks. The author considers clinical entities only incidentally; he concentrates on methods of examination and on the interpretation of findings. An introductory chapter on the optic pathway is followed by one on the field of vision, in which he discusses in detail both methods and field defects. Three successive chapters deal with physical signs in lesions of the optic nerve, chiasma, and retrochiasmal pathways respectively. A further three chapters are devoted to eye muscle palsy, gaze movement, and nystagmus. He gives an account of the different modes of disturbance in symmetrical eye movement in the succeeding chapter, and then discusses abnormalities in the reaction of the pupil; in the concluding three chapters he deals with miscellaneous physical signs, palpebral fissure, and functional disturbances, giving a general survey of the routine neuro-ophthalmological examination.

The text is not easy reading, but this is not the author's fault. His subject has received less attention in the past than it merits; in consequence there is much here that is unfamiliar, though it ought to be widely known. The logical division and subdivision of the text should help the reader considerably, though it is unfortunate that it contains many unusual abbreviations. The book should do much to further the systematic study of ophthalmic neurology.

ARNOLD SORSBY.

## BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

*Vitamins and Hormones.* Ed. by Robert S. Harris and Kenneth V. Thimann. Vol. IV. (Pp. 406. \$6.80.) New York: Academic Press. 1946.

Papers on recent advances of vitamin and hormone investigations.

*The Intelligent Use of the Microscope.* By C. W. Olliver, A.M.I.E.E., F.R.M.S. (Pp. 182. 12s. 6d.) London: Chapman and Hall. 1947.

Describes how to get the best out of a microscope and includes a chapter on photomicrography; for the student.

*La Silicosis Pulmonar.* By Dr. Hugo Dooner. (Pp. 195. No price.) Santiago, Chile: Zig-Zag, S.A. 1944.

An account of silicosis with a historical introduction, skiagraphs, and bibliography.

*Preventive Medicine and Public Health.* By Wilson G. Smilie, A.B., M.D., D.P.H. (Pp. 607. 30s.) New York: The Macmillan Company. 1947.

The technique of hygiene and public health for the medical practitioner and student.

*Tuberculosis Reference Statistical Yearbook.* By the New York Tuberculosis and Health Association. (No price.) New York. 1946.

A summary with tables of tuberculosis morbidity and mortality in New York with comparative figures from the United States and other countries.

*The Louse.* By Patrick A. Buxton, F.R.S. 2nd ed. (Pp. 164. 10s. 6d.) London: Edward Arnold. 1947.

An account of the lice that infest man, their medical significance and control.

*Medical Services by Government, Local, State, and Federal.* By Bernhard J. Stern, Ph.D. (Pp. 208. 8s. 6d.) New York: The Commonwealth Fund (London: Geoffrey Cumberlege). 1946.

A monograph on the Government Medical Services of the United States.

*Una Epidemia de Peste Bubonica en el Siglo XVI.* By Dr. Don Jose Viñes Ibarrola. (Pp. 133. No price.) Pamplona: Editorial Aramburu. 1947.

An account of a plague epidemic in Spain in the 16th century, with reference to original sources.

*The Glean.* By Warren Chetham Stode. (Pp. 90. 6s.) London: Sampson Low, Marston and Co. 1947.

A National Health Service drama which was reviewed on Dec. 14, 1946 (p. 914).

*The Microscope.* By Theodore Stephanides, M.D. (Pp. 160. 10s. 6d.) London: Faber and Faber. 1947.

An account of the microscope and its use; for students.

*La Désinsertion Extra-pleurale des Symphyses Pulmonaires sous Contrôle de la Pleuroscopie.* By Dr. Jean Brailon. (Pp. 120. 210 francs.) Paris: Librairie Maloine. 1947.

An account of Michetti's operation for pleural adhesions in collapse therapy.

*The Personality of Man.* By G. N. M. Tyrrell. (Pp. 295. 1s.) Harmondsworth, Middx.: Penguin Books. 1946.

Discusses paranormal phenomena, including telepathy, and their significance to man.

*Massage and Remedial Exercises in Medical and Surgical Conditions.* By Noël M. Tidy, M.C.S.P. 7th ed. (Pp. 480. 25s.) Bristol: John Wright. London: Simpkin Marshall. 1947.

This edition includes a short description of carbachol ionization.

*Medical Diseases in Tropical and Sub-Tropical Areas.* By the War Office. 8th ed. (Pp. 396. 7s. 6d.) London: His Majesty's Stationery Office. 1946.

This edition includes new articles on infective hepatitis, leprosy, nutritional diseases, tropical eosinophilia, and D.D.T. Many other sections have been rewritten.



## BRITISH MEDICAL JOURNAL

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## A CENTURY OF CHEMISTRY

The antiquity of medicine as an art should not obscure the fact that the origin of medicine as a science dates chiefly from the development of chemistry. An important stage in that development will be celebrated in London on July 15-17: the foundation on Feb. 23, 1841, of the Chemical Society, the first organization in the world to make the study of chemical science its specific province. The centenary celebrations were postponed from their original date on account of the war, as also was the Eleventh Congress of Pure and Applied Chemistry, which it had been planned from the beginning should be held in London, as a compliment to the Society. The medical man may see some compensation in the delay, for in the interval his debt to the chemist has become even more evident. Environmental medicine has benefited, in temperate as well as in tropical conditions, from the new insecticides. Blood storage, with its background of chemical experiment and preservatives, has given a new flexibility to emergency surgery; and penicillin, to which the chemist also contributed, has increased confidence in the result. The physician, confronted for the first time in modern medicine with the prospect of widespread malaria and empty quinine bottles, found his position in the end to be stronger and not weaker as a result of the chemist's work.

To concentrate on recent events such as these would nevertheless be to miss the real nature of the chemist's contribution; for these advances, however important in themselves, have been on the surface, whereas the whole structure of physiology has depended on the insight which chemistry alone could provide. Without recognition of the individual nature of different gases, and the power to make their properties the subject of experiment, we could not have understood the function of breathing. Without knowledge of combustion, physiological meaning could not have been attached to the circulation of the blood, nor could even the crudest approach to nutrition have been made. From these necessary beginnings succeeding discoveries have branched out ever more widely; and, as the President of the Royal Society has pointed out,<sup>1</sup> chemistry has benefited in turn from the reciprocal stimulus which biological studies provided. A classic example was the synthesis of urea by Wöhler in 1828, and it may be worth emphasizing that this was only thirteen years before the foundation of the Society. Wöhler's work represented rather the removal of a barrier than the beginning of synthesis in the ordered and modern sense, but, as has since been stated, it provided "a charter of liberty for organic chemists."

Synthetic chemistry proper is generally dated from the work of Berthelot in France, about 1853, on glycerides and fats. The chance discovery of synthetic mauve by Perkins (later President of the Society) in 1856 may seem, however, to have exercised a greater immediate influence on the course of medicine. Apart from its distressing effect on Victorian taste and the obvious stimulus which it gave to the development of a dyestuffs industry it may be said to have paved the way for the introduction of staining techniques in cytology and bacteriology and thus to have provided the technical means for the development of two branches of medical science. Add to this the importance of the methylene blue test in the examination of milk, the many colour indicators now taken for granted, and the development of modern chemotherapy from the partly mistaken doctrine of dyestuff absorption, and some measure of medicine's debt to Perkins's discovery is obtained. To the same period, although obviously unconnected with Perkins's work, belongs the synthesis of the first salicylate. Finally, as one example of an incidental discovery, we may recall that the first use of anaesthetics in surgery falls also within the period covered by the Chemical Society's history.

Contemporary interconnexions between medicine and chemistry are most conveniently illustrated from the Congress programme. Out of the fourteen sections three of particular interest are devoted to biochemistry, food and nutrition, and chemistry in relation to medicine and therapeutics. The biochemists will meet under the presidency of Prof. Tiselius, of Uppsala. He has made many contributions to both protein and carbohydrate chemistry, and both these divisions are well represented, as also is the now rapidly growing chemistry of enzymes. Further subjects include the preparation of purified antibodies, Stacey's work on bacterial polysaccharides, and the nature of the combination of bacterial enzymes with their substrates. All these are investigations of probable importance, and the same may be said also of the first attempt by Francis and Wormald to apply radio-active tracers to the study of immunological reactions. A useful joint symposium on nutrition has been arranged with the section of applied zoology. Recent experience has shown that farm animals, owing to the greater localization of their natural diet, afford opportunities not easily found in human beings for the study of both trace mineral elements and mineral antagonisms. Another recent development has been the recognition that knowledge of calorie requirements, and particularly of physiological adaptation to a low caloric intake, is still incomplete. It is common knowledge among nutritionists that work in the occupied countries of Europe has led to a number of fundamental advances; but, so far as the present Congress is concerned, we must be content with information from France, Belgium, Bengal, and the Far East, and with learning the lessons to be drawn from the Minnesota rehabilitation experiment.

In the medical section chemotherapy occupies, inevitably, the place of honour. Sir Howard Florey will give a general introduction, and Waksman will follow with an account of streptomycin. Shannon's summary of anti-malarial research in the United States may be expected to add something to existing knowledge, particular interest

<sup>1</sup> Robinson, Sir R., *British Medical Journal*, 1946, 1, 943.

attaching to those investigations aimed at producing a less toxic substitute for pamaquin. Papers on the natural formation of thyroxine and on the synthetic oestrogens remind us of the chemist's contributions to endocrinology. On the other hand, chemical carcinogenesis, together with the newer experimental methods used in its study, is perhaps less fully represented than might have been expected. Finally, there is a symposium on industrial toxicology, on which also there have been recent advances in knowledge.

One effect of the centenary celebrations and of the Congress should be to bring home to the medical man a more lively appreciation of the close relation between the two disciplines. In chemistry and physics research has been notably assisted by a comparatively small number of laboratory workers who have so far become biologists as to obtain a real insight into the structure and functions of the living material which they have chiefly investigated. There is no less need, as we have pointed out on another occasion,<sup>2</sup> for medical men themselves to gain some understanding of the chemist's methods and limitations. It is not enough to learn, usually under duress, the names of the principal chemical elements and radicals or the rudiments of systematic analysis, for these accomplishments as such imply no more than that the medical man is an inferior chemist. It is more important for his proper contribution to the partnership that he should understand how chemists think, and, in particular, the ideas and methods which they use in working out structural constitution. In addition it is desirable that he should know something of the powers and limitations of the newer chemical techniques, including, for example, chromatography,<sup>3</sup> micro-analysis,<sup>4</sup> and the research uses of radio-isotopes.<sup>5,7</sup> He need not himself be a chemist, but he should know enough to understand the sort of questions that may usefully be asked.

## FAT ABSORPTION AND METABOLISM

The intervention of seven years of war has broken many of the threads of international co-operation in research, so that accumulated data, new techniques, and fresh conceptions now await integration. As the pattern of post-war developments in research becomes clearer it is apparent that the problem of fat absorption and metabolism has been and is being energetically studied in both the laboratory and the clinical fields in many countries. The striking advances in our knowledge of fat metabolism during the last decade have accentuated the need for an adequate understanding of the mechanism of intestinal absorption of fat.<sup>8</sup> The lipolytic hypothesis of fat absorption,<sup>9</sup> which was generally accepted ten years ago, does not adequately explain many subsequent observations,<sup>10</sup> nor has it formed a satisfactory basis for the investigation of defective fat absorption in human subjects. The problem must be re-

examined in every detail. If the fundamental mechanisms of fat absorption can be elucidated in experimental animals and human subjects, it may be possible not only to correlate the absorption and metabolism of fat but also to gain a clearer conception of the process of absorption in general. A more detailed approach to these problems, tracing each step in the passage of fat from the lumen of the intestine to its ultimate destination in the body, combined with the application of new techniques, should soon clarify our views.

Study of the clinical aspects of fat absorption was intensified during the war because of the high incidence of tropical sprue among British troops overseas<sup>11</sup> and non-tropical sprue among the civilian population in Britain, and these cases were an invaluable means of studying the fat absorption mechanism in human subjects. It is essential, however, that investigations should be carried out on a quantitative basis<sup>12</sup> and that further methods should be devised for the more detailed study of aetiological factors. Best and his colleagues<sup>13</sup> at Toronto opened up a new field of investigation in fat metabolism by demonstrating the lipotropic action of choline. Subsequently other substances affecting the deposition and mobilization of fat from cells have been described. Further experimental studies are required to establish the relationships between these substances and to elucidate their mode of action and their role in normal metabolism. The observations so far made in clinical medicine have given anomalous results. There does not seem to be sufficient information at present on the action and effects of lipotropes in human subjects.

The study of adipose tissue remains largely neglected, although Schoenheimer and his collaborators<sup>14</sup> have introduced a new conception of its dynamic nature. Little is known of the mechanism of fat deposition or its removal from the depots. While cases of obesity have been studied and the application of Newburgh's views<sup>15</sup> has been attended by success in many cases, it is unlikely that clinical problems involving the metabolism and deposition of fat will be solved until the fundamental physiological facts about adipose tissue have been determined. Contributions have been made to many other aspects of fat metabolism. Progress has been achieved in the study of fat oxidation, and a revision of ideas on the relationships of carbohydrate and fat metabolism is leading to a more rational view of ketogenesis. Some years ago Burr and his colleagues<sup>16</sup> demonstrated the importance of certain fatty acids in the diet in animals. The application of these findings to human subjects has been somewhat disappointing, but, again, therapeutic trials have been carried out without any clear conception of the physiological significance of these essential fatty acids in man.

Animal proteins are usually associated with lipoids, and in many instances this association is fundamental to the normal biological activity of the protein material. The nature of these associations and the factors concerned in their stability are largely unknown. Work is in progress in several laboratories, using modern chemical and physical

<sup>2</sup> *British Medical Journal*, 1946, 1, 957.

<sup>3</sup> Williams, T. L., *An Introduction to Chromatography*, 1946, London.

<sup>4</sup> Pregl, F., revised and edited Grant, J., 1945, *Quantitative Organic Micro-analysis* (4th English ed.), London.

<sup>5</sup> Chadwick, Sir J., *British Medical Journal*, 1947, 1, 263.

<sup>7</sup> Mitchell, J. S., *Brit. J. Radiol.*, 1946, 19, 481.

<sup>8</sup> *British Medical Journal*, 1947, 1, 894.

<sup>9</sup> Best, C. H., *Amer. J. digest. Dis.*, 1946, 43, 155.

<sup>10</sup> Verrall, F., and McDougall, E. J., *Absorption from the Intestine*, Longmans, Green & Co., 1936.

<sup>11</sup> Frazer, A. C., *Physiol. Rev.*, 1946, 26, 103

<sup>12</sup> Black, D. A. K., Fourman, L. P. R., and Trinder, P., *Lancet*, 1946, 1, 574.

<sup>13</sup> Cooke, W. T., et al., *Quart. J. Med.*, 1946, 15, 141.

<sup>14</sup> Best, C. H., and Lucas, C. C., *Vitamins and Hormones*, 1943, 1, 1.

<sup>15</sup> Rittenberg, D., and Schoenheimer, R., *J. biol. Chem.*, 1938, 121, 235.

<sup>16</sup> *Physiol. Rev.*, 1944, 24, 18.

<sup>17</sup> *Fed. Proc.*, 1942, 1, 224.

techniques, to determine the essential data. Since lipoprotein association is concerned in fat transport, membrane structure, blood coagulation, nerve structure, immunological reactions, and probably fatty degenerative changes, the importance of investigations in this field to physiology, pathology, and clinical medicine is likely to be considerable. The absorption and metabolism of fat presents a fascinating research field. It requires the co-operation of chemists, physicists, physiologists, and clinicians. As new facts come to light it is hoped that an adequate physiological basis will be established in human subjects as well as in experimental animals before attempts are made to apply the facts therapeutically, for it is only by building on a sound foundation of proved experimental data that successful clinical application can be achieved.

### INTERNATIONAL MICROBIOLOGY

The fourth International Congress of Microbiology, which before the war was triennial, is to be held in Copenhagen at the end of this month. The Permanent International Commission for the organization of these congresses has been reconstituted and will also meet in Copenhagen to consider the future policy of the International Association of Microbiologists in relation to other scientific bodies. This Permanent Commission consists of representatives of twenty-eight countries. The British representative is Sir Alexander Fleming; the United States is represented by Dr. Stuart Mudd, of the University of Pennsylvania; Denmark by Prof. Th. Madsen; Belgium by Prof. Jules Bordet; Canada by Prof. E. G. D. Murray, of McGill; Eire by Prof. J. W. Bigger, of Trinity College, Dublin; and India by Sir S. S. Sokhey, director of the Haffkine Institute, Bombay. The question for decision will be whether the International Association should ally itself with the International Union of Biological Sciences, forming a section within that body, or should become a separate union in the International Council of Scientific Unions. Through either of these organizations it would be linked with Unesco, and both courses have their advantages. A decision either way would mean only a formal change of status and no surrender of independence. If it is decided to become a section within the International Union of Biological Sciences the advantage would be in the organic connexion of microbiology with other aspects of biology—botany, zoology, genetics, and experimental cytology, and so all these sciences would be under one international umbrella. Apparently the International Union would also publish the reports of the international congresses of its sections with the help of Unesco. On the other hand, there are such strong links between microbiology and the medical sciences that some may think there should be a separate union within the International Council for Scientific Unions. The British and American representatives favour the first of these alternatives.

One of the reasons for the re-establishment of international microbiology is the need for restoring the various collections of type cultures throughout the world and for preparing a world catalogue of the available strains. A new central collection of type cultures has lately been organized at Lausanne under the direction of Prof. Paul Hauduroy, and proposals will come forward at Copenhagen for the association of this centre with the others. Dr. Joseph Needham, head of the Division of Natural Sciences of Unesco, has stated the interest which his organization takes in the furtherance of international scientific unions.

Such unions will serve three primary purposes—as machinery for the exchange of information, as organizers of international congresses, and as channels for the funds which Unesco may provide for international scientific undertakings.

### ETHER IMPURITIES

From the earliest days of anaesthesia the importance of using chemically pure and unadulterated ether has been stressed. The demand for pure ether has not appreciably altered through a century of anaesthesia, and to-day the pharmacopoeias of almost every country lay down stringent chemical and physical criteria for ether which is to be used for anaesthetic purposes. These precautions, however, by obviating impurities which derive from the process of manufacture, do no more than ensure pure ether in the unopened bottles as supplied by the manufacturers. There are other impurities, of which the most important is ether peroxide, that make their appearance as a result of autoxidation during storage. There is still some doubt as to how important these impurities are. From the physical point of view it seems that the presence of ether peroxide renders spontaneous explosion possible. But their effect on the human organism is less certain. In the literature of ether anaesthesia, anaesthetists have repeatedly made them the scapegoat for any complication or mishap which they could not explain without implicating their own human fallibility. Sudden death on the table, post-operative pulmonary complications, vomiting, convulsions, and every sort of difficulty during induction and maintenance of anaesthesia have all been attributed to impurities. In fact, there has been enough feeling on the matter, even without much scientific evidence, to make manufacturers and pharmacists use considerable effort to ensure that ether for anaesthesia is supplied as pure as possible.

In the extensive literature on ether impurities the monograph of Reimers,<sup>1</sup> dealing with the chemical aspect, stands out as a most important contribution. Lindgren<sup>2</sup> now carries Reimers's work a stage further by investigating not only the factors which enhance autoxidation but the biological and clinical effects of using autoxidized ether for anaesthesia. He found that autoxidation is dependent on such factors as the ether storage temperature and the nature and thickness of the glass in which the ether is kept. Lindgren also determined the effectiveness of various inhibitors of autoxidation, particularly diphenylamine. Ether to which such a stabilizer is added shows no appreciable oxidation over long periods of time. Biological tests revealed a close relationship between induction time and peroxide content; the greater the peroxide content the weaker the ether as an anaesthetic and the longer the induction time.

Of even greater interest are the results of clinical tests which Lindgren carried out on over two thousand patients. A clinical comparison with statistical tests was made between samples of pure anaesthetic ether complying with pharmacopoeial standards, autoxidized ether, and ether stabilized by the addition of diphenylamine but kept under conditions which would normally result in much autoxidation. Observations on the ether consumption, induction time, excitement and vomiting during induction, circulatory disturbances, convulsions, and post-operative pulmonary complications were carefully made. In summing up, Lindgren states that there was no significant difference in the actual course of the anaesthesia or in the frequency of post-operative pulmonary complications between the samples of ether used.

<sup>1</sup> *Aeter til Narkose*, 1943, Munksgaards, Copenhagen.

<sup>2</sup> *Acta chir. scand.*, Suppl., 110, 1946.

The work of Reimers and of Lindgren is of importance when, as in the recent war, large stocks of ether are accumulated and the problem of their disposal arises. It is probable that much needless waste of such stocks took place, on the ground that possible autoxidation constituted a hazard to patients. The use of autoxidized ether is nevertheless undesirable, and the question of preventing this process must be seriously considered by ether manufacturers in this country. When a pure ether supply to the patient is ensured the real or imaginary bogey of ether impurities as a cause of bad anaesthesia may at last be laid.

### SPINAL PUMPING

The iron curtain which has become so familiar to the political student of Europe is an effective barrier to the spread of scientific ideas. Behind it, untouched by what we consider the main stream of contemporary medical thought, the Soviet system of medicine has been growing up; the occasional glimpses vouchsafed to us have done little but confirm the belief that it is developing along lines different from ours. Often these glimpses have revealed views which we have been unable to accept and notions which would not fit into the framework of our methodology. Such reasons give an added interest to any paper concerning itself with Soviet medical thought or practice and ensure that a recent publication by Gillman and Gillman,<sup>1</sup> of Johannesburg, will be read with careful attention. These authors report their experiences with Speransky's method of "spinal pumping" in the treatment of rheumatic fever and rheumatoid arthritis.

Speransky, a pupil of Pavlov, believes that the nervous system plays an important part in the genesis of acute and subacute arthritis. The reasons for his belief and the steps that led him to adopt this bizarre method of treatment remain buried in the Russian tongue. To carry out his method a thin lumbar puncture needle is introduced with the patient lying on one side; a 10 ml. syringe is attached to it when cerebrospinal fluid is flowing freely. The process of "spinal pumping" consists of withdrawing 10 ml. of fluid and re-injecting it into the theca; this is repeated about twenty times; it is usually followed by considerable autonomic disturbance, particularly sweating and cutaneous vasodilatation. Seventy cases were treated; 42 of 48 patients with acute or subacute arthritis were distinctly improved—38 indeed recovered completely; 12 of 22 chronic cases were improved. The results are of great interest, and it is to be hoped that others will give this method a trial. Nevertheless the Gillmans' paper is not wholly satisfying. We are told that from "a series of brilliant experiments" Speransky concluded that the nervous system played a major part in the pathogenesis of inflammatory processes, but we are not told what drove him to devise the procedure of "spinal pumping." Our ignorance of these steps does not indicate that the method is without a logical basis, but without this knowledge it is unlikely to appeal to the British physician until its efficacy is established.

### GLUTAMIC ACID

Glutamic acid is an important constituent of brain tissue. It is the only amino-acid known to be metabolized by the brain, in which it increases oxygen consumption. Wheat gluten contains glutamic acid in abundance. The connexion between our daily bread and the functioning of the brain has recently been brought into the foreground of speculation by Mellanby's experiments with dogs.<sup>2</sup> Feed-

ing dogs of the same litter at one time on untreated flour, and at another time on flour commercially bleached and "improved" by nitrogen trichloride, he found that dogs fed on the improved flour developed canine hysteria, from which they remained free while on a diet of untreated flour. It is at least possible that it was the glutamic acid of the flour gluten which had been chemically altered and made toxic.

In the United States interest in these questions was first focused on the feeding of glutamic acid to rats, from which it was found that their powers of maze learning were improved. Zimmerman, Burgemeister, and Putnam<sup>3</sup> have now reported an experiment in which glutamic acid was fed to nine children of whom seven were epileptic and two mentally retarded. Their ages ranged from 16 months to 17 years. Sufficient glutamic acid was given to produce a noticeable increase in motor activity, the dose varying from 6 to 24 grammes a day by mouth; this dosage was maintained for six months. The children were investigated before and at the end of this period by intelligence tests. In every one of the epileptic children there was clinical improvement, five of the seven ceasing to have fits; but treatment by phenobarbitone and other drugs had been continued, and the improvement cannot be attributed with any certainty to the glutamic acid. Apart from the two youngest children, aged 16 months and 2 years, both of whom were seriously retarded, all the remaining children showed a greater improvement in intelligence than could be expected from lapse of time alone. There were improvements in the intelligence quotient of from 5 to 13 points with an average of 9. The question arises whether these improvements could be accounted for by the great reduction in the severity of the epileptic fits. After discussing the literature and the results in a control group of epileptic children under treatment but not with glutamic acid the authors conclude that their findings cannot be explained in this way. They also believe that the practice effect of re-testing is negligible in their experimental group. Though the smallness of the experimental group imposes caution they conclude that glutamic acid may have a genuine facilitating effect on mental functioning in human subject as it does in rats.

It is perhaps permissible to speculate whether these improvements in intelligence were due not to a direct action of the extra glutamic acid but to its protective action against the subclinical ill-effects of the children's normal diet of bread made from treated flour.

### COAGULATION TIME AND ANTIBIOTICS

Apart from allergic manifestations there have been few records of any serious reactions resulting from the repeated administration of penicillin. There is, however, considerable evidence to show that both penicillin and streptomycin may produce changes in the coagulation time of the blood. In 1943 Moldavsky, Hasselbrook, and Cateno<sup>4</sup> found this in patients under treatment with penicillin the clotting time was materially shortened after an injection. These observations have been confirmed by Macht and Ostro,<sup>5</sup> who observed also that when injections of penicillin were given to two patients suffering from haemophilia no shortening of the coagulation time resulted.

The specimens of penicillin on which the original observations were made were probably impure. The whole question has therefore been investigated again by Macht With amorphous penicillin of a dozen or more brands

<sup>1</sup> *Amer. J. med. Sci.*, 1946, 211, 448.

<sup>2</sup> *British Medical Journal*, 1946, 2, 885.

<sup>3</sup> *Arch. Neurol. Psychiat.*, Chicago, 1946, 56, 489.

<sup>4</sup> *Science*, 1945, 102, 38.

<sup>5</sup> *Ibid.*, 1946, 103, 402.

<sup>6</sup> *Ibid.*, 1947, 105, 313.

marked acceleration of clotting time was found both in man and in animals. The increase in the time of clotting was usually noted within fifteen to twenty minutes of the injection but was often most pronounced about one hour later; the effect persisted for several hours in every case. The route of administration appeared to make little difference; the reduction in clotting time was noted after intravenous or intramuscular injection and when the penicillin was given by stomach tube. With a highly purified sodium salt, consisting almost entirely of penicillin G, the thromboplastic effect was much less striking. Relatively pure specimens of the four penicillins were then studied. Penicillin X (hydroxybenzyl penicillin) was found to be the most active in reducing the coagulation time; then came K (heptyl penicillin), F (pentyl penicillin), and G (benzyl penicillin). A curious finding was that the addition of a small dose of penicillin X to penicillin G apparently had a synergistic effect, producing an increase in coagulation time far greater than that following a much larger dose of penicillin G alone. Streptomycin, too, has the effect of increasing the coagulation time of the blood in cats and rabbits. In rabbits which had received a number of injections of penicillin the coagulation time of the blood remained shortened for a considerable period, so that fresh experimental animals had to be employed. Both in rabbits and cats the thromboplastic action of penicillin can be overcome by suitable doses of dicoumarol.

Since nature has provided generous checks and balances to the higher animals, as well as compensatory and reserve faculties, the danger of thrombosis in clinical practice is probably small. Nevertheless such cases are already being recorded. Frada<sup>7</sup> described in four patients embolic accidents which he attributed—in the light of recent findings probably correctly—to the action of penicillin in increasing the coagulability of the blood.

### CRIMINAL LAW IN THE NEW ORDER

As society evolves, the law is one of the last institutions to change. Criminal law changes even more slowly than other branches. This fact is likely to prove extremely important in the near future, and unless conscious and successful efforts are made to bring our criminal law into line with present-day fact and sentiment the existing disrespect for all law, already dangerous, may increase to a disastrous extent. The treatment of the criminal has received a good deal of attention during the last fifty years; the criminal law itself has hardly been touched. As set out in his recent book,<sup>8</sup> Dr. Mannheim's thesis—and it seems self-evident—is that before we begin to consider how convicted law-breakers should be treated an analysis should be made of those actions of which a prison sentence or a probation order may be the legal consequence. The criminal law, unless it is to lose its meaning, must reflect more or less faithfully the fundamental values on which contemporary society rests. Dr. Mannheim's idea is therefore to consider the repercussions on the criminal law which have been produced by the present crisis in values, and the practical consequences which must flow from them. He points out that in any attempt to reconstruct criminal law two basic problems must be faced: those of defining the most important values of the present world, and of deciding whether those values should be protected by the criminal law or by some other agency. This investigation has led him over a very wide field and into a number of paths which at first sight seem to have little connexion with criminal law. His first section, on the

protection of human life, considers first the individualistic aspect, under the headings of homicide, suicide, and euthanasia; and then the collective aspect, including birth control, abortion, and the extermination of the socially useless or restriction of their reproduction. Under the protection of sexual and family life he ranges over the field of sexual offences and offences against the family. He then deals with the even larger subject of economic crime, which has undergone much more rapid change than has crime against persons. He criticizes the traditional approach to the protection of property and sketches what he considers the necessary new approach. In his study of offences against property (usury, profiteering, fraud against the revenue, monopoly), and of protection of and against labour (strikes and absenteeism), he is even less conventional. Having surveyed present values, he makes a series of recommendations which have already found wide support but of the fulfilment of which there is at present no prospect: they include the abolition of punishment for suicide, the legalization of euthanasia, the introduction of degrees in murder, the legalization (within limits) of sterilization and abortion, and many other controversial suggestions.

In the second half of his book Dr. Mannheim draws up a blueprint for the criminal justice of the future, with a view to making it more scientific and more democratic, and to introducing more international co-operation and more planning. Briefly, he advocates a more modern type of legal draftsmanship; greater facilities for permanent observation of the working, and frequent improvement in the wording, of law; and better integration of the work of experts in criminal cases. He would have a "treatment tribunal" to advise the courts before a prison sentence is passed: he would prohibit short sentences and extend the scope of the indeterminate sentence. He would set up summary courts with a stipendiary chairman and lay assessors; he would abolish trial by jury except in political cases. Naturally, he advocates the extension of legal aid for defendants. He wrote before the publication of the Rushcliffe report but broadly agrees with its findings. He calls for a comprehensive planning programme to co-ordinate all the interested agencies, public and private. This is a profoundly interesting and imaginative piece of social research by a highly experienced and qualified expert, and deserves a prominent place in the attention of reformers.

### HONORARY PHYSICIANS TO THE KING

The following have been appointed Honorary Physicians to the King for a period of three years: Dr. James Boyd, F.R.C.P.I., Chief Medical Officer, Ministry of Health and Local Government and Ministry of Labour, Northern Ireland; Sir William Allen Daley, M.D., F.R.C.P., Medical Officer of Health and School Medical Officer, London County Council; Dr. Alexander Mackenzie Fraser, Medical Officer of Health of the Burgh and County of Inverness (Highlands and Islands Medical Service); Sir Walter Haward, O.B.E., M.B., B.S., Director-General of Medical Services, Ministry of Pensions; Sir William Wilson Jameson, K.C.B., M.D., F.R.C.P., F.R.C.O.G., Chief Medical Officer, Ministry of Health and Ministry of Education; and Dr. Norman Tattersall, Principal Medical Officer, Welsh National Memorial Association, Cathays Park, Cardiff. The following have now completed their term of office as Honorary Physicians to the King: Dr. J. A. Charles, F.R.C.P., Sir Andrew Davidson, M.D. Glas., F.R.C.P.Ed., Dr. H. M. C. Macaulay, Dr. E. R. A. Merewether, F.R.C.P., Dr. W. Rees Thomas, F.R.C.P., and Prof. G. S. Wilson, F.R.C.P.

<sup>7</sup> *Glor. Med.*, 1943, 3, 95.

<sup>8</sup> *Criminal Justice and Social Reconstruction*. By Hermann Mannheim, Dr. Jur. Kegan Paul, Trench, Trubner and Co., Ltd., London; 15s.



## A.M.A. CENTENARY EXHIBITS AND PAPERS

A general account of the Centenary Meeting of the A.M.A. has already been given in leading articles in the *Journal* of June 7 and 28, and in the former issue appeared an article on the history of the A.M.A. by Dr. Morris Fishbein, Editor of the *Journal of the American Medical Association*. We print below a summary of the proceedings of the meeting. In the space available it is possible to refer to only a few of the many interesting exhibits and papers. Eighteen different sections were holding simultaneous meetings; the House of Delegates was conducting its business at the same time; and on top of this there were the superb scientific exhibits to visit.

### Scientific Exhibits

The scientific exhibits were assembled under the general direction of Dr. Thomas G. Hull in the Convention Hall in Atlantic City—the largest hall for this purpose in the U.S.A. The general layout of the exhibits was similar to that of some of those housed in the Wellcome Museum. Each consisted of a booth whose back and side walls were used for the exhibition of charts, diagrams, maps, x-ray films, photographs, mounted specimens, and anatomical models. Pamphlets describing the work of the exhibits were obtainable, and the exhibitors themselves were on duty most of the day to demonstrate and discuss the work shown.

The majority of the exhibits were competitive. A gold and a silver medal and other awards were given for two classes of entry. Drs. George E. Burch and Paul Reaser, of the Tulane Medical School, New Orleans, won the gold medal for original work with their exhibit entitled "Radio Elements and Mechanism of Congestive Heart Failure: Radiosodium ( $\text{Na}^{24}$  and  $\text{Na}^{22}$ ). This work showed that in patients with congestive heart failure "there was a much more prolonged retention of sodium than in the normal subject." The awards in the second group were for exhibits which "do not exemplify purely experimental studies but are judged on the basis of excellence of correlating facts and in their presentation." The gold medal in this case went to Drs. George F. Cahill and Meyer M. Melicow, of the Squier Urological Clinic, Presbyterian Hospital, New York, for the exhibit on tumours of the adrenal gland.

In addition to entries falling into these two groups the committee sponsored four special exhibits: on cardiovascular diseases, fractures, fresh pathological material, and physical medicine. The cardiovascular exhibit under the guidance of Paul Dudley White, of Boston, covered an amazingly wide range, and included a fine selection of historical works on the heart and the circulation. Under the chairmanship of Kellogg Speed, of Chicago, the fracture exhibit was accompanied by continuous demonstrations throughout the week; in order to make this possible no fewer than thirty orthopaedic surgeons assisted the committee.

A group of workers from the University of Minnesota presented an interesting exhibit on the physiological problems of bulbar poliomyelitis. The epidemic of last year, the largest since 1916, attacked 25,191 persons throughout the U.S.A. There were 2,875 cases in Minnesota alone, and the exhibit was based on the experience obtained in treating 183 patients suffering from bulbar poliomyelitis, classified by the Minnesota group thus: (1) *Cranial Nerve Nuclei Type*, with the symptom of difficulty in swallowing. (2) *Respiratory Centre Type*, with deficient oxygenation of the blood. (3) *Circulatory Centre Type*, with changes in pulse rate, rapid fall of blood pressure, and the general symptoms of shock. (4) *Encephalitic Type*. "Many patients with involvement of the bulb of the brain show signs of confusion, apprehension, and anxiety. These symptoms are chiefly due to the lack of oxygen in the brain. Only rarely is there actually virus infection of the cortex of the brain producing these typical encephalitic symptoms." (5) *Bulbar-cervical Spinal Type*. Patients have a mixture of the above symptoms and also may show paralysis of the muscles of respiration. Treatment includes nasal tube feeding, tracheotomy, and oxygen therapy. The exhibit included the oximeter—an electronic device which, clipped on the patient's

ear, immediately records the amount of oxygen circulating in the blood stream.

Another exhibit on poliomyelitis was presented by the National Foundation for Infantile Paralysis. With modern methods of treatment, it was stated, approximately 50% of cases of poliomyelitis recover completely; approximately 20% suffer severe and another 20% mild paralysis; the mortality rate is 5-10%. According to maps showing the distribution of poliomyelitis throughout the world, the first sizable European epidemic appeared in Norway and Sweden in 1905; the first sizable epidemic in the U.S.A. occurred in New York City in 1907. Severe epidemics did not arise in Japan until 1938 and 1940.

Before leaving the subject of these exhibits some mention must be made of the motion pictures. The scope and variety of these can best be suggested by the fact that three theatres were in continuous operation, and each was showing something in the neighbourhood of twenty films a day.

The enormous size of the Convention Hall (its floor space would engulf St. Paul's Churchyard), and the equally enormous wealth of many of the firms exhibiting, combined with the native American flair for advertising, produce an impression of colour and luxury which would be startling, even shocking to post-war English eyes. It is of course impossible to know the total amount of money spent to produce these stands; but unofficial estimates varied between three and five million dollars.

One firm demonstrated the advances in a century of anaesthesia by means of a mechanical puppet show, complete with drop curtains and instrumental overture. The curtain goes up upon an operating theatre where an anaesthetist explains the progress of anaesthesia to one of the original A.M.A. delegates who has returned to this world for a brief look round. The demonstration is remarkably complete, even to the movement of the puppet's arms, head, and lips; and the lecture is illustrated upon a miniature screen. The manufacturers state that it is "the expressed opinion of many of the visiting surgeons that this exhibit is a museum piece." It seems fair comment.

### Summaries of Papers

#### NITROGEN MUSTARDS

Drs. Leon O. Jacobson and Charles L. Spurr, of the University of Chicago, read a paper on nitrogen mustards in the treatment of disease. Developed originally as poison gases, nitrogen mustards have been used with encouraging results in the treatment of Hodgkin's disease. Fever, pruritus, and malaise are frequently relieved within a few days of treatment, and there is slow regression in the size of the liver and spleen and of the enlarged lymph glands. Nitrogen mustards, according to Drs. Jacobson and Spurr, have produced significant clinical remissions in Hodgkin's disease, lymphosarcoma, chronic lymphatic leukaemia, chronic myelogenous leukaemia, and in polycythaemia rubra. The drug was without effect in acute leukaemia and multiple myeloma.

#### CANCER OF THE STOMACH

Dr. Owen H. Wangensteen, of Minneapolis, observed that (1) cancer of the stomach was the most frequent of all malignant diseases; (2) that the death rate from it was high in almost all countries, comprising 25-40% of all deaths from cancer; (3) that in the U.S.A. cancer as a cause of death ranked next to heart disease and that of the 150,000 annual deaths from cancer approximately 40,000 resulted from cancer of the stomach; (4) that at present the only worthwhile treatment was surgery. Many patients with cancer of the stomach were inoperable when they first consulted the physician: only 25% were "suitable candidates for a curative type of operation." Dr. Wangensteen considered the problem was to persuade all men and women who had reached the "cancer years" to undergo periodic examination. Figures indicated that one woman out of every five past 40 years of age would die of cancer and one man out of every six past 50. He urged the setting up of cancer detection clinics at strategic places manned by competent specialists in the various branches of medicine and surgery.

## VIRUS DISEASES

Dr. Edwin W. Schultz, Professor of Bacteriology at Stanford University, California, said that viruses had a wide variety of hosts. The discovery by Dr. E. W. Goodpasture that the developing egg could be used as a growth medium for viruses was a milestone in the study of these organisms. Also of great importance was the electron microscope and the use of colloid filters for classifying viruses according to size. The difficulty of treating virus disease in man lay in the fact that a virus particle, once lodged in a cell, was apparently out of reach of drugs which might be carried by the blood stream, while antibodies were too large to follow the virus into the cell. "Recently reported results following administration of sulphonamides and penicillin in certain individual virus and rickettsial infections suggest that such an approach may not be entirely out of the question," he said. Effective immunization against many virus diseases seemed to require the use of active virus, but strains safe enough for use as vaccines were few in number. Vaccine virus, fixed rabies virus, and strain 17D yellow-fever virus were three outstanding examples.

In a paper on the electron microscope Dr. Ralph W. G. Wyckoff said that magnification by as much as 100,000 times could be obtained. "The largest viruses have distinctive shapes. Some are brick-like, like the poxes. Some bacteriophages are sperm-like with heads that show characteristic internal structures and tails whose appearance depends on the strain. All the very small animal viruses and most of the plant viruses thus far photographed are spherical or nearly spherical particles."

## IDIOSYNCRASY TO DRUGS

Dr. Carl A. Dragstedt, of Northwestern University Medical School, Chicago, in a paper read before the Section on Experimental Medicine and Therapeutics, said that idiosyncrasy to certain drugs represented one of the most challenging of all problems in medicinal therapeutics. There was no satisfactory explanation as to why some people became allergic to certain drugs and some people did not. "Experience has taught us that idiosyncrasies to aspirin, aminopyrine, the organic arsenicals, the sulphonamides, thiouracil, quinine, and many others, are considerably more frequent than to alcohol, amphetamine, cascara, chloral hydrate, digitalis, and the like; but there is little ground for any generalization that would have prophetic value as to the potentiality of idiosyncrasy for a hitherto unknown drug."

## X RAYS AND WOUND INFECTION

Dr. James F. Kelly, of the Creighton University School of Medicine, considered there was no justifiable reason for not using x-ray irradiation for the prevention and treatment of wound infection. It was simple, and cost little. The dangers from such application of the rays were less than the dangers associated with many other forms of prophylaxis or therapy. The application of x rays in acute infection was followed by favourable clinical reactions—decrease of pain, localization of the infection, conservation of tissue, prevention of secondary infections, and shortening of the course of the disease. He claimed that x rays had proved very effective in the treatment of gas gangrene: in a group of 46 cases treated by x rays but receiving no serum the mortality was 4.34%.

## PEPTIC ULCER

Sir Heneage Ogilvie, reviewing the treatment of peptic ulcer, observed that "whatever we wish to believe regarding stomach ulcers, we can find evidence in experimental work to prove theory." The only factor on which there was unanimity of opinion was the part played by hydrochloric acid. Peptic ulcers were common where hydrochloric was high, rare where it was low, and unknown where it was absent. It had been estimated that in the U.S.A. 6,500,000 persons suffer from peptic ulcer.

Dr. Samuel F. Marshall, of the Lahey Clinic, Boston, said that over a 10-year period there had been in his clinic approximately 8,000 peptic ulcers with a ratio of 10 duodenal ulcers to one gastric. He urged that operation should be performed whenever a diagnosis of gastric ulcer was in doubt. "We believe that all patients with chronic or recurring gastric ulcers

should be operated on without delay because of the considerable percentage of diagnostic error and because resection can be done with so great a margin of safety." Early recognition of cancer of the stomach presented a challenge to the medical profession, because in many cases the diagnosis was made too late.

Dr. Maurice Feldman, of Baltimore, in a paper entitled "A Statistical Study of the Life Cycle of 1,154 Cases of Duodenal Ulcer," stated that although the cause was still debatable there was no doubt about the association of psychogenic factors. In the majority of cases of duodenal ulcer symptoms began between the ages of 20 and 35.

The psychogenic factor in peptic ulcer was stressed by Drs. Jurgen Ruesch and Karl M. Bowman in a paper on personality and chronic illness. "We have been able to show," they stated, "that in chronic disease in general, in duodenal ulcers, and in thyroid patients, there is an unusual number of social climbers and strainers. . . . In ulcer and thyroid patients in particular there was an unusual incidence of foreign-born and native-born persons of foreign parentage. This fact would indicate that culture change and the resulting conflict of values were a source of stress and strain in these patients."

## PSYCHOTHERAPY IN PRACTICE

The importance of psychotherapy in general practice was emphasized in papers read by Dr. Edward Weiss, of Philadelphia, and by Dr. Walter C. Alvarez, of the Mayo Clinic. Dr. Weiss defined psychosomatic medicine as "the simultaneous application of a study of the patient's mental and physical life." Although "psychosomatic" was a new term it described an approach to medicine as old as the art of healing itself. "In our elaborate medical institutions," Dr. Weiss observed, "with a lack of knowledge of the patient's background, we over-emphasize the so-called scientific aspects of medicine and relegate to the background the social and emotional factors that may enter into illness. As a consequence our methods of taking a patient's medical and personal history have not kept pace with general progress in medical science." He emphasized the value of the service given by "the old family doctor" who "relied heavily on psychosomatic techniques even if he didn't know it." He urged that the doctor intending to go into general practice should have more training in psychiatry.

## LIQUID OXYGEN

The use of liquid oxygen in skin disease was discussed in a paper read by Drs. Roy L. Kile and Ashton L. Welsh. Liquid oxygen was applied by cotton wrapped around a wood applicator. Liquid oxygen was inexpensive and, with reasonable care, safe to use. It was easier to handle than was carbon dioxide. Liquid oxygen was so cold that the lesion rapidly turned white. A thorough freezing of the lesion occurred in a few seconds. With it they had treated warts, haemangiomas, leucoplakia, seborrhoeic and senile types of keratosis.

## LONGEVITY AND MORTALITY OF AMERICAN DOCTORS

A preliminary report on the longevity and mortality of American physicians from 1938-42 was made by Dr. Louis I. Dublin and Mr. Mortimer Spiegelman, of the Metropolitan Life Insurance Company. According to these two statisticians the average young physician entering the profession at the age of 25 has 43½ years of life in front of him. On reaching the age of 35 the physician on an average has almost as many years remaining as he has already lived. At the age of 45 he may expect a further 25 years of life. "Almost 12 additional years of life remain to the average physician attaining the age of 65, a frequent age for retirement."

The insurance company's study is based on records of living physicians and on the deaths of active and retired physicians for the period 1938-42. The general conclusion was that "physicians experience practically the same longevity and mortality as white males of the same ages in the general population." Knowledge of hazards to health give physicians an advantage. "Evidence in this direction is found in the favourable mortality for most infectious diseases and surgical conditions and from accidents. The death rate from tuberculosis among male physicians is less than half that of white males of the same ages in the general population; for syphilis the ratio

is only one-third. The death rate from cancer among male physicians is four-fifths of that for white males of the same ages; in the case of appendicitis, hernia, and intestinal obstruction the ratio is three-quarters. . . . These advantages are offset by a relatively high mortality from the cardiovascular conditions. In particular the recorded death rate from diseases of the coronary arteries among male physicians is  $1\frac{1}{2}$  times that of white males of the same ages in the general population." Mortality from leukaemia among male physicians was found to be  $1\frac{1}{2}$  times that of white males generally. Dr. Dublin and Mr. Spiegelman repeated the opinion recently expressed that physicians may have acquired the disease as a result of exposure to x rays. "Far outstanding on the mortality list are diseases of the heart and coronary arteries, with 40.7% of the total deaths."

## CANCER DETECTION IN AMERICA

[FROM A CORRESPONDENT]

The very high proportion of cases of malignant disease which are inoperable when seen for the first time in a hospital outpatient department is surely a challenge to the medical profession, whose responsibility it is to take all possible steps to improve this state of affairs. In the United States of America this challenge has been accepted and an attempt is being made in many parts of the country to extend the principles of preventive medicine to the control of cancer.

There are two complementary efforts: first, an educational campaign to bring to the notice of the public the early signs and symptoms of the more commonly occurring types of cancer; secondly, the provision of clinics at which people whose interest has been aroused may be given a thorough examination. The object of the publicity campaign is not only to persuade people who have signs or symptoms suggestive of malignant disease to seek immediate medical advice, but equally to persuade apparently healthy people to undergo periodic physical examinations as the best means of achieving early diagnosis and treatment of malignant lesions. The clinics are usually known as Cancer Detection or Prevention Clinics, and are held at fully equipped general hospitals which provide radiological and laboratory services and, most important of all, well-trained clinicians. They are in most instances run quite separately from the established tumour diagnostic clinics in order to encourage regular visits from normal or presumably normal individuals.

Before the patient, after a detailed clinical history has been obtained, is given a complete physical examination which includes the mouth and nose, the rectum, and in women patients the vagina. Laboratory tests such as a urine examination, a complete blood count, and a Wassermann reaction are routine. X-ray examinations are carried out whenever the slightest symptom suggests their need, and in many clinics it is hoped to make an x-ray examination of the chest and alimentary tract a routine when wartime shortages of material and staff have been overcome. The clinics do not undertake treatment; if the examination reveals a malignant lesion or some constitutional disease the patient is referred with a full report to his medical practitioner or, if he so prefers, to the proper department of the hospital. Patients in whom no malignant lesion is discovered are instructed to return for re-examination in from six to twelve months or earlier if any unusual symptom appears.

### Results of the Scheme

The success of the publicity campaign is shown in the published figures of the patients attending the Strang Cancer Prevention Clinic at the Memorial Hospital, New York: 40% were referred from the New York City Cancer Committee, 30% through various types of publicity such as lectures or demonstrations, 16% were referred by former patients, and 10% came from the Memorial Hospital clinics. From the medical point of view the results of the experiment are equally encouraging. It was found that out of a total of 1,103 cases attending the Strang Cancer Prevention Clinic 7% had malignant tumours. In the group of patients reporting without symptoms and apparently healthy 1% were discovered to have malignant tumours. A considerable proportion were found to have other

diseases which required treatment. Dr. L'Esperance, Director of the Strang Clinics, insists, not without reason, that in discovering unsuspected lesions such as rectal adenomata and cervical tears and erosions the clinics are helping to prevent the development of cancer. These clinics are now well established in the public esteem and they have received the official blessing of the American Cancer Committee. In New York the medical students at the Cornell Medical Centre attend the Cancer Prevention Clinic at the Memorial Hospital as part of their studies in preventive medicine.

These are the bare facts. Armchair criticism may be levelled at many aspects of the scheme, but it cannot be denied that essentially the scheme provides the only way in which the medical profession can hope to discover an increasing proportion of cases of malignant disease at a stage in which a cure is not only possible but probable. It may be rather terrifying to contemplate the snowball growth of these clinics, but in return we may hope for an increasing number of patients who have been cured of cancer and are not afraid to tell their friends about it.

## RADIOTHERAPY OF CANCER

Radiotherapy centres are still suffering from the dislocation caused by the war and from uncertainty as to future developments under the National Health Service Act. The National Radium Commission in its report<sup>1</sup> for 1945-6 urges strongly that in every region there should be a cancer organization, under the regional hospital board, to provide facilities for early diagnosis readily available to every general practitioner, and for immediate treatment planned and carried out by experienced specialists. Every patient suffering from cancer, whether seen in the early stage or in the late stages of the disease, should be followed up at intervals until death from whatever cause.

The report points out that these regional cancer services should not be difficult to set up as the Commission had such schemes in view from its inception. Some regional planning has been done already in the areas where national or regional radium centres exist, namely, Birmingham, Bristol, Bradford, Cambridge, Cardiff, Leeds, Liverpool, Manchester, Newcastle, Sheffield, and Southampton. For other parts of the country it will be more difficult because of the scarcity of specialists and the difficulty of persuading some surgeons "to abandon the present haphazard method by which one surgeon tries to deal with a great variety of types of cancer."

The Commission has paid special attention to the position of the general practitioner in such a service and to local organization designed to facilitate early diagnosis. The British Empire Cancer Campaign has been asked to arrange for lectures to general practitioners. The record cards which have always been insisted on as a condition for the loan of national radium have now been taken over by the General Register Office at Somerset House.

The report contains short summaries of annual reports from most of the centres connected with the National Radium Commission. If these are compared year by year it will be seen that the Commission has had a profound influence on local organizations for the diagnosis and treatment of cancer, the good effect of which is just becoming obvious.

<sup>1</sup> *Seventeenth Annual Report of the National Radium Trust and Radium Commission.* Cmd. 7127. H.M.S.O., London. 6d.

*Diabetes: A Concise Presentation.* By Henry J. John, M.D., F.A.C.P. (Pp. 300; illustrated. 17s.) London: Henry Kimpton. 1946. Consisting of a series of papers on diabetes, this book will not satisfy the student seeking a clinical description of the disease, for symptoms are regarded as belonging to the pre-insulin era, and retinitis, a complication seen only too often in patients having the best modern treatment, is not mentioned. The calculations necessary for the generous diets advocated are too complex for use in countries where food is rationed and leisure small, and the author does not describe recent work on carbohydrate metabolism. Though his observations—based on wide experience—are interesting, this book cannot be classed with standard works on the subject. However, he discusses with homely wisdom the special problems of the diabetic patient, and is at his best in writing of the diabetic child.

## Nova et Vetera

### AMATEUR BODY SNATCHERS

William Merritt Hartlebury Day, M.D., qualified at St. Peter's Hospital, Bristol, and was a student there from 1834 to 1841. Dr. Day was surgeon at Wells County Asylum in 1850 and later medical superintendent at Stapleton (Bristol) Asylum. He died on Aug. 9, 1871. Recently his granddaughter, Miss Kathleen Tuttle (Director of Music at Howell's School, Denbigh, N. Wales), sent us a manuscript in his handwriting. This is signed "W. M. H. D." and dated March 10, 1835. It is given in full below and has been altered only by punctuating and paragraphing.

#### A Visit to the Tombs

Being one evening in a pensive and thoughtful mood with nothing to do I sat me down with a determination of writing the particulars of my first visit to the tombs. My fellow apprentice and myself having determined upon having a subject for dissection we accordingly prepared for our adventure, which with ourselves a friend and a man we hired to dig we proceeded. Having got every thing that our share required—I mean tools, spade, sack, etc., and with two bottles of shrub and a small stick—we thought ourselves a match for any charley or charleys that by chance we should happen to meet. So having a good tuck in and plenty of strong beer we thought about 11 o'clock time to start, so off we sallied to the churchyard merry and not fainthearted. But I, unlucky fellow as I always was, and so will be till the end of my days, lost the cork of one of our grog bottles, which occasioned us to drink it on our passage. We all arrived without further interruption to the churchyard, when we waited close by in a convenient place while one of our company proceeded to the churchyard and having looked about him and seeing all was favourable he came back and we all sallied in together. The man then commenced digging, I and another was watching at a distance and the other was waiting by the mau to help him when he wanted help.

Soon after our arrival a shower of mist began to fall which greatly favoured our work. I felt myself quite warm and without any dread or feeling in the place I was in. I walked about when it was time to watch with the greatest composure. The clock struck 12 and we all stepped back to the hedge and waited. I forgot to state that there was a path through the churchyard which the watchman had to walk through in going his round every half hour. So you must think it was bold proceeding for four young chaps who was never out before nor had an idea as to the manner in which such work was performed. So waiting nearly half an hour for the watchman the man then began to swear and said he would not wait any longer, so he accordingly went to the grave which was by the footpath and recommenced digging.

The clock struck one, two, then three. No hopes of finding anything like a coffin. The grave was two feet deep in water. The man then began to swear in a horrid manner and said he would not go on, but at last with frequent tips at the shrub bottle and doing a bit now and then ourselves got the better of him. We at last came to a coffin, which to our great disappointment was a child's; it had intact coverings with a silver edge to it. We accordingly commenced lift the lid, which we found was like a bit of soaked leather, resisted the chisels and every effort which we tried to move it. We accordingly after a long time made a small opening, which with our hands we tore bit after bit till at last we made an aperture big enough to pull the little dog through; he looked more like a drowned rat when I got hold of him to pull him out of the grave. I accordingly put him in the sack and we recommenced the business of filling up the grave.

There was a watchbox adjoining the wall of the churchyard, in which two watchmen. One of our company went up to the watchbox to listen if he could hear the men digging, which he said he could quite plain. While he was standing there two cats jump upon the wall and commenced caterwauling in a dreadful

manner, which made him run off. During the time we was there the weathercock kept veering round with a terrible noise as if angry at our proceedings. After we had put the subject in the bag we commenced filling the grave, which the time we was there, the time of the morning, and the disappointment we had felt in not finding a full-grown subject, after we half filled the grave we determined upon leaving the grave half filled up and returning home. We got all our things in order and left the churchyard, and as we got outside the gate, the man carrying the body and I last with the spade, to our utter astonishment and terror we beheld two watchmen standing staring us in the face, but they, although they must have seen us as plain as I see the paper I am now writing upon, never offered to move. We expected to hear them spring their rattles every minute; we accordingly without further interruption proceeded homewards, and when we arrived the person that was to wait up for us that went to sleep and we accordingly, because we should not make too much noise as the watchmen were going their rounds, we placed the body in the niche of our door and the spade in another. We placed our backs against the door and in it went. We brought in the body and things and found it was six o'clock. So we had been five hours in the churchyard.

About eight o'clock I and the man and my fellow apprentice proceeded homewards with the body, which we had in a sack, the people staring at us as we went along the street. We left the man about half way and we went ourselves with the body; the shops were by this time opened and the business of the day had begun. We were covered from head to foot with churchyard dirt, which made us looked very suspicious; every person that passed staring at us well as much as if they suspected we were murderers. When we arrived home no one was up and we had to wait till we had knocked them up. Our fears had not ended then, for by the time we had arrived a dog was took ill with convulsions and began moaning in a dreadful manner and a crowd soon collected round the door, which looked more at us than at the dog. I should have done the same myself seeing two young fellows standing at a surgeon's door with a sack on their back covered with red mud from head to foot looked damned suspicious. At last the door was opened and went in with our sack. Thus ended my first visit to the tombs.

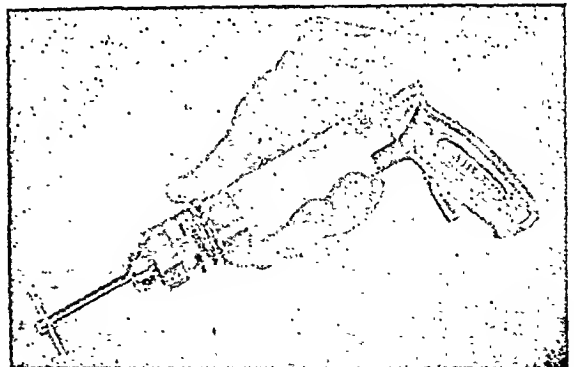
March 10, 1835.

W. M. H. D.

## Preparations and Appliances

### PNEUMATIC BONE SAW

A pneumatic bone saw made by Desoutter Brothers Ltd. is now more freely available. This is not a new instrument. It has been used at selected orthopaedic centres for some years, and with increasing experience a number of minor modifications and improvements have been made. Experiments with this



"Mighty Atom" pneumatic bone saw were first undertaken because of the wartime shortage of imported American electrical bone saws. The pneumatic motor used in the instrument is a development of that used in a series of aircraft tools.

All gears and rotating parts are made from chrome-nickel steel, hardened and tempered, and every bearing is a ball or roller bearing. The bone saw is supplied in a wooden case with a 10-ft. length of special high-pressure hose and a quick-coupling unit, chuck key, three stainless steel spindles fitted with stainless steel saws (1 in.,  $1\frac{1}{2}$  in., and  $1\frac{3}{4}$  in. in diameter), and a spanner for changing saw blades. The tool weighs  $1\frac{1}{2}$  lb. and will cut bone grafts with single or double saws. The speed is controlled by a trigger in the pistol-grip handle and the range is from a few rotations to the full speed of 2,000 r.p.m. The saw has to be sterilized by hot air and cannot be boiled or sterilized in the normal steam autoclave. It is worked from compressed-air cylinders with a reducing valve, and a 100 cu. ft. capacity cylinder will give approximately 20 minutes' continuous running—sufficient, that is, for several operations. Over fifty of these instruments have been in use now for a considerable period, and independent orthopaedic surgeons have referred to the pneumatic bone saw as "first-class" and of "proved merit."

## Reports of Societies

### PHYSIOLOGY OF THE BREAST

At a meeting of the Section of Obstetrics and Gynaecology of the Royal Society of Medicine on June 20, with Dr. JAMES WYATT in the chair, three papers were read dealing with recent developments in the knowledge of the physiology of the breast.

Dr. S. ENGEL, discussing the anatomy of the female breast in its relation to hormonal response, said that anatomical and histological investigations had been carried out on some 80 breasts in the resting and active stage. In many cases large sections through whole breasts had been used on account of the variations in any single breast. It could be shown that the mammary gland in man differed from that in animals. In animals the breast was filled to capacity with glandular tissue when lactating, whereas in man there occurred many variations, ranging from almost nothing to animal-like abundance. Approximately one-third of the breasts examined had proved to be well equipped; about one-third were below the average, and the remainder showed many transitional stages. Clinical experience of lactating capacity accorded with the anatomical figures.

Badly equipped resting breasts showed primitive and badly differentiated glands. These glands responded poorly or not at all to hormonal stimulus, as could easily be seen in menstruation. Well or less well differentiated glands of the same organ showed different reactions—that was to say, rich sprouting in the first case, and no reaction, or almost none, in the second. This behaviour accounted for the divided opinion on the changes of the resting breast in the menstrual cycle, illustrating the fact that women with well-equipped breasts showed clinical and anatomical changes, whereas others remained indolent. The conclusion was that menstrual changes in the breast might or might not occur. In pregnancy the development depended on the congenital nature of the breast, since hormonal stimulus could not do more than mature what was present in the resting breast. The hormonal treatment of hypogalactic women was therefore limited, for it could only help to bring the mammary gland to its maximal production: it could not convert a poor breast into a good one. Briefly it could be said that the mammary gland in man differed so greatly that its variations had to be taken into account when speaking of hormonal influences. The badly equipped breast would not respond at all, or very little, in menstruation. The presence or absence of clinical symptoms in menstruation would serve to estimate and predict the capacity of lactation in individual cases.

Dr. J. S. FOLLEY said that the first requisite for successful lactation was the existence of adequately developed mammary glands, which presupposed the presence of sufficient histologically normal alveolar tissue. Mammary growth was under the control of the ovarian hormones, oestrogen and progesterone, but it was not possible to make any satisfactory generalization regarding their respective roles in mammary growth, since experiments on various species had revealed striking differences.

To summarize the main experimental findings: it was seen in some species, such as the mouse, rat, and rabbit, that oestrogen alone, in physiological doses, evoked growth of the duct system but little or no alveolar development. In order to produce the latter, combined treatment with progesterone and oestrogen was necessary. In species such as the guinea-pig oestrogen alone was capable of evoking the growth of duct and alveolar tissue alike; it could develop a gland which, under suitable conditions, was able to produce considerable quantities of milk, as shown by the fact that male guinea-pigs in which mammary growth had been brought about by treatment with oestrogen would rear young. The most spectacular results in this category had been obtained in ruminants. In 1938 De Fremery had shown that treatment with natural oestrogens would produce considerable udder development in virgin goats, and it had since been discovered that in the virgin heifer suitable oestrogen treatment would cause the growth of udders capable in many cases of secreting economically important yields of milk. Later experiments done on ovariectomized ruminants indicated that successful results did not depend on the presence of the ovary. In general the response was not quantitatively comparable to a normal lactation, which at once raised the question of whether such experimentally developed glands were normal in structure, and it seemed possible that some additional endocrine stimulus acting in conjunction with the administered oestrogen was necessary for the artificial development of glands capable of yielding amounts of milk such as would be obtained in a normal lactation.

#### "Galactopoiesis"

So far consideration had been confined to the phenomenon which might be described as lactogenesis, or the initiation of lactation. There was an allied but not necessarily identical phenomenon; the stimulation or augmentation of lactation already established, which it had been suggested might be described as galactopoiesis. It seemed probable that the treatment of deficient lactation in women fell under the latter heading, since in most of such cases lactation had been initiated but the milk yield had failed to reach a level necessary for the adequate suckling of the infant. The discovery of the anterior-pituitary lactogenic hormone, prolactin, by Stricker and Grueter in 1928, and its subsequent characterization by Riddle and his collaborators as a pituitary hormone distinct from other pituitary hormones then known, and specific in its ability to cause growth and secretion of the pigeon-crop gland, aroused interest in the possibility of stimulating lactation, particularly in cows and women, by anterior-pituitary extracts. With the development of methods for the partial purification of prolactin there was some tendency to assume that purified prolactin preparations would prove more efficient as galactopoietic agents than unfractionated anterior-pituitary extracts. Extensive experiments on cows, however, had shown that, far from this being the case, unfractionated ox anterior-lobe extracts gave considerably greater galactopoietic responses in cows in declining lactation, for a given unitage of prolactin as measured by the pigeon-crop tests, than partially purified prolactin preparations. With crude saline extracts of ox anterior pituitary substantial though temporary increases in the milk yield of cows in declining lactation could be obtained even in response to single subcutaneous injections. With repeated injections a more sustained, but still temporary, response was obtained.

Finally, there were the effects on lactation of administration of thyroid hormone. The main features of the galactopoietic effect resulting from thyroid treatment might be briefly summarized as follows: The increase in milk yield during the period of treatment was considerable and might amount to as much as 30% above the basal level. Overdosage with thyroid preparations leading to a condition of marked hypermetabolism might, on the other hand, decrease the yield. Most workers have observed, *pari passu* with the enhancement of the milk yield increases in both the fatty and non-fatty fractions of the milk solids; the increase in the non-fatty solids content was at best slight, but the fat content underwent a more marked increase, sometimes to as much as a 50% rise in the daily fat yield.

This work had assumed importance from the point of view of wide-scale practical application in the dairy industry where



it was shown that treatment of certain proteins, such as casein, with iodine under mildly alkaline conditions produced iodoproteins which exhibited thyroid activity by the oral route and from which thyroxine could be isolated after hydrolysis. Since iodocasein could be made quite readily from available materials it was evident that here was a cheap and plentiful supply of artificial thyroid hormone lending itself to easy administration to cows under practical conditions. Large-scale experiments carried out in this country under the aegis of the Agricultural Research Council and in the United States had shown that the galactopoietic effects observed with dried thyroid gland or thyroxine could be reproduced in all essentials by feeding iodoprotein. One important point was that prolonged feeding of doses sufficient to produce milk yield increases of the order of 30% above basal caused sufficient hypermetabolism to bring about significant and undesirable losses in body weight. If, however, one contented oneself with smaller responses the body weight losses were negligible, provided extra food was given in compensation. Clinical reports on the use of thyroid hormones for the stimulation of lactation in women had not always been favourable; in fact, some clinicians had advocated thyroid treatment for the suppression of unwanted milk secretion. Nevertheless, further clinical trials, keeping the necessity for careful control of dosage in mind, would appear to be justified.

#### Vitamins in Human Milk

Mrs. MAWSON and Dr. S. K. KON read a paper on the study of certain vitamins and other constituents of human milk. The investigation described had lasted for more than four years, during which period 2,000 samples of breast milk were examined. Owing to the food policy of the Government some of the changes they had noted had been for the better rather than the worse. They had taken Reading, a prosperous town in an agricultural area, as a starting-point in the early summer of 1941; and in April, 1942, they had obtained support from the Medical Research Council which had enabled them to extend their activities to Shoreditch, thus providing a good contrast. In both areas the husbands of many of the mothers were in the Armed Forces, but Shoreditch had been more subject to enemy attacks than Reading. As a result of the work done confidential reports were sent each year to the Medical Research Council, and from these had followed certain important changes in wartime diet. The difference in the analysis of the milk was most noticeable immediately after the introduction of "national" wholemeal bread and also the first consignments of oranges to reach this country during the war.

Mr. BOURNE mentioned that one of the difficulties that Dr. Kon and Mrs. Mawson had encountered had been to discover women who were sufficiently ill-nourished to provide a really substantial difference in dietary intake compared with those on normal feeding; but there had been one woman found who was grossly undernourished, and it would be interesting to learn what differences were found in the composition of the milk. He had noticed tables on the screen showing the differences between cow's milk and human milk, and he had seen elsewhere attempts to supplement the milk in order to give the child the theoretical optimum. He thought that all such treatment of the natural product was nonsense, and that the more the child had of the natural milk the better it would be. Dr. Kon, in reply, said that with regard to the woman who was grossly undernourished the composition of the milk had been found to be perfectly normal, and it was also found from milk samples in Belgium and Holland taken immediately after liberation that this was usual. They had had to revise their ideas of the effects of starvation and shortage of calories and essential foodstuffs. At such a low level life was geared down so that they could run satisfactorily with a less output of energy.

The Association of British Chemical Manufacturers has issued from 166, Piccadilly, London, W.1, the 1946 edition of its directory *British Chemicals and their Manufacturers*. During the war years the Government forbade publication of new editions and this is the first revision of the directory since 1939. A copy will be sent gratis by the manager of the A.B.C.M. to any inquirer writing on business paper or giving other genuine indication of his being likely to put the directory to good use as a purchaser of chemicals.

## Correspondence

### The Physiology of Vision

SIR.—I have read with great interest the leading article (June 28, p. 932). There are two points which I would like to raise.

In the first place, my doubts concerning the validity of the three-colour theory do not rest entirely on research in which it was necessary to confine the stimulus to single cones or to small clusters of functionally identical cones. Thus one experiment requiring no apparatus, which can be performed by anyone in an ordinary room, consists of taking three little coloured test objects 5-mm. square each—a bright red, a bright green, and a lemon yellow. These are separately mounted in the middle of pieces of black paper about 20 cm. square. If these are examined at a distance of perhaps 5 metres to 10 metres—this distance varies somewhat with the intensity of the light and the personal equation of the observer—it will be found that the yellow test object has altered to pale grey or white, whereas the red one and the green one have retained their colour, with hardly any observable alteration. Now, on the three-colour theory yellow is a mixture of red and green; therefore it would be expected that all the three test objects would undergo changes at about the same distance, but this they do not do. If this experiment be repeated with monochromatic lights produced by a spectroscope a similar result will be obtained.

This was the first experiment that shook my belief in the three-colour theory, to which I had always been a strong adherent.

The second comment concerns Dr. Willmer's book. The writer of the leading article considers that it supports the three-colour theory. A careful examination of this book shows, however, that this is not the case, for it describes an essentially dichromatic hypothesis. This is shown with great clearness if the figures illustrating chapters III and IV are examined. It is true that he states here and there in the book that the dichromatic hypothesis as it stands appears to be inadequate, and that some other factor must be involved of which no account has so far been taken; but in every case he follows it by some such statement as: "There is at least the possibility of overcoming the difficulty under consideration, without immediately assuming the existence of another distinct type of receptor." Thus nowhere in the book can one find anything to suggest that Dr. Willmer wishes to abandon entirely the dichromatic hypothesis which he advances in such detail.—I am, etc.,

London, E.C.1.

H. HARTRIDGE.

### The "Costoclavicular Syndrome"

SIR.—As co-author with Graham Weddell of a paper<sup>1</sup> in which the term "costoclavicular compression" of the subclavian vessels was introduced to the literature, and which is one of the two papers specially mentioned in the text of the recent article in your columns on the "costoclavicular syndrome" by Telford and Mottershead,<sup>2</sup> may I be permitted to forward my comments? I trust you will forgive the delay, but the issue containing this paper has only recently arrived in this country.

Prof. Telford and Mr. Mottershead have rightly stressed that no one mechanical cause can explain all cases of pressure symptoms involving the neurovascular bundle at the base of the neck, and to this view I subscribe. They conclude that under certain circumstances costoclavicular compressions may occur, but in spite of an exceedingly rich experience of cervical rib syndromes they do not appear to have recognized a single example of costoclavicular compression, and consequently leave their readers with a feeling that the syndrome is mere supposition.

Compression of the subclavian artery between the clavicle and an unusually placed first rib has now been seen at operation by a number of observers<sup>3-5</sup> besides ourselves. We described a case with vascular symptoms in which, at operation, proof was forthcoming that the subclavian artery was being compressed intermittently between the clavicle and the first rib, and in which symptoms disappeared completely after this costoclavicular compression had been corrected by removal of a segment of the rib. In addition

we described two other cases, one of which did not require operation, to illustrate other aspects of the mechanism, and also a fourth case with nervous symptoms to show that the mechanism did not operate in all cases with rib-pressure symptoms. Our primary purpose in reporting these cases was to show that the then widely held explanation of the scalenus anticus pressure, and also that of sympathetic dysfunction due to irritation of sympathetic fibres in the lower trunk of the brachial plexus by rib pressure, were not operative in these cases. It is interesting to note that the second of these explanations, which was championed by Prof. Telford on several occasions between 1913 and 1942,<sup>1,2</sup> is not mentioned, either in support or refutation, in his latest article.<sup>3</sup>

Telford and Mottershead quote us that "more than one postural manœuvre involving the shoulder girdle may result in compression of the subclavian vessels," and then in the same paragraph go on to describe the effects on the pulse of depression or downward movement of the shoulder. We, however, had pointed out that "backward and downward bracing of the shoulders is the motion which most directly approximates the clavicle to the first rib," and illustrated the backward mechanism with a line diagram. Nowhere did we describe pure depression of the shoulder. This is important, as Telford and Mottershead take pains to show that pure depression of the shoulder widens the interval between clavicle and rib, although later in their paper they concede that backward movement or retraction of the shoulder may produce clavicular pressure against the scalenus medius. Their movement of retraction had an upward component, however, and if instead a downward component could have been imparted the clavicle would have approximated to the rib. Their findings were based largely on observations in formalinized corpses, and must therefore be accepted with reservation. Only five fresh post-rigor bodies were tested, and, as in another part of their article they showed that retraction of the shoulder only affected the pulses in 60% of living persons, this number of fresh bodies is too few to prove the non-existence of costoclavicular approximation. Their statistics would have been of more worth had they, like ourselves, tested for costoclavicular approximation on the operating table in patients on whom it had previously been shown that retraction of the shoulders obliterated the pulse.

In describing depression of the shoulder Telford and Mottershead point out that, though the pulse in the arm may disappear on depression of the shoulder, a normal pulse remains in the axillary artery well below the clavicle, and that the clavicle consequently has nothing to do with the arrest of the pulse in this manœuvre. This I have confirmed in a few subjects whom I have just tested, but I have noted also that when the shoulders are braced backwards and downwards and the radial pulse disappears even the pulsations in the axillary artery cease. The arrest of the pulse in these two manœuvres, therefore, must be by different mechanisms, and thus the throttling of the brachial artery by the two heads of the median nerve, which Telford and Mottershead describe as occurring in depression or downward movement of the shoulder, is presumably not the responsible mechanism in retraction of backward movement of the shoulder. This latter mechanism we believe to be costoclavicular approximation.

As a cause of symptoms, the costoclavicular mechanism may not be common, at least in the type of case which comes to operation. In our paper Graham, Weddell and I wondered whether it was the usual mechanism in cases of rib pressure where vascular disturbances predominate, as Eden<sup>4</sup> had suggested earlier. Cases of this type with symptoms warranting operation, however, are uncommon, and I have not encountered another case at operation since we wrote our paper. Prof. Telford<sup>5</sup> reported in 1942 that he had collected 4 cases with vascular symptoms out of 92 patients operated on for symptoms of cervical rib, although by 1947 his total appears to have risen to 14 cases out of 120 patients. I have, however, seen a few patients with mild vascular symptoms which I thought were caused by a costoclavicular mechanism, but they improved on exercises designed to brace up the shoulders.

As regards cases of rib pressure with nervous symptoms, I would agree with Telford and Mottershead that the great majority are due to hanging up of the brachial plexus by a cervical rib or other mechanical obstacle, such as a fibrous band or abnormally developed anterior edge of scalenus medius, for such has been my operative experience. It was with some surprise, therefore, that in 1944 I read a paper by Walshe, Jackson, and Wyburn-Mason<sup>6</sup> suggesting that costoclavicular compression was also of frequent occurrence in cases with nervous symptoms. These authors, however, although they described in detail four cases with vascular symptoms, did not support their views regarding plexus compression with case histories. Consequently for some time I have regarded costoclavicular compression of the brachial plexus, in contrast to that of the subclavian vessels,

as a myth, but recently I have encountered a case. This patient, a middle-aged woman, had had for many years generalized plexus symptoms of the type envisaged by Telford and Mottershead, and when the neurovascular bundle was explored at the base of the neck no abnormality other than an undue approximation of the clavicle to the first rib on backward retraction of the shoulder could be made out. The brachial plexus was then compressed between the two structures, and it is significant that symptoms promptly disappeared following resection of a segment of the first rib. It was also interesting to note that a simultaneous compression of the subclavian artery was not present in this particular case, for the planes of the two bones crossed each other obliquely, and the two bones only approached each other sufficiently to compress structures at the place where the plexus passed into the axilla.

I therefore feel that costoclavicular compression of the subclavian vessels or of the brachial plexus as a cause of serious symptoms warranting operation is a real entity, though not a common one. Any surgeon exploring the base of the neck for vascular or nervous symptoms in the arm should always search for the exact spot and mechanism of compression of nerves or blood vessels. If he cannot find an adequate cause in the more usual situations, he should insert the tip of his finger beneath the clavicle opposite the neurovascular bundle, and then by pressing the shoulder backward and downward ascertain whether a costoclavicular compression occurs. If it does the treatment is removal of a portion of the rib. Telford and Mottershead report 5 negative explorations in their series, all without relief of symptoms. Perhaps some of these were costoclavicular compressions.—I am, etc.,

Dunedin, New Zealand.

M. A. FALCONER.

#### REFERENCES

- <sup>1</sup> *Lancet*, 1943, 2, 539.
- <sup>2</sup> *British Medical Journal*, 1947, 1, 325.
- <sup>3</sup> *Clin. Sci.*, 1934, 1, 329.
- <sup>4</sup> *Brit. J. Surg.*, 1939, 27, 111.
- <sup>5</sup> *Brain*, 1944, 67, 141.
- <sup>6</sup> *Lancet*, 1945, 2, 164.
- <sup>7</sup> *Ibid.*, 1913, 2, 1116.
- <sup>8</sup> *Brit. J. Surg.*, 1931, 18, 557.
- <sup>9</sup> *British Medical Journal*, 1942, 2, 96.

#### Surgery of the Gall-bladder

SIR.—I am sorry to see an error in your annotation on surgery of the gall-bladder (July 5, p. 21). You state that "partial removal of the gall-bladder, combined with electro-coagulation of the residual strip" is termed diathermy dissection. As stated in my article, this is Thorek's electro-coagulation. Diathermy dissection consists in removal of the whole gall-bladder, which is a simplification of Thorek's operation. I am afraid that anyone who reads the annotation and scans the paper will get a wrong impression.—I am, etc.,

London, W.1.

R. J. MCNEILL LOVE.

#### Oxygen Poisoning in Man

SIR.—Sir Leonard Hill's correction (June 21, p. 900) of Dr. Kenneth W. Donald's attribution to the late Prof. J. S. Haldane of certain work on deep diving prompts me to this communication. Dr. Donald writes: "In 1930 the late Dr. J. S. Haldane (Haldane and Priestley, 1935) reported confusion and amnesia in deep-sea air divers at 300 ft. (91.4 m.), and these symptoms were attributed to the raised tension of oxygen. These effects were proved by Behnke *et al.* (1935) to be due to the intoxicant effect of nitrogen at high pressures."

In 1930 I was asked by the Admiralty, through the Medical Research Council, to investigate cases of supposed unconsciousness occurring in divers at 300 ft. They were not presented to me as examples of amnesia. I found the condition occurred in men already subject to unsuspected but distinctly pathological nervous symptoms. One man with severe claustrophobia had been put in a diving suit and sent down to 300 ft. By using the then unfashionable method of revival and abreaction it was shown that what the men described as unconsciousness was a state of pathological terror, the memory of which had been suppressed. The simple technique and its dramatic results were described to my colleague Surgeon Lieutenant-Commander A. E. Phillips (*Proc. roy. Soc. Med.*, 1932, 25, 693) and by myself (*Ibid.*, 1933, 26, 655). In my

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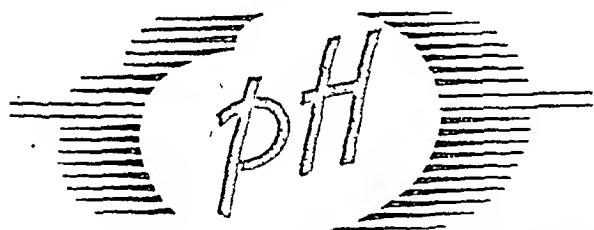
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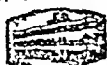
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description I wrote: "So far, then, we could assure the authorities that the manifestations were not due to any defect in their physiological theory or practice—an important matter to them. That physiologists welcomed the psychological explanation is perhaps . . . unique." I cannot help thinking that these are the cases referred to by Dr. Donald, and in the interests of psychopathology I proffer this addendum.

London, W.1.

MILLAIS CULPIN.

### The Measurement of Human Skill

SIR.—Prof. F. C. Bartlett's Oliver-Sharpey lectures on "The Measurement of Human Skill" published in the *Journal* of June 14 (p. 835) and June 21 (p. 877) prompt me to put down a few observations on clinical diagnosis which I believe to have a sound scientific basis. As is stated, investigation proceeds step by step, the fitting of one set of responses to another, until the diagnosis is completed. Here the conscious mind cal's on the stored knowledge of the deeper subconscious levels, and between them the mystery is solved.

Now, in protective muscular reactions such as the sudden application of a car's foot-brake, closure of the eyelids, or the placing of a hand in front of the face the conscious mind has not functioned except to receive the receptor impulses. The very complicated mechanism involved in the effector response has performed its work subconsciously. Similarly in mental reactions, immediately after the receipt through eyes, ears, or fingers by the brain of a skilled clinician, the correct diagnosis may thrust itself into consciousness: the step-by-step route has been short-circuited. Before seeing the patient he is heard to cough, and in a flash "pneumonia," "basal congestion," or "tracheitis" obtrudes itself. The hand placed indiscriminately on the abdomen before inspection or the history questioned—an unorthodox but very valuable procedure—may give rise to "appendix" or "acute abdomen." And in general practice these conditions are very rare in comparison with the number of abdomens examined, and reference here is only to obscure cases, not to those where a reasonable prediction can be made before examination. A fleeting glance at a head above the bed-clothes brings out "perforated gastric," and innumerable times a glance brings forth a sense of immediate urgency, when a subsequent more careful inspection reveals nothing startling.

It must be emphasized that these are not snap diagnoses, nor is any attempt being made to produce quick results, the performance of which is much slower and due to a completely different mechanism. Further, such practices produce a far greater percentage of error than the events described, which are almost invariably correct. These immediate effector responses occur comparatively infrequently and very erratically, but are so uniform in their characteristics as to leave no doubt as to their definite entity as a class. Their appearances bear out the statement that often the participation of the conscious mind slows down the reaction time. It is an essential that the mind be almost or entirely dissociated from the patient, in fact "wool-gathering," for the diagnosis to be presented with such precipitance.

How to measure this skill must be left to others. Its use in a busy general practice is to focus attention on a patient who needs the most thorough investigation by oneself and, if the results are not conclusive, by the appropriate consultant.—I am, etc.,

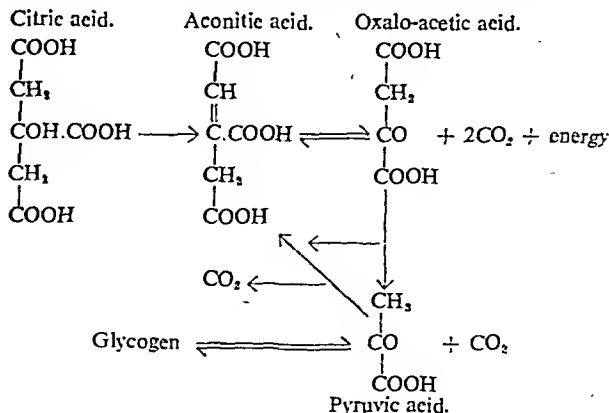
Hove, Sussex.

FRANK PORTAS.

### Citrate in Urinary Infection

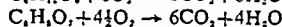
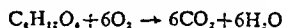
SIR.—Recent discussion on the use of citric acid drinks with sulphonamide therapy reminds me of the use of citrate in another sphere, whose full implication is not, I think, generally realized. Diabetics not infrequently suffer from a urinary tract infection and receive in consequence large doses of alkaline citrate. Now citrate is fully absorbed and fully utilized ("oxidized") in the body in a similar manner to carbohydrate. The method by which this occurs is, briefly, believed to be as follows: citric acid is converted to aconitic acid, which enters the "tricarboxylic acid cycle," and is converted through several stages to oxalo-acetic acid, losing two carbon atoms as carbon dioxide and releasing energy. Oxalo-acetic acid may be further decarboxylated to pyruvic acid, which may actually

be converted into glycogen, or which may condense with oxalo-acetate, losing another carbon atom by decarboxylation in the process and re-forming aconitic acid, thus completing the cycle.



Now whether citrate is pictured as being converted into carbohydrate via pyruvate or as being fully oxidized in the tricarboxylic cycle is immaterial—the point being that all six carbon atoms in the citrate molecule are readily available for full utilization for the production of energy by complete oxidation, so replacing and "sparing" an approximately calculable amount of carbohydrate.

Now the two full oxidation equations for glucose and for citric acid are:



so that, taking the amount of oxygen consumed to be equivalent to the energy liberated, we have:

1 gramme-mol. citric acid  $\equiv$  3/4 gramme-mol. glucose.

$\therefore$  213 g. sodium citrate  $\equiv$  3/4  $\times$  180 g. glucose, or

1 g. sodium citrate  $\equiv$  0.6 g. glucose (approx.).

Assuming our patient to be getting the rather large dose of 60 gr. (4 g.) 4-hourly (which may well be needed for urinary alkalization), this means that he is having the equivalent of some 12 g. of extra sugar per day. Admittedly this is not very much when spread out over the day, but it should theoretically be taken into account in adjusting the dietary requirements of the diabetic.

This idea of the availability of citrate has other points of interest (at least in theory), such as the additional energy it presumably supplies to the ill febrile patient with anorexia who is being treated, for example, with sulphonamide, accompanied by the routine citrate; its theoretical action in checking a hypoglycaemic attack; the likelihood (on present theory) of its utilization in severe diabetics without insulin, in whom sugar is of no value.

I am very grateful to Dr. E. Baldwin, of Cambridge, for his help in regard to the biochemistry in this letter.—I am, etc.,

Wolverhampton.

W. P. U. JACKSON.

### Pethidine in Labour

SIR.—I have read with interest Dr. J. H. P. Giff's letter (June 21, p. 901) stating that his experience shows the action of pethidine in labour to be unreliable. Dr. Giff does not state at what stage of labour he commences to use this drug, or any information regarding dosage, while I find that the time at which it is used is a most important factor in obtaining a successful result.

My experience with the drug, based on a very considerable and extensive usage over the past two and a half years, is the exact opposite to that of Dr. Giff: I have found the drug most reliable. The effects of pethidine in labour are helped by the previous administration early in labour (where the os is 1-2 fingers) of "seconal" 3 gr. (0.2 g.), though I have found that about 15% of patients vomit this unchanged, and I find, on short acquaintance, that "tuinal" is better.

Pethidine itself is administered hypodermically in doses of 100 mg. when the os is about 1/3 to 1/2 dilated, this dosage being repeated



if necessary hourly for three doses. If 300 mg. has no effect, I find it useless to administer more.

The administration at this stage does slow down labour for about 30-40 minutes, giving the mother rest and some sleep, after which the pains get stronger and labour is shortened, the mother being completely relaxed, and possibly asleep, between pains, but able to understand and co-operate during pains. It is worthy of note at this point that pethidine used in cases of "rigid cervix" exerts an effect which can only be described as dramatic. I have found that pethidine may safely be administered up to an hour before delivery with no adverse effects on mother or child, and after its birth, provided the cord is not cut *until pulsation has ceased completely*, there is no interference with the child's respiration and no cause for anxiety. If, however, it is necessary for the mother to have a general anaesthetic within this period, the induction of anaesthesia is prolonged owing to the maternal respiration being shallower than normal.

The administration of pethidine as outlined above eliminates in most patients the necessity for the Minnitt gas-and-air apparatus, which I find, even with a properly fitting individual facepiece, a most unsatisfactory and unsatisfying form of analgesia in about 55-60% of patients. In my experience pethidine used as above with premedication is eminently satisfactory in about 95% of patients and useless in the remaining 5%. There are occasionally nausea and even vomiting during administration late in the first stage, though this may be due to the onset of the second stage. There are no effects after parturition on either mother or child, and the maternal comments are most favourable and gratifying.—I am, etc.,

London, S.W.14.

A. B. WATERS.

### Physical Therapy of Mental Disorder

SIR,—The recent correspondence on physical therapy in mental hospitals (June 14, pp. 861-2) has prompted me to draw to the attention of the profession a matter which, although serious and sinister in its implications, does not appear to be generally known among medical men who are unfamiliar with present-day mental hospital conditions. I refer to the increasingly common practice of inflicting on unwilling certified patients certain unnecessary and mutilating surgical procedures, particularly indiscriminate leucotomy and tooth-pulling, in a manner which is unpleasantly reminiscent of the practices of the Nazi concentration camps. The type of case in particular which I have in mind is the chronic psychotic patient under certificate in whom volition and ability to give or withhold consent are unimpaired by the disease present. In the course of several years' mental hospital experience I have seen a number of such unfortunates subjected against their will to procedures of the kind just described.

Such a practice, in my opinion, constitutes an inexcusable violation of fundamental human rights. It was pronounced to be a crime against humanity by the Nuremberg tribunal, a court composed of judges of the highest legal standing, and at the subsequent trials a number of German doctors convicted of such practices received the death sentence. The fact that the patient happens to be certified, and a form of consent is obtained from a "responsible relative," cannot, in my opinion, justify the forcible infliction of such operations on any human being: since, in my experience, the relatives of patients of the mental hospital class are as often as not even more lacking in insight and intelligence than the patient himself. In this connexion it is worthy of note that, in this as in all civilized democratic countries, even the convicted criminal is protected by law from such violation of his person.

Let it not be supposed for a moment that I am opposed to the use of physical therapy in mental disorders. My views on this subject were made clear in a previous letter in this *Journal* (May 31, p. 778). What I am opposed to is the abuses of such treatment just described, which in my opinion constitute an attack not on the problems of mental disorder but on the rights and liberties of the individual, and have contributed more than anything to bringing discredit on a new and promising form of therapy. I do not doubt for a moment that such practices are motivated by misguided therapeutic zeal rather than by wilful cruelty. Nevertheless, their sinister implication remains, and one can only conclude that they are only one more aspect of the insidious attack which is being made to-day from certain

quarters on individual rights and liberties. The German war-crime trials received sufficient publicity at the time to make a profound and shocking impression on the public conscience; yet their lesson and implications seem to have been only too speedily forgotten. Let us therefore take warning before it is too late. *Facilis descensus Averno*.—I am, etc.,

London, S.E.6.

G. TAYLEUR STOCKINGS.

SIR,—It appears that the important issue which your correspondence reflects is whether psychiatrists are going to take psychology seriously or whether they are instead going to side-step the body of analytical knowledge which has been accumulated. By confusing quick, dramatic (psychologically magical effects with real results, they go some way at least towards disregarding the developments of the last fifty years or so. Besides this question the rest of the discussion is relatively unimportant for if psychiatry really substituted magic for knowledge the long-term results would be disastrous to the cause of humanity.

At the present time, when most psychiatrists contrast physical therapy with psychotherapy, they are comparing a method which is familiar to them with one of which they can speak only as more or less talented amateurs. By this I mean that on the whole psychiatrists are untrained and unqualified psychotherapists (I hasten to add that there are a growing number of exceptions). It is not, however, their fault that they are untrained, since training is available only in certain regions of the country. But this should not blind us to the realities, which are very well illustrated by the assessment of results from physical methods of treatment. These are always couched in psychological terms which, to the analyst, are naive and unconvincing in the extreme. If psychiatrists unqualified in psychotherapy would openly state their lack of training and even tacitly admit it, then we should know that they are giving an untrained opinion, and we should be more tolerant of the inability to differentiate knowledge from speculation. As matters stand, there are almost bound to grow up two hostile camps in psychiatry.

As one who has seen nothing but a few bad results from physical methods of treatment, I regard myself as unqualified to make any statement about them which is not prejudiced. I will dare to say that I know more about medical and surgical methods than most psychiatrists know about psychotherapy, so that I am likely to treat these methods with the respect due to them. I invite psychiatrists to exercise a similar caution when discussing a subject they do not understand. Their lack of caution only induces feelings of disrespect and even contempt towards them, not only among our own profession but also among the better informed lay public, many of whom are able to understand the significance and value of psychotherapy in a realistic and objective way.—I am, etc.,

London, N.W.1.

MICHAEL FÖRDIAM.

SIR,—The letters on this subject in your columns are interesting and remarkable in displaying the prevalence of a lack of charity for the other fellow's point of view and so of an inability to understand and appreciate it. It is not surprising that the correspondence degenerates at times into an attack on mental hospitals, so that their liquidation is demanded by Dr. T. Gladstone (June 28, p. 942). Dr. Clifford Allen (p. 942) throws much light on the controversy by pointing out that practising psychiatrists for the most part see either psychotic or psychoneurotics according to the method of treatment they have become familiar with and, let us assume also, proficient in. Patients who have failed to respond to one line of treatment do tend to pass into the hands of practitioners of the other cult. There is thus a tendency for each other's failures to be seen, and a false conclusion may be readily drawn as a result.

A few of us have been fortunate enough to escape these unfortunate limitations in experience, and as medical director of an out-patient psychiatric and child guidance service and as medical superintendent of a mental hospital I am responsible for providing for the needs of both groups of patients. I am associated with practitioners familiar with both lines of therapy and am in daily contact with patients undergoing both forms of treatment. Owing to the war our in-patient mental hospital side is still very greatly reduced in numbers, and although we have seriously considered leucotomy in some cases in no instance has

this been done. In this position I am convinced—at this stage I feel only personal testimony from those whose experience seems to justify its value can make a useful further contribution to this correspondence—that E.C.T. and insulin treatment have a definite sphere of usefulness as therapy at the present time and with our present knowledge.

One valuable point at least arises from the critics: effective steps must be taken to ensure that the distressing manifestations of the treatment—the sight of patients convulsed or unconscious, the cry on induction, etc.—shall not be seen or heard by any other patients in the treatment unit. May I assure Dr. Allen that many of “those who use shock treatment” fully appreciate this need. From what he says it seems some still need convincing, but this is no argument against its employment with adequate precautions.—I am, etc.,

St. Albans.

W. J. T. KIMBER.

### Calories and the Olympic Games

SIR.—Much, perhaps too much, has been spoken and written about our diet, and the general conclusion is that even for the ordinary person the average calorie intake is a good deal too low. Scientists, however, have had little to say regarding the necessary training diet for our athletes competing in international sport and who, next year, will be expected to uphold Britain in the Olympic Games. Yet it is clearly as unfair to expect them to compete successfully without proper feeding as it would have been to expect our Army to fight on an empty stomach.

Admittedly measurable energy used in sports is not as much as one would imagine, and an additional 500 to 700 calories would probably cover the most strenuous games (Deutsch and Kauf). But anyone who has run himself out in a mile race or played five sets of international lawn tennis or an hour's intensive squash will admit that it cannot be done without long and regular training, if the body is to be fit to fight again next day or even next week. Regular training means an intake of protein of not less than 100 g. a day—the equivalent of a good steak—while Elmer Berry says that the optimum diet for an athlete includes 5 pints (2.8 l.) of milk, 8 eggs, and an ounce (28 g.) of butter a day; not to mention the oft forgotten 30 g. of salt which would stop both the cramp and a good deal of the lassitude of which our representatives at sport have recently complained.

Most foreign competitors in our sporting events are wise enough to bring their own fats and protein with them. The Australian lawn tennis team tell me they have 500 lb. (225 kg.); and of course they have had whatever they wanted to eat for many months. Whether the Government should give special rations to Olympic and other representative athletes is, I suppose, a matter for debate; but the stomach cannot suddenly deal with increased food, and a long-term policy is the only one which would have any beneficial results. We fed our representatives specially in war: why not, one can argue, in peace? Certainly if we do not it must be a foregone conclusion that, however we may compare in technical skill with the rest of the world, we shall be unable to compete as regards stamina. That is a scientific fact that not only the public but many doctors, too, appear to miss.—I am, etc.,

London, W.1.

NEVIL LEYTON.

### Penicillin for Osteomyelitis

SIR.—The development of an argument on the value of penicillin in the treatment of acute osteomyelitis is rather refreshing. The fact that time and energy are available for people to question the unquestionable implies a quiescence of the turmoil of war and a rest from the alarms of State service.

No experienced person in his or her senses could really question the value of penicillin in this condition. It has completely transformed the picture of acute osteomyelitis. Consequently I do not wish to detract in the slightest from the contribution by Mr. T. Twistington Higgins, Mr. Denis Browne, Dr. M. Bodian (May 31, p. 757), and it is unnecessary to elaborate their reply (June 28, p. 947) to Drs. J. Trueta and M. Agerholm (June 21, p. 899), which infers that nobody need take much notice of what the latter say. But I think it is reasonable to mention the importance of protecting long bones against stress. This precaution is most necessary about the end of the fourth

week, long after the temperature has subsided and healing of any wound or abscess has occurred. From that time to about the end of the seventh week decalcification necessarily resulting from the initial infection and necrosis reaches its peak, and reparative processes have not developed sufficiently to strengthen the weak part of the bone. I will not take up your space with details, but I have a vivid recollection of a child in the early days of penicillin who fractured her femur because her recovery was so spectacular that we failed to appreciate the importance of the zone of spotty decalcification.—I am, etc.,

Liverpool.

BRYAN MCFARLAND.

SIR.—We should like to change this correspondence from an argument to a constructive discussion of the best way of discovering how to obtain the fullest benefit from penicillin in acute osteomyelitis. It is clear that a number of centres working on the treatment of acute osteomyelitis with penicillin have come to different conclusions on the best method of treatment, and the variations are probably due to the relatively small number of cases which any group has treated. We suggest that the time has come for a committee to be formed to review the results so far obtained in the treatment of this disease, and to draw from the experiences of the several centres some general conclusions which could serve as a guidance for the future.

Such a committee might determine: (1) The best penicillin treatment in relation to the age of the patient, the infecting organism and its resistance to penicillin, the site of the lesion, the delay between onset of infection and the beginning of penicillin treatment, (2) The importance of the removal of pus and the best way of carrying this out, (3) The value of immobilization and the best means of deciding when it can be safely discontinued. In addition, a scheme for classifying the cases and a standardized method for recording results might be established so that different series could be readily compared.—We are, etc.,

J. TRUETA.

M. AGERHOLM.

Oxford.

### Leprosy and its Problems

SIR.—Referring to the leading article on “Leprosy and its Problems” (June 7, p. 813), I note two rather serious mistakes in the last two paragraphs.

1. “Nodular leprosy may possibly prove intractable.” This is entirely the opposite of the trend of my article on sulphone treatment of leprosy on p. 798. There, under “Suitable Type of Case” is written: “It is the lepromatous or severe type of leprosy to which the sulphone treatment has been applied.” The lepromatous type is the modern nomenclature for nodular leprosy, and it is this type for which the sulphones are proving so very useful.

2. The number of lepers in the world is mentioned as two million, of whom 97.5% are Indian or African. This is quite contrary to the statistics which have been generally approved. In *Leprosy* (Rogers and Muir) a table is given on pp. 13–15 which calculates 3,291,000. It is said that this is probably an underestimate, and five million is as near as we can at present get to the true figure. Of the 3,291,000, one million are given as being in China, which would, I think, be quite contrary to 97.5% in India and Africa.—I am, etc.,

London, S.W.1.

E. MUIR.

### State Medical Service in New Zealand

SIR.—It is good to read in your columns (June 14, p. 865) Sir Ernest Graham-Little's substantiation of the veracity of Mr. Porritt's injunctions against the State form of medical service in New Zealand. I have repeatedly denounced the present Health Act as the progeny of an unholy marriage of the Ministry of Health and a Party medical clique. I have pointed this out as fatal to any success both in meetings of the B.M.A. and the R.C.S. The only sure foundation for a completely comprehensive and satisfying health service rests on data only to be derived from the technicians of medical practice, whose life-long job is the conversion of disease to health. The problem is abstruse and intricate. Knowledge is doubly vital for an objective of such solemn import as the health of a nation. We alone are the informed section of the community and hold the key to successful planning. Every bit of medical wisdom needs

representing, and it is incumbent upon the authorities to seek evidence from all the best brains of the profession.

There should be set up at the instigation of the Ministry of Health a new medical planning commission, whose members are chosen regardless of political views but acknowledged by their colleagues as fit spokesmen by reason of their professional knowledge, vision, and humanitarian spirit. This commission would deliberate while the present Act, shed of its controversial features, is implemented as an interim measure, and while the country is getting on its feet again.

All of us should follow Sir Ernest's line, repeat this truth, and at least free our consciences of apparent acquiescence in the degradation of a great and noble profession and its work.—I am, etc.,

Bristol.

A. WILFRID ADAMS.

SIR,—The profession owe a great debt to Sir Ernest Graham-Little for the amount of work he has undertaken regarding the national medical service.

Sir William Fletcher Shaw (May 31, p. 782) does not agree with the conclusions of Mr. Porritt and suggests that conditions in N.Z. are satisfactory to the doctors but does not give the reason. The fact is that the general practitioner receives 7s. 6d. per visit or consultation, paid by the Government, and such additional fee as he likes to charge the patient, plus mileage for visit. The doctor in N.Z. is satisfied because he is receiving not a capitation fee but a flow of income as long as he is willing to sit in his consulting room and collect the signed claim forms.

There are few queues in N.Z. except for cigarettes and the doctors. The reason there is difficulty in obtaining the services of the doctor at night and week-ends is that he is worn out with excessive work; and again nobody in N.Z. works at night or week-ends. The forty-hour week has demoralized the whole community. You are lucky to get a plumber in a fortnight. These are the views of resident doctors in N.Z.

It is suggested by Sir William Fletcher Shaw that an increase in the number of doctors will solve the problem basically due to free treatment. Does he think the doctor will be on tap for 168 hours while the rest of the community are not allowed to work more than forty hours a week by law and any earnings at night or week-end are taken over in taxation. If the doctors in this country or N.Z. ever agree to a capitation fee they will end with a State medical service.—I am, etc.,

Beckenham, Kent.

A. E. BLACKBURN.

### General Knowledge and General Practice

SIR,—Dr. D. N. Baron's hobby-horse is a common one; the clacketing of its hoofs rings in our ears from student days—not that we haven't bestraddled the beast ourselves, but we have learned not to ride side-saddle. Of Dr. Baron's basic premise (June 21, p. 902)—to wit, that the standard of culture among medical students (and doctors) is distressingly low—there can be no criticism. Of Dr. Baron's recommendations for improvement we say unblushingly they are not Good-enough. Culture is an attitude of mind. The cultured man is one who, as the result of many influences on his mental development, has learnt an instinctive habit of distinguishing the good, the true, and the beautiful from the bad, the false, and the ugly.

Has Dr. Baron asked himself why, with so little interest displayed by the university authorities, a number of students (including, we presume, Dr. Baron) managed to achieve such an outlook on life as he himself deems desirable? By the time the age of medical studentship is reached the seed is already sown. The opportunities for intellectual advancement are available for those who have the interest to seek them out, and if the demand were greater the university concerned would be forced to provide greater facilities. At the moment these are inadequate only in the sense that one feels a larger number of students should be making use of them.

Let Dr. Baron realize that the foundations of a cultured mind are laid much earlier than the time of the anatomy course. Let him recognize that the ability to discourse on existentialism is no more the mark of a cultured intellect than the accurate knowledge of the course and relations of the greater superficial petrosal nerve is the *sine qua non* of a general practitioner. His

plea should be for better schools and broader education; brighter architecture and more opportunities for the mass of people to spend their leisure time in more beautiful buildings, pursuing more intellectual hobbies than are normally found in the picture- or public-house.

We medicos are not a race apart. We are admittedly an uncouth lot, but like Garson Kanin's millionaire junkman<sup>1</sup> we are "more couth" than the next man—on the average. "The great happiness of life is to be neither better nor worse than the general run of those you meet with." Dr. Baron wisely seeks to raise us all to his own high level, but does he consort only with doctors? And then to seek success by compulsion he will have us all crying with Falstaff:

"Zounds, an I were at the strappado or all the racks in the world, I would not on compulsion."

London, S.W.16.

DAVID L. KERR.

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- <sup>1</sup> Kanin, G. (1946). *Born Yesterday*.
- <sup>2</sup> Hazlitt, W. (1821). "On the Disadvantages of Intellectual Superiority," *Table Talk*.
- <sup>3</sup> Shakespeare, W. (1597). *King Henry IV, Part I, Act ii, Scene 4*.

## POINTS FROM LETTERS

### Physical Therapy of Mental Disorder

Dr. D. W. ABSÉ (Abergavenny) writes: Although the spirit which Dr. Winnicott (May 17, p. 688) proceeds to deal with subject is scientific, his argument is marred by the polemical of analysis. After all, in psychotherapy the unconscious phantasia of the patient are engaged and the therapist assumes the mag mantle of Elijah no less than in physical treatment. Modern commerce is derived from systems of barter, and these replaced the Such is the unfolding of civilization. The modern physician resulted from the magician's progress, as far as this has reached. my mind the important aspect of the matter is that the physic should be conscious of the role he is assuming *vis-à-vis* the pati so that he may be able to heal more effectively. Nowhere is more important than in shock therapy, and it is one reason (am others equally important) why the conception of "psycholog shock" needs to be developed. It is to be remembered that it are those who regard the psychological factors which emerge du convolution therapy as responsible for the changes wrought in patient. This is only to say that these "factors" can be appr ated on a psychological plané. It is unlikely that they can appreciated in terms of physiology any more than the onset development of the mental disorders to which shock methods habitually applied. . . . Shock methods of treatment are unplea for the patient, as anyone capable of making adequate psycholog contact with the patient has to allow. They can sometimes d the patient deeper into his psychosis, just as they can somet cause a remarkable emergence and reality-adjustment. It is a fur complication that faulty judgments in regard to a patient's respo to treatment easily arise. . . .

### Choice of Specialist

Dr. G. C. PETHER (Colechester) writes: Dr. Eustace Ship (June 14, p. 866) has touched on a matter which can elaborated and is of fundamental importance. I think it be admitted that the doctor-patient relationship as it now is able to give the patient, whose interests are paramo a fair deal. This is at least true in private practice. I patient or his relatives wish for another opinion they can it. . . . Some years ago, when in a subordinate capacity a hospital, my opinion was overridden because the su intentend considered that a specialist, who only saw the patien intervals, could judge better than I. As a result of this unnecessary operation was performed and the patient died. I not suggest that in the Services this occurred more or less c than in civil life; yet in theory the colonel knew more than major and the major more than the captain. . . . Where will patient stand in a National Health Service? The doctor in area will presumably be there as a result of "negative directi The specialists from whom other opinions can be obtained, as other G.P.s, will also be there by some similar process. Will patient be able to choose a second opinion? . . .

### Pruritus Ani as an Allergic Condition

Dr. E. M. FRAENKEL (London, W.) writes: I can con Dr. G. L. Davies's remarks (June 28, p. 950) to be correct in s cases of anal irritation in allergic patients, in whom it started v they used medicated toilet paper and stopped after discontinuin do so. In my case of pruritus ani (June 7, p. 823), however, toilet paper cannot be blamed, as the patient had used cotton-wool only for a long time due to the intensely painful irritation.

## Obituary

### WILLIAM GOUGH, F.R.C.S., F.R.C.O.G.

William Gough, formerly professor of gynaecology at Leeds University, died on June 29 at the age of 71. He was born in Leeds in 1876, and received his professional training in the Leeds school of medicine, where he was awarded the William Hey medal as the most distinguished student of his year. He took the London B.Sc. in 1895 and the M.B., B.S. in 1900. At the intermediate M.B. examination he won the gold medal in physiology and histology. In 1909 he became F.R.C.S., and on the establishment of the College of Obstetricians and Gynaecologists he was elected a foundation fellow.

After qualifying, he was Mayo Robson's house-surgeon, and acted for a period as private assistant to Lord Moynihan. He had to wait some time before an honorary hospital appointment became available, and in the meantime he engaged in general practice and also directed a laboratory of clinical pathology. He used to produce excellent histological preparations with the most primitive equipment and in an incredibly short time. He always maintained that these preliminary activities formed a most valuable foundation for his later special work. In 1909 William Gough was appointed to the staffs of the Leeds Maternity Hospital and the Leeds Hospital for Women. He became a lecturer in the University of Leeds and held the chair of gynaecology from 1929 to 1936. He gave much unassuming and painstaking service to the Royal College of Obstetricians and Gynaecologists as a member of the council and as vice-president. He was a loyal and enthusiastic member of the North of England Obstetrical and Gynaecological Society, and of the Gynaecological Visiting Society. He spoke little, and wrote less, so he was little known outside the circle of his immediate colleagues and pupils. Here, however, his influence was deeply felt, and it was invariably characterized by decency and generosity.

He readily gained the trust and confidence of his patients, for they at once recognized, and rightly so, that in his hands they would receive the best possible treatment. As an operator he was ambidextrous, using the scalpel with either hand but the left for preference. There was nothing spectacular about his methods. He did not give the impression of being a "brilliant" operator, but every operation he performed seemed to be done simply and swiftly. This speed was not gained by the sacrifice of any essential detail of technique.

His many activities in hospital work, teaching, and an extensive private practice were sufficient at times to strain even his exceptional capacity for work, but he was never flurried, never worried, and never lost his temper. His family life was singularly happy. The tragic death of his elder son, a young man of great promise, must have been a terrible blow to him, but it was borne with wonderful fortitude. He is survived by a widow, one son, and four daughters.—A.G.

### CHARLES PHILIP BRENTNALL, M.C., M.B., F.R.C.O.G.

Charles Philip Brentnall died in Manchester on June 26 at the age of 56. Son of the Rev. Edward Brentnall, he received his early education at St. Paul's School, London, and the Manchester Grammar School, and then, having gained the Dreschfeld Scholarship, proceeded to Manchester University to study medicine. When he was in his second year his father moved to a living in West Lancashire, so Brentnall transferred to Liverpool University. There he had an unusually brilliant career, gaining distinction in the M.B. examinations in anatomy, pharmacology, and pathology, and also winning the Gee Prize.

He qualified in 1915 and, after holding the post of house-surgeon to the Liverpool Northern Hospital, joined the R.A.M.C. He served in the field in Gallipoli, Palestine, and France, rose to the rank of major, and was awarded the Military Cross. After the war he returned for a time to work in Liverpool and was then appointed as a resident to the hospital which he served for the rest of his life—St. Mary's, Manchester. At St. Mary's, he was successively house-surgeon, resident obstetric officer, resident surgical officer, and registrar, and he was elected to the honorary staff in 1923.

Brentnall's work as a gynaecologist was typical of the man. His approach to any problem was a quiet one, and his methods were gentle. In consequence his surgical results were outstandingly good, and his technique served as a model for his juniors. As was only to be expected, he built up a large consulting practice, and his services were in demand over a wide area. His appointments outside Manchester included those of honorary obstetrician to the Stretford Memorial Hospital and honorary consulting gynaecologist to Warrington Infirmary. A foundation member of the College of Obstetricians and Gynaecologists, he served on the council for six years, being raised to the fellowship in 1938. He was also a member of the Gynaecological Club.

Brentnall's contributions to gynaecological literature were made largely in the form of communications to the North of England Obstetrical Society, of which he was a fellow. At its meetings he could always be counted upon to add something of interest to a debate or to give a word of encouragement to a junior member. It was indeed tragic that shortly after his election as president he should be stricken by the illness from which he eventually died.

In his private life Brentnall was singularly fortunate, and he was never so happy as when, in his own home, he could enjoy the companionship of his family and friends. He leaves a widow, a daughter, and a son who is studying medicine.

## Medico-Legal

### DESCRIPTION OF A CHEMIST

[FROM OUR MEDICO-LEGAL CORRESPONDENT]

A recent case concerning a chemist turned on the description of premises where no qualified chemist is in charge. Under the Pharmacy and Poisons Act, 1933, it is unlawful for a person to use a description in connexion with the business reasonably calculated to suggest that he or anyone employed in the business possesses any qualification with respect to the selling, dispensing, or compounding of drugs or poisons other than the qualification which he in fact possesses. A registered qualified chemist and druggist named Mr. Spink owned eleven chemists' shops. Qualified assistants were in control at ten of these, but none was available for the eleventh. This shop, like the others, was carried on under the name of "Spink's, the Chemist," but it had a placard in the window stating that owing to war circumstances there was no qualified assistant in charge of the shop and medicines could not be dispensed. An inspector of the Pharmaceutical Society bought glycerin and rose-water in a bottle labelled "Spink's, Chemist," and the society prosecuted Mr. Spink for a breach of the Act. The justices dismissed the case, and the Society appealed.<sup>1</sup>

The High Court upheld the justices. Lord Goddard. Chief Justice, refused to read the Act as though it said, not "he or anyone employed in the business" but "he or any person in control of premises where the business is carried on." He also pointed out that, whereas the Act says that the word "pharmacy" in a description is to be deemed to be reasonably calculated to suggest that the owner of the business and the person in control are registered pharmacists, yet there is no such prohibition of the use of the word "chemist." His Lordship thought that the title complained of meant only "This is a shop belonging to Mr. Spink, who is a chemist." The word "chemist" over the shop, taken together with the placard, was not reasonably calculated to suggest that the person in charge had a qualification which in fact he had not. Mr. Justice Atkinson and Mr. Justice Oliver agreed.

<sup>1</sup> *Dentley v. Spink* (1947) 1 All E.R. 835.

The Minister of Labour and National Service has formulated new Regulations (H.M.S.O., price 6d.) in the light of the report of the Dust-Tile Committee, published in 1943, and of recommendations made by the National Council of the Pottery Industry in 1945. Conferences for examining the Regulations will probably be held in the autumn.

# Medical Notes in Parliament

## FOOD AND HEALTH

On July 1, on the estimates for the Ministry of Food, Mr. J. S. C. REID opened the debate with a reference to the statement of the previous day by Mr. Dalton indicating coming reductions in imports. Mr. Reid said he had yet to see any survey which showed that the majority of the people of this country who did not have access to canteens and restaurants consumed more than 2,400 calories a day. Calories told only half the story. Otherwise bread and water would be a good diet. Weight for weight there were more calories in bread than in stewed steak and twice as many calories in sausages as there were in chicken. Weight for weight stout had more calories than smoked herring.

Mr. STRACHEY said the average number of calories consumed per head per day at the moment by the people of this country was between 2,880 and 2,890. The figure of 2,325 which had been adduced by Col. Walter Elliot was what the national figure would be if no one in the country consumed any food in catering establishments and if some types of rationed foods under the personal points scheme were disregarded. Using this completely false figure Col. Elliot alleged that the nation was gravely undernourished, and his less cautious supporters alleged that it was starving to death. The figure of 2,325 came from the National Food Survey for the first quarter of 1947. The comparable figure in 1941 was 2,360, in 1942 it was 2,253, and in 1943 it was 2,315. If the nation was slowly starving to-day it was starving a little more quickly while Lord Woolton was in office. He did not suggest that 2,890 was a highly satisfactory level, but it was a good level in comparison with previous periods. The Government aimed to put the whole population of the country upon a higher level. To-day the difference of intake among individuals was largely according to need instead of according to class. There was comparatively little difference in the intake of the different wage groups.

Mr. BAKER WHITE pointed out that 84% of the meals eaten in this country were eaten in the homes and only 13% in catering establishments. National supplies of fruits including tomatoes and pulses were more than 20% below pre-war levels, but supplies of vegetables were about 10% above pre-war, and potato supplies had increased to about 64% above the pre-war level.

Mr. MICHAEL FOOT said tests by experts in this and other countries proved that the infantile mortality rate and the maternal mortality rate gave a proper indication of nutritional standards. In England during 1936 the infantile mortality rate was 62 per thousand. To-day, under Mr. Strachey, was 46 per thousand and still going down. The same was of the maternal mortality rate, which was the lowest on

By comparison with pre-war days the height and gth of children in this country were greater. In Plymouth ldren born and brought up in the "blitz" were healthier, ronger, and better than any children ever born in this country before.

Mr. WILFRID ROBERTS said he had obtained the article by Dr. Bicknell entitled "Dying England." It was first-class political propaganda with opinions on statistics, political economy, and agriculture, on the last of which Dr. Bicknell quoted what seemed to him, Mr. Roberts, to be quacks.

Mrs. AYRTON-GOULD said Dr. Bicknell knew nothing about the unemployed and nothing about food. Before the war half the population of Britain spent from 4s. to 8s. a week on food and 50% of the population had an average of 2½ oz. of butter a week, whereas the nation was now getting 3 oz. per week per head and everyone was able to buy it. The same 50% had 3 oz. of margarine a week, which was the same as the present ration. The 1s. 2d. worth of meat which the nation now bought weekly was far above the amount the average person could afford to buy before the war. The consumption of milk to-day was 50% more than before the war. The excess went in the welfare services and to the people who needed it most. All ordinary housewives were able to buy 2½ pints a week, which, according to Sir John Orr, was the average milk consumption before the war. That was why the health of the population was much improved. Deaths from tuberculosis in England and Wales in 1935 numbered 29,201. The population had increased in the subsequent ten years, but the figure for 1945 was 23,955. People who talked about the nation being ill-fed talked absolute nonsense. The nation was being well fed, though monotonously fed.

### More Milk

Lady GRANT said the nation was consuming 30% more milk at the expense of butter and cheese and processed milk. She

quoted figures from a review in 1937 by Sir William Crawford. They concerned the group with incomes below 48s. per week. In 1937 these people consumed on an average 26.8 oz. of meat per week while the nation now consumed 16.2 oz. per head. They then consumed 3.6 oz. of bacon whereas the ration was now 2 oz. In fats they consumed in 1937 10.2 oz., while the ration was now 7 oz. Since 1945 there had been cuts in several vital rations while more goods had been based on points. The nation was consuming more starchy products, and who would say these products were a good substitute for fats or proteins? The result of the lack of quality in the diet was having a great effect on the people's will to work and brought chronic fatigue with many minor ailments which were not notifiable, such as general debility, and gastritis.

Dr. HADEN GUEST asked how the Government was going to fortify the health of the people and give them extra resistance in the event of the next winter being as bad as the last. The difficulties at present were not due to food, which was extremely good, but to the fact that all were suffering from the results of war strain. He thought there should be an extension of food for certain classes of heavy workers, including miners. Much could be done by ensuring that all the children entitled to priority milk actually received it. He believed that they did so in the towns. He hoped that the priority supply of eggs to children up to the age of 2 years could be extended to the age of 5, 6, or 7. Extra proteins for heavy workers, particularly miners, would help. He suggested that the Government should secure an increased supply of rice from Siam at an early date and said it was important that strong action should be taken to prevent the destruction by the Japanese of the world's supply of whales. Although he did not now practise, he recognized the enormous improvement in health at present compared with the condition of things after the 1914-18 war. The condition of the children on the continent of Europe in 1919 was appalling. One reason for considering that this country and the world were in a better state than at the end of the 1914-18 war was that there had not been anywhere in the world any large-scale post-war epidemic. With the exception of the U.S.A. and Canada every single country had a lower standard of food than Britain had at present and the general condition of the people was not as good as it was here. That was true everywhere, in Europe and in the East. Child health statistics, maternal health statistics, and the general health and vigour of the country showed that we were better fed now than in the inter-war period.

Dr. BARNET STROSS said that the world to-day was short of one million tons of grain and had 10% less sugar than before the war. Europe was short of meat by 40%, and the rest of the world by 10%. The world population had increased since 1938 by 5 to 10%. If the diminution in British meat supplies was 9%, then we had not done badly. They knew that between 1913 and 1934 the health of the people improved dramatically, in association with an increase in consumption of leafy green vegetables and fruit by 75% and of dairy produce by 50%. Expectation of life increased by 7 years; the death rate of infants dropped from 100 to 57; the tuberculosis rate was halved; and the children became taller, healthier, and stronger. The change continued throughout the war and to-day. The reason was that everyone had been compelled to eat less animal protein, and therefore ate much more summer fruit and leafy green vegetables. They consumed more liquid milk, and the quality of the fats was better; the vitaminization of margarine gave great protection. The better quality of bread and the fact that the nation ate more potatoes, which contained ascorbic acid, meant that the diet was healthier even though it was not fuller and was more monotonous.

### Fewer Calories

Col. ELLIOT said everyone in the House feared that the standard of living in this country was in jeopardy. Prof. Marraek had said it was unfortunate that Government spokesmen continued to claim that the average calories per head per day were in the neighbourhood of 2,900. He declared that surveys of the Ministry of Food made on representative families showed that the average per head ranged from 2,300 to 2,400. Meals taken outside could not raise the total to more than 2,650. Drs. Bransby and Magee, of the Ministry of Health (*B.M.J.*, April 19, p. 525), pointed out that classes such as farm workers, quarrymen, and lumbermen who could not get access to canteens would require, in addition to their special allowances, to eat up to 14 lb. of potatoes per week. Miners not in receipt of canteen facilities would require to eat 10½ lb. of potatoes per week or else to draw on the family pool by consuming other people's rations. The document "Food Consumption Levels" showed that about 2,800 calories per head was necessary to have an intake actually eaten of 2,500 calories per day. Yet the document further said that at



2,700 calories the diet would be too low. The nation was living on a very narrow margin. Nevertheless it was true that in the main the health records had been excellent and the dental condition of the country had greatly improved. The energy output figures made a different picture. They seemed to indicate that at present full employment was not practicable in the condition of nutrition of the people and that any reduction in the intake would lead the country into great danger. Tuberculosis figures did not bear the favourable interpretation put upon them. The death rate per million in England and Wales since 1939 was in no case as low as before the war and the notifications had gone up from 37,000 in 1938 to 42,000 in 1945. In Scotland the figures of deaths per million from tuberculosis were 520 in 1938 and 640 in 1946. Notifications in Scotland were 4,790 in 1938 and 7,500 in 1946.

Dr. STEPHEN TAYLOR pointed out that mass radiology had been introduced during the war with an increase in the notifications.

Col. ELLIOT said the nation was working on a too narrow surplus of energy intake over energy output. Its general health was good, but it found itself in difficulty in putting out a long and sustained effort such as the Government called for. Many sources of our food were in peril. The yield of fish was beginning to fall off, as happened after the first world war.

Dr. EDITH SUMMERSKILL said that the nation was adequately fed although the present diet left much to be desired in variety. She would not go into the question of calories except to quote Sir Wilson Jameson, who, in the Ministry of Health Report for the year ended March 31, 1946, which had been published seven weeks ago, said that as far as clinical surveys of the state of nutrition of groups of the population and the heights and weights of children were reliable the nutrition of the population generally remained good. Children in 1945 were of better physique than corresponding children in 1940 or before the war. She had just received figures for Scotland which showed that in 1938 the infant mortality in that country was 70 per 1,000, in 1944 65 per 1,000, and in 1946 53.8. The figures for neonatal mortality were 35 in 1938, 32.8 in 1944, and 29.2 in 1946. The maternal death rate figures were 4.9 in 1938, 3 in 1944, and 2.2 in 1946. In 1938 deaths from tuberculosis in Scotland were 69 per 100,000 population, in 1944 they were 82, and in 1946 they were 79.

Col. ELLIOT said he had quoted figures for deaths from respiratory tuberculosis.

Dr. SUMMERSKILL said pulmonary and non-pulmonary tuberculosis should be feared equally.

A motion to reduce the estimate was defeated by 278 to 113.

### Medical Members of Executive Councils

Mr. HASTINGS, on June 26, asked the Minister of Health whether, in selecting representatives of the medical profession for the local executive councils under the new Health Act, he asked for nominations from the medical committees in the various areas, and whether he knew that in not a few of these areas medical committees were elected in 1938 and there had been no election since.

Mr. BEVAN replied that appointments of medical members to Executive Councils were made by the Local Medical Committees and not by the Minister. He knew that in most areas there had not been elections for Panel Committees since 1939. Therefore his recognition of Local Medical Committees for the new Service had been provisional.

### Northern Ireland Bill

When the House of Commons on June 27 was in committee on the Northern Ireland Bill, debate arose on Clause 4, which empowers the Northern Ireland Government to provide health services. Mr. MULVEY moved a proviso that wherever the associations of a voluntary hospital linked it with a religious denomination, all attention should be paid to preserve the character and associations of the hospital in the general management and in making appointments to the board of management. The proposed amendment further provided that all endowments of such hospitals should remain their property. Mr. Mulvey pointed to a similar provision in the National Health Service (Scotland) Act, Section 60. Mr. GAGE said that a hospital in Belfast which derived strength from its religious links was one of the best hospitals in that city.

Mr. EDE said he understood that the Northern Ireland Government decided to follow Section 61 of the English Act, which incorporated the principle of the first proviso. Parliament had refused to insert the principle of the second proviso in either the English or the Scottish Bill.

Mr. Mulvey withdrew his amendment.

The Report stage was concluded and the Bill was read a third time.

### Typhoid at Bombay

Mr. PHILIP NOEL-BAKER stated on July 2 that in 1946 there were 32 cases of typhoid at Worli camp, Bombay; this year there had been 11 cases. In 1946 one man died; on grounds of conscience he had refused inoculation. As soon as the water supply was found to be infected all drinking water was chlorinated in mobile tanks. New mains were installed last December. Analysis had shown that the water was now free from all infection, but as an additional precaution the mobile tanks were still in use.

### Voluntary Funds

Asked on July 3 by Mr. SPARKES to state his attitude toward the continuance of such voluntary efforts as fêtes, bazaars, and sales of work for the benefit of particular hospitals, Mr. BEVAN said the governing bodies would have power to receive and hold voluntary funds from any source independently. No charges could be made on patients for any part of the service except those specifically mentioned in the Act or Regulations. Each of the hospitals could raise funds for additional purposes such as welfare. During the Committee and Report stages of the Bill he had made it clear that hospital committees could themselves organize voluntary funds under the new arrangement. These funds would in no way diminish the revenue provided by the State.

### Signing of Death Certificates

Mr. SPARKES asked on July 3 what precautions were taken to secure that the cause of death certified upon a death certificate was correct; and, in view of the evidence at the recent coroner's trial at Southport, what steps Mr. Bevan proposed to take to ensure that death should not be certified from wrong or false causes. Wing-Commander HULBERT inquired if Mr. Bevan was aware that the law now permitted medical practitioners to issue death certificates in respect of near relatives, and if he proposed to introduce legislation to amend this practice.

Answering both questions, Mr. BEVAN said that the position under the Births and Deaths Registration Acts and Regulations was that a registered medical practitioner who was otherwise competent in the circumstances of the particular case to give a certificate of the cause of death was not precluded from doing so by reason of relationship to the deceased. It was not open to the registrar of births and deaths to reject a certificate on that ground. The duties of the registrar included the duty to report to the coroner, before registration, deaths in specified categories, including any which he had reason to believe to be unnatural or accidental, or attended by suspicious circumstances, or the cause of which appeared to be unknown. Mr. Bevan added that at present he did not contemplate amending legislation on any of these matters. He had no comment to make on the circumstances of a recent case at Southport and would not derive a general conclusion from that particular instance.

Mr. HECTOR HUGHES suggested that death certificates should be countersigned by an independent practitioner. Mr. Bevan repeated that he did not contemplate any amendment of the law at present.

**Nurses.**—On Jan. 1, 1946, the number of State registered and enrolled assistant nurses in Scotland was 17,767. On May 31, 1947, the number was 20,858. The numbers of women who became student nurses in Scottish hospitals during 1945, 1946, and the first five months of 1947 are estimated as 2,500, 3,200, and 1,300.

**The Deaf Blind.**—All blind-welfare authorities provide for the visitation and instruction of deaf-blind persons by home teachers.

## The Services

The Air Force Cross has been awarded to Acting Wing-Commander R. Maycock, R.A.F.

The following appointments and mentions in dispatches in recognition of gallant and distinguished services in the Netherlands East Indies prior to Nov. 30, 1946, are announced:

**O.B.E. (Military Division):** Miss Perin K. Mullaferoze, F.R.C.S., Lieut.-Col. (temporary); Lieut.-Col. (temporary) S. L. Rikhye, M.B.E., I.M.S.

**M.B.E. (Military Division):** Captain (temporary) Lal Chand, I.A.M.C.

**Mentions in Dispatches:** Brigadier (temporary) G. S. Douglas, late R.A.M.C.; Lieut.-Cols. (temporary) B. Blewitt and V. J. Keating, R.A.M.C.; Capt. H. Foster, R.A.M.C.; Lieut.-Col. (temporary) G. Ahmed, I.A.M.C.; Majors (temporary) K. R. Ramo Rao and M. R. K. Siddique, I.A.M.C.

No. 25

## INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended June 21.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1947					1946 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	39	4	18	—	1	51	3	26	2	—
Deaths .. ..		1	1							
Diphtheria .. ..	220	24	41	24	8	274	20	99	32	12
Deaths .. ..	2	1	3	—	—	2	—	1	1	—
Dysentery .. ..	47	5	19	—	1	93	8	36	—	—
Deaths .. ..										
Encephalitis lethargica, acute .. ..	2	—	1	—	—	2	—	—	—	—
Deaths .. ..		1								
Erysipelas .. ..			25	14	2			35	10	2
Deaths .. ..										
Infective enteritis or diarrhoea under 2 years .. ..				39					50	
Deaths .. ..	78	1	17	6	2	49	5	13	8	1
Measles* .. ..	10,632	637	117	149	26	4,516	977	540	27	10
Deaths .. ..	7	1	—	2	—	4	2	1	—	—
Ophthalmia neonatorum .. ..	64	1	14	—	2	57	9	26	—	—
Deaths .. ..										
Paratyphoid fever .. ..	11	—	—	—	—	1	—	—	—	—
Deaths .. ..										
Pneumonia, influenzal .. ..	328	26	1	1	2	496	25	3	2	1
Deaths (from influenza)† .. ..	1	—	1	—	—	7	—	1	—	—
Pneumonia, primary .. ..		18	189	17	4		26	173	16	6
Deaths .. ..				6					7	
Polio-encephalitis, acute .. ..	2	1				1	—			
Deaths .. ..										
Poliomyelitis, acute .. ..	44	2	2	2	1	13	—	1	3	—
Deaths .. ..										
Puerperal fever .. ..		2	14	—	—			13	—	—
Deaths .. ..										
uerperal pyrexia‡ .. ..	121	8	4	—	—	137	13	14	1	—
Deaths .. ..		1								
Relapsing fever .. ..	—	—	—	—	—	—	—	—	—	—
Deaths .. ..										
Scarlet fever .. ..	870	82	120	25	35	941	77	173	25	15
Deaths .. ..	1	1	—	—	—	—	—	—	—	—
Smallpox .. ..	7	—	—	—	—	—	—	—	—	—
Deaths .. ..										
Typhoid fever .. ..	7	—	1	5	—	4	—	1	2	—
Deaths .. ..										
Typhus fever .. ..	—	—	—	—	—	—	—	—	—	—
Deaths .. ..										
Whooping-cough* .. ..	2,107	276	87	54	15	2,026	142	89	36	34
Deaths .. ..	13	3	2	—	1	4	—	2	2	—
Deaths (0-1 year) .. ..	42	38	73	25	15	365	51	55	30	20
Infant mortality rate (per 1,000 live births) .. ..										
Deaths (excluding stillbirths) .. ..	4,089	626	583	192	111	4,129	625	559	143	110
Annual death rate (per 1,000 persons living) .. ..			12.1	12.1				12.3	9.2	
Live births .. ..	9,630	1499	1225	498	304	9,672	1536	1054	410	266
Annual rate per 1,000 persons living .. ..			24.7	31.4				21.2	26.3	
Stillbirths .. ..	258	25	32			261	38	34		
Rate per 1,000 total births (including stillborn) .. ..			25					31		

\* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

## EPIDEMIOLOGICAL NOTES

## Smallpox

At Barnsley, after an interval of four weeks, the sixteenth case was detected and removed to hospital on June 30. The diagnosis has been confirmed by the recovery of variola virus on egg culture. The patient is a woman aged 62, vaccinated in infancy and during the 1914-18 war. She is suffering from a modified attack which began on June 24. A discrete rash appeared on June 28. The source of infection is at present undetermined.

At Bilston a schoolboy aged 10 was removed on July 2 on suspicion. A rash had appeared on the previous day. He had been vaccinated on June 23. Confirmation of diagnosis is not yet available.

## Poliomyelitis

Notifications for the week ending June 28 show a further increase to 56, compared with 44 in the previous week and 8 in the corresponding week of 1946. The disease is widely scattered over the country, some three dozen sanitary districts being involved.

## Polio-encephalitis

Polio-encephalitis notifications have also jumped to 11 from an average of 2 to 3 a week. It is not yet known whether this rise is merely a reflection of the incidence of poliomyelitis or whether there is in fact a prevalence of encephalomyelitis and encephalomeningitis distinguishable from anterior poliomyelitis and resembling the series of cases described by Jennings (*Lancet* 1947, 1, 471). An increase in cerebrospinal fever notifications to 57 may have some significance in this connexion.

## Notification of Puerperal Fever to Cease in London

The London County Council is proposing to promote legislation next session to provide that puerperal fever shall cease to be a notifiable infectious disease and a dangerous infectious disease for the purpose of the Public Health (London) Act, 1936. In the provinces puerperal fever was notifiable up to September, 1937, under the Infectious Diseases (Notification) Acts, but these were repealed by the Public Health Act, 1936, and the disease was omitted from the list of notifiable diseases in section 343 of that Act. Puerperal pyrexia is notifiable in London under Regulations issued in 1926 and 1928 by the Ministry of Health, and in the provinces under Regulations issued in 1939, which, except in London, replaced the earlier ones. The Regulations are difficult to understand, and the statistics obtained on the present basis have been found valueless. As the separate notification of puerperal fever in London is not found to serve any useful purpose, it is considered that the Public Health (London) Act should be amended by the removal of puerperal fever from the list of notifiable infectious diseases and also from the list of dangerous infectious diseases. This will leave puerperal pyrexia to be dealt with solely by Regulations of the Minister under the Public Health Act, 1936, and by orders of the L.C.C. and the sanitary authorities under the London Act.

## Discussion of Table

In England and Wales there was an increased incidence of whooping-cough 45, scarlet fever 37, diphtheria 25, while a decrease was reported for measles 164 and acute pneumonia 52.

The returns for scarlet fever and whooping-cough for local areas showed only small variations from the total notifications of the preceding week. The only large fluctuation in the local incidence of diphtheria was an increase of 25 in Lancashire, these cases being dispersed throughout the county and not due to a localized outbreak. The downward trend in the notifications of measles ceased in several counties, the largest increases being London 122, Glamorganshire 107, Sussex 104; the only large decreases were Yorkshire West Riding 432 and Surrey 130.

Although the total number of notifications of dysentery were practically unchanged, the cases were more widely dispersed. The 47 cases were notified in 21 counties—compared with 48 notifications from 14 counties in the preceding week. All the cases of smallpox notified were from Bilston U.D., Staffs. There were 44 cases of poliomyelitis—an increase of 13 on the high level of the preceding week—involving 21 counties. The only area with a number of cases was Barrow-in-Furness C.B., Lancs., where 5 cases were notified.

In Scotland there was an increase in the notifications of acute primary pneumonia 60, and scarlet fever 24, while decreases were recorded for measles 34, whooping-cough 21, dysentery 20, and cerebrospinal fever 8.

In Northern Ireland the chief features of the returns were increased incidence of measles 10, scarlet fever 5, and diphtheria 4. Six cases of typhoid fever have been notified in Belfast up to June 26.

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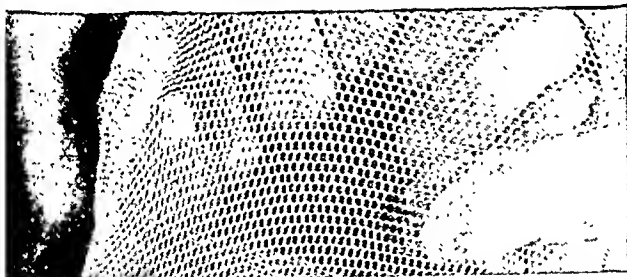
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In *Eire* notifications of diphtheria increased by 9, while those of diarrhoea and enteritis fell by 8. The 24 cases of diphtheria were mainly isolated cases and involved 18 registration areas.

### Week Ending June 28

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 947, whooping-cough 2,052, diphtheria 182, measles 9,377, acute pneumonia 342, cerebrospinal fever 57, acute poliomyelitis 56, dysentery 66, smallpox 2, paratyphoid 10, typhoid 10.

## Universities and Colleges

### UNIVERSITY OF MANCHESTER

The following candidates have been approved at the examinations indicated:

M.D.—S. B. Rampling.

FINAL M.B., Ch.B.—Barbara Anderson, Margaret Bagshaw, Mary L. Barrett, J. Bengier, J. I. Beniley, P. Brooks, D. L. Chadwick, Elizabeth H. Clow, Sheila A. Costello, P. J. Croxford, L. Dawson, J. Dubberley, R. D. P. Eaton, G. Fairclough, I. Feingold, J. R. C. Fleet, P. D. Fowler, S. E. Gilbert, Ruth Goodier, B. Goodman, K. S. Holt, Christine M. Hope, Thelma B. Hoyle, A. K. Karfoot, I. P. Kirby, N. P. Lancaster, W. Lees, D. C. Lindars, \*Muriel Lister, G. P. Love, H. C. Lowe, A. T. Mason, J. G. Mathie, H. L. Matthews, J. O. Miller, J. H. Mulliner, A. Murphy, J. Nagington, J. A. Nightingale, L. M. Norburn, J. Rimington, S. L. Royce, Margaret E. R. Stoneman, D. B. Stott, C. H. Thompson, J. T. L. Unsworth, G. W. Waters, \*Lettitia E. Woodvine. *Part I: Forensic Medicine and Hygiene and Preventive Medicine*: Barbara Anderson, Margaret Armistead, Doreen N. Ashworth, Ben J. G. R. Attwood, H. de C. Baker, M. Bernstein, F. B. Beswick, Margery F. Blumberg, Joan Bolton, P. H. Broadwell, A. Braddock, A. B. Bradshaw, M. A. Brennan, Dorothy E. N. Briggs, J. Broadhurst, R. W. Buckley, F. Connor, Nancy M. Cessetti, J. L. Cotton, J. G. Cottrell, J. A. L. Derrin, M. Fasnacht, G. E. Fleetwood, D. L. Fox, B. Gill, Barbara Hall, Barbara C. Hanson, B. Hendy, D. D. Hilton, Constance M. Jorrock, Muriel M. Hughes, J. D. Hunt, H. Jackson, Jean Kershaw, Alexandra J. Climan, Freda W. Lunt, C. A. Mays, Winifred J. Millar, S. Panikkar, K. M. Pearce, Dorothy Pearson, S. D. Pratt, K. Rawnsley, Regina Reif, Patricia Rhodes, N. R. Riley, Jean M. Sheldon, Beatrice E. Sleight, L. Smith, P. J. D. Snow, J. A. Steele, B. Stone, Ruth Tattersall, D. B. S. Taylor, I. G. Taylor, R. M. Taylor, Helen L. S. Tennent, W. L. Tonge, J. B. D. Torr, K. Tuxford, J. D. Millers, D. L. Watson, H. Weiss, Doreen Wilkinson, J. L. Wilkinson, B. L. Williams.

\* With second-class honours. † Awarded distinction in obstetrics.

M.D.—*Part II*: H. A. Cole, R. Cotter, Kerr, M. G. McColl. *Part I*: C. L. Casimir, E. Smith.

### UNIVERSITY OF DUBLIN

#### SCHOOL OF PHYSIC. TRINITY COLLEGE

The following medical degrees were conferred on July 2:

M.D.—W. P. Griffin, P. Jabkovitz, H. D. McGorry, L. L. Nel, A. E. B. de Courcy Wheeler.

M.Ch.—G. E. Nevill.

M.B., B.Ch., B.A.O.—H. A. Adams, A. D. H. Browne, C. R. Deuchar, Marion F. Gaston, M. V. Graham, E. R. Haynes, Evelyn M. Holberton, Monica A. Jackson, A. J. E. Kilpatrick, F. Kirkpatrick, G. B. Leitch, E. A. McColl, J. M. McCormick, R. M. Peet, Marjory A. Pollock, M. S. Strong, Elisabeth M. Wann, Ruth R. Watson, J. L. Wilkinson, I. Wilson.

### UNIVERSITY OF GLASGOW

James Norman Davidson, M.D., D.Sc., professor of biochemistry in the University of London, has been appointed to the Gardiner Chair of Physiological Chemistry in the University of Glasgow, in succession to Prof. G. M. Wisbart.

### ROYAL COLLEGE OF SURGEONS OF ENGLAND

#### ELECTION TO THE COUNCIL

On July 3 Mr. R. J. McNeill Love was re-elected and Mr. A. Lawrence Abel and Mr. J. B. Oldham were elected members of the Council of the College. In addition Sir James Walton received the requisite number of votes but is prevented by the terms of the 1947 Charter from taking his seat on the Council as he has already served for sixteen years. There will, therefore, be a vacancy until the next election. The Fellows elected were:

	Votes
Robert John McNeill Love (Royal Northern) ..	839
Sir James Walton (London) ..	835
Arthur Lawrence Abel (Princess Beatrice) ..	637
James Bagot Oldham (Royal Liverpool United)	629

The following were the other candidates:

Arthur Dickson Wright (St. Mary's) ..	609
Hubert Wallace Symons (General Infirmary at Leeds) ..	557
Harold Clifford Edwards (King's College) ..	478
Louis Carnac Rivett (Middlesex) ..	356
Marriott Fawcner Nicholls (St. George's) ..	277

In all 1,563 Fellows voted: in addition six votes were found to be invalid.

## Medical News

### The Association of Surgeons

The Association of Surgeons of Great Britain and Ireland held its annual dinner in the Hall of Christ Church, Oxford, on July 3 with the President, Sir Hugh Cairns, in the chair. Prof. Geoffrey Jefferson, F.R.S., proposing the toast of the Association, quoted Southey and Spratt as witnesses against the volubility of those who make public utterances. In referring appreciatively to some of the early members of the Association of Surgeons, he said that a man who was incapable of worshipping heroes was lacking in one of the great qualities of the human spirit. Those who with Moynihan had started the Travelling Surgical Club had as one of their aims the breaking down of the jealousy unfortunately characteristic of surgeons in some other countries. Prof. Jefferson coupled the toast with the name of the President. In response Sir Hugh Cairns gratefully acknowledged the hard work done by the Hon. Secretary of the Association, Mr. H. W. S. Wright, and its Hon. Treasurer, Mr. R. M. Handfield-Jones. He paid a tribute to the memory of two absent friends—the late Mr. Tudor Edwards, who is now commemorated in the Tudor Edwards Travelling Fellowships in Thoracic Surgery; and the late Hugh Whitelocke. Sir Hugh gave a message of welcome to the Association from Dr. Elliot Cutler. He spent some time in discussing the evolution of the Nuffield Clinical School of Medicine in Oxford. He pleaded that they should not aim at producing a standard type of surgical professor, and that they should avoid excessive regimentation and standardization in their schools. Sir Alfred Webb-Johnson, in a characteristically humorous speech, proposed the health of the guests, welcoming in particular those from other countries: Prof. René Leriche, Prof. H. E. F. Albert, Prof. R. Danis, Prof. J. de Faumestreaux, Dr. Lortat-Jacob, Prof. L. Mayer, Prof. J. Morelle, Dr. L. Bazy, Prof. W. Noordenbos, and Dr. W. K. Livingston. He thanked those whom he described as their hosts and guests: Sir Richard Livingstone, Vice-Chancellor of Oxford University; and the Dean of Christ Church. It was fitting, he said, that Sir Hugh Cairns, as a Rhodes scholar, should hold the first Commonwealth Travelling Fellowship. Sir Alfred paid a handsome tribute to their benefactor, Lord Nuffield, whom Sir Hugh Cairns had described earlier as "the Cowley father of modern medicine." Responses were made on behalf of the guests by Sir Richard Livingstone and by Prof. René Leriche.

### More Nurses

Presenting medals and certificates at the Middlesex County nurses' examination on June 20, the Minister of Health said that more girls were entering the nursing profession now than before the war—about 14,000 annually compared with something over 11,000. Under the National Health Service two developments that would help to provide the best possible training for nurses would be wider facilities made available by the regionalization of hospitals and the fact that the desirability of full student status for the nurse in training was becoming increasingly recognized.

### Dental Surgery at Glasgow

Sir Hector Hetberington, Principal of Glasgow University, announced at the annual prize-giving ceremony on June 27 at the Glasgow Dental Hospital and School that the University had taken over the control of dental education in Glasgow and would institute a degree in dental surgery. The University will select next year's entry of students to the Dental School.

### Free Supplies for Day Nurseries

Every child attending a day nursery both in the morning and in the afternoon is now allowed two-thirds of a pint of liquid milk (or national dried milk when necessary) free of charge. Free cod-liver oil (6 oz. for 12 weeks) and a bottle of orange-juice (price 5d.) every 4 weeks is also allowed. Day nurseries should register for benefit under the Welfare Foods Service as set out on Form WF/DN.15, obtainable from the Ministry of Food. A day nursery not administered by a welfare authority should submit this form to the medical officer of health for certification that it is entitled to receive benefit. The local food office will then make the necessary arrangements. The milk benefit is applied for on Form WF/DN.4, which is renewable at quarterly intervals and obtainable from local food offices. The source and quality of the liquid milk must be approved by the medical officer of health.

### Called to the Bar

Jeffrey Murray Robertson, M.B., B.S. (Inner Temple), and Thomas Kemp Homer, M.B., Ch.B. (Gray's Inn), were called to the Bar on June 18.



## Wills

Dr. John Wallace, of Weston-super-Mare, who died on Feb. 13, aged 90, left £32,846. Mr. Christopher Tredwell Holford, of Tiverton, Devon, formerly senior surgeon of Burton-on-Trent Infirmary, left £34,492. Dr. George Montgomery Drury, of Cheadle Heath, Stockport, left £2,372. Mr. Walter Graham Stewart, of Ware, Herts, left £26,548. Sir Richard Robert Cruise, surgeon oculist to King George V and to Queen Mary, owner of the famous steeplechaser War Gratuity, left £40,215. Sir Walter Langdon-Brown, of Cambridge, left £23,630. Mrs. Catherine Mabel Ederley, of Menston, Yorks, one of the first women to qualify and an authority on the Brontes, left £29,533.

## COMING EVENTS

## Athletics

The City and Hospitals Charity Athletic Contest for the *Financial Times* Challenge Shield is being held at the London University Sports Ground, Motspur Park, Surrey, on July 12. The first event is at 3 p.m. Admission at the gate is 1s. 6d.

## Labour Saving Hospitals

An exhibition of labour-saving devices for use in hospitals will be opened by the Minister of Health on July 14 at 3 p.m. at the Empire Tea Centre, 22, Regent Street, London, S.W.1. It has been organized on behalf of the Ministry of Health by the British Electrical Development Association and the British Gas Council. Exhibits will include special cleaners and polishers, a bed-pan sterilizer, cooking utensils and ice-cream makers, laundry apparatus, and suggestions for brightening the domestic staff's private rooms. The exhibition is open in the morning only to hospital representatives, and to the public every afternoon from 1-5.30 p.m. It will close on Aug. 2.

## The Physiology of Lactation

The Kent Paediatric Society has arranged for Dr. H. Waller to give two addresses on "The Physiology of Lactation and the Causes of Early Failure" at the County Hospital, Farnborough, on Tuesdays, July 15 and 22, at 8 p.m. Hospital paediatric and maternity nurses, midwives, and health visitors are invited to attend the lectures.

## Kelynaek Memorial Lecture

Prof. F. L. Golla, F.R.C.P., director of the Burden Neurological Institute, will deliver the inaugural Kelynaek Memorial Lecture on "Alcohol and the Neuroses" before the Society for the Study of Addiction at Westminster Hospital Medical School, Horseferry Road, London, S.W., on Tuesday, July 15, at 4 p.m.

## Tuberculosis Conference

The joint annual conference of the Tuberculosis Association and the Tuberculosis Society of Scotland will be held in the Department of Zoology, King's Buildings, West Mains Road, Edinburgh, on July 16, 17, and 19. The programme is as follows: July 16, 10 p.m., opening address by the Marchioness of Linlithgow; 4.5 p.m., Dr. H. A. Pattison (New York), "Rehabilitation in the U.S.A."; 4.45 p.m., discussion, to be opened by Mr. T. Holmes Sellers, "Assessment of the Results of Thoracoplasty," followed by a general discussion in which several thoracic surgeons will give brief reviews of their results; 8.15 p.m., annual general meeting of the Tuberculosis Association; 9.15 p.m., Dr. H. P. Tait, "Edinburgh Medical Men at the Time of the Resurrectionists." July 17, 9.30 a.m., Dr. H. Van den Berg (Amsterdam), "The Control of Results in B.C.G. Trials"; 11 a.m., Dr. J. G. Scadding, "The Pneumonias Associated with Epidemic Respiratory Infections"; 2 p.m., Dr. V. Reilly, "The Pathology of Amyloidosis"; 3 p.m., Dr. W. M. Borthwick, "Genito-urinary Tuberculosis"; 4.45 p.m., Prof. V. Monaldi (Naples), "Endocavitary Aspiration in the Treatment of Pulmonary Tuberculosis"; in the evening there will be a special performance of "The Anatomist" in the Little Theatre. July 19, 9.30 a.m., Mr. Norman Dott, "Skeletal Traction, Surgical Decompression in the Management of Pott's Paraplegia"; 11 a.m., discussion on "The Causes of the Breakdown of Discharged Quiescent Cases," to be opened by Dr. Alex. MacLean and Dr. B. R. Clarke. July 18 will be devoted to recreation, with a golf match at Gullane, an excursion to the Border country, and a garden party in the afternoon; in the evening there will be a joint annual dinner, preceded by a reception at the Grand Lodge of the Freemasons.

## Penicillin Treatment of Syphilis

A joint meeting of the Medical Society for the Study of Venereal Diseases and the Section of Experimental Medicine and Therapeutics of the Royal Society of Medicine will be held at 1, Wimpole Street, London, W., on Thursday, July 17, at 5.15 p.m., when a discussion on "The Treatment of Syphilis with Penicillin" will be opened by Dr. Earle Moore (U.S.A.), Dr. G. L. M. McElligott, and Dr. E. M. Louric.

## Modern Anaesthesia

Dr. I. W. Magill has accepted the invitation of the Royal Institute of Public Health and Hygiene (28, Portland Place, London, W) to be the Bengué Memorial Award Lecturer for 1947. His subject is "A Review of Modern Anaesthesia," and the lecture will be delivered at the institute on Thursday, July 17, at 3 p.m. Admission is free, without ticket. Seats may be reserved upon application to the secretary of the Institute.

## APPOINTMENTS

Dr. Vincente Banet and Dr. José Lastra have been appointed president and vice-president respectively of the National Society of Surgery of Cuba.

Mr. J. F. Foster, formerly registrar of the University of Melbourne and secretary of the Australian Vice-Chancellors' Committee, has been appointed secretary of the Universities Bureau of the British Empire, on the retirement of Mr. W. B. Brander.

Dr. P. S. Selwyn-Clarke, C.M.G., M.C., has been appointed Governor and Commander-in-Chief of the Colony of Seychelles.

John Watkins-Pitchford, M.D., has been appointed H.M. Inspector of Factories.

BIRMINGHAM: SELLY OAK HOSPITAL.—Chief Assistant Surgeons, A. R. Leach, F.R.C.S., J. R. A. White, F.R.C.S.Ed., G. R. Clarke, F.R.C.S.Ed., Chir. Assistant Physicians, W. M. Philip, M.B., M.R.C.P., W. P. U. Jackson, M.D. M.R.C.P., I. A. Guest, M.D., M.R.C.P., Chief Assistant Gynaecologist and Obstetrician, M. L. Neville, M.B., D.R.C.O.G., Anaesthetist, T. H. Hobbes, M.B., D.A., Resident Assistant Anaesthetist, J. E. McCutcheon, M.B., Ch.B., BLACKWOOD, WILLIAM, M.B., F.R.C.S.Ed., Assistant Pathologist, National Hospital, Queen Square, London, W.C.

QUEEN MARY'S HOSPITAL FOR THE EAST END, Stratford, E.—Honorary Assistant Obstetric Surgeons, H. H. Fouracre Barnes, F.R.C.S., and B. G. Spier, F.R.C.S.Ed.

REES, HARLAND, M.Ch., F.R.C.S., Surgeon, St. Peter's Hospital for Stone, Henrietta Street, London, W.C.

SEYMOUR-JONES, ANTHONY, F.R.C.S., D.L.O., Honorary Assistant Surgeon to Ear, Nose, and Throat Department, Portsmouth and Southern Counties Eye and Ear Hospital.

## SOCIETIES AND LECTURES

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East, S.W. Tuesday and Thursday, July 15 and 17, 5 p.m. Humphry Davy Rolleston Lectures by Dr. P. C. P. Cloake: Treatment of Disseminated Sclerosis by Artificial Pyrexia and Prolonged Administration of Arsenic.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.—Thursday, July 17, 6.15 p.m. Charles Tomes Lecture by Prof J. G. Turner: Movements of Teeth.

## ROYAL SOCIETY OF MEDICINE

General Meeting of Fellows.—Tuesday, July 15, 5.30 p.m.

Section of Experimental Medicine and Therapeutics.—Thursday, July 17, 5 p.m. Annual general meeting: Election of Officers and Council for 1947-8. 5.15 p.m. Joint Meeting with the Medical Society for the Study of Venereal Diseases. Discussion: The Treatment of Syphilis with Penicillin. Openers: Drs. Earle Moore, G. L. M. McElligott, and E. M. Louric.

BRITISH INSTITUTE OF RADIOLOGY, 32, Welbeck Street, London, W.—Thursday, July 17, 8 p.m., Twenty-fourth Mackenzie Davidson Memorial Lecture by Dr. John H. Lawrence (University of California): Application of Artificial Radioactivity to Biology and Medicine.

MEDICAL SOCIETY OF LONDON, 11 Chandos Street, W.—Monday, July 14, 8.30 p.m. Mr. F. A. Williamson-Noble, Contact Lenses; Dr. G. B. Dowling, Athlete's Foot; Mr. A. Dickson Wright, Pruritus Ani.

## BIRTHS, MARRIAGES, AND DEATHS

The charge for an insertion under this head is 10s. 6d. for 18 words at first. Extra words 3s. 6d. for each six or less. Payment should be forwarded with the notice, authenticated by the name and permanent address of the sender, and should reach the Advertisement Manager not later than first post Monday morning.

## BIRTHS

BEALE.—On June 27, 1947, at Bridgwater, to Violet, wife of Dr. J. Hanway Beale, a daughter.

## MARRIAGES

BROWN—DANOS.—On June 25, 1947, Arthur Edward Brown, L.R.C.P., M.R.C.S., D.P.H., and Irene Danos, Budapest, Hungary.

EVANS—MORE.—On May 31, 1947, at Ipswich, Gordon M. Hylton Evans, M.R.C.S., L.R.C.P., to Hannah Mary More, S.R.N.

ILLINOWORTH—REDHEAD.—On July 3, 1947, in Newcastle-upon-Tyne, Professor Ronald Illinoworth, M.D., F.R.C.P., D.P.H., D.C.II., to Cynthia Mary Redhead, M.B., B.S., M.R.C.P.

LOVETT—HARRY.—On July 5, 1947, at Peterstone-super-Ely, Glamorgan, William Charles Donald Lovett, B.Sc., M.B., B.Ch., B.S., to Frances Mary Harry.

RUTTER—STEVENS.—On July 5, 1947, at Caxton Hall, London, S.W.1, Clarence Rutter, M.R.C.S., L.R.C.P., to Mrs. Mary Stevens.

WALTERS—LARGE.—On June 30, 1947, in London, Geoffrey A. Bagot Walters, F.R.C.S.Ed., to Mrs. Daphne Large (née Pullin-Thompson).

## Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

### Acute Poliomyelitis

**Q.**—I am of the opinion that acute anterior poliomyelitis is related to gastro-intestinal infection, and that the main essential treatment is complete evacuation of the alimentary tract. Constipation is usual, but in the few cases where diarrhoea has occurred I regard this as the attempt of a healthy bowel to expel toxins. Is my theory correct?

**A.**—Recent evidence has shown that the virus of poliomyelitis appears in the faeces for some days or even weeks after onset of the infection, and that the virus probably reaches the central nervous system from the bowel, since it has been demonstrated in the abdominal sympathetic ganglia. In the pre-paralytic stage of the infection, characterized particularly by fever and irritability, gastro-intestinal symptoms may be present, although they are not usually prominent features. The modern view is that the majority of patients affected with the virus of poliomyelitis develop only these pre-paralytic symptoms, and these cases are called "abortive" poliomyelitis. What determines the development of the paralytic stage in the minority of cases is still unknown, although severe muscular exercise is probably an important predisposing factor. It seems unlikely that purgation or the natural occurrence of diarrhoea in the early pre-paralytic stage will affect the course or severity of the infection.

### Physics of Odour

**Q.**—Is anything known about the physics of odour? We know that sensations of smell are conducted from the olfactory nerve endings, but how do they get there? What sort of particles does the smelling substance emit, and how do they traverse the air? Has any measurement been made of the air content of odoriferous particles? Does an odoriferous substance decrease in weight as a result of emission of such particles? Can they be seen or cultivated?

**A.**—There is a general belief that material particles of odoriferous substances must come into contact with the olfactory receptors and that the actual stimulation is due to some chemical action. There can be no doubt that the odoriferous substance is carried in the air, but very small weights of such substance may scent a room for years without apparent loss of weight. Threshold concentrations have been measured for some substances, but naturally the threshold varies for different individuals and in the same individual from time to time, but the following threshold concentrations are given: skatol,  $3 \times 10^{-11}$ ; synthetic musk,  $4 \times 10^{-11}$ ; mercaptan,  $3 \times 10^{-9}$  % in air (w/w). The loss of weight of a substance required to give these concentrations in usual surroundings, say a room, although exceedingly minute is nevertheless calculable.

### Ichthyosis

**Q.**—A patient with severe ichthyosis from birth has seemed more normal during hot weather and especially in the Tropics. After return from the Tropics the skin became as bad as ever. On a course of thyroid extract he appeared to be sweating more and his skin became more scaly than usual, but the scales desquamated leaving the skin smooth and almost normal. How much thyroid can I give him, and for how long, apart from looking for symptoms of hyperthyroidism? Will prolonged dosage do harm and will any children be adversely affected? His brother has the same complaint, and his mother has a rough skin but no scaling. Can you suggest any other form of treatment?

**A.**—Ichthyosis is a congenital abnormality of the skin, often familial, and cannot be permanently influenced by treatment, though some little change occasionally occurs at puberty or the menopause. Thyroid by mouth increases metabolism and sweating and so may produce symptomatic improvement while

the drug is being administered. As a general rule it is wiser to control ichthyosis by local treatment, such as warm baths and the use of the following ointment:

R		
Acid. salicyl.	.. ..	gr. 10 (0.65 g.)
Lanolin.	.. ..	
Ol. oliv.	.. ..	
Glycerin.	.. ..	āā ad 1 oz. (30 g.)
Halden's emulsifying base	.. ..	
Paraff. moll.	.. ..	
	Ft. ung.	

There is probably no harm in the prolonged administration of thyroid extract in reasonable dosage, to a total of not more than 1 to 2 gr. (65 to 130 mg.) a day, but it would seem unjustifiable to give larger doses unless there was any indication otherwise of thyroid deficiency. The affection is one that tends to be inherited, and reference should be made to *Inherited Abnormalities of the Skin*, by E. A. Cockayne (1933, Oxford University Press, London).

### Chronic Bronchitis and Emphysema

**Q.**—A man of 72 is subject to chronic bronchitis and emphysema. The attacks started twenty years ago and have since increased in severity and frequency. Iodides, stramonium, and ephedrine have given only temporary relief. Recently it has been necessary to take ephedrine tablets daily, though the effect is less marked than before. X-ray examination of chest is negative. What do you advise?

**A.**—This description suggests that the patient has chronic bronchitis with attacks in which bronchial spasm is superimposed. In this disorder dyspnoea in the early stages is due mainly to bronchospasm and is relieved by ephedrine. With the passage of years irreversible changes occur in the lung parenchyma, diminishing its elasticity; it is to these that the dyspnoea of the later stages must be ascribed. The history reveals this change, for a dyspnoea on effort is gradually grafted upon, or replaces, the episodic asthmatic breathlessness. Treatment at this late stage is difficult and often unavailing, but the most useful therapeutic measure is the education of the patient, by means of breathing exercises, to use his damaged respiratory apparatus in the most efficient manner possible.

### Vitamin D<sub>2</sub> and Pyrexia

**Q.**—Can concentrated vitamin D<sub>2</sub> cause pyrexia, as well as digestive disturbances? A young woman with pulmonary tuberculosis of four years' standing recently became sputum-positive without increase in radiological signs and with no obvious temperature disturbance. She had a course of calcium and vitamin D<sub>2</sub>, but after the sixth dose of the latter pyrexia and general malaise developed. The vitamin was discontinued and after eight or nine days the temperature subsided. Was this coincidence, or could the vitamin treatment have influenced this phase of pyrexia?

**A.**—Pyrexia has not been reported in patients not suffering from tuberculosis given massive doses of vitamin D. Side-effects such as sweating, nausea, vomiting, anorexia, headache, diarrhoea, and polyuria have been reported after taking very large doses—for example, more than 200,000 units daily over a period. It is not stated in the question how much vitamin D<sub>2</sub> was taken. As the pyrexia occurred only after the sixth dose of vitamin D<sub>2</sub>, and as toxic effects result only after prolonged administration of large doses, it is unlikely that the pyrexia in this case was caused by the vitamin.

### Gastric Analyses

**Q.**—Much time is occupied in carrying out large numbers of gastric analyses with test meals. I believe that as much information could be obtained from the fasting juice, after previous preparation of the patient by a stomach wash-out, etc., followed by examination of a sample after administration of histamine if free hydrochloric acid is not found in the fasting juice.

**A.**—Gastric secretion is a valuable function which may be influenced by many different circumstances. The ordinary fractional test meal is open to so many possible errors that its

value as a diagnostic procedure in cases of uncomplicated peptic ulcer is doubtful. In the investigation of a patient with an anaemia or suspected carcinoma of the stomach, however, a secretion test may be important, and in these instances it is the presence or absence of hydrochloric acid which is looked for. Preliminary lavage may interfere with the secretion of gastric juice and therefore should not be done. No test meal is given, but specimens must be withdrawn at regular frequent intervals for two hours after the injection of histamine, otherwise a minimal response may be missed.

### Femoral Thrombosis

**Q.**—A woman of 64 had a left femoral thrombosis a year ago, caused by confinement to bed for kraurosis vulvae. She is now quite well except for the leg, which becomes swollen and painful with even mild exercise. What treatment do you advise, and what are the prospects of recovery?

**A.**—The condition having settled down, it only remains to deal with the swelling which is the cause of the pain. Bandaging with real elastic bandages (not crêpe) will keep down the swelling below the knees, and that usually suffices. Raising the foot of the bed at night is also very helpful in reducing swelling and cramp. The amount of residual swelling is often greatly reduced by lumbar sympathetic procaine blocks during the active phase of thrombosis, but unfortunately in the present case the opportunity for this helpful procedure has now passed.

### Pediculosis Capitis

**Q.**—For three months I have been treating a friend who has pediculosis capitis with this mixture: "Lethane 384," 49 parts; ol. petrol. alb., 49 parts; ol. citronel., 2 parts. This has been applied four to six evenings a week after careful removal of nits, but has had no effect beyond reducing the nit population and alleviating scalp irritation. My friend deals with large numbers of children and has taken precautions against re-infection. Can you suggest a reason for the failure of this treatment, and is there one more likely to succeed?

**A.**—Some millions of cases of pediculosis capitis have been treated with lethane, and where this has been properly carried out the writer does not know of one instance where three applications have not been completely successful and have not also prevented re-infection. The vast majority of individuals were cured with one application. The questioner here would apparently have made about seventy-five applications and, if he has carried out the proper instructions, will have used some pints of the medicament. The surprising factor is that some alleviation of scalp irritation is alleged, for it is more likely that this gross over-treatment would cause a dermatitis. If the treatment described has failed, no other treatment is likely to be more successful.

### Prostatitis

**Q.**—What is the treatment of non-specific prostatitis?

**A.**—The best treatment ought to be rectal diathermy followed by prostatic massage, but as active infection is present it should be supplemented by the use of one of the sulphonamides.

### Chronic Ulcer and Pemphigus

**Q.**—A man of 73 has had a chronic ulcer on the left great toe for two years. Culture produced a mixed growth of *Staph. aureus* and haemolytic streptococci and a heavy growth of coliform organisms. The ulcer was dressed with penicillin cream, and sulphathiazole tablets were given at the same time, but they appeared to cause an acute dermatitis of the foot. Allantoin-sulphanilamide preparations were also tried with the same result. The urine is negative for albumin and sugar. The patient has chronic rheumatoid arthritis, and chronic pemphigus vulgaris of the scalp and front of chest. Can you suggest treatment for this latter condition as well as for the toe ulcer?

**A.**—The patient should be seen by a dermatologist. If the diagnosis of pemphigus is confirmed there is no effective treatment and the ultimate prognosis is bad. It is presumed that x-rays have revealed no local cause for the ulcer of the toe. In the absence of organic nervous disease, it is possibly due to

vascular degeneration. Trauma or pressure is another likely causative factor, and resolution depends on treatment of the cause, which is almost certainly not infective. Cod-liver oil or 0.5% parachlorophenol in a bland base may be used locally.

### Titanium

**Q.**—May I have information regarding titanium for clinical use, or details of literature on the subject?

**A.**—Titanium dioxide is used in face powders and other toilet articles in place of zinc oxide. Titanium salts appear to diminish erythema and pruritus in certain dermatoses. There is on the market a proprietary desiccant paste for exudator dermatoses, containing titanium dioxide, zinc oxide, and small quantities of purified silicates in a fat-free base. Ointment containing titanium salts are also useful in irritation, dermatitis, localized eczema, sycosis barbae, pruritus after insect bites, erythema of solar dermatitis, and ulceration associated with varicose veins. They are said to be of some value in psoriasis.

## NOTES AND COMMENTS

**Pink Disease.**—Dr. W. G. BRANDER (Rochampton, S.W.) writes: With reference to the answer to the question on pink disease (Jun 21, p. 911), I was interested to see that no reference was made to the use of potassium chlorate and acid. hydrochlor. dil., as recommended by Peckham in the *South African Medical Journal*, 1941, 20, 474. This article was summarized in *Abstracts of World Medicine*, 1947, 1, 380. Peckham's treatment is not a direct answer to your correspondent, but might be of value to him in the treatment of his case.

**Ejaculatio Praecox.**—"V.B.G.-A." writes: Without labouring the point that the wise men came from the East, might I advise that the ejaculatio praecox patient referred to (June 28, p. 958) should follow the age-old Oriental practice of anointing the corona with a little 1% ung. cocain. just beforehand or, if preferred, with ung. opii. Either damps down the immediate reflex, and it will be found that after a few occasions it can be discontinued. I have prescribed this scores of times since I was told of it years ago by an ancient hakim in Calcutta and have never known it fail or give rise to any "habit."

## INCOME TAX

All inquiries will receive an authoritative reply but only a selection can be published.

### Commencement of Practice

M. E. has been demobilized and contemplates setting up in general practice. How should he deal with income tax demands for tax on his residence and income not taxed at source?

He is advised to get in touch with the local inspector of taxes, inform him as to the date as from which the practice is commenced, and undertake to supply a statement of account at the end of the first year of the practice. He should complete the usual form of claim to "married" and children allowance and ask that these allowances be set against the untaxed income, or alternatively that the tax assessed on that income should remain in abeyance until his first year's practice results are known. He will be entitled to deduct as professional expenses a reasonable proportion of the Schedule A assessment on the house, of the cost of running a car (including depreciation) and of such general expenses as cost of domestic service, telephone, etc. Cost of maintenance of drugs, instruments, medical library, etc., is permissible, but not the capital outlay of initial purchase or improvement of such assets. If the results of the practice working show a loss relief can be claimed against his own or his wife's taxed income.

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Attolsey* (Western), London. ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Authors desiring REPRINTS should communicate with the Publishing Manager, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs. Authors overseas should indicate on MSS. if reprints are required, as proofs are not sent abroad. ADVERTISEMENTS should be addressed to the Advertisement Manager, B.M.A. House, Tavistock Square, London, W.C.1 (hours 9 a.m. to 5 p.m.). TELEPHONE: EUSTON 2111. TELEGRAMS: *Drimedads*, Western, London. MEMBERS' (should be sent to the SECRETARY of the Association, London. B.M.A. SCOTTISH OFFICE: 7, Drumsheugh Gardens, Edinburgh.

# SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY JULY 12 1947

## British Medical Association

### ANNUAL REPRESENTATIVE MEETING, 1947

The Annual Representative Meeting of the British Medical Association will be held at B.M.A. House, Tavistock Square, London, W.C.1, on Tuesday, July 22, and succeeding days.

### RESOLUTIONS BY DIVISIONS AND BRANCHES

#### NATIONAL HEALTH SERVICE ACT

**Amendment by MARYLEBONE:** That the second half of the third paragraph of Section 20 is an inadequate and therefore misleading account of the events to which it refers.

(The part of para. 20 to which this amendment refers is—

"As a result of the plebiscite, a small majority of the profession expressed themselves against discussions on the regulations. The Special Representative Meeting on Jan. 28, 1947, on consideration of the plebiscite results, expressed its willingness that discussions should be entered into with the Minister, provided that such discussions were comprehensive in their scope and that the possibility that they might lead to further legislation was not excluded.")

**Amendment by MARYLEBONE:** That the following:

"90% of the entire profession took part in this plebiscite. The result of this was that 64% of general practitioners and 55% of the whole profession expressed themselves against discussions on regulations."

"Consequently, the Council drew up a resolution for the consideration of the S.R.M. on Jan. 28, 1947, to this effect. However, at subsequent emergency meeting the Council withdrew this resolution and substituted one which expressed willingness that discussions should be entered into with the Minister, provided that such discussions were comprehensive in their scope and that the possibility that they might lead to further legislation was not excluded."

"The reason for the change was the belief that the Minister of Health was showing signs of a more conciliatory attitude, as revealed in a letter addressed to the Presidents of the three Royal Colleges. The R.M. were informed of this belief and, in the hope that it was justified, they welcomed the possibility of conciliation and co-operation on the Minister's part so warmly that they passed the resolution by a large majority in spite of the plebiscite figures."

be substituted for the words referred to above.

#### Report of Negotiating Committee

**Motion by NEWCASTLE-UPON-TYNE:** That this meeting is of the opinion that the Negotiating Committee should be asked to make an early report of the progress and discussions with the Minister.

#### Meetings of Local Units

**Motion by BATH:** That in the event of the Negotiating Committee failing to secure the Minister's agreement to the declared principles, all Divisions of the Association should be asked to meet, in order to instruct their representatives before a special meeting of the Representative Body is held to discuss the terms of a plebiscite. Further, that the Council of the Association should then give a strong lead to the profession in the light of the findings of this Special Representative Meeting when issuing the plebiscite forms.

#### Plebiscite

**Motion by BUCKINGHAMSHIRE:** (1) That in the opinion of this meeting the result of a future plebiscite be binding on the Council. (2) That, prior to any future plebiscite, the clearest possible exposition of the Association's policy as to the issues involved be circulated by the Council. The actual voting paper should be sent to the voter under separate cover and unaccompanied by any expression of opinion.

#### Superannuation for Specialists

**Motion by DERBY:** That the Negotiating Committee be requested to examine the claims for superannuation for specialists retiring from hospital service on the inception of the National Health Service.

**Remuneration of Medical Officers Employed by Local Authorities**

**Motion by LOTHIAN:** That the Negotiating Committees in England and Scotland, in their negotiations with H.M. Government,

should endeavour to ensure that the rates of remuneration of all medical officers employed by local authorities should be uniform throughout Britain.

#### A Rota of Practitioners

**Motion by PADDINGTON:** That in any National Health Service adequate provision shall be made for a rota of practitioners for duty at night, week-ends, holidays, and during sickness.

#### Distribution of the Profession

**Motion by READING:** That, in view of the reason given by the Minister at the second reading of the Act for the abolition of the buying and selling of practices, as being necessary in order to correct maldistribution of practitioners, the Council formulate and publish a positive plan showing how this object could be achieved by other means

#### Health Centres

**Motion by SOUTHAMPTON:** That (1) in view of the fact that the medical profession may be concerned with the staffing of Health Centres to be set up in the National Health Service, it is important that a definite policy with regard to their construction, siting, and organization be adopted, and (2) the Representative Body instruct the Council to make definite plans regarding the construction, staffing and functions of Health Centres to be set up in the National Health Service.

#### Nominations for Statutory Bodies Under the Service

**Motion by NORTH STAFFORDSHIRE:** That this meeting demands that the profession's nominations to all statutory bodies under the new National Health Service be approved by the Minister of Health.

**Motion by TORQUAY:** (a) That the Negotiating Committee be instructed to press for a regulation that medical nominations to local Executive Councils be made at a General Meeting of practitioners in the area, serving under the Act. (b) That the majority of medical representatives on local Executive Councils should be in active general practice, whereas on the Regional Boards the majority should be consultants.

**Motion by MID-ESSEX:** To ensure satisfactory representation of the profession on any of the proposed administrative bodies set up by the Minister, he shall ask the medical practitioners concerned to nominate only as many freely elected representatives as there are vacancies.

#### Midwifery Services

**Motion by STRATFORD:** That the Representative Body take the following stand:

1. That all practitioners registered under the present Medical Acts shall be entitled to undertake domiciliary obstetrics under the National Health Service Act.

2. That ten years' experience in domiciliary obstetrics is an adequate preliminary condition of entry to an examination for a postgraduate diploma in obstetrics.

3. That, if the conditions governing examination for existing diplomas cannot be varied in this respect, an appropriate diploma should be newly established.

4. That the above recommendation should be conveyed to the Negotiating Committee.

#### GENERAL PRACTICE

#### Fees for Medical Examinations in connexion with Life Insurance

**Motion by the CHAIRMAN of the GENERAL PRACTICE COMMITTEE:** That the following recommendation of Council be adopted:

That Minutes 119-133 of the A.R.M., 1920, and Minute 81 of the A.R.M., 1935, regarding the fees payable for medical examinations in connexion with life insurance be rescinded and the following substituted therefor:

(1) That a "short" form of medical report be approved for use in the case of all insurances where the amount of the policy does not exceed £300, the fee for the completion of this form of report to be 10s. 6d.

(2) That for a medical examination and report in cases where the amount of the policy exceeds £300 the fee shall be £1 11s. 6d.

(3) That no attempt be made to standardize the £1 11s. 6d. form

of report, but that where the form required by the life office is exceptionally extensive a fee of £2 2s. should be payable.

(4) That where, in the case of an insurance for an amount not exceeding £300, the office requires a fuller examination than is provided in the "short" form, the office may use its ordinary form at a fee of £1 11s. 6d.

(5) That in all cases the fee appropriate to the examination, and the amount of the policy, should be printed on the form.

Amendment by BARNSTAPLE: That no report to insurance companies by a medical practitioner should receive a fee of less than £1 1s.

Amendment by NORTH STAFFORDSHIRE and WILLESDEN: That the Council be instructed to press for a fee of £2 2s. for medical examinations where the amount of a life insurance policy is £300 or over.

Amendment by TORQUAY: That the fee for the short form of medical report mentioned in sub-para. (1) should be £1 1s. If a more extensive form is required the fee should be £2 2s.

Amendment by WORCESTER AND BROMSGROVE: That in the opinion of this meeting, in cases where the policy amounts to £1,000 or over the fee shall be £2 2s.

Motion by MARYLEBONE: That the British Medical Association shall make a recommendation, after consultation with the Life Offices Association, on the question of the payment of fees when proposers fail to keep appointments with doctors.

#### *Fees for Police Calls and for Attendance on Members of Police Forces*

Amendment by TORQUAY: That in view of the discrepancy in the time between paras. 22 and 88 of Council's Report, the time has come when the hours constituting day and night visits should be standardized.

Amendment by TORQUAY, and KENSINGTON AND HAMMERSMITH: That the hours constituting a day visit should be 9 a.m. to 8 p.m. and the night visit 8 p.m. to 9 a.m.

#### *Fees for the Administration of Anaesthetics to Persons receiving Dental Treatment as an Additional Benefit under the National Health Insurance Acts*

Motion by the CHAIRMAN OF THE GENERAL PRACTICE COMMITTEE: That the following recommendation of Council be adopted:

That where practitioners are requested to administer anaesthetics to insured persons receiving dental treatment as an additional benefit under the National Health Insurance Acts, the following fees should be paid:

*For the simple administration of nitrous oxide or similar anaesthetic:*

Fee per administration, for the extraction of:

1-5 teeth	.. .. .	10s. 6d.
6-10 teeth	.. .. .	£1 1s. 0d.
11-20 teeth	.. .. .	£1 11s. 6d.
21 or more teeth	.. .. .	£2 2s. 0d.

always provided that an increased fee shall be payable in specially difficult circumstances.

Amendment by CARDIFF: That the recommendation be referred back for further consideration, with a view to the introduction of a flat rate.

#### *Fees for Medical Certificates under the Lunacy and Mental Deficiency Acts, and for Recommendations under the Mental Treatment Act*

Motion by the CHAIRMAN OF THE GENERAL PRACTICE COMMITTEE: That the following recommendation of Council be adopted:

(i) That the existing policy of the Association relating to the fees for medical certificates under the Lunacy and Mental Deficiency Acts, and for recommendations under the Mental Treatment Act, be resumed:

(ii) That there be substituted therefor the following:

(1) *Fees for Medical Certificates under the Lunacy Acts:* A fee of at least two guineas should be paid.

(2) *Fees for Medical Certificates under Mental Deficiency Act:* The fee for medical certificates under the Mental Deficiency Act, signed by the "usual medical attendant," should not be less than two guineas.

(3) *Fees for Recommendations under Mental Treatment Act:* In cases where a "recommendation" is made under the Mental Treatment Act for a private patient the fee should be a matter of arrangement between the relatives and the practitioner concerned, but in public assistance cases a fee of not less than two guineas would appear to be appropriate.

Amendment by DERBY: Fees for medical certificates under the Lunacy Acts—a fee of at least two guineas should be paid (1) whether the certificate is completed or not, (2) whether the certificate is completed and the patient is discharged by the Justice.

#### *"Doctor" Signs on Cars*

Motion by KENSINGTON AND HAMMERSMITH: That with reference to para. 28 of Annual Report of Council further action be taken with a view to securing the removal of all "doctor" signs from cars.

#### *Supplementary Clothing and Other Coupons*

Motion by SWANSEA: That, with reference to para. 37 of Council's Report, appropriate action be taken to secure a freer use of gowns in view of the fact that when coupons are presented it found that they cannot be honoured. The same applies with regard to rubber gloves.

#### *Fees for Mileage and Visits for Local Authorities and Government Departments*

Motion by BARNSTAPLE: That fees paid by public authorities including Government Departments, for mileage and visits should be standardized.

#### *Public Medical Service: National Deposit Friendly Society*

Motion by DARTFORD: That the present rates of payment under the Public Medical Service and the National Deposit Friendly Society be reconsidered in view of increased cost of drugs, etc., so as to compare with the higher fees now paid for other medical services of a like nature.

#### *Reports to Coroners*

Motion by DERBY: That when a practitioner is requested by a coroner to furnish him with a medical report in respect of a deceased person for whom a death certificate cannot be supplied in the usual manner, the coroner shall pay the practitioner a fee of one guinea for such a report.

Motion by ROCHDALE: That steps be taken by the Association to secure payment on a uniform scale for medical reports to coroners in all cases.

#### *The Scope of General Practice*

Motion by LEEDS: That the Council be instructed to resist to the utmost any attempt to diminish the present scope of general practice.

#### *Doctors' Cars*

Motion by GREENWICH AND DEPTFORD: That this meeting is dissatisfied with the present arrangements made by the Association for obtaining doctors' cars, and urges the Council to take appropriate action to secure definite priority.

#### *Doctors' Evening Surgeries*

Motion by SHEFFIELD: That this Representative Meeting consider that the time has now arrived when it is no longer in the public interest that doctors' evening surgeries should continue to the present late hour. There should be an immediate review of times of surgery hours.

#### *Certification*

Motion by ABERDEEN AND KINCARDINE COUNTIES: That at this meeting, while appreciating the need for certification during the present world shortages, deplores the increasing number of certificates which doctors are asked to give, and recommends that in future all demands for further certification should be submitted to a sub-committee of the General Practice Committee and passed reasonable before the profession is asked for these certificates.

#### *NATIONAL HEALTH INSURANCE*

##### *Medical Records of Demobilized Persons*

Motion by WORCESTER AND BROMSGROVE: That with reference to para. 53 the Council be asked to investigate the legal position as to the use of these medical records for any purpose which is for the benefit of the patients, including pensions appeals.

#### *Certification*

Motion by PADDINGTON: That, with reference to para. 55 of Council's Report, certification shall only appertain to the witnessing of a signature and not vouch for the accuracy of the material contents of the said certificate.

#### *SPECIAL PRACTICE*

##### *Rules for the Government of Groups and Consultants' and Part-time Consultants' Rolls*

Amendment by WORCESTER AND BROMSGROVE: That, with reference to para. 62 of Council's Report, this meeting, being desirous that the views of part-time consultants and specialists should receive adequate consideration, is of the opinion that membership of Consultant and Specialist Groups should be open to members of the part-time Consultants and Specialists Roll.



*Salaries of E.M.S. Specialists*

Amendment by WORCESTER AND BROMSGROVE: That, while approving para. 68 of Council's Report as a step in the right direction, this meeting is of the opinion that the increases allowed are insufficient and should be accepted only on the understanding that such acceptance is without prejudice to scales of remuneration in any future health service.

*Access to Ancillary Departments of Hospitals*

Amendment by GREENWICH AND DEPTFORD: That, with reference to para. 71 of Council's Report, this meeting regrets the obscurity of Council's recommendation and feels that until ancillary departments are adequately staffed the "open door" policy is fraught with danger.

**HOSPITALS***Shortage of Nurses*

Motion by KENSINGTON AND HAMMERSMITH: That Council should ask the Minister of Health to give urgent attention to the solution of the problem created by the grave shortage of nurses, since it is affecting the health of the nation.

*Remuneration of Practitioners holding Junior Hospital Posts*

Motion by PLYMOUTH: That the present remuneration for junior hospital posts is entirely inadequate and the British Medical Association should formulate a scale of salaries for adoption by all hospitals.

**PUBLIC HEALTH***Practitioners Employed Part-time by Local Authorities*

Amendment by EAST YORKSHIRE: That the Annual Representative Meeting, 1946, having approved the recommendations of Council relating to a minimum scale of fees appropriate to part-time medical work on a sessional basis, this meeting views with dismay the action of Council in propounding a lower scale of fees to which its negotiations with other bodies would appear to have committed the profession, repudiates such action as prejudicial to the present and future interests of the profession, as well as a betrayal of the mandate sought by the Council and accorded at its request, and reaffirms resolution 100 of A.R.M., 1946.

Amendment by NEWCASTLE-UPON-TYNE: (1) That the mileage fee for consultants agreed at the A.R.M., 1946, is inadequate and should be increased. (2) That a consultant called to an emergency case for consultation followed by operation should receive a consultation fee in addition to the mileage and operation fees.

*Trade Union Membership*

Motion by GATESHEAD: That the attention of the Minister of Health be drawn to the flouting of his recommendation as to the non-enforcement of the "closed shop" principle, as applied to doctors, by various local authorities in the country.

*Salaries in Public Health Service*

Amendment by NORTH STAFFORDSHIRE: That the Council be instructed to reconsider the minimum salaries for whole-time consultant and other appointments.

Motion by CARDIFF: That, with reference to para. 80 of Annual Report, when the revision of the Askwith scale of salaries in the Public Health Service takes place the new scale should be retrospective from April 1, 1946.

Motion by GATESHEAD: That the inadequacy of the present salary award to whole-time Public Health Medical Officers be emphasized and that care should be taken in future negotiations that any salary scale for whole-time officers be considered in relation to increases in fees payable for part-time Public Health and Hospital work.

*Milk*

Motion by HARROW: That, with reference to para. 84 of Council's Report, this meeting considers that the breadth of the problem demands consideration by an Inter-Departmental Committee of the Government, including the Ministries of Food, Agriculture, Health, and any other Department concerned with the production and distribution of milk; and requests Council to press the Government for the appointment of such a Committee.

Motion by MARYLEBONE: That this meeting wishes to impress upon the Minister of Health the urgent necessity of action by the combined efforts of the Ministers of Health, Food, and Agriculture in order to ensure that clean safe milk is made available as efficiently as possible.

**FINANCE***Subscription to the Association*

Amendment by GREENWICH AND DEPTFORD: That this meeting is of the opinion that the time has now arrived when an increase in present subscription rates should be considered.

**MEDICAL ETHICS***Rules of the Central Ethical Committee relating to Complaints regarding Professional Conduct*

Amendment by NEWCASTLE-UPON-TYNE: That this meeting agrees to the expulsion of a member who has accepted an appointment subject to an important notice in the *Journal*, but that all other cases of ethical conduct should originate in the Branch or Division.

**ORGANIZATION***Expenses of Members attending Meetings*

Motion by GREENWICH AND DEPTFORD: That this meeting approves the principle of payment of expenses of members attending meetings, but considers that the rates suggested by the Organization Committee are inadequate and would still debar the younger member accepting office, and recommends that they be doubled.

[Note: The rates suggested by the Organization Committee were as follows: That, in addition to first-class return railway fares (including sleepers), payment of subsistence allowances be made to members of the Association attending centrally arranged meetings on the following basis:

For absence from home over 8 hours .. .. .	10s. 0d.
Where stay overnight is necessary an additional .. .. .	£1 0s. 0d.
Where a sleeper is claimed the overnight payment to be reduced to .. .. .	10s. 0d.

Where attendance on consecutive days does not necessitate the use of hotel accommodation payment on the day basis only to be made.)

Motion by GATESHEAD: That, with reference to para. 96 of the Annual Report of Council, payment of representatives attending central meetings should be on a factual basis of actual submitted expenses up to a predetermined maximum.

Motion by LEEDS: (1) That Representatives, Members of Council and members of Standing Committees or other Committees or meetings for the conduct of business of the Association arranged centrally be paid out of the general funds of the Association subsistence allowance at a rate to be determined by the Representative Body from time to time.

(2) That By-law 86 be amended to read as follows:

The expenses of any person which in pursuance of the 49th Article of Association are to be defrayed out of the general funds of the Association are the first-class travelling expenses (including where necessary the cost of a sleeping berth) within Great Britain and Northern Ireland of that person together with such allowance for subsistence as may be determined by the Representative Body from time to time.

(3) That the subsistence allowance payable to members under By-law 86 shall be as follows:

1. For each day on which the member shall be engaged away from his practice for not less than 8 hours between 8 a.m. and 8 p.m. .. .. .	10s. 0d.
For each night spent in travelling .. .. .	10s. 0d.
For each night where it is necessary to stop in a hotel .. .. .	£1 0s. 0d.

**GENERAL MEDICAL COUNCIL***Election of a Woman Practitioner as a Direct Representative of the Profession on the General Medical Council*

Amendment by PLYMOUTH: That the existing procedure is adequate to ensure that a woman can be elected to the G.M.C. on her merits.

**PUBLIC RELATIONS***Information Service at B.M.A. House*

Motion by BATH: That the Public Relations Committee of the Association be urged to encourage its activities in giving to the public authoritative information on hygiene and medical progress such as is obviously popular when supplied by other agencies.

**EXECUTIVE COUNCILS IN SCOTLAND**

The Secretary of State for Scotland has fixed the areas that the 25 Executive Councils will administer under the National Health Service (Scotland) Act. Glasgow, Edinburgh, Dundee, and Aberdeen will each have an Executive Council, as will the counties of Angus, Ayr, Caithness, Dumfries, Dunbarton, Fife, Inverness, Lanark, Orkney, Renfrew, Ross and Cromarty, Sutherland, and Zetland. An Executive Council will be appointed to each group of counties as follows: Aberdeen and Kincardine; Argyll and Bute; Banff, Moray, and Nairn; Kirkcudbright and Wigtown; Midlothian, West Lothian, East Lothian, and Peebles; Perth and Kinross; Roxburgh, Berwick, and Selkirk; Stirling and Clackmannan. The members of the Councils are expected to be appointed in a few weeks' time.

## MEDICAL ORGANIZATION IN DENMARK

### THE STATE SERUM INSTITUTE

BY

PETER KRAG

*Head of Department, State Serum Institute, Copenhagen*

The State Serum Institute was established in 1902. The main object was the production of diphtheria antitoxin serum, but it was intended to take up similar work on other diseases according to the possibilities arising. Since then its development has been stamped by the Institute's being the sole central laboratory for diagnostic bacteriology and serology in the country. Besides considerable extension of the diagnostic work the Institute comprises larger and smaller factory-like plants for the production of sera and vaccines, and in connexion with these much scientific work is carried on—applied science as well as pure research.

The diagnostic work is arranged in several departments. A department for general bacteriology carries out all diagnostic bacteriology, including Widal and Bunnell tests; the tuberculosis and pneumococcus diagnoses are undertaken in separate departments, where also the production of tuberculin and anti-pneumococcal sera is carried out; a serodiagnostic department is responsible for the serological diagnosis of syphilis and gonorrhoea. Further, there are a special department for blood typing and dried serum production, and a hormone department (9,000 tests for pregnancy in 1945). Production proper is managed by the serum department (diphtheria antitoxin and vaccine; convalescent sera), the anaerobic department (other sera), and the vaccines department (smallpox vaccine and bacterial vaccines). The Calmette vaccine is produced in the tuberculosis department (40,000 persons vaccinated during 1945). In connexion with serum production a physico-chemical department performs concentration of the sera. All the finished products pass through a control department. Two special departments take care of the international work carried out at the Institute, namely, the department for standardization of sera and toxins, and the Salmonella Centre. There is a considerable plant for the production of foot-and-mouth disease vaccine. Virus research, which is going on in two or three departments, has not yet a department of its own.

Common to these special branches are the administration, scientific library, stables and farming, and departments for culture medium preparation, cleaning, workshops, supplies, etc.

#### Diagnostic Service

Any doctor and any hospital have the right to send samples to the Institute for diagnostic purposes, and they may requisition packing and blank forms free of charge. All tests of importance for the control of epidemic disease are carried out gratis, while prices for other tests have been fixed in accordance with the actual expenditure of the department in question, given in a quarterly note of account. Payment follows from the hospitals direct (i.e., from the commune or county in question). Doctors are liable for tests carried out in connexion with private practice, but have a right to charge the cost with their fee. In panel practice the doctor simply fills in the name of the panel on the form, and the panel gets a quarterly note of account covering the investigations requisitioned by a number of panel doctors.

Every doctor in the country gets an annual survey (in the Organization's *Pocket Book*) of the diagnostic facilities offered, together with a list of prices. Applications for free investigations may be met in the case of research work or if the patient is poor.

Samples are received throughout the twenty-four hours. Serological investigations are started at 10 a.m. (Widal tests repeatedly during the day); bacteriological examinations are taken from 9 a.m. to 11 p.m.; particularly important samples are dealt with during night hours also. The results are sent by mail; but telephone and telegraph are used in accordance with doctors' wishes and whenever it is deemed necessary by a positive finding of, for instance, typhoid bacilli. With each

answer, on the back of the form, an explanation of the results obtained is given, and the diagnostic consequence likely to ensue is suggested.

As the size of the country in relation to the railroad system makes it possible for samples to reach the Institute within six to eighteen hours, the whole area of Denmark is covered, even the remotest corners of Jutland. It is true, however, that doctors in some parts of the country have to take a sample from their patients (e.g., for gonococcus culture) just before the train leaves.

The departures from the system of centralized diagnosis are few and may in part be looked upon as virtual outposts of the Institute: (1) Many doctors do their own microscopy with regard to gonorrhoea and tuberculosis. (2) Most clinical laboratories (in the hospitals) manage the diagnosis of *Bact. coli*, staphylococci, etc., in cultures from urine and pus, and the microscopical diagnosis of gonorrhoea and tuberculosis. (3) Most hospitals diagnose diphtheria by the culture method. (4) The Institute has for some years run eight auxiliary laboratories for pneumococcus typing, and one for gonococcus diagnosis by culture. These provisional laboratories are being developed at present.

As the culture methods are vastly superior to microscopy for gonococci and tubercle bacilli, there is an increasing demand that samples should go direct to the Institute in order to secure the best possible basis for diagnosis and control. As for diphtheria, the Institute is the only place where type and virulence can be ascertained.

#### Material for Education and Records

Material from the Institute is utilized by the university in the training of medical students, and its routine methods are taught. It is a rule that alterations occurring in the diagnostic methods are described and accounted for in the Organization's weekly *Ugeskrift for Læger* (corresponding to the *B.M.J.*). A post-graduate course is usually held at the Institute annually. It is attended chiefly by a few doctors wanting to specialize in research work or who require an addition to the hospital training.

As the Danish population is rather small, about four million, a survey is manageable, and the Institute is able to run a series of indexes, comprising, for instance, all typhoid and paratyphoid carriers, all tuberculous patients, all syphilitics, all patients with a positive gonococcus complement-fixation reaction or positive gonococcus culture, and all members of authorized blood donor corps. These indexes are kept up to date from the results registered in the various departments and by means of compulsory notification from practitioners and from hospitals, sent through medical officers. The indexes give information to any doctor inquiring into the case history of a patient, and in return are provided with the information necessary for registration and classification. The Institute receives ten to forty inquiries daily by letter or telephone from doctors wanting advice on diagnosis and therapeutics—which tests should be used in a certain case, how a result should be interpreted, or what is the correct use of the Institute's sera and vaccines. Some of the questions, however, are referred to specialists among the chief physicians or professors in the capital.

Sera and vaccines are distributed to hospitals, clinics, and doctors upon written or telephoned requisition at any time of the day or night. Payment follows the rules for diagnostic investigations mentioned above. Since the panel institutions refuse on principle to pay for any prophylactic measure—some of the vaccines form exceptions to the rule—the patients have to pay themselves. Diphtheria vaccine, however, is free of charge; and, as for vaccination itself, a law was passed a few years ago fixing doctors' fees and stating what public institutions are liable for payment.

#### Income and Expenditure

The size of the Institute appears from the following figures for 1945-6.—Employees: laboratory, 249; administration, stables, cleaning, workshops, etc., 379. Income: about £150,000; expenditure: about £300,000. The annual deficit is

met by Parliamentary vote; the cost of new plants and buildings is covered by special grant.

The number of samples received per year approaches one million, divided into groups as follows: bacteriology, 300,000; serology, 500,000; others, 100,000.

### Public Health and Research

A central institute is an immensely valuable organization, when the size of the population is less than five to six million and proper means of communication are at hand. It means that all diagnoses become comparable. It is easy to maintain a high technical standard, since the use of controls necessitates only a proportionately small amount of work. The doctors and hospitals can send the day's diagnostic material in one package. The Institute receives a large and uniform quantity of material suitable for the evaluation of practical routine work as well as for research. It is also possible for the staff to survey diagnostic and epidemiological problems of the whole country; and therefore the State epidemiologist, who is called for as adviser to the medical officers whenever an epidemic shows signs of becoming serious, has his daily activities divided between the Board of Health and the Institute.

The following are minor disadvantages of the centralized work: the large scale on which the work has to be done is accomplished only by means of a somewhat factory-like organization, and a certain skeleton-like treatment of the individual sample may ensue; unfortunately, also, the subordinate laboratory personnel have a very monotonous and unqualified task. The staff may find it difficult to keep abreast of the scientifically important material accumulating.

Research work is considerably furthered by the possibilities for team work naturally afforded by a branched and full-grown central institute providing efficient and highly qualified technical assistants in many fields. Problems of room and personnel may here be more easily settled since not all departments are fully loaded at the same time. But, on the other hand, if planning for extensions and new buildings is neglected the resulting disadvantage is considerably more serious than in the case of minor laboratories, where the difficulties may perhaps be overcome by the addition of an extra room or two. Further, an independent, central institute with a monopoly may lead to stagnation, since criticism and new ideas are seldom brought forward or perhaps dismissed as not well founded. A fruitful scientific reciprocal relation can be established only with similar institutes in foreign countries.

The leading posts of the Institute are filled by physicians and pharmacists who are permanent functionaries; all have to regard the Institute situation as full-time employment not allowing any paid extra job. This means that at the age of 40-45 they have become specialists within a narrowly limited field and have very little opportunity indeed for obtaining favourable conditions elsewhere. This feeling of dependency is to some extent compensated by the excellent access to scientific work offered by the Institute—in theory. In practice, long periods of necessary routine work together with want of space may tend to diminish the possibilities for research work. To our young medical assistants an appointment of from two to four years means a valuable scientific scholarship, since the routine work they are called upon to carry out can be accomplished within three or four hours of the day, while culture media, chemicals, animals, etc., are placed at their free disposal—granted of course that the principals approve of the research plan in question.

### Freedom from Financial Profit

In my opinion it is an essential advantage that the Institute is not a private enterprise with a demand for a certain annual balance, since this might lead to a price policy obstructing many useful investigations of importance to the patients as well as to science. If the standard of scientific work in a country's sole central institute can be maintained equal to that of other countries, and if the institute's daily experience is utilized in the right way, the central institute constitutes the most economical and manageable solution to the practical and scientific problems connected with bacteriology and serology.

### RELEASE FROM THE FORCES

The following is the latest information received by the Central Medical War Committee on the arrangements for the release of medical officers in Class A.

**Royal Navy.**—July 1-Aug. 31: Group 62; Sept. 1-30: Group 63.

**Army.**—General Duty Officers: July 1-Aug. 15: Group 60; Aug. 16-Sept. 30: Group 61. Specialists: July 1-31: Group 51; Aug. 1-31: Group 52; Sept. 1-30: Group 53.

**Royal Air Force.**—July 1-31: Group 60; Aug. 1-31: Group 61; Sept. 1-30: Group 62.

### HEARD AT HEADQUARTERS

#### Self-certified

In the strange retort houses of the Ministry of Fuel and Power the ancient taunt, "Physician, heal thyself," becomes not a taunt but an injunction, "Physician, certify thyself." A correspondent raised with the Ministry the question of space heating in doctors' surgeries and asked about the necessary authority for such heating. He received in due course a reply from the Parliamentary Secretary stating that it was assumed that the reference was to a room in the doctor's own house which he used as a surgery. "If this is the case the use of gas or electricity, where necessary in the interests of his patients' health, can be covered by a certificate issued by himself." Then there followed the usual reminder of the need for economy. The certificate, presumably, will be something to this effect: "I, John Brown, certify that I, John Brown, am entitled to use a gas fire in my surgery." To whom is this certificate to go? Who is to "vet" it? What penalties are to be imposed if it is "untrue, misleading, or improper"? If a doctor who is himself neither a septuagenarian nor an infant (the certificate of course should be specific on that point) switches on his electric radiator, does the filling up of a certificate by himself legalize an illegal act? Where is the line to be drawn? May a doctor, on the ground that his own well-being is necessary to the health of his patients, certify himself as eligible for extra rations? This is surely another instance of the faith in form-filling which has descended on official bodies. Everything is all right if it is vouched for on the dotted line.

#### No Parking

The no-parking rule in certain streets in West and Central London has its advantages in speeding up traffic, but it can be very inconvenient to a doctor if he is required to park his car a considerable distance away from the premises to which he has been called. Fortunately the streets affected by the new order are mostly non-residential; nevertheless, doctors are called in emergencies to business premises. The Association has asked the Commissioner of Metropolitan Police whether a practitioner who is called to a sudden emergency may be allowed to park his car in the prohibited area. An ambulance is permitted to stop in a no-parking street, and the doctor on an emergency call is on no less important an errand.

#### Scotland under Dissection

The Registrar-General for Scotland described to the Royal Statistical Society the other day the projected third Statistical Account of Scotland, which is being undertaken through the generosity of the Nuffield Foundation. The first Statistical Account was completed at the beginning of the nineteenth century, and the second in 1845. It is much more than a census: it is a collection of information on the way of life of each local community, the attitude of the people to work and leisure, the changes in public and social services, and it includes local customs and traditions, local ballads and sayings, and even medicinal cures or food recipes which are peculiar to the parish under review. Four preliminary surveys are already being undertaken, each under the special supervision of one of the Scottish

universities—namely, in the counties of Ayr, East Lothian, and Fife, and the city of Aberdeen. For this purpose the goodwill of many national and local bodies in Scotland has been secured, among them the Scottish Council of Social Services, the Convention of the Royal Burghs, the Association of County Burghs, educational institutes, and the presbyteries. Clergymen of every church, teachers of every school have been asked to co-operate. It was curious that not a word was said by the Registrar-General about the help which medical practitioners and medical officers of health could give in such a survey. Very possibly such help has been enlisted, but it was not mentioned. The doctor knows the lives of people behind doors which may be closed to ministers of religion. No one has a better knowledge of the domestic background to the social scene.

## Correspondence

### Buying of Practices

SIR,—In answer to my letter published in the *Supplement* of June 7 (p. 116) Dr. J. Michael Jones states (*Supplement*, June 21, p. 153) that I repeat the glib statement that up to 100% of the price of a practice may be obtained at low rate of interest; he had heard this stated so frequently, usually by old practitioners, etc. I must refute his statement, which I am in a position to do authoritatively, having recently availed myself of one of the schemes available. The bank did not require a guarantor. All the bank required was a life assurance policy to cover the amount of the loan, which policy had no surrender value, having been recently taken out, an assurance of personal integrity, and a copy of the audited accounts of the practice over the past six years. The bank take a charge on the goodwill of the practice and an assignment of the life policy; repayment is over ten years usually, but may in a few cases be extended to fifteen.

When one considers that a building society will usually loan 90% of the cost of a house over 20 years, it will be seen that very little capital is actually necessary for the purchase of a house and practice, and not many years of assistantship would be necessary to acquire these means.

It seems possible to me that the Treasury hope to make more than the 4% p.a. on medical practices after they have "taken over."—I am, etc.,

Prestatyn, Wales.

T. H. HARGREAVES.

SIR,—With reference to Dr. J. Michael Jones's letter (*Supplement*, June 21, p. 153) concerning the buying of practices, I would point out that last year I borrowed 100% of the amount to buy my practice without security save for £300 of saving certificates. The latter I need not have given, but I preferred to do so. The loan was arranged by a firm that advertises in the *Journal*, and my bank advanced the money. The same bank allowed an overdraft of £300, to run if necessary for five years. The loan is to be repaid in 15 years, interest being 4% per annum.

I have since borrowed a further substantial sum to buy another share in a practice, and this was arranged in five minutes over the telephone. References are of course required, but the only one I gave was from my former Army A.D.M.S. The only other condition is that a life insurance equivalent to the amount borrowed has to be held by the borrower. I should perhaps add that other firms are less obliging.—I am, etc.,

Newport Pagnell, Bucks.

A. A. CLAY.

### Extension of N.H.I.

SIR,—Dr. A. Crawford Mayer (*Supplement*, June 21, p. 153) comments on the N.H.I. Service. His suggestions, and others, are to be found in "The B.M.A.'s Proposals for a General Medical Service for the Nation" (1930). I would like to know why the B.M.A.'s admirable plan has attracted so little attention.—I am, etc.,

Chichester, Sussex.

G. T. RUTHERFOORD.

## Association Notices

### PROPOSED WEST WIGTOWNSHIRE DIVISION

Notice is hereby given by the Council of the Association that it is proposed to form a separate Division composed of the members of the Association in West Wigtownshire (at present included in the Dumfries and Galloway Division and forming part of the Border Counties Branch), and to attach this new Division to the Glasgow and West of Scotland Branch, the area of the Division being defined as follows: Wigtownshire with the exception of the parishes of Glasserton, Whithorn, Sorbie, Kirkcinner, Wigtown, and Penninghame. The area of the Dumfries and Galloway Division to be consequentially amended.

Any member affected by the proposal and objecting thereto is requested to write to the Secretary by Aug. 12 stating the objection and grounds therefor.

CHARLES HILL,  
Secretary.

### Diary of Central Meetings

JULY

- 22. Tues. Council, 11 a.m.  
Annual Representative Meeting, 2 p.m.
- 23. Wed. Annual Representative Meeting, 10 a.m.  
Annual General Meeting, 12.30 p.m.
- 24. Thurs. Annual Representative Meeting, 10 a.m.

### Branch and Division Meetings to be Held

EAST YORKSHIRE BRANCH.—At Quern House, Park Street, Hull Tuesday, July 15, 8 p.m. Discussion of agenda of Annual Representative Meeting and instruction of Representatives. Saturday, July 26, 3 p.m. Visit to "The Retreat," Haslington Road, York.

ISLE OF WIGHT DIVISION.—At Royal Isle of Wight County Hospital Nurses' Home, Adelaide Place, Ryde, Monday, July 14, 8.15 p.m. Dr. L. A. Hulst (Dean of University Hospital, Utrecht) "Experiences of Medicine in the Occupied Netherlands."

WESTMINSTER AND HOLBORN DIVISION.—At City Hall, Charing Cross Road, W.C., Thursday, July 17, 8 p.m. Agenda: Consideration of Supplementary Report of Council for 1946. To formulate amendments to published motions on agenda for A.R.M.

### Meetings of Branches and Divisions

#### EDINBURGH AND SOUTH-EAST OF SCOTLAND BRANCH

Dr. P. Martin Brodie, retiring President of the Branch, and Mr. Brodie received a large gathering of members and their friends at the Hall of the Royal College of Surgeons, Edinburgh, for the Annual Summer Meeting of the Branch on June 25. In welcoming the guests Dr. Brodie expressed to the President and Council of the Royal College the sincere appreciation of the Branch for the great privilege of being allowed to hold their meeting in the honourable precincts of the College. In replying, Mr. J. M. Graham, President of the Royal College of Surgeons of Edinburgh, hoped that this might be the first of many future occasions when members of the British Medical Association would be welcome guests.

Dr. Douglas Guthrie, Honorary Librarian, gave an entertaining account of the history and traditions of the ancient College from its foundation in 1505 to modern times. The social activities culminated in a sumptuous tea with strawberries and cream. After the reception the Annual Meeting of the Branch was held, the main business being the election of office bearers, with Dr. G. W. Ireland as the new President.

#### SOUTH-WESTERN BRANCH

The 107th Annual Meeting of the South-western Branch was held at Torquay on June 12, when Dr. F. D. M. Hocking, of Truro, resigned the chair to Dr. P. A. McCallum, of Torquay. Dr. McCallum gave his inaugural address on "The Practice of Medicine in Retrospect and Prospect." He said that they stood to-day at the close, or very near the close, of an era in medical history. They saw themselves threatened with governmental control becoming the servants of the State rather than the servants of their patients.

At this critical phase in the history of medicine what could they do to be saved? First, they must at all costs retain and safeguard their individual freedom to deal with their patients as they believe to be best. There must be freedom of judgment, action, speech, and publication. Secondly, if they were to retain their freedom probably one of their greatest needs was unity. The diversity of activities and interests within the profession made that difficult. They needed more opportunities for friendly intercourse and for discussion of their general and individual problems. Thirdly, they must preserve a due sense of proportion, uninfluenced by personal idiosyncrasies, personal likes and dislikes. And fourthly, their public relations must be developed and improved.

LONDON SATURDAY JULY 19 1947

## SOME ASPECTS OF HUMAN INFERTILITY

BY

ALBERT SHARMAN, M.D., Ph.D., B.Sc., M.R.C.O.G.

Senior Assistant Surgeon, Royal Samaritan Hospital for Women, Glasgow

Although infertility is one of the oldest of human problems it is only within the present century that real progress has been made in its study. But in these comparatively few years intensive work has been done on this subject, and the accumulated literature is now enormous. It is not my intention to refer to more than the essential relevant writings or to give an exhaustive account of the complete investigation and treatment of a barren marriage. It is proposed, rather, as indicated in the title of the paper, to discuss certain selected aspects of the subject which have been under personal study and investigation during recent years—namely: (1) The tubal status—patency and non-patency—as determined by insufflation in a consecutive and unselected series of 1,478 cases of primary sterility. (2) Therapeutic aspects of insufflation, based on 271 cases of pregnancy following insufflation in primary sterility. (3) Tuberculous endometritis and primary sterility—a study of 100 cases (the largest series ever recorded). (4) The causation of tubal occlusion.

## The Tubal Status

Patency of the lumen of the Fallopian tube is an obvious essential to conception. But the tube is not a static entity: not only does its muscular coat undergo peristaltic movements but its fibres increase and decrease in length with the phases of the cycle. Guthmann (1922) was the first to record the fact that tubal peristalsis was responsible for the manometric fluctuations on insufflation, and he based his conclusions on the fact that when the tubes were closed these fluctuations were absent. Müller (1944) has shown by hysterosalpingograms that peristalsis occurs in the tubes, both in the direction of the uterus and from the uterine end towards the fimbriae. In two cases of sactosalpinx he demonstrated that iodine masses moved from place to place as the result of peristalsis and antiperistalsis. Peristalsis has been observed by Westman (1930) in the monkey and by Mikulicz-Radecki and Nahmmacher (1926) and by Siegler (1944) in the rabbit. Peristaltic movements or contractions in the human tube had never been directly visualized until August, 1946, when I observed them during the course of an operation for the removal of a diseased ovary. I had been utilizing the opportunity for studying the effects of insufflation (per vaginam) on the tubes when their fimbriated ends were clamped. As soon as the pressure forceps were released peristaltic movements in the direction of the fimbriated ends were clearly seen and demonstrated to the assistant, house-surgeon, and anaesthetist. These movements were seen in only one of nine such experiments. As Ruddick (quoted by Siegler, 1944) has failed to notice any tubal peristalsis on peritoneoscopy in over 2,000 cases,

it is probable that the non-physiological conditions imposed by experiment were responsible for inducing peristalsis in my case.

Since the functional condition of the tube to a large extent determines the chances of fertilization it is obviously *desirable to investigate this aspect of the reproductive mechanism*. Although the available methods are not physiological they have the advantage of being easy to apply and of yielding sufficiently accurate information for clinical purposes. They should be adopted as part of the routine examination of the wife, for impairment of tubal function cannot be excluded by the ordinary bimanual examination, however carefully conducted.

The methods in general use fall into two main groups—those designed to investigate the passage of a gas through the genital tract (utero-tube insufflation) and those in which the condition of the tubes is revealed by their radiographic appearances after the injection of a suitable opaque substance (hysterosalpingography). It is proposed here to discuss only insufflation, for which purpose various types of apparatus have been described since the introduction of the method by Rubin in 1919. The outstanding advance in recent years has been the inclusion of the kymograph, which makes possible the registration of tubal contractions and thus takes into consideration the actual behaviour of the tubes during the test. Four types of record are obtained, corresponding to the following conditions: normal tubal patency, tubal spasm, tubal stenosis, and non-patency.

The total number of patients in the series whose tubes were insufflated amounted to 1,478, of whom about 400 had two or more insufflations. In most instances the test was repeated simply as a confirmatory procedure; in some it was done to compare the findings with and without anaesthesia; but in 22 patients six or more tests were done to study the behaviour of patent tubes over a considerable period of time. One patient was insufflated 23 times over a period of seven months and another daily for the 18 days between the conclusion of one period and the beginning of another.

A study of the behaviour of patent tubes as revealed by repeated insufflations shows that under similar conditions—for example, the consistency of the rate of flow of the gas—there is a noteworthy constancy in the appearance of the tracings obtained. No great difference, either in the level at which patency is established or in the appearance of the tubal contraction waves, is usually seen in any given patient when insufflation is repeated even after several months. Increase in the rate of flow of gas is sometimes followed by a great increase in the patency-pressure level and by more active deeper peristaltic waves, but this is not invariable. Around ovulation time (presumptive) more active or more frequent peristalsis may occur. This also

\*Being the substance of a paper read, by invitation, at the South African Medical Congress, Durban, October, 1946.



is variable, and there is no indication of any constant close correspondence between the type of tracing obtained and the stage of the endometrial cycle. On the other hand, repeated insufflations have shed some interesting light on the criteria of non-patency. The first point is that a single finding of non-patency is not reliable. This has been proved by the subsequent occurrence of a characteristic kymographic tracing of patency (corroborated by the presence of shoulder pain or by the demonstration of pneumoperitoneum), or by hysterosalpingography, or by the occurrence of pregnancy. In a consecutive series of 57 patients in whom the tubes were not permeable to gas on insufflation under anaesthesia, repetition of the test a few days later, without anaesthesia, showed normal patency in 39 (68.4%). This would indicate that only 31.6% of these cases showing non-patency on a single test actually have occluded tubes.

Insufflation has revealed apparent non-patency in 387 (26.2%) of the 1,478 cases. In the earlier cases the diagnosis was often made on a single test. The possible fallacy of this and its extent, when a finding of non-patency is obtained, has just been referred to: the incidence of non-patency was then 38% (480 cases). Within recent times a much more strict minimal criterion has been established—namely, two negative insufflations and a negative hysterosalpingogram—the last 998 cases show an incidence of non-patency of 20.5%. This is believed to represent very closely the real figure.

A negative insufflation is generally taken to mean that gas fails to pass at 200 mm. Hg (the usual upper limit). In the course of numerous experimental tests, using 250 mm. Hg as the upper limit, I have often found that gas has passed between these limits. We have not encountered any ill effects or sequelae since adopting as a routine the pressure of 250 mm. Hg as the upper limit. Moreover, insufflation experiments using high pressures have been conducted in the course of abdominal operations for tubal sterilization or salpingostomy. In two cases of tubal blockage (tuberculous) a sustained pressure of 250 mm. Hg was observed to make no apparent impression on the tubes, and in another similar case the finding was the same with a pressure of 320 mm. Hg. (In nine other cases in which the tubes had been artificially blocked at their fimbriated ends by clamps the results were inconstant; in some cases ballooning of the tubes occurred at pressures below 100 mm. Hg.) It is suggested that greater accuracy of results (and possibly therapeutic success) would be obtained if the routine upper limit of pressure of 200 mm. Hg were raised to 250 mm. Hg.

The investigation of the tubal status of young unmarried women affords an interesting comparison. Altogether 236 consecutive unselected subjects (aged from 13 to 39 years) were insufflated at the time of operation for a gynaecological complaint and in all but four the tubes were permeable to gas at the first test. Three of the four had insufflation repeated at a later date without anaesthesia and the tubes were then found to be permeable to gas. The fourth patient could not be traced.

#### Therapeutic Aspects of Insufflation

Of the 902 patients traced—primary sterility only—271 (30%) became pregnant. The main features may be summarized as follows: (1) 164 were under 30 years of age and 107 were 30 years or older when coming first under observation. (2) The oldest was 42 years (married four years)—she miscarried at two months. (3) 136 had been married three years or more, 47 five years or more, and one 13 years (aged 35). No patient who had been married for a longer period than this became pregnant. (4) Tubal

insufflation had been performed in 262 cases; patency had been diagnosed in 231 and non-patency in 31 (all the latter cases were early ones in the series, insufflated once only)—24 under anaesthesia and seven without it. The fallacy of a single finding of non-patency is apparent from these figures. (5) Pregnancy terminated in miscarriage in 50 (18.5%) of the 271, but seven subsequently had a full-term child; one further case had pregnancy terminated (in another hospital) for hyperemesis gravidarum, and another two for toxæmia (one at four months and the other at seven months); one patient had a tubal pregnancy four years after insufflation. Thus 224 (83%) bore a child (two cases had twins); one patient had three miscarriages and five patients had two—none has since gone to term. (6) The sex incidence of the infants was 49% male and 51% female. (7) *Time elapsing between insufflation and conception* (259 cases: in three of the 262 cases insufflated the date of occurrence of pregnancy could not be accurately ascertained).—Twenty-three pregnancies occurred within one month after insufflation, 22 within two months, 24 within three months, seven within four months, 17 within five months; and 15 within six months: a total of 108. Thus, 69 (27%) of 259 pregnancies occurred within three months of insufflation and 108 (42%) within six months. During the following six months 47 became pregnant.

Rubin (1945) reported a personal series of 573 cases of primary and secondary sterility that became pregnant after insufflation. Within three months of the test 265 (46.2%) became gravid, and within six months 378 (64%). Of 250 patients who were personally delivered 81.8% had full-term children. (This corresponds closely to my figure of 83% in 224 cases, already mentioned.)

#### Tuberculous Endometritis and Sterility

The examination of endometrium in a consecutive series of 1,898 cases of primary sterility has shown unsuspected tuberculosis in 100 (5.3%). In the first instance this finding was largely an accidental discovery in endometrium removed primarily with a view to the diagnosis of anovulation. The histological characters of the lesion and the proofs of its tuberculous nature have been fully described elsewhere. Space does not permit the discussing of these or the detailing of the biopsies and findings in each of the 100 cases, but the following essential points may be dealt with in more detail: (a) the high incidence of endometrial tuberculosis in sterility; (b) the evidence that this estimated incidence is minimal; (c) the duration of the disease; (d) the effect of curettage—the rate of recurrence; (e) the results of search for tuberculous history and for other tuberculous lesions; (f) the effect of bilateral salpingectomy; (g) the hopeless fertility prognosis; (h) the relationship of endometrial tuberculosis to tubal occlusion.

(a) *The High Incidence of Endometrial Tuberculosis in Sterility.*—Sutherland (1943) has reported the finding of tuberculosis in 100 endometria in a consecutive series of 7,670 cases (including sterility cases), giving an incidence of 1.3%. It has already been pointed out that in my series of 1,898 endometria the tuberculosis incidence was 5.3%. Further analysis shows that endometrial tuberculosis is 15 times more common in sterile than in fertile women.

(b) *Evidence that this Incidence is Minimal.*—In 58 of these patients biopsy was performed more than once: when performed twice it was tubercle-positive on both occasions in 7 patients, and once positive and once negative in 12 cases; when performed either three or four times in the remaining patients, on 40 occasions it was tubercle-positive and on 24 tubercle-negative. Obviously, therefore, in many instances no evidence of the disease was found on single occasions. This occasional absence of evidence prompted further study of the endometria concerned. The paraffin blocks were re-embedded

and reorientated so that further sections might be taken from the other end of the biopsy material. This was done in 12 blocks from six patients. Numerous sections were examined, but there was no evidence of tuberculosis in any of them, although many showed histological evidence of chronic endometritis. Further light in this connexion was shown by the examination of additional sections of the definitely positive biopsies: in several of the cases sections showed no evidence of tubercle follicles, although, in some, plasma and round-cell infiltration was marked. Moreover, in several cases in which biopsy material was divided negative histological findings and positive guinea-pig inoculation results were obtained. It may be concluded, therefore, that absence of signs of tuberculous endometritis in any given biopsy is not evidence that the disease is not present, and that the incidence figure of 5.3% in my series is an absolutely minimal one. Moreover, in any case of primary sterility showing histological evidence of chronic endometritis further sections should be examined for evidence of tuberculous lesions, and if such evidence is not found additional biopsy should be performed. *Chronic endometritis in case of primary sterility should be regarded as suggestive of tuberculous infection.*

(c) *Duration of the Disease.*—Endometrial tuberculosis was found to be still in evidence after the following lengthy periods of time in seven patients: 13, 7½, 7, 7, 6, 6, and 5 years.

(d) *Effect of Curettage.*—Although it was considered most improbable that even very thorough curettage of a tuberculous endometrium would "cure" the condition, studies were carried out to observe the recurrence of the tubercle follicle and to determine its time interval. Four sterile patients were investigated. The findings may be summarized: tuberculous endometritis was found to have recurred at the following intervals of time after thorough curettage under anaesthesia: 34 days, 0 days, 3 months, and 27 days. There seems little doubt, therefore, that reinfection of the endometrium rapidly recurs after curettage. The question naturally arises as to the location of the focus from which reinfection occurs. Two lines of investigation were pursued: (1) careful inquiry was made into the previous history of the patient, and a detailed search for tuberculous lesions in other organs of the body was carried out, and (2) the effects of bilateral salpingectomy were studied.

(e) *Results of Search for Tuberculous History and for other tuberculous Lesions.*—In none of these cases was pelvic tuberculosis diagnosed or suspected when endometrial biopsy was performed. Almost all were noted as enjoying good health, and, with the exception of seven cases, there was no history suggestive of tuberculosis in childhood or adolescence: the seven exceptions were: (1) aged 28, "pleurisy and gastroenteritis" at age of 17; (2) aged 29, "tuberculous gland of neck" at 5 years; (3) aged 24, "tabes mesenterica" at 14 nine months in sanatorium; (4) tuberculous gland removed with appendix at age of 17; (5) aged 23, "tuberculous peritonitis" at 14 (2½ years in sanatorium); (6) aged 26, "in sanatorium for ten months at age of 16—menstrual trouble"; and (7) aged 26 (laparotomy two years earlier in another hospital revealed abdominal tuberculosis). Radiographs of the chest were carried out in 51 of the 100 cases; all but eight were negative. Three of the latter showed active apical tuberculosis of both lungs, and the others had calcified plaques or old healed apical lesions. A large number of abdomino-pelvic radiographs were done, until it was seen that many cases of confirmed tubal tuberculosis showed no calcified glands, whereas many control cases (not sterility ones) did.

(f) *Effect of Bilateral Salpingectomy.*—In August, 1942, a patient complaining of dyspareunia and sterility was curetted under anaesthesia and insufflated. Gas failed to pass at 90 mm. Hg; the endometrium showed unmistakable tuberculous foci. Two years previously she had had a pelvic operation in another hospital. Inquiry there elicited the information that the operation had been "bilateral salpingectomy"; histological examination confirmed the diagnosis of tuberculous salpingitis. As the finding of tuberculous endometritis after salpingectomy was diametrically opposed to that of Solomons (1935)—namely, "removal of tubercular Fallopian tubes means cure of tuberculous endometritis"—it was felt that further investigation of the matter was essential. In three patients, complaining of primary sterility only, in which there was tuber-

culous endometritis but no palpable adnexal swellings, bilateral salpingectomy was performed. The following are the details:

*Case 1.*—Mrs. R., aged 23. On Jan. 7, 1944, curettage and bilateral salpingectomy were carried out; the fundus uteri and interstitial portions of the tubes were not excised. Biopsies were subsequently performed 12 and 14 weeks later. On both occasions tuberculosis of the endometrium was present. This finding confirmed that of the previous case—that removal of the Fallopian tubes did not cure endometrial tuberculosis—but it did not exclude the possibility that reinfection of the endometrium might occur from the intact interstitial portions. It was therefore decided to do a complete bilateral salpingectomy, including the fundus uteri, when opportunity offered. The following two cases were so treated.

*Case 2.*—Mrs. F., aged 39, had a complete bilateral salpingectomy and fundectomy performed on Aug. 7, 1944. Curettage three weeks later and biopsies two, three, and four months later all showed tuberculosis of the endometrium. Biopsy was again performed on Aug. 21, 1946—that is, two years after operation—and tuberculous endometritis was present.

*Case 3.*—Mrs. L., aged 26, had a complete bilateral salpingectomy and fundectomy on Aug. 18, 1944. A biopsy performed two years later showed no evidence of tuberculous infection. This was not very surprising in view of the fact that the endometrium removed on five occasions in this patient prior to salpingectomy had shown tubercle follicles on three occasions but none on two.

These findings prove that, despite widely accepted statements to the contrary in the literature, removal of tuberculous Fallopian tubes does not cure endometrial infection.

(g) *The Hopeless Fertility Prognosis.*—A follow-up of 72 patients who had been under observation for more than one year has shown that, of 63 traced, not one sterility patient with endometrial tuberculosis became pregnant. Many have been followed up for from five to eight years and one for 13 years. Salpingostomy has had no successes. Although rare cases of pregnancy in the presence of tubal tuberculosis have been recorded, it would seem that in cases of endometrial (and tubal) tuberculosis the restoration of fertility is wellnigh hopeless.

(h) *Relationship of Endometrial Tuberculosis to Tubal Occlusion.*—I have left to the last consideration of the incidence of tubal occlusion in cases of endometrial tuberculosis: in 89 of the 100 cases tubal insufflation was performed and showed non-patency in 55 (61.8%). This high incidence of occlusion suggested the possibility of an unsuspected subclinical tuberculous salpingitis as a source of reinfection of the endometrium, and this conception in turn led me to reconsider from a new angle the possible aetiology of tubal occlusion.

### The Causation of Tubal Occlusion

There is, of course, no need to discuss tubal occlusion arising from gross tubal damage. The problem under consideration at the moment is the aetiology of blockage in tubes which seem normal on bimanual examination. In the past it has been widely accepted that in most instances the occlusion of the lumen results from gonococcal salpingitis, or from tubal infection from a near-by pelvic lesion (particularly appendicitis), or from congenital hypoplasia. My finding (Sharman, 1944)—since confirmed by other investigators—that endometrial tuberculosis is unexpectedly common (5.3%) in sterile women suggested the possibility that tubal tuberculosis of a degree not sufficient to be grossly recognizable except on laparotomy might be responsible for a much greater number of cases of tubal non-patency than is generally recognized. This led me to undertake certain investigations which I shall now discuss.

#### (a) Gonococcal Salpingitis as a Cause of Occlusion

There is very little positive proof that, apart from gross tubal damage, gonococcal salpingitis is a common cause of tubal occlusion. It is unusual to obtain a history of any pelvic illness in a series of sterile women, and, more impor-

tant still, there is little direct evidence that the infection ever reaches the tubes in more than a very small percentage of cases of gonorrhoea. There are few published data on this point, but with the co-operation of the Public Health Department of Glasgow I have been able to obtain the following figures, which, I think, are of considerable significance. The records of acute gonorrhoea in women who attended the principal clinic from 1930 to 1937 were surveyed with special reference to the incidence of pelvic involvement. There were only five cases of the latter in a total of 540 patients. A follow-up of the five cases revealed that one subsequently had three pregnancies, but that the others had not become pregnant. During the years 1938 to 1942, inclusive, the total number of new cases of acute and chronic gonorrhoea in females over 15 years of age attending the principal Glasgow municipal centre amounted to 987. Among these were 26 cases of acute pelvic involvement (2.6%). In 775 consecutive cases of acute gonorrhoea during the same period there were ten (1.3%) cases of salpingitis. Very careful observations made on this point show that since June, 1941, a total of 2,195 cases have been treated, of which only 22 (1%) have developed an acute febrile pelvic lesion.

Even if it is admitted that a number of mild pelvic infections may have occurred, the general conclusion appears to be that the gonococcus is seldom responsible for the occlusion of tubes which are not palpably thickened. This, of course, is not in accordance with the widely accepted view and usual teaching, but support for it is found in the statement by Siegler (1944) that a history of gonorrhoea occurred in only 3% of 397 cases where the tubal factor was investigated, and in Halbrecht's (1946) declaration that gonorrhoea is rare in Palestine, although tubal occlusion is one of the main causes of sterility in his cases.

#### (b) Congenital Hypoplasia as a Cause of Tubal Occlusion

The significance of this factor was first described and stressed by Clauberg in 1938; he maintained that in cases of infantile uterus the tubes often shared in the developmental deficiency and are consequently impermeable. There has been a vague general acceptance of Clauberg's theory, but I am not satisfied that it is correct. The following arguments may be raised against it: (i) Clauberg's evidence was almost entirely radiological, apart from investigations on lower animals; (ii) a large number of cases of uterine hypoplasia have shown normal tubal patency and function on kymographic insufflation; (iii) radiographs often show patency in tubes presenting the long, thin, tortuous features of the "congenital hypoplastic" type; (iv) in a small series of cases showing definite tubal blockage and treated by Clauberg's method with oestrogenic hormone none showed patency after treatment, as claimed by him; and (v) tubal blockage associated with uterine hypoplasia need not be due to tubal hypoplasia but may arise from other causes—for example, subclinical tuberculosis—as will be discussed later. It is not disputed, of course, that follicular hormone produces proliferation of the mucous membrane and general hyperaemia of the Fallopian tubes, as Clauberg has shown, but the point at issue is whether the hypoplastic or infantile tube is essentially a non-patent structure or not. I have approached this question from three angles: (1) a histological study of the pre-pubertal tube, (2) insufflation of the tubes of the foetus and infant, and (3) kymographic insufflation in an unselected consecutive series of young unmarried women.

1. *The Pre-pubertal Tube.*—Fallopian tubes were removed post mortem and sectioned from cases of the following ages: a 7-months foetus; a foetus stillborn at term; children aged 2 days, 10 weeks, 3 months, 4½ months, 7 months, 16 months, 3 years, 4 years, 8 years, and 10 years. Sections were cut

through fimbrial, ampullary, and isthmic portions. The appearance of the tubes throughout the series is that of a pale structure, and there is no evidence that canalization of the Müllerian ducts is often, if ever, incomplete.

2. *Insufflation of the Tubes of the Foetus and Infant.*—The material studied was obtained post mortem from a series of stillborn infants and neonatal deaths in the Glasgow Royal Maternity Hospital and from fatal cases in the Royal Hospital for Sick Children, Glasgow. The examination was carried out as soon as practicable after death, usually within a few hours. Twelve cases were insufflated and all showed tubal patency.

3. *Insufflation in Unmarried Women.*—This has already been referred to in considering the tubal status. It will be recalled that 236 young unmarried girls were insufflated. The test showed that in all but four cases the tubes were permeable to gas at the first test. Three of the four had insufflation repeated at a later date without anaesthesia, and the tubes were then found to be permeable to gas. The fourth patient could not be traced.

It may therefore be stated that the evidence obtained from these three separate lines of inquiry suggests that impermeability of the tubes is seldom a congenital defect.

Irrespective of the tubal factor, uterine hypoplasia *per se* has for long been blamed for infertility. There is no convincing evidence that this is so, although minor degrees of underdevelopment are often found on bimanual examination. Arguments against its importance are: (1) the common clinical observation of pregnancy ensuing in untreated hypoplastic uterus; (2) the finding that increase in uterine size after oestrogenic treatment may not be followed by pregnancy; (3) the fact that pregnancy can develop in a Fallopian tube or an ovary suggests that complete maturity of the uterus is not essential.

In order to investigate the matter further a follow-up was made in 1946 of all the unmarried patients between the ages of 16 and 36 who were in the Royal Samaritan Hospital for Women, Glasgow, during the years 1936 inclusive. These patients were divided into two groups: (a) in which the uterus was described as of normal size and (b) in which the uterus was hypoplastic. The investigation embraced all hospital units, the diagnosis having been made by one of five gynaecologists. The results were as follows: (a) Uterus normal: of 113 patients traced 63 had married and 42 (66.6%) of them had conceived. (b) Uterus hypoplastic: of 147 patients traced 78 had married and 70.5% of them had conceived.

It would appear, therefore, that minor degrees of uterine hypoplasia have but little relation to infertility and are purely an incidental finding. It is quite different with minor degrees (often associated with narrow vaginal introitus or canal), which are uncommon but which seriously affect fertility prognosis. (The relative incidence of these conditions obtained in a survey of 863 consecutive cases of primary sterility was: 437 showed a minor degree and 426 a major degree.)

#### (c) Subclinical Tuberculous Salpingitis as a Cause of Tubal Occlusion

It will be remembered that in the course of this investigation unsuspected subclinical endometrial tuberculosis was found in a relatively high proportion (5.3%) of sterile women. Now, since endometrial tuberculosis is almost invariably secondary to tuberculous infection of the tube, it is highly probable that subclinical tubal tuberculosis is present in at least 5.3% of sterile women. Further, it is well known that endometrium often escapes infection even when the tubes are the seat of gross tuberculous lesions, and therefore highly probable that in sterile women the incidence of subclinical tubal tuberculosis is much higher than 5.3%. This suggests the possibility that subclinical tubal tuberculosis of the tube may be the cause of occlusion in a case which seems normal to palpation. An endeavour was made

tain positive evidence on this point, and two separate methods of investigation were utilized. First, the incidence of tubal occlusion in cases of endometrial tuberculosis was studied, and, secondly, histological proof of tuberculous infection was looked for in tubes which had been found to be blocked.

The incidence of tubal blockage in endometrial tuberculosis was found to be 61.8%. This contrasts with an incidence of 26.2% over the total series of 1,478 sterile women, including those in whom endometrial tuberculosis was absent.

The second line of evidence was more difficult to obtain, since only a small number of women were willing that an attempt should be made to restore patency of the tube by operation. So far I have had an opportunity of studying the histology of such tubes in 14 cases, a piece being removed in the course of salpingostomy (or of salpingomy in the cases already described). The series is too small from which to dogmatize, but, nevertheless, it is interesting that 12 of the 14 specimens showed tuberculous infection. Moreover, in the two negative cases (histologically) the appearances at operation were highly suggestive of tuberculous salpingitis. One further case (bilateral blockage) showed tubercle follicles in the distal portion of the blocked tube.

It must be borne in mind that, as in the endometrium, tuberculous infection is almost invariably a focal disease, and a single routine section may fail to show its presence though further sections may be positive.

In view of these findings I feel justified in putting forward the view that tubal blockage is in a considerable number of cases due to subclinical tuberculous salpingitis.

### Conclusion

There are many problems in the investigation of sterility, but I have been able to deal with only a few, but it is hoped that attention has been drawn to certain aspects in which some progress appears to have been made. The problem, however, is large and much exploration remains to be done.

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## LYMPH-GLAND BIOPSIES FOR SUSPECTED BONE AND JOINT TUBERCULOSIS

### AN ANALYSIS OF 100 CONSECUTIVE CASES

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Valls, of Buenos Aires (1933), first published the results of lymph-gland biopsy as an aid in the diagnosis of tuberculous bone and joint disease, and Seddon (1939) was the first to do so in Great Britain. More recently other papers on the subject have been published by Agerholm-Christensen (1941), Gellman (1941), and Webster (1942), but up to the present no large series of cases has been reported.

The object of our investigation was to determine the proportion of positive findings in 100 gland biopsies undertaken to assist in the diagnosis of arthritis in various joints, to report the subsequent clinical progress in these cases, and to describe the results of examination of lymph glands removed incidentally in the course of other operations or post mortem. Valls reported 19 gland biopsies (various joints) with 15 positive results; Seddon described 18 for the knee only, with 15 positive results; and Webster obtained 10 positive results out of 15 gland biopsies (several joints). None of these authors has produced a comparable series of incidental gland biopsies.

### Lymph Drainage from Joints

Information on this subject is very conflicting. Most of the experimental work has been carried out on rabbits (Key, 1926; Kuhns, 1933), and there is no real evidence that the drainage in man follows a similar pattern. Webster (1942) in his report of 15 biopsies discusses the subject at some length and points out evident contradictions between the experimental findings, the accepted anatomical description of lymph drainage, and the results of biopsies. Trueta and Barnes (1940) showed that a considerable lymph flow was stimulated by a passive joint movement in cats, a finding which might be of assistance in determining the paths of flow from various joints.

That there may be different lines of drainage from one joint, depending on what tissues are involved, must also be borne in mind. We know very little about lymph drainage from bone: superficial tissues usually drain to the first chain of superficial glands. The fact that this form of biopsy has been more helpful in arthritis of the knee than in other joints may be due to the fact that tuberculous disease in the knee is usually confined to the synovial membrane in its early stages and is seldom a primary osseous infection. Tables I and II show the exact sites of glands removed in disease of various joints.

### Technique

Before discussing the results a brief review of the technique employed is essential. Iliac-gland biopsy was the routine for hip and upper femoral disease, inguinal-gland biopsy for infections of the knee, ankle, and foot, and axillary biopsy for all joints of the upper limb. The youngest patient was aged 2 years and the oldest 69. General anaesthesia was considered the most satisfactory method, and was used in all cases. Inguinal-gland biopsy

The British Association of Physical Medicine has issued some suggestions on the place of physical medicine in the National Health Service. In teaching hospitals there should be a director of physical medicine, with a trained staff and trainees, to conduct treatment, teaching, and research. The department would co-operate with the disablement resettlement officers of the Ministry of Labour. Similarly there should be a director and staff in charge of a special department in central hospitals. In district hospitals there should be a physical medicine department under the direction of a visiting specialist, and domiciliary physiotherapy should be based on the district hospitals. Physiotherapy should not be provided at health centres, since there will be a serious shortage of physiotherapists for a number of years. The B.A.P.M. draws attention to the fact that too many patients who are fit to return to work, yet still require treatment, waste time and money attending physiotherapy departments in the day-time: facilities for treatment in the evening should be arranged. For patients who must make long journeys from home to hospital and for whom the value of treatment is thereby diminished, transport should be arranged by voluntary organizations or at the public expense.

was performed through either an oblique or a vertical incision over the fossa ovalis. The termination of the saphenous vein was exposed and a superficial gland removed from this region; a deep gland was usually found lying between the saphenous and the deep femoral veins.

Iliac-gland biopsy was performed through an oblique incision in the iliac fossa, the peritoneum was stripped forward, and the iliac glands were sought in the region of the bifurcation of the common iliac artery. In one patient with hip disease an obturator gland was removed and this gave a positive result. In one case an iliac-gland biopsy was performed for a knee infection, and in another an inguinal-gland biopsy in a patient with hip disease; neither was positive.

Axillary biopsy was performed through a vertical incision over a palpable gland, which was dissected out and removed. Half of each gland removed was put into 10% formal saline for histological examination and the other half into saline for culture and guinea-pig inoculation.

### Results

Gland biopsy for this purpose was first performed at this hospital in 1936, and since May, 1939, it has been done in most cases of suspected tuberculosis. The cases analysed were dealt with during the period May, 1939, to December, 1946; for various reasons complete details are not available in every case. One hundred cases have been analysed; 62 patients were below the age of 21 (29 females, 33 males) and there were 38 adults (17 females, 21 males). Two patients have died, one from miliary tuberculosis (aged 29) and the other from cerebral haemorrhage (aged 67). In five cases no gland was found at operation (all iliac), but in two of these an inguinal-gland or obturator-gland biopsy was done instead. In two cases no result can be found of the gland-biopsy result. A histologically positive gland biopsy was obtained in 32 cases, and in a further case the guinea-pig inoculation was positive, although no histological evidence of tuberculosis was found in the gland. A guinea-pig inoculation was performed in only 47 cases; if this had been carried out in every case and if serial sections of the gland had been examined and culture performed, it is probable that the number of positive results would have been greater. No positive results were obtained in the few cases cultured. In five cases the gland histology and guinea-pig inoculation were both positive; in one case the histological report was positive and the animal inoculation

was negative and in the other it was not done. In three cases, the deep inguinal gland proved to be positive histologically while the superficial inguinal gland was negative; in one case the opposite occurred; and in three cases both superficial and deep glands were positive.

Of these cases 59 were regarded as tuberculous on clinical grounds; 35 were regarded as non-tuberculous; in two there was some doubt. Four cases were too recent for positive assessment. Nine cases, all in the knees, were proved to be tuberculous by examination of the synovial fluid, synovial membrane, or bone (following excision), and one was indefinite; in seven out of these nine cases the gland biopsy was negative. In five cases (see Table II) positive at gland biopsy the joint recovered over two-thirds of the normal range of movement, and in one of these recovery was complete. In none of these five cases has there been any definite confirmation of the diagnosis by other means.

TABLE II

Case	Age (yrs.)	Skiagram	Joint	Highest E.S.R.	Clinical Progress
1	12	Acetabular focus	L. hip	27 mm.	2/3 movement 3 yrs. after
2	13	Decalcification	L. hip	10 "	2/3 " 6 " "
3	10	"	L. hip	17 "	2/3 " 5 " "
4	10	Epiphyseal focus in femur	R. hip	45 "	2/3 " 2 1/2 " "
5	6	Nil	L. knee	5 "	Normal knee 4 " "

In 10 cases with a positive gland biopsy the highest erythrocyte sedimentation rate while in hospital was 10 mm. or less; of these 10 cases three would not be regarded as tuberculous on clinical grounds alone. In this series there are records of 47 Mantoux and/or patch tests: 36 were positive, and of the 11 negative three were adults. All 33 positive gland biopsies were positive to a Mantoux or patch test. In only 17 of the 33 positive gland biopsy cases did skiagrams show definite changes, that is, joint destruction or a bony focus. Of 22 biopsies done within three months of the onset of symptoms 11 were positive. Twenty-three positive results were obtained in the 62 cases under 21, and 10 positive results in the 38 adults.

TABLE III.—Control Series

	Age 50+	Age 20-50	Age 0-20
Natural .. ..	14	11	1
Scarred .. ..	20	5	2
Fibrosed .. ..	11		
Fatty infiltration .. ..	6	0	0
Tuberculosis .. ..	0	0	1

Over a period of three months 71 inguinal lymph glands were removed—60 at necropsy and 11 during the course of operations for other conditions, mostly herniotomies. Table III shows the results. Only one of this control series had tuberculosis of the gland. In that series there are two points worthy of note. The first is the age distribution, the second the number reported as scarred or fibrosed. We include these figures for the control series as they are of interest; but we do not feel that any definite conclusions with regard to the value of adenopathy can be drawn from them, and we propose to continue the series, including only the younger patients, in an attempt to learn something about the cause of the scarring which is so common in the older age group. In reporting on this series the pathologists point out that although there is no definite evidence of tuberculous infection in these glands it is not possible to state definitely that the scarring is not due to old healed tuberculosis.

### Discussion

The importance of all ancillary methods of narrowing down the differential diagnosis in arthritis of every

TABLE I

Joint	No.	Gland	Positive	Negative
Hip .. ..	29	Iliac 24; 1 obturator; 1 inguinal	8	18*
Knee .. ..	60	Inguinal	23	35
Ankle .. ..	5	"	—	5
Elbow .. ..	3	Axillary	2	1
Subtarsal .. ..	1	Inguinal	—	1
Trochanter .. ..	2	"	—	2
Hip .. ..	15 negative (7 clinical progress .. .. Proved Tb.) 8 positive (4 " " " " not Tb.) 35 negative (11 " " " " not Tb.)			
Knee .. ..	23 positive (1 " " " " not Tb.) 2 no results†			
Ankle .. ..	5 negative (1 " " " " Tb.) 2 " " " " Doubtful			
Elbow .. ..	1 negative " " " " Proved Tb.			
Subtarsal .. ..	1 negative " " " " " "			

\* No gland removed in three cases.

† No record of result in these two.

In five no iliac gland was found; 1 obturator (+) and 1 inguinal (—) gland were removed instead in two cases.

lotion negative, while in another the opposite state of affairs existed. In two cases the histology was such that, although it suggested a tuberculous infection, no definite opinion could be given; in one of these the guinea-pig inoculation



needs no emphasis. Unfortunately many of the procedures upon which the surgeon or physician must rely are not altogether reliable.

The removal of regional lymph glands as an aid to diagnosis in chronic arthritis of uncertain origin is a comparatively new procedure and the degree of accuracy is not well established. Most of the series of cases that have previously been published have been relatively small and the follow-up of short duration. Here we have been primarily concerned with three things: whether the right gland has been removed; whether the clinical course has borne out or contradicted the pathological findings; and, in an unselected series of apparently normal glands obtained from the living or at necropsy, the proportion showing tuberculous changes. So far as the first point is concerned there is not enough information available to give any reliable opinion, though it is obviously necessary to take both superficial and deep glands when the knee is involved. The one case of hip disease in which the iliac gland was negative and the obturator positive is worthy of note.

The accuracy of the procedure can be related only to the hip and the knee, as the numbers are too small in relation to the other joints. In the hip the clinical progress of the lesion in approximately one-third of the cases in which the biopsy was negative established a diagnosis of tuberculous disease, and in half of those in which biopsy was positive subsequent progress suggests that the lesion is not tuberculous. In relation to the knee-joint the findings are similar so far as the negative results are concerned, nearly one-third having been proved tuberculous; however, of the cases giving positive results one alone has progressed in such a way that a clinical diagnosis of tuberculosis is impossible.

It is likely, as has already been pointed out, that routine serial sections of glands and guinea-pig inoculations would increase the number of positive findings. As things stand at the moment it seems that no great reliance should be placed on a negative finding from the regional gland biopsy, and that if the result is positive it is likely that, in the presence of a suggestive clinical picture, this can be accepted as confirmatory evidence.

### Conclusion

Gland biopsy is a valuable accessory means in the diagnosis of tuberculous infection of bones and joints. There were 33 (56%) positive results in 59 cases of tuberculous infection—a lower rate than those given by other authors.

A positive biopsy does not necessarily mean that the joint is tuberculous.

A higher proportion of positive results appears to be obtained if the biopsy is done early in the disease—10 out of 14 cases (71%). (21 biopsies were done within three months, but only 14 of these cases could be regarded as tuberculous on clinical grounds.)

An early positive gland biopsy gives strong support to a diagnosis of tuberculous infection before any changes that can be shown by x rays are present.

As is well known, a normal erythrocyte sedimentation rate is of no value in excluding tuberculous disease of the joints, 10 cases out of 59 having shown a normal E.S.R.

Clinical findings and progress, x-ray appearances, gland biopsy, and E.S.R. must all be taken together to obtain the most accurate diagnosis in chronic bone and joint disease.

We are indebted to the surgeons at the Wingfield-Morris Hospital for their permission to review these results and for helpful suggestions. We are also grateful to Dr. A. H. T. Robb-Smith and the

pathological department at the Radcliffe Infirmary for help with the paper and for doing all the control series.

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## THE TREATMENT OF INEVITABLE, INCOMPLETE, AND SEPTIC ABORTION AN ANALYSIS OF 600 CONSECUTIVE CASES

BY

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Abortion is the most common serious complication of pregnancy, with an incidence of probably 25%. It is responsible for a greater wastage of potential and actual citizens than any disease, for it carries a mortality of 100% for the foetus and is associated with grave risks to the life and health of the mother. It is estimated that 700,000 infants are lost annually by abortion in America and that 3,500 mothers die in the United States every year as a result of this complication (McCormick, 1944). It is true there is evidence to suggest that the incidence of foetal deformity is high in these cases, but none the less the loss of potentially healthy citizens is great.

The purpose of this paper is not to discuss the prevention of abortion but to consider its treatment once it has become inevitable, incomplete, or septic. For that reason the discussion is concerned only with the maternal aspect of the problem. Throughout the series analysed we have accepted the following criteria for the diagnosis of these three conditions: (1) An abortion was considered inevitable when bleeding was associated with uterine contractions and dilatation of the internal os. (2) An incomplete abortion was diagnosed when bleeding persisted following the abortion and examination revealed a bulky uterus, usually with a patulous cervical canal, or when it was known for certain by inspection of the material passed that placental tissue had been retained. The subsequent removal or passage of placental fragments confirmed the diagnosis. (3) An abortion was considered septic when it was associated with pyrexia for which no other cause was found, offensive or purulent discharge, or evidence of pelvic inflammation. It should be noted in this respect that on occasion there is pyrexia and even hyperpyrexia during the process of spontaneous evacuation of a uterus with no preceding or subsequent evidence of uterine, pelvic, or general infection. Such cases were not included as septic abortions in the series analysed.

The recognized immediate dangers to the mother are death or serious illness as a result of haemorrhage or infection, and the following are figures given by different authorities as an assessment of the extent of these dangers. McCormick (1944) states that in America 25% of maternal deaths are due to abortion and that five in every 1,000 mothers who abort die as a result. Parish (1935) states that in 1933 463 maternal deaths were registered in England and Wales as being due to abortion, and

23% of these were attributed to haemorrhage. It was estimated from the Statistical Review of the Registrar-General for 1937 (p. 149) that 21% of all maternal deaths were due to abortion and 29% of maternal deaths from sepsis were due to septic abortion.

There are two main schools of thought concerning the treatment of abortion once it has become inevitable or incomplete. Those who may fairly be called the "non-interventionists" believe that if left alone the uterus will ultimately empty itself, and if it is allowed to do so the mother is subjected to the least possible risk. F. J. Browne (1946) advocates this attitude to treatment and quotes the work of Winter, Walthard, Dietrich, and Dubrowitsch in support of his statement that the mortality is twice as high with active as with conservative treatment. It should be noted, however, that all the results referred to were obtained before the days of specific chemotherapy. Surgeons and departments subscribing to this view require a great many gynaecological beds—or else refuse to admit abortions at all—because it often takes several weeks for an abortion, even early in pregnancy, to be completed in this way. As a result of this the anomalous situation arises that many teaching units in gynaecology, and even some special hospitals for women, refuse to admit abortion cases because the beds necessary for their treatment cannot or will not be offered.

The second school may be described as the "interventionists." They believe that all inevitable and incomplete abortions which are not rapidly and spontaneously completed should be treated by surgical evacuation of the uterus. This school requires many fewer beds, for with this treatment the stay in hospital is relatively short. This fact is not of course an argument in favour of the method unless it can be shown that in principle and practice it is at least as safe as that advocated by the "non-interventionists." We believe this can be proved.

### The Case for Intervention

Now, it has for long been accepted by our surgical colleagues that a wound heals most rapidly when it is cleansed of non-viable debris. In traumatic surgery the principle of treatment is to excise dead tissue and to leave vital raw areas for healing. We suggest that in gynaecology and obstetrics there has been a tendency to ultra-conservatism in the treatment of gestational products retained *in utero*. The wound at the placental site—for wound it is—has been credited with physiological properties to which it is not entitled. It has no magical powers of rapid healing when its surface is covered with adherent necrotic debris. Necropsy rooms yield ample proof of this fact. There is even the probability of secondary infection resulting from this retained material, but this aspect of the problem is now being studied separately and will be the subject of a later publication.

Believing that the principles of wound treatment accepted in general surgery should be applied to the treatment of abortion, we instituted an interventionist attitude as the basis of treatment for all cases of inevitable and incomplete abortion admitted under our care to the Radcliffe Infirmary, Oxford. Impressed by the early results, we have continued this treatment for eight years and now present a brief analysis of the work done. Before instituting this routine one of us (J.S.) had considerable experience of the conservative attitude during resident appointments in two separate teaching units elsewhere.

### A Series of Cases Treated Surgically

The series now analysed consists of 600 consecutive cases treated surgically by us in the wards of the Radcliffe Infirmary and associated private beds, and by "flying-

squad teams" for which we were responsible. This series does not include 58 cases of threatened abortion, spontaneous complete abortion, and missed abortion. There were no deaths in this group. Five hundred patients were treated in the general wards and 100 in private beds. Forty-two patients were frankly septic on admission and two of these were suffering from a generalized *Clostridium welchii* infection. Many were admitted in a critical condition as a result of extreme blood loss. When the occasion demanded it the patient was not transferred to the ward, but resuscitative measures were adopted in the casualty admitting-room, from which the patient was later taken direct to the theatre. Avoidance of unnecessary handling at this stage can be life-saving. On 71 occasions blood transfusion was administered, and this was always started before taking the patient to the theatre and was usually continued during the operation. In this way the exsanguinated patient was better prepared for operation, the risk of early transfusion reactions being masked by anaesthesia was reduced, and in the unlikely event of further extensive blood loss in the theatre there was a minimum of delay in replacing it. Rh-immunization is now avoided by preliminary testing, or is reduced to a minimum in extremely urgent cases by the use of Rh-negative blood. When the patient was suffering from extreme blood loss or shock it was often necessary, because of venous spasm, to give the blood under pressure as previously described (Stallworthy, 1939). When sepsis was present chemotherapy was begun, 2 g. of a sulphonamide being given as an initial dose, followed by 1 g. four-hourly. If haemorrhage was severe the patient was taken to the theatre without further delay; if it was not severe operation was postponed for twelve to twenty-four hours so as to obtain a satisfactory blood concentration of sulphonamide drug.

### Method

Once the patient was considered fit for operation the method of treatment was as follows. After a preliminary shaving and washing of the vulva and catheterization the patient was taken to the theatre, with the transfusion still running. In critical cases the anaesthetic was not started until the surgeon was gowned and ready to operate. Early in the series ether was used extensively, but this was replaced by hexobarbitone and then by thiopentone, as being less disturbing to the patient. Small doses, often only 0.25 g., were used. After the vulva and vagina had been swabbed with flavine in spirit, 1 in 1,000, the surgeon gently examined the pelvis to determine the exact position of the uterus and the state of the cervix. Failure to make this preliminary examination can result in the soft wall of a pregnant, retroverted uterus being perforated by sound dilators, or forceps. If the canal was patulous and placental tissue was in reach it was gently removed with the gloved finger. If not, then the cervix was exposed and an oxytocic drug was injected under vision into the cleaned cervix. Early in the series 0.5 ml. of "pituitrin" was used, but this was later abandoned in favour of 0.5 mg. of ergometrine. The change was made because of the generalized pallor and occasional sweating associated with the use of pituitrin and the rare but unnecessary fatalities when used in obstetrics. The length of the uterine cavity was gently measured with a sound. Unless it was already patulous, as was often the case, the cervical canal was carefully dilated to the size of a No. 14-16 Hegar dilator. Sponge forceps were then carefully introduced, opened, rotated through 90 degrees, closed and withdrawn. This was repeated until no further pieces of placental tissue were removed in this way. The cavity was then gently and thoroughly explored with a blunt flushing eurette through which passed a slow stream of detto (2 dr. to 1 pint—7 ml. to 568 ml.) at a temperature of 110° F.

(43.3° C.). This removed small fragments of tissue missed by the forceps and also stimulated uterine contractions, as shown by the rapid decrease in the length of the uterine cavity and the cessation of any bleeding. The cavity was then packed with a sterile 2-in. (5-cm.) gauze roll, which was removed six hours later. In septic cases the pack was impregnated with 10 g. of sulphathiazole powder. This pack serves a dual function. By promoting uterine contractions and by direct pressure on the placental site it safeguards against further bleeding during the stage of recovery from the anaesthetic, and with its removal it clears any small fragments or clot which if left could promote discharge, further haemorrhage, and possibly infection. Following the removal of the pack there was rarely more than a slight stained discharge, which usually ceased within forty-eight to seventy-two hours of the operation. The patient was allowed up thirty-six to forty-eight hours later, and if the home conditions were satisfactory was discharged on the third or fourth day. An attempt was made to discover the cause of the abortion, and advice was given on the necessary care during the early weeks of a subsequent pregnancy. Iron was given to combat anaemia secondary to the blood loss, and the patient was requested to report for a follow-up examination in a month.

### Results

There was one death in the series, the patient being one of the two whose abortion was complicated by a generalized *Cl. welchii* infection. This patient was considered to be moribund on admission. Abortion had occurred one month previously, and following this there had been daily haemorrhage until at the time of admission the haemoglobin level was 22%. Because of the state of collapse and the general appearance of the patient a provisional diagnosis of gas-gangrene infection was made, and treatment was instituted with serum in addition to transfusion and chemotherapy pending the report of the bacteriologist on the high vaginal swab. Death occurred within twenty-four hours of admission, and necropsy confirmed the presence of *Cl. welchii* septicaemia.

As already stated, it was common for patients with suitable home facilities to be discharged on the third or fourth day. The average length of stay in hospital was 7.5 days for the 500 non-private patients.

### Summary and Conclusions

Six hundred consecutive incomplete, inevitable, and septic abortions treated by surgical evacuation of the uterus followed by the insertion of a pack for six hours are analysed.

Forty-two patients were infected on admission—two with *Cl. welchii*. In all infected cases specific chemotherapy was started before evacuating the uterus.

Seventy-one transfusions were given; the average stay in hospital was 7.5 days; and there was one death in the series—mortality of 0.17%.

Surgical evacuation of the uterus in inevitable, incomplete, and septic abortion, if carefully performed, provides a safe and efficient method of treating the condition.

The method advocated reduces the length of stay in hospital—an important factor in these days of acute shortage of beds.

The low mortality (1 in 600) may be attributed to the method of treatment and to the fact that a team skilled in handling these cases was responsible for them. Routine treatment is easy to prescribe, but on the nice decision of when to administer may hang the balance between life and death.

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## WORK OF A TUBERCULOSIS CONTACT CLINIC FOR YOUNG CHILDREN, 1941-5

BY

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In Newcastle-upon-Tyne, where the mortality from tuberculosis has always been above the average for the country, 150 children under the age of 5 years died from that disease between 1931 and 1940. In 1941, therefore, as part of a policy of investigating the causes of death in infancy and early childhood, a clinic was established for the observation and care of children under the age of 5 years who were known to have been in contact with tuberculosis. The object was to obtain information concerning the mortality and morbidity of tuberculosis in children of families containing a notified case of the disease and to ascertain the relation which this bears to the total mortality and morbidity for the same age group within the city. With this information it was hoped that it would be possible to estimate the accommodation required in Newcastle-upon-Tyne for the care of such young children.

This clinic resembles closely the diagnostic clinic for childhood tuberculosis suggested in the British Paediatric Association Report in 1943, and it seems appropriate to give a preliminary survey of the first 4½ years' work in order to show the usefulness of the investigation and the part which a clinic of this nature can play in a city tuberculosis service. This report covers the period June, 1941, to December, 1945, and the children were under 5 years of age when first examined.

### Organization of the Clinic

The work is carried out by arrangement with the tuberculosis medical officer in a special clinic established in the children's department of the Newcastle-upon-Tyne General Hospital. X-ray facilities are available and parents are more willing to bring young children to such a clinic than they are to take them to a tuberculosis dispensary. Full information concerning children in infected families is sent each week to the clinic from the tuberculosis medical officer, and this is the starting-point for the observation.

For the first six months, until January, 1942, the homes of the children were visited by a health visitor of the City Child Welfare Department chosen for this work; the health visitor explained the purpose of the visit and did a tuberculin patch test. If the test was positive the parents were asked to bring the child to the clinic for clinical and radiological examination. At the beginning of 1942 this arrangement was changed. All the children are now visited and their parents are asked to bring them for examination (tram or bus fares are paid when this seems necessary). The patch test was abandoned and the intradermal Mantoux test (0.1 ml. of 1 in 1,000 old tuberculin) is used as a routine; every child is radiographed.

During the war years demands upon the time of mothers of young children became heavy, and especially so with illness in the house. From the outset, therefore, the work was organized to avoid waste of time in hospital or unnecessary return journeys to the clinic. The tuberculin test done at the first visit is read either by the health visitor calling at the house on the third day or by the doctor at the welfare centre nearest the child's home. When the result is known the clinical, radiological, and social findings

are correlated and a decision made concerning any action required; the parents are notified by letter of the results of the examination, and are told if we wish to discuss the matter further and when we wish to see the child again. For return visits a further letter is sent about seven days before the visit is due. At the same time a complete report is sent to the tuberculosis medical officer and the family doctor. The interval that elapses between visits is not fixed but is related to the risk under which the child is living.

So far the response of the parents has been very good and appreciative. Only 10% have failed to attend. A few have not been interested; one or two wished to have a "private opinion"; but the most common cause of failure seems to be fear of tuberculosis and unwillingness to face the possible consequences of examination. An explanation of the examination and of the skin test is made at the visit and everything is done to ensure that the parents understand its significance.

Failure to react to 1 in 1,000 dilution of old tuberculin by intradermal injection has been accepted as negative, and stronger solutions have not been used. Every care is taken in the technique of injection and the management of the individual child, but my experience has not coincided with that of Gaisford (1946), who states that this test can be used without disturbing the children. Indeed, I am sure that a tuberculin test which avoids the use of an injection is most desirable and is particularly important when repeated tests are required; the modified jelly test as described by Deane (1946) might be the best method of meeting this difficulty, and the intradermal test would be used only when the result of the percutaneous test was not conclusive.

Notification is always a difficulty, and in our work only cases admitted to hospital or sanatorium have been notified as suffering from tuberculosis. This difficulty has been discussed previously by Moncrieff (1945) and in the British Paediatric Association Report (1943). The blood sedimentation rate has not been used.

### Results

From June, 1941, to December, 1945, we received information concerning 569 children and we examined 520 at least once. Table I shows the frequency of exposure to

TABLE I.—Number of Children in Various Age Groups and the Types of Tuberculosis to which they had been Exposed

Age Group	Total in Group	Type of Tuberculosis in Index Case								
		Pulmonary	Lymphatic All Types	Serous Pleural Effusion	Bone	Abdominal	Renal	Miliary	Meningeal	Skin
0-1	109	88	5	8	3	3	—	1	—	1
1-2	96	72	12	5	4	1	—	—	—	—
2-3	101	55	11	19	13	2	—	—	—	1
3-4	115	88	8	10	5	3	1	—	—	—
4-5	99	66	13	10	3	4	1	2	—	—
	520	369	49	52	28	13	2	3	2	2

various forms of tuberculosis. Table II gives the results of the first tuberculin reaction in children in contact with pulmonary tuberculosis and shows that half those in contact with "open" pulmonary tuberculosis and one-fifth of those in contact with "closed" pulmonary cases were positive when first examined. At subsequent examinations 35 of these children were observed to become tuberculin-positive, but the difficulties and staff shortages of 1943 and 1944 made it impossible to obtain the complete tuberculin conversion numbers for the whole group. Of 142 positive reactors at the first examination 110 came from known sputum-positive cases and 32 from "negative cases"; of

227 negative reactors 103 were contacts of sputum-positive cases and 124 of sputum-negative cases. The fact that half the children examined after contact with open pulmonary

TABLE II.—The Results of First Tuberculin Test in Children in Contact with Pulmonary Tuberculosis

Age of Child	Index Case: Positive Sputum	Tuberculin Test		Index Case: Negative or No Sputum	Tuberculin Test		Total Tuberculin Positive
		Pos.	Neg.		Pos.	Neg.	
0-1	42	15	27	46	3	43	18 (20.5%)
1-2	42	21	21	30	4	26	25 (34.7%)
2-3	36	19	17	19	9	10	28 (50.5%)
3-4	55	27	28	33	8	25	35 (39.7%)
4-5	38	28	10	28	8	20	36 (54.5%)
	213	110 (51.6%)	103	156	32 (20.5%)	124	142 (38.5%)

tuberculosis were still tuberculin-negative when first examined is of extraordinary interest.

Results of the examination of contacts of cases of tuberculosis other than pulmonary are given in Table III; only

TABLE III.—Results of First Tuberculin Tests upon Contacts of Index Cases Suffering from Forms of Tuberculosis other than Pulmonary

Age Group	Serous Effusion		Lymphatic Tuberculosis		Bone Tuberculosis		Abdominal Tuberculosis		Other Forms	
	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.
0-1	—	8	—	5	—	3	—	3	—	2
1-2	—	5	—	11	—	4	—	1	—	1
2-3	2	17	2	9	1	12	—	2	—	1
3-4	—	10	—	8	—	5	—	3	—	1
4-5	1	9	3	10	—	3	1	3	—	3
	3	49	6	43	1	27	1	12	1	8

12 out of 151 were positive at the first examination and only six were subsequently known to become positive.

### Hospital Admissions and Mortality

Thompson (1944) has stated, and I agree, that there is little or nothing which can be done in hospital for children with symptomless primary tuberculosis which cannot be done in a good home, and the only reasons for admission to hospital are unfavourable home conditions or the absence of any other method of separation from infection. Under the circumstances which existed during the year 1941-5 we could not admit children to hospital or other institutions to prevent initial infection or further exposure and our criteria for admission have been clinical symptom such as cough, wheezing, and loss of weight, progressive extension of radiological shadows, bone tuberculosis, or extremely adverse social conditions during the early phase of tuberculous infection, when the condition is most likely to become generalized.

Of the group of 369 children who had been in contact with pulmonary tuberculosis 57 were admitted to hospital for one of the reasons given above and a further eight were admitted with acute disseminated tuberculosis or tuberculous meningitis. These 65 children represented at least 30% of all children under the age of 5 years admitted to city hospitals for tuberculosis within the same time.

The mortality of the same group of 369 children exposed to pulmonary tuberculosis has been 5% (19) to the end of 1945 (Table IV)—significant enough to make the use of the word "benign" in connexion with childhood tuberculosis a very dangerous procedure. Of the group in contact with pulmonary tuberculosis 17 died in hospital from proved tuberculosis, two died at home with illnesses which were probably tuberculous, and at a recent follow-up of the families concerned it was found that four other children who had not been examined because they were born after the original notification had died of proved tuberculosis.

neningitis. Thus in 320 families containing an adult with pulmonary tuberculosis there was a minimum of 21 deaths of young children in 4½ years.

TABLE IV.—*Age Distribution of Deaths from Tuberculosis Occurring in 369 Children Contacts of Pulmonary Tuberculosis Exposed Between June, 1941, and December, 1945 (Positive and Negative Sputum)*

Age at First Exposure	No. of Children Exposed	Deaths to December, 1945
0-1	88	8 (9.0%)
1-2	72	4 (5.5%)
2-3	55	2 (3.6%)
3-4	88	4 (4.5%)
4-5	66	1 (1.5%)
	369	19 (5.0%)

The distribution of the deaths in relation to the age of the child at first exposure is shown in Table IV, confirming the well-recognized fact that the risk of exposure is greatest in the first year and decreases as age advances, with a marked fall after the age of 2 years.

During the time under consideration there were 66 deaths from tuberculosis in the 18,000 children under 5 years in the city; 19 of these (30% of the total) were known to come from the small group of 369 at special risk following contact with pulmonary tuberculosis. Examination of the records of the 19 children who died showed that nine had been tuberculin-negative at the first examination, and eight of these were under two years of age.

### Discussion

The work here described was undertaken as an exercise in preventive paediatrics in an industrial community of 270,000 inhabitants in which infantile and child mortality has always been high. The problem was to find methods of reducing the deaths from tuberculosis in children of a particular age group, the majority of which were undoubtedly caused by the presence in the community or the household of adults with open pulmonary tuberculosis. Ultimately the child's only effective protection is by the separation of the infector from the community for as long as may be necessary to render him non-infective. This implies the maintenance of his family while he is away and the provision of suitable employment after his return. But his aim seems so far from realization in most areas that it is appropriate to consider if anything can be done to reduce the morbidity and mortality in the group at special risk—the children in home contact with pulmonary tuberculosis.

A large literature dealing with the effects of home contact on young children already exists; all the essential data concerning the risks are known. Where the logical conclusions of this knowledge have been applied, as in Sweden, the results obtained have proved beyond all doubt that the deaths of small children from tuberculosis can largely be prevented. It is difficult to know why these conclusions have not been applied in England or why the Swedish work has not received more attention, but the fact remains that little has been done by the public health services to provide care and treatment for this particular age group.

It has been shown repeatedly—in England by Cox (1929), in America by Brailey (1940), and by many other authors, quoted by Kayne (1935)—that children in households containing an adult suffering from pulmonary tuberculosis are subject to a much higher mortality from tuberculosis than that experienced by other children of their age group. Furthermore, all observers have agreed that the primary infection is most dangerous if acquired in the first year, that there is a considerable risk in the second year, and thereafter the risk falls to the age of 5 years. The least

dangerous period to acquire the primary infection appears to be between 5 and 15 years. Many figures have been compiled to show this, but it is sufficient here to quote only those of Bracuning and Neumann (1929), Table V. If, therefore, it is true that all individuals sooner or later acquire a tuberculous infection, it is equally true that they should not be allowed to do so in the first five years of life.

The problem of the young child in a tuberculous household is to devise methods of separating him from continued contact if he is free from infection when first examined or to consider what can be done to separate him from further infection if he has an active primary focus; it seems quite illogical to be compelled to wait until the child does become infected before arrangements for his care are possible. Sometimes separation can be accomplished by allowing the child to go to a relative; but the number of cases in which this is possible is not large, and this method of separation is often incomplete. Two other methods are available: admission to a home for infants or to another family group, the parents of which would act as foster parents

TABLE V.—*Mortality at Various ages: Exposure to Open Pulmonary Tuberculosis (Brauning and Neumann, 1929)*

Age when Contact Began (Positive-Sputum Contact)	No. of Cases	Tuberculosis Mortality	
		Within One Year	At end of Five Years
0-1 year	246	6.1%	8.1%
1-5 years	569	1.4%	1.4%
5-10 "	618	0.49%	1.4%
11-15 "	647	Nil	1.0%

until the danger of infection has disappeared. In Sweden both methods have been used, and out of his great experience Wallgren (1939) advises the infants' home rather than the foster parent. He considers the dangers of infection in a well-managed nursery are not greater than in a private house, and he finds parents are more willing to allow their children to enter institutions than to join other families. Another advantage of the institution is that if B.C.G. vaccine is used to produce an artificial temporary immunity the children can stay there for the requisite period of three months while the vaccine is given and hypersensitivity is developed.

In Newcastle-upon-Tyne during the period under consideration 227 children in contact with pulmonary tuberculosis were negative when first examined; even if the admissions to a home for infants had been restricted to those known to be in contact with open pulmonary tuberculosis it would have been necessary to offer approximately 103 places in 4½ years. To estimate the average length of stay is difficult, but the need could probably have been met by the provision of an infants' institution of 40 beds, the cost of which, apart from establishment and capital charges, would be approximately £4,000 a year. The foster parent scheme should, theoretically at least, be more satisfactory than the institution. It would cost approximately £3,000 a year, but it would be difficult to obtain enough suitable foster parents.

In Sweden B.C.G. vaccine has been widely used for the past 20 years and the Swedish workers consider that children who become tuberculin-positive after the administration of the vaccine acquire an immunity which enables them to resist infection under natural conditions for about two years. Recently the National Association for the Prevention of Tuberculosis and the Joint Tuberculosis Council have presented a memorandum to the Ministry of Health (Tytler, 1946), in which they urge trials of B.C.G. vaccine in England.

Our indications for the hospital treatment of infected children have already been given. The essential object of



special treatment is to give the child with a primary infection the best opportunity of resisting and then healing the lesion. In 4½ years 57 children were admitted to hospital from the contact group for clinical and social conditions. If more beds had been available at least 80 children would have been admitted, and I estimate that in Newcastle-upon-Tyne at the present time a tuberculosis contact clinic of this type requires the use of 10 hospital beds for children under the age of 3 years. This number does not include accommodation for children with acute disseminated tuberculosis and children over 3 years of age who can be sent to a children's sanatorium.

These estimates give some indication of the provision which I consider would be required to meet the problem of primary tuberculosis in young children of tuberculous families in Newcastle-upon-Tyne. The assumption I have made is that the present difficulty of removing the adult infector will not be changed materially in the immediate future; as, however, more beds become available in sanatoria and the economic provision for families is extended the need for special protection for children will be reduced proportionately. Until then the work of diagnostic clinics will, I believe, be a valuable part of the tuberculosis service if the case-finding mechanism is supported by the provision of hospital beds and methods of separating children from danger of infection. If there is no such backing then one can agree with Thompson (1944) that the examination of children as contacts is not of much value apart from clinical and epidemiological interest.

### Summary

The organization and work of a clinic for the examination of tuberculosis contacts has been described.

From June, 1941, to December, 1945, 520 children under the age of 5 years were examined: 369 contacts of pulmonary and 151 of other types of tuberculosis.

At the first examination 142 of 369 contacts of pulmonary tuberculosis were tuberculin-positive; of 151 contacts of other types of tuberculosis 12 were positive.

The mortality from tuberculosis in the 369 children in contact with pulmonary tuberculosis has been 5% to December, 1945.

In children under the age of 5 years 30% of the morbidity and 30% of the total mortality from tuberculosis occurred in a small group at special risk.

An attempt has been made to estimate the provision required to meet the needs of this group: (a) to separate the uninfected from further exposure; (b) to change the environment of the infected when this is necessary for either social or medical reasons.

I wish to thank Prof. J. C. Spence for criticism, Dr. G. Hurrell and Dr. E. G. Brewis of the City Tuberculosis Service for their co-operation, Dr. S. M. Livingston for continuing the work during the most difficult period of the war, and the health visitors, Misses F. M. Hatfield and E. Hann, for their constant enthusiasm and patience.

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## RHABDOMYOSARCOMA CAUSING ACUTE RETENTION IN INFANTS

BY

ELLISON MINCHIN, F.R.C.S.

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Rhabdomyosarcoma is rare, but two cases in which this growth caused acute retention in infants were admitted to the Royal Victoria and West Hants Hospital, Bournemouth, during 1944-5.

Nine cases of rhabdomyosarcoma of the urinary bladder have previously been reported, Case I below being the tenth. Seven of these occurred in infants aged from 3 days to 2 years. The remaining three were in adults of 23, 4 and 69 years. Rhabdomyosarcoma of the prostatic and prostatic region has been reported in 19 cases, and Case below is the twentieth. Although the origin of this growth is usually assumed to be in the prostate, Hirsch and Gasser (1944) suspect that it may belong to the class of similar growths which occur along the vas deferens.

The literature on both types of growth has been extensively reviewed by Khoury and Speer (1944), who also discuss the pathogenesis, pathology, and histology of these tumours.

### Case I

A 17-months-old male child was admitted to hospital on July 15, 1944, with a history of difficulty in micturition for more than four months. Apart from an inguinal hernia, which had been "cured" 12 months before by wearing a truss, he had not suffered from any ailments since birth until the onset of the urinary trouble. During the four months before coming to hospital his dysuria had been treated by circumcision and urinary sedatives, without relief.

On examination the bladder fundus was level with the umbilicus, forming a tense globular swelling. Rectally the bladder was found to be partly filling the pelvis. A straight skiagram revealed no opaque calculi in the urinary system. The blood urea was 51 mg. per 100 ml. Slow decompression of the bladder was instituted, but it was soon found that despite the height of the fundus 2 oz. (56 ml.) of urine could not be obtained at hourly intervals. A cystogram showed a mottled picture suggesting a large cauliflower mass arising inferiorly posteriorly in the bladder.

At operation on July 24 the bladder, which was the size of a cricket ball and had hypertrophied walls, was found to be filled with numerous rounded myxoma-like pieces of tissue varying in size from a pea to 3.5 by 2.5 by 2 cm. Some pieces appeared to be detached and floating free, others were attached by filamentous pedicles, but the most recent growth arose from a broad pedicle about the size of a postage stamp situated antero-laterally to the internal urethral meatus. Some 8 oz. (225 g.) of growth was removed and the pedicle was diathermized.

Histological examination showed that the pieces of tumour consisted of connective tissue interspersed with spindle and cylindrical cells which in many places were distinctly eosinophilic and had faint cross-striations. Some of the spindle celled areas showed a moderate number of mitotic figures. A layer of partly denuded stratified epithelium clothed the surfaces of the growth.

After operation the patient's convalescence was slow and the suprapubic wound did not heal completely. A month later he complained of pain on defaecation and micturition, and at the end of two months a polyp of growth was extruded from the suprapubic wound. On Nov. 6 the bladder was reopened and a further 8 oz. (225 g.) of growth removed. This was of the same myxomatous, avascular appearance. The pedicle had not enlarged since the previous operation and the ureters and urethra were free from invasion. The pedicle was again

diathermized. X-ray therapy was given after the operation and again in January, 1945. However, the patient's condition deteriorated, and a fistula between the bowel and the bladder formed before he died of exhaustion on Feb. 24, 1945.

At necropsy the bladder was found to be full of the proliferating growth, which had completely invaded the vesical mucosa. A fistula had formed between the ileum, bladder, and suprapubic wound. The right kidney and ureter were normal, but the left ureter was much dilated and there was an early left hydronephrosis. No secondary growths were found.

### Case II

A male child aged 9 months was admitted to hospital on Nov. 23, 1945, with a history of slight diarrhoea for one week. Two days before admission he had passed blood per rectum and since then had not micturated. He had a slight cough.

On examination he looked pale and toxic. His temperature was 100.4° F. (38° C.), pulse 142, and respirations 36. The abdomen was distended, and a cystic swelling, dull to percussion, arose out of the pelvis. Priapism was present. The external urethral meatus was slightly inflamed. On rectal examination a hard spherical tumour the size of a golf ball was found in the region of the prostate, occupying the greater part of the pelvis, with a distended bladder antero-superiorly. A provisional diagnosis of sarcoma of the prostate was made. The examining finger was blood-stained on withdrawal. Urinary examination showed a faint trace of albumin but no other abnormality. The bladder was slowly decompressed, and the following day a cystogram revealed a large bladder of good shape except for a "flattening" in the region of the trigone. On Nov. 27 intravenous pyelography did not disclose any renal or ureteral abnormality, and a skiagram of the chest was normal. The blood urea was 66 mg. per 100 ml.

The child's condition was poor from the time of admission. During the first week his temperature gradually rose to 104.8° F. (40.45° C.), his pulse to 160, and his respirations to 30. Operation was not considered feasible. On Nov. 30 his blood count was: red cells, 4,800,000 per c.mm.; haemoglobin, 47%; white cells, 21,800 (lymphocytes, 37%; monocytes, 9%; polymorphs, 4%). After decompression of the bladder he began to pass urine normally, but on Dec. 3 feeding difficulties began, and despite various changes in diet and intragastric drips the child died on Dec. 15.

Pathological findings at necropsy were limited to the urinary system. There was no evidence of metastases. The bladder was hypertrophied but small and empty. Its mucosa was congested but intact, and the ureteral and urethral lumina were freely patent. The whole organ was pushed up into the abdomen by a growth the size of a golf ball in the right lobe of the prostate. The growth appeared encapsulated and had not invaded the bladder or rectum, with which it was in contact. Hydronephrosis and hydro-ureter were absent.

Histological examination showed that the mass of growth in the prostatic region attained a diameter of 5 cm. and consisted of uniformly solid white tissue. Microscopical examination revealed cellular sarcoma consisting of large, irregular, elongated cells, the more mature of which were eosinophilic and showed distinct cross-striations in places.

### Discussion

All reported cases of rhabdomyosarcoma of the bladder and prostate have been fatal within 13 months, the average being 6½ months after the onset of symptoms. It is interesting to note that in neither of the above cases were metastases found at necropsy, despite the fact that Case I survived 11 months after the onset of symptoms. Previously reported cases also witness that metastases are uncommon, and that the usual cause of death is ascending urinary infection.

The treatment of choice would seem to be total cystectomy and prostatectomy provided that infection is controlled. Khoury and Speer (1944) carried this out; but, unfortunately, ascending urinary infection after the uretero-sigmoidostomy of the second ureter resulted in their

patient's death 2½ months after the operation. The priapism in Case II was presumably due to irritation of the nervi erigentes, as there was no oedema or cyanosis to suggest obstruction in the prostatic venous plexus caused by the expanding growth.

### Summary

One case each of rhabdomyosarcoma of the urinary bladder and of rhabdomyosarcoma of prostate are reported.

There were no metastases.

Eight ounces of growth from Case I and the internal urinary organs from Case II have been presented to the Royal College of Surgeons.

I wish to thank Mr. E. C. Bowden and Mr. J. G. Reid for permission to publish these cases, and Prof. R. A. Willis, of the Royal College of Surgeons, for the histological reports.

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## Medical Memoranda

### Pure Anti-E Agglutinin in the Serum of an Rh-negative Woman

The following case is worthy of record on account of its extreme rarity. The occurrence of the agglutinin anti-E in Rh-negative women has always been complicated by coincident anti-D, in either its complete or its incomplete form, owing to the stronger affinity of the D antigen. A pure anti-E serum has been obtained in an Rh-positive woman CDe/cde—husband cDE/cde (Race, 1946). The following is believed to be the first reported instance of pure anti-E in an Rh-negative woman.

### CASE NOTES

Mrs. A., aged 26, blood group O, Rh group rr cde/cde. Husband's blood group O, Rhesus group R<sup>r</sup> cDE/cde. She had had no previous pregnancies, miscarriages, blood transfusion, or injections of serum or blood at any time. Last menstrual period, March 29, 1946; expected date of delivery, Jan. 5, 1947. She was admitted to hospital on Jan. 17 because of post-maturity.

Surgical induction (Drew-Smythe, catheter) was performed on Jan. 20, after medical induction by stilboestrol had failed. The foetal heart was last heard on Jan. 20. On the 22nd a stillborn male child weighing 9 lb. 4 oz. (4.2 kg.) was delivered after labour lasting 35 hours 15 minutes. The liquor was recorded as thick but not yellow. The skin, however, appeared slightly yellow and the umbilical cord tissue was definitely jaundiced. The placenta was large, greasy, and granular, in keeping with the post-maturity. A specimen of cord blood showed blood group O, Rh group R<sup>r</sup>: the cells also gave a strong reaction with the mother's serum. The maternal serum reacted against R<sub>2</sub> cells and R<sup>r</sup> cells, but gave negative results with R<sub>1</sub> and R<sub>3</sub> cells. The titre of the anti-E agglutinin was 1 in 8 with R<sub>1</sub> and R<sub>2</sub>R<sub>3</sub> cells.

At necropsy (Dr. Cant) the only pathological findings were the changes due to asphyxia caused by intrauterine inhalation of mucus.

### COMMENT

In addition to the production of anti-E agglutinin the actual process of iso-immunization to such a definite extent is unusual for a first pregnancy, particularly with the antigen E. Levine (1945) has shown that erythroblastosis in a first child is usually due to previous immunization by blood transfusion. Although erythroblastosis has not been implicated as a contributory cause of death, it is strongly felt that, had a living child been born, it would probably have shown the signs of erythroblastosis.

I am indebted to Dr. V. M. Cross for permission to record this case. I should like to thank Dr. Sewart for providing the case notes, and Dr. A. E. Mourant and Dr. R. R. Race for confirming the serological findings.

Regional Blood Transfusion Centre, DAVID S. DICK, M.B., Ch.B.  
Birmingham.

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## Reviews

### ELECTROCARDIOGRAPHY

*Klinische Elektrokardiographie.* (Ein Lehrbuch für Ärzte und Studierende). By Max Holzmänn. (Pp. 624, with 280 illustrations and 2 coloured plates. 55 francs.) Zurich: Fretz and Wasmuth Verlag.

This important book, which was written during the later war years and published in 1945, deserves high praise. Though many textbooks of electrocardiography are available, their contents are too often merely a catalogue of electrocardiographic appearances, and seldom is any attempt made to correlate these with the facts of cardiac anatomy and pathology. This book is a welcome change.

After a brief historical survey and a short description of the apparatus available the author discusses the physiological and anatomical principles underlying the production of the normal electrocardiogram. He clearly correlates the limb-lead electrocardiogram with the vectorcardiogram and then describes fully but in simple terms the rationale of the chest and oesophageal leads. Dr. Holzmänn prefers to use the Wilson common electrode for the chest leads rather than the right arm (commonly used in Great Britain) or the left leg (U.S.A.). His account of vectorcardiography and the resolution of the potential vector (within Einthoven's triangle) is particularly well presented, as would be expected from one who has himself done fundamental work on this aspect of the subject. This method forms the only reasonable basis for an intelligent understanding of electrocardiographic appearances, both normal and abnormal. After considering variations of the normal according to body build, age, disposition of the heart within the thorax, and so on, he discusses abnormalities of conduction, heart block, and bundle-branch block. Unfortunately he is apparently unfamiliar with A. M. Master's *The Electrocardiogram and X-ray Configuration of the Heart*, for this reference does not appear among those quoted at the end of the appropriate section, though indeed this is perhaps the only reference of any importance which is not mentioned there. He continues his account of vectorcardiographic analysis in the sections on bundle-branch block and pathological ventricular hypertrophy; it is especially helpful to the consideration of cardiac infarction. In the later parts of the book he describes disorders of rhythm, including extrasystoles, auricular flutter and fibrillation, and A.-V. block. The text is clearly written throughout and the order of the sections is logical and consequential.

The book is well produced, but, as is so often the case with Continental publications, too lightly bound for use as a textbook or for reference. The references at the end of each section are not too numerous for the inquiring student and are, with few important omissions, in all cases to "key" papers on the subject under discussion. They reflect the depth of Dr. Holzmänn's learning and reading in German, English, and French. The index is adequate. The 280 illustrations portray clearly the conditions under consideration. We highly commend the book to all who wish to study electrocardiography. We hope that an English translation will be made soon.

DOUGLAS ROBERTSON.

### PNEUMOCOCCUS TYPES

*Serological Studies on the Pneumococci.* By Erna Mörch. Translated from the Danish by Hans Andersen, M.D. (Pp. 193. 10s.) Copenhagen: Einar Munksgaard. London: Geoffrey Cumberlege (Oxford University Press). 1943.

The success of the sulphonamides in the treatment of pneumonia has led, among clinicians and clinical pathologists, to a loss of interest in the type determination of pneumococci and in the use of specific anti-pneumococcal therapeutic sera. The antigenic structure of these organisms still continues to be of academic interest, however, and it is probable that this knowledge will be required for epidemiological studies of pneumonia in children and other special groups of the population.

We therefore welcome this monograph on the pneumococci, whose scope corresponds in general with that of Kauffmann's monograph on the *Salmonella* group. Though the volume con-

tains much useful information on the properties of and methods of studying pneumococci, on the formation and occurrence of pneumococcal antibodies, and on the frequency distribution of the different types of pneumococci in pathological material, bacteriologists will appreciate particularly the author's having drawn up an antigenic schema in which the types of pneumococci are grouped, numbered, and sub-lettered. Cooper and her colleagues in the United States of America were responsible for defining 32 types, Kauffmann, Mörch, and Schmith in Denmark 20 types, and now Mörch had added a further 18 types. Two of Cooper's types were found to be identical with other members of her series, so that the total known types now amount to sixty-eight. These are numbered from 1 to 42, the rest being lettered. Thus there are two types numbered 6 (6A and 6B), four numbered 7 (7, 7A, 7B, and 7C), four numbered 9 (9A, 9L, 9N, and 9V), and so on. Each type is given an antigenic formula. The number of antigens in each type varies from one to six. For example, the antigenic formulae of some of the types are as follows: Type 1: 1a; Type 6A: 6a, 6b; Type 6B: 6a, 6c; Type 7C: 7a, 7d, 7f, 7g, 7h; Type 42: 42a, 20b, 29c, 33g, 35c, 35d. From these formulae it can be seen whether crossing is likely to occur between different types when tested by agglutination. Finally the author describes each type and gives evidence to prove its right to specific recognition. More types of pneumococci may be recognized in future; if so, it should not be difficult to fit them into the present framework.

G. S. WILSON.

### TEXTBOOK OF EMBRYOLOGY

*Human Embryology.* By Bradley M. Patten. Professor of Anatomy in the University of Michigan Medical School. (Pp. 776; 1,366 illustrations, 53 in colour. 45s.) London: J. and A. Churchill Ltd. 1946.

Descriptive embryology still occupies the greater part of most textbooks of human embryology, with certain notable exceptions, of which this book is not one. The wide fields of embryological research opened up in the last few decades—especially that of developmental mechanics—usually receive little attention, presumably because such work, though it affords a wider view of the nature of human developmental processes, has been done mainly on non-human forms. Inclusion of the principal results of this work would have greatly added to the value of the book. Moreover, we should like to find the post-natal developmental processes discussed within a single volume as a continuation of the antenatal phases.

This textbook for medical students, though bulky, is of restricted scope; it is noteworthy for the clearness of its illustrations, most of them either new or redrawn. Prof. Patten surveys the sexual cycle and earliest developmental stages with reference to recent work both in man and in related forms, and he draws attention to a few of the measurements which have been made on growth changes; but the accounts and figures of chromosomes and mitosis are out of date and inaccurate. He tries to provide elementary answers to some of the questions so often asked on such subjects as the "safe period," superfetation, and the origin of "congenital" abnormalities. We should have liked to see fuller statements on these matters and some reference to related topics such as freemartins and intersex conditions. He almost completely ignores the problems of developmental mechanics and the results obtained from experimental embryology; we find no mention of metaplasia—the progressive modification of cell potentialities—of dependent differentiation, of mosaic patterns, or of induction. He does not discuss the manner in which the pattern of peripheral nerve distribution is established, and he leads us to believe that the simple intrasegmental reflex is the basic vertebrate pattern, without mentioning its progressive differentiation from the generalized reflex described by Coghill. It is surprising to find a descriptive account of the cranial nerves that refers almost solely to the adult and seems out of place in a textbook of embryology. The accounts are in any case inaccurate—e.g., the sino-carotid component of the ninth nerve is ignored, while he claims that a cutaneous component is present. The account of bone development is elaborate but leaves obscure the part played by "fibrous" ("wavy") bone. He mentions the use of alizarin dyes for the study of bone growth, but does not show how it elucidates the remodelling of bones. Again, it is

incorrect to describe cartilage as avascular until ossification is impending; there is no mention of the vascular "cartilage canals."

It is to be regretted that he gives no guidance to certain much discussed questions—for instance, the relation of heredity to environment, the so-called "recapitulation," and human hybridization. Current views on such problems are intimately connected with our knowledge of developmental mechanisms, and they should be expounded in a student's textbook. The author treats his subject unevenly, some parts being so full as to be suited only to the teacher while others are presented in so popular a fashion as to be less suited to medical students than to the laity. The long bibliography containing some thousand references omits some of the newer contributions (e.g., by Needham) in favour of older ones. There is no guidance for the student on how to read selectively nor is he shown how the text is related to the references.

If we have stressed the omissions in this book it is because they will disappoint the senior student, while the junior will not find the guidance that he requires. In contrast, however, the descriptions of organogeny, which have constituted so much of the conventional field of embryology in the past, are well set out and made clear with the aid of excellent pictures. As a work of reference this book will be useful on the shelves of every anatomical library.

ARTHUR B. APPLETON.

### TORULOSIS

*Human Torulosis (A Clinical, Pathological and Microbiological Study, with a report of thirteen cases).* By Leonard B. Cox, M.D., M.R.C.P., F.R.A.C.P., and Jean C. Tolhurst, M.Sc. (Pp. 149; 67 figures. 25s.) Melbourne: Melbourne University Press. 1946. London: Geoffrey Cumberlege (Oxford University Press).

Torulosis, although widely distributed, is believed to be uncommon in all countries, but its rarity is difficult to estimate because accounts of many diagnosed cases have not been published, and, presumably, many more cases not correctly diagnosed are included in the returns of tuberculosis and similar diseases. The greatest number of cases have been reported in the U.S.A., but the highest incidence of the disease in proportion to population appears in Australia.

This admirable work is the latest and most comprehensive monograph on torulosis. The authors present, among other features, a valuable historical record of the disease, followed by a detailed clinical and pathological study of thirteen hitherto unpublished records of Australian cases, and a clinical analysis of the disease in relation to particular systems and organs, with differential diagnosis. They clearly describe the pathology and morbid histology in man and in experimentally infected animals, and include 67 excellent photographs. Although any tissue or organ may be involved, torulosis affects chiefly the central nervous system and its meninges and the lung; it may simulate intracranial tuberculosis, neoplasm, or abscess; and a particular form may be almost indistinguishable from Hodgkin's disease. The diagnosis, therefore, necessarily depends on the mycological examination, a subject to which the authors have given particular attention. They describe the characters and identification of the causative fungus, *Torula histolytica* Stoddard Cutler 1916 (*Cryptococcus neoformans* (Sanfelice 1895) Vuillemin 1901), and, in an illuminating discussion on the mode of infection in torulosis, conclude that *T. histolytica* probably gains entry through the lung and is dispersed by way of the blood stream. Treatment of the intracranial infection is disappointing and the disease is almost inevitably fatal. A bibliography of 134 titles and an adequate index complete this work, which will prove valuable to mycologists and to all practitioners of medicine, especially those who have not yet learned to appreciate the importance of the grave systemic mycoses.

J. T. DUNCAN.

A third edition of *Dental Materia Medica, Pharmacology and Therapeutics*, by Prof. WALTER J. DILLING and Mr. SAMUEL HALLAM, has been published by Cassell and Co., at 13s. 6d. The arrangement of this manual is as before, but new accounts are given of a number of drugs, and the text has been revised to keep pace with recent advances, both scientific and clinical. The names of the drugs are those officially adopted by the British Pharmacopoeia Commission, but well-known proprietary names are quoted as synonyms.

### BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

*Mongolism and Cretinism.* By Clemens E. Benda, M.D. (Pp. 310. 25s.) London: William Heinemann. 1947.

A study of mongolism as a pituitary dysfunction and an account of cretinism.

*Psychology of Women, Vol. II, Motherhood.* By Helene Deutsch, M.D. (Pp. 439. 25s.) London: Research Books. 1947.

A psycho-analytical interpretation of motherhood.

*Essentials of Syphilology.* By Rudolph H. Kampmeier, A.B., M.D. 2nd ed. (Pp. 465. 25s.) Oxford: Blackwell Scientific Publications. 1946.

A textbook on syphilis for the medical practitioner, with many illustrations.

*Diagnostik der Kinderkrankheiten.* By Prof. Dr. E. Feer. 5th ed. (Pp. 428. 32s.) Vienna: Springer-Verlag. London: H. K. Lewis. 1947.

The differential diagnosis of children's diseases for students and practitioners; many illustrations.

*The Psycho-Analytical Approach to Juvenile Delinquency.* By Kate Friedlander, M.D., D.P.M. (Pp. 296. 18s.) London: Kegan Paul, Trench, Trubner and Co. 1947.

Discusses juvenile delinquency, its background and treatment, the training of field workers, and prevention.

*Applications of Germicidal Erythral and Infrared Energy.* By Matthew Luckiesh, D.Sc., D.E. (Pp. 463. 30s.) New York: D. Van Nostrand Company. 1946.

Discusses the use of radiant energy for disinfection, its artificial production, and its effect on the human body, textiles, and plants.

*A Textbook of Gynaecology.* By James Young, D.S.O., M.D., F.R.C.S.Ed., F.R.C.O.G. 7th ed. revised. (Pp. 471. 30s.) London: Adam and Charles Black. 1947.

Incorporates recent advances in endocrinology and new material on ovarian tumours; 17 new illustrations.

*Handbook of Preventive Medicine.* By the Air Ministry. (Pp. 213. 7s. 6d.) London: His Majesty's Stationery Office. 1947.

Information on hygiene, sanitation, communicable diseases, nutrition, etc., for the R.A.F.

*The Road to Maturity.* Ed. by Edward F. Griffith, M.R.C.S., L.R.C.P. (Pp. 232. 7s. 6d.) London: Methuen. 1947.

Essays on sex education by various authors.

*Tubercules Inapparentes.* By Prof. Ch. Dejean. (Pp. 191. 250 francs.) Paris: Librairie Maloine. 1946.

An account of atypical or latent tuberculous conditions, their pathology, diagnosis, and treatment.

*Eléments de Physiologie Humaine.* By Prof. L. Launoy. 2nd ed. (Pp. 760. Papcr, 150 francs; bound, 350 francs.) Paris: Librairie Maloine. 1947.

A textbook of human physiology for students.

*Chemical Anatomy, Physiology and Pathology of Extracellular Fluid.* By James L. Gamble. 5th ed. (7s. 6d.) Harvard University Press. (London: Geoffrey Cumberlege.) 1947.

A summarized lecture syllabus for teaching purposes; with diagrams and references.

*The Sanitary Inspector's Handbook.* By Henry H. Clay, F.R.San.I., F.I.S.E. 6th ed. (Pp. 545. 22s.) London: H. K. Lewis. 1947.

The methods and apparatus of hygiene and sanitation, with reference to the relevant laws.

*Insect Pests.* By W. Clunie Harvey, M.D., D.P.H., M.R.San.I., and Harry Hill, F.R.San.I., F.S.I.A., A.M.I.S.E. 2nd ed. (Pp. 347. 14s.) London: H. K. Lewis. 1947.

Two new chapters have been added on mosquitoes and moths and on D.D.T.

*Molecules Against Microbes.* By E. S. Duthie, M.B., Ph.D. (Pp. 150. 6s.) London: Sigma Books. 1946.

An account of chemotherapeutics and antibiotics for the layman.

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SATURDAY JULY 19 1947

## NEXT WEEK'S A.R.M.

The Representative Body will hold its annual meeting at B.M.A. House on Tuesday next week and succeeding days. Next year the usual peacetime Annual Meeting of the Association will take place in Cambridge. It was at Cambridge that the first normal peacetime meeting was held after the war of 1914-18. The London meeting next week is the last A.R.M. to be held before the appointed day of the National Health Service Act—July 5, 1948. Special Representative Meetings will of course be held before that day. The *Supplements* to the *Journal* of July 12 and 19 contained the resolutions submitted by Divisions and Branches, which have drawn these up in the light of the Annual Report of Council which appeared in the *Supplement* of April 26. Some of these resolutions bear upon the National Health Service Act and many of them upon the usual professional issues that arise out of the year's work of the various committees of the Council.

The present moment might be described as a period of remission in the medico-political fever to which the corporate body of medicine has been subjected during the past two years. That the present quiet phase may disturb many medical men is natural. It is, however, inevitable, because the discussions of the Negotiating Committee and its numerous subcommittees with the Ministry of Health have quite properly taken place in the seclusion of the conference room. No one can have been impressed by the results of the open diplomacy practised on the public platforms of international politics. The dangers are no less in the smaller sphere of medicine. A blaze of publicity sometimes has an unfortunate effect on debaters and encourages them to gain cheap verbal victories instead of talking to the point. The medical profession should therefore, we suggest, have the patience to trust those whom it has appointed to negotiate on its behalf and to wait until the results of its discussions with the Ministry and its final discussion with the Minister have been made public. Democracy, as someone has said, is discussion, and it has often been held that the cardinal political virtue of this country is the ability to arrive at compromise as a result of such discussion. Whether or not the Minister of Health will practise this political virtue when he comes to arbitrate on matters which the profession holds to be fundamental remains to be seen. If we are to achieve what both the medical profession and the Minister desire—namely, the best comprehensive medical service for the people of this country—there must be give and take on both sides. But if there is a clash on fundamental principles the medical profession will not hesitate to stand firm. And the one principle that underlies all others is the right of the

individual to preserve his freedom of thought and action in a democracy based upon the Rule of Law and the Sovereignty of Parliament.

Newcastle-upon-Tyne is next week moving that the Negotiating Committee be asked to make an early report of the progress and discussions with the Minister. Without prejudicing the discussion this would seem to us to be a motion which attempts to push wider the already wide-open door. It can be in the interests of no one to withhold a report. Marylebone dots the i's and crosses the t's of the Council's statement on the results of the plebiscite; Bath considers that when a further plebiscite is taken the B.M.A. Council should "give a strong lead to the profession in the light of the findings of the Special Representative Meeting"; Buckinghamshire considers that before any future plebiscite there should be a clear exposition of the Association's policy but that the actual voting paper should be sent under separate cover and unaccompanied by any expression of opinion; Buckinghamshire also moves that the result of a future plebiscite should be binding on the Council. To arrive at decisions by the method of plebiscite is notoriously difficult, especially when the questionnaire is addressed to matters of opinion. It is difficult enough even when a questionnaire is restricted to matters of fact, as is well exemplified by the familiar problem facing the man asked to say Yes or No to the question "Have you stopped beating your wife?" Even a questionnaire worded in the most careful manner possible presents a thorny problem to those who have to base action on the result. The guidance of a statistician is necessary to make it clear whether an apparent majority is a real majority. And if there is a real majority, at what point does it become large enough to convince the minority that they should accept the verdict of their fellow voters? Whatever the results of another plebiscite may be, the Council of the B.M.A. may find itself pressed on by those whose feelings will prompt them to interpret the figures in a way favourable to their own point of view. Whatever the Council may decide, it will court unpopularity with those who wish to decide otherwise. In any event, the Council will have a hard task, and its success in grappling with it will be measured by the degree of objectivity it brings to bear on its examination. Credited with the objective approach it has tried to make to all professional problems, and which it will undoubtedly make to those facing the profession in the immediate future, the Council should be able to count upon the trust and loyalty of the members of the Association. Given a sufficient majority—the size possibly stated before the plebiscite—the Council should also be able to count on the loyal support of the minority in the action the majority wish to take.

If we keep our heads cool and our feet warm we shall be able to preserve those essential qualities which distinguish a profession from a trade and also from an applied science. The best minds in medicine are fully conscious of the continuity of medical history and of the fact that each succeeding generation of doctors inherits the best traditions of the past. So long as this continuity is uninterrupted by revolutionary methods forcibly introduced detail of service and administration will fit into place.



## CHROMATOGRAPHY APPLIED TO MEDICINE

Chromatography is a relatively new technique of qualitative, and to some extent quantitative, chemical analysis. Having already established itself, somewhat belatedly as it appears, in biochemical research, it is now beginning to invade hospital practice. In the words<sup>1</sup> of the President of the Royal Society, it foreshadows "a leap forward in our knowledge of the proteins."

Like many other innovations in technique chromatography began slowly. It was as long ago as 1905 that the Russian botanist Tswett published his first paper<sup>2</sup> on the separation of organic substances by the use of an adsorption technique which was his own invention. Whereas others had been content to shake their adsorbent material with the fluid from which adsorption was to be effected, the procedure followed by Tswett was to allow his solution to flow slowly downwards through a glass tube containing the adsorbent material. Working with the yellow and green pigments of plants, he found that a succession of coloured bands was formed in the adsorbing column, which could be brought out and "developed" by the further passage through the column of the pure solvent. In this way he was able to effect mechanical separation of the pigments under investigation. Unfortunately, however, the bulk of his work was published only in Russian; and partly for this reason, and partly also, no doubt, because the separation and identification of small amounts of naturally occurring substances attracted less attention then than now, little interest was aroused at the time. In fact, twenty-five years were to pass before Kuhn, Winterstein, and Lederer<sup>3, 4</sup> effectively revived his method in Germany for the study of carotenoid substances.

Subsequent extensions to Tswett's original technique include its adaptation to colourless substances through such devices as the use of ultra-violet radiation to show up stratification bands on the adsorbent column; "liquid chromatography," in which successive bands are washed or "eluted" through the column by the use of further quantities either of the original solvent or of others; and, finally, two more radically new developments, both of which are due to a research team at the Wool Industries Research Association laboratories at Leeds. It may be mentioned in passing, however, that it was by the use, substantially, of Tswett's adsorption method that Binkley, MacCorquodale, Thayer, and Doisy<sup>5</sup> were able in 1939 to extract pure vitamin K from crude alfalfa, containing less than one part in two thousand of the vitamin, no other method of separation but successive chromatographic adsorptions being employed.

The first of the Leeds innovations consisted in the replacement of the original adsorption column by a column filled with silica powder which had been allowed to absorb water but not to a sufficient extent to become wet in the ordinary sense. As before, a succession of bands is formed in the column as the material under examination passes through it; but the effect is due not to adsorption but

to the partition of the various substances between two liquid phases—the original solution, and the silica gel of the particles which make up the column. For this reason the method is known as "partition chromatography."<sup>6</sup> It was developed by Martin and Synge at Leeds for the study of the amino-acids of wool, but among many later uses has had a share in the isolation of pure synthetic penicillins by Du Vigneau and others.<sup>7</sup> This technique has been in turn transformed, for use on a micro-scale, by the substitution of so simple a material as a strip or sheet of filter paper for the silica column. It was of this latter method, which is due to Consden, Gordon, and Martin,<sup>8</sup> that Robinson in the reference already quoted stated: "I gather the chief requirements are a lead tray, an earthenware drainpipe, and a piece of paper." It has proved itself equally well adapted to the requirements of research and of routine measurement and has already been used<sup>9</sup> for such varied purposes as the elucidation of the structure of gramicidin-S by the Leeds team, the routine analysis of penicillin mixtures,<sup>10</sup> and by Dent for the examination of amino-acids in urine.<sup>11, 12</sup> Still more lately a first attempt has been made by La Cour and Drew to apply the method in cytology.<sup>13</sup> Its power is shown by the fact that in its original use 0.002 grammes of wool sufficed for the demonstration of all the amino-acids whose presence could be shown by other methods.

In the simple strip method partition is between water and any suitable organic solvent, and the material under examination is separated in a series of bands running transversely across the strip. In the case of the amino-acids ninhydrin has been employed as the colour reagent. Should separation in any case be incomplete, all that is necessary is to repeat the analysis with the use of a sheet instead of a strip of filter paper; and, with a different solvent, to carry through a second separation in a direction at right angles to the first. The various amino-acids then appear like so many rough two-dimensional plots on a sheet of graph paper, and can be physically separated by a pair of scissors.

It is a remarkable fact that, even if no other evidence had been forthcoming, the application of this filter-paper technique would alone have sufficed to demonstrate not only that gramicidin-S is a cyclopeptide—that is, a ring structure composed of successive amino-acids—but also to specify the order in which the different amino-acids concerned appeared in the ring. This was achieved by examination of the partial hydrolysis products, consisting of either two or three amino-acids in combination, and the subsequent breakdown of these di- and tri-peptides into their constituent amino-acids. Filter-paper technique was used at all stages, and each of the five linkages of the cyclic structure directly demonstrated.

Clinically, the method has been used to show abnormalities in the amino-acid content of the urine in cases of subacute hepatic necrosis, Fanconi syndrome, and in late pregnancy. From this it would be a natural next step to study the elimination of amino-acids administered by the

<sup>1</sup> *Nature*, 1946, 158, 815.

<sup>2</sup> *Ber. deut. bot. Ges.*, 1905, 24, 384.

<sup>3</sup> *Ibid.*, 1931, 64, 1349.

<sup>4</sup> *Z. physiol. Chem.*, 1931, 197, 141.

<sup>5</sup> *J. biol. Chem.*, 1939, 130, 219.

<sup>6</sup> *Biochem. J.*, 1941, 35, 1358.

<sup>7</sup> *Science*, 1946, 104, 431.

<sup>8</sup> *Biochem. J.*, 1944, 38, 224.

<sup>9</sup> *Ibid.*, 1946, 40, 43.

<sup>10</sup> *Nature*, 1946, 158, 675.

<sup>11</sup> *Biochem. J.*, 1946, 40, 44.

<sup>12</sup> *Lancet*, 1946, 2, 637.

<sup>13</sup> *Nature*, 1947, 159, 307.

mouth in known amounts, and to compare the patterns obtained from normal patients with those in pathological cases. In principle, therefore, the method would appear to offer the possibility of a diagnostic test of unusual subtlety. Since, in addition, it can be applied to the separation of any substances which have a suitable partition coefficient between water and any organic solvent, the possibilities for clinical research must be considerable.

Although each of the chromatographic methods which have been mentioned is intrinsically capable of medical application, it may be expected that the filter-paper technique will make the widest appeal. Three books covering the whole or part of the subject are available.<sup>14-16</sup> Of these, Bacharach and Robinson's is a translation of the original German classic and contains full references up to 1938, and Williams's with select references up to 1944 is both the most recent and the best fitted to serve as a general introduction.

### DFP IN GLAUCOMA

Although war gases are regarded by most people with more abhorrence than guns or bombs they are in fact more readily converted to the uses of peace. Several of the new gases discovered during the war are already proving to be useful tools in the advance of medical knowledge, and a few of them may even become valuable agents of healing. Diisopropyl fluorophosphonate, or DFP, is an excellent example of this modern version of swords beaten into ploughshares: the recent work of Leopold and Comroe<sup>17</sup> at Philadelphia suggests that this highly toxic substance may prove to be of great value in the treatment of glaucoma.

The powerful physiological effects of fluorophosphonic esters were first observed by Lange and Kreuger,<sup>18</sup> who prepared the dimethyl and diethyl esters in 1932; indeed, it was the observation by these authors of marked effects upon respiration and the eyes after brief inhalation of the vapour of these esters which led a group of Cambridge workers to re-examine the alkyl fluorophosphonates in the early years of the war. The most conspicuous effect of inhalation of fluorophosphonic esters is a long-lasting miosis, accompanied by spasm of accommodation, and, Adrian, Feldberg, and Kilby<sup>19</sup> discovered in 1941 that these eserine-like effects were due to an intense inhibition of cholinesterase. This inhibition was found by Dixon and his colleagues<sup>20</sup> to be, unlike that produced by eserine, progressive and irreversible, an observation which explains the prolonged character of the physiological effects. In 1941 McCombie and Saunders<sup>21</sup> prepared a series of homologous esters, of which the diisopropyl ester was found by Adrian and his colleagues to be the most potent.

Aqueous solutions of DFP are not stable, but Leopold and Comroe report that 0.1% solutions in peanut oil retain their potency for several months. In the normal eye instillation of such solutions produces prolonged and intense miosis, spasm of the ciliary muscle, false myopia, and decreased intraocular tension; these effects are equal to or greater than those reported for 1% eserine or 5% "prostigmin." Moreover, 0.2% DFP will overcome the effects of 1% atropine.

In the glaucomatous eye 0.05–0.1% DFP in peanut oil successfully lowers intraocular tension in a higher proportion of patients and with decidedly fewer instillations than either pilocarpine or eserine. Leopold and Comroe found it effective in controlling intraocular tension in 43 of 48 eyes with chronic simple glaucoma, when pilocarpine or eserine was effective in only 21 eyes. Similarly DFP was much more effective than pilocarpine or eserine in eyes in which glaucoma developed after cataract extraction.

Repeated doses of DFP produce a slight decrease in plasma cholinesterase but no systemic symptoms. The drug does, however, have some untoward and undesirable effects—namely, visual blurring, brow and eye ache, spasm of accommodation, and periorbital injection. These effects are not troublesome in all patients and, in particular, are not prominent in patients with glaucomatous aphakic eyes. In spite of these defects the authors regard DFP as a promising alternative to eserine; it is certainly very effective, and it requires much less frequent application. They were unable to recommend any particular dosage regime; the frequency of application must be determined by repeated checks of the intraocular tension. In their experience administration may be required only once daily, or even once weekly.

The results of Leopold and Comroe have been largely confirmed by McDonald<sup>22</sup> in a series of careful clinical studies and by Lebensohn<sup>23</sup> in a smaller number of patients.

### OPERATION FOR CONGENITAL PULMONARY STENOSIS

Surgery has been successfully applied to most of the viscera, but surgery of the heart has been relatively slow to develop. The surgery of congenital heart disease, until recently a sterile field, now offers hope of relief to many sufferers owing to the brilliant work of several surgeons. Maude Abbott, in her classical *Atlas of Congenital Cardiac Disease*, suggests a clinical classification of three groups of cases. In Group 1 she places those cases with no abnormal communication (acyanotic group); a representative of this group is co-arcuation of the aorta, which can now be relieved by the brilliant operation of Crafoord's.<sup>24</sup> Group 2 includes cases of arterial-venous shunt with terminal reversal of flow (cyanose tardive); patent ductus arteriosus is representative and its relief by ligation is now almost a standard procedure. Group 3 comprises cases of permanent venous-arterial shunt and retardation of flow (cyanotic group), and surgery can now give relief to patients in this last group.

In 1945 Blalock and Taussig<sup>25</sup> described attempts to relieve certain cases of congenital heart disease in which pulmonary stenosis or pulmonary atresia exists by performing an anastomosis between a systemic artery and the right or left pulmonary artery. The argument behind this operation was that one cause for the cyanosis is the delivery of an inadequate quantity of blood to the lungs. The systemic artery used has been either the innominate or the subclavian or even the carotid. Within two years of the first paper recording 3 cases Prof. Blalock<sup>26</sup> has been able, in the first Edward Churehill lecture, to record his results in operations upon 243 patients; the overall mortality was 21%, though in the second hundred it was only 15%. Blalock considers that in patients between the ages of 2 and 12 years in whom a typical tetralogy of Fallot is present with a small heart the operative risk should be less than

<sup>14</sup> Zechmeister, L. and Chelacky, L., 1941, *Principles and Practice of Chromatography*, Chapman and Hall, London. Translated by Bacharach and Robinson.

<sup>15</sup> Stein, H. H., 1942, *Chromatographic Adsorption Analysis*, Interscience Publishers, New York.

<sup>16</sup> Williams, T. I., 1946, *An Introduction to Chromatography*, Blackie, London.

<sup>17</sup> *Arch. Ophthalmol.*, 1946, 36, 1, 17.

<sup>18</sup> *Ber. deutsch. chem. Ges.*, 1932, 65, 1578.

<sup>19</sup> *Brit. J. Pharmacol.*, 1947, 2, 56.

<sup>20</sup> *Nature*, 1946, 158, 432.

<sup>21</sup> *Ibid.*, 1946, 157, 287.

<sup>22</sup> *Amer. J. Ophthalmol.*, 1946, 29, 1071.

<sup>23</sup> *Arch. Ophthalmol.*, 1946, 36, 621.

<sup>24</sup> *J. thorac. Surg.*, 1945, 14, 347, and annotation, *British Medical Journal*, 1946, 2, 166.

<sup>25</sup> *J. Amer. med. Ass.*, 1945, 123, 189.

<sup>26</sup> *Ann. Surg.*, 1947, 125, 129.

12%. When atypical conditions exist such as a large heart, situs inversus, large aorta, the danger of the operation increases. The age of his patients has ranged from 4 months to 26 years, but the best period is from 3-10 years. The mortality is higher in infants under 2 years, and operation is not advised under 18 months unless the chances of survival to an older age are less than 50%. In older patients it is more difficult to bridge the gap to the pulmonary artery with the systemic artery, and the structures are less elastic and pliable. It is significant of the gravity of the condition that 20 patients have died while awaiting admission to hospital.

In 147 patients in whom the subclavian artery was used the mortality was 9%; in 57 in whom the carotid or innominate was used the mortality was 33%. Blalock now feels that the extra size of the innominate artery is probably rarely necessary to secure the highest rise in oxygen saturation, as it is probably more than balanced by the extra strain on the heart. The much higher mortality would certainly appear to be pertinent. Blalock's intermediate papers<sup>22</sup> should also be consulted for valuable information. The results of the operation have been, in general, very gratifying. Cyanosis is relieved almost at once; the arterial oxygen saturation may improve from 30% to 80%; children who could walk only a few feet before operation are enabled to walk a mile or more and some can engage in fairly strenuous exercise.

The Blalock-Taussig operation is ingeniously conceived and has given great relief to many patients, but it is still too early to assess the results fully, for the operation, by creating an artificial ductus arteriosus, exposes the patient to the later risks of cardiac failure or infective endocarditis. As the authors themselves say, however, it is better to run these risks in later years than to suffer and die from anoxaemia and cyanosis in the present. Recently Potts, Smith, and Gibbons<sup>23</sup> have described a method of direct anastomosis of the aorta to the pulmonary artery as an alternative to Blalock's operation.

The surgical treatment of congenital pulmonary stenosis is to be discussed at the International Congress of Surgery in London in September and the opener will be Prof. Blalock.

### HIGH-VOLTAGE X RAYS

In a recent leading article<sup>24</sup> on the generation and properties of high-voltage x rays, we suggested as the next step that equipment similar to the 30 million-volt synchrotron, now approaching completion at the Telecommunications Research Establishment of the Ministry of Supply, should be given therapeutic trial at a limited number of centres. This view has now been endorsed by the decision of the Medical Research Council to order two further such synchrotrons for medical use. They have been allocated to Cambridge and the Royal Cancer Hospital, where Prof. J. S. Mitchell and Prof. W. V. Mayneord respectively can be relied upon to secure the fullest information from them. Apart from the obvious, and indeed dramatic, interest of an approximately tenfold increase in x-ray voltages, a thorough examination of both physical and therapeutic effects is needed for future policy. No changes in methods of generation can render such data obsolete, for the physical properties of x rays are determined by voltage alone; and, even with existing methods, it is probable that appreciably higher voltages could be produced. It may therefore be necessary to decide how far up in voltage it is

worth while to go. The immediate prospect is for a depth dosage at five centimetres equal to about four times that at the surface.

### ACQUIRED RESISTANCE TO PENICILLIN

One of the chief reasons why penicillin treatment should be aided so far as possible by laboratory control is that susceptibility to penicillin varies not only among bacterial species but sometimes among strains of the same species. When abnormal resistance is exhibited by an individual strain, it may be either natural or acquired by habituation. The capacity of different strains to develop resistance by habituation varies. Very fortunately, resistant strains of Group A *Str. pyogenes* are never encountered, nor can this organism be induced by the usual proceedings to develop anything more than a slight increase of resistance *in vitro*. *Staph. aureus* goes to the other extreme: resistant strains are being encountered with apparently increasing frequency, and *in vitro* resistance can be artificially increased by as much as 5,000-fold. The peculiar interest of the behaviour of staphylococci is that resistance developed *in vivo* and *in vitro* differs in nature; the former is unaccompanied by any change in cultural characters, is permanent, and is due to the production of penicillinase: while the latter is accompanied by a change in colony type, is rapidly lost on transfer to normal media, and is not due to penicillinase formation. Why two evidently different mechanisms should operate under different conditions to produce a similar effect is still unexplained. It is also by no means certain whether the underlying process is one of selection or adaptation. K. R. Eriksen<sup>1</sup> takes the former view, basing it on the proportion of abnormal colonies found on plating broth cultures undergoing habituation or subsequent to the release from the influence of penicillin. He also observed actual stimulation by penicillin of the growth of a resistant strain, which recalls J. Ungar and P. Muggleton's<sup>2</sup> finding that penicillin in concentrations of 1 or 5 units per ml. stimulates the growth of tubercle bacilli. E. P. Abraham, D. Callow, and K. Gilliver,<sup>3</sup> on the other hand, take the view that modification and not selection is the basis of acquired resistance to antibiotics in general: they employed three, none of which was actually penicillin, and found that after habituation to one of them *Staph. aureus* adapted itself in the same way to another, which is not to be expected if the former process eliminated all but the descendants of a few originally resistant cells. F. H. Stewart,<sup>4</sup> working with sulphonamides and *Shig. flexneri*, also concludes that adaptation accounts for acquired resistance to these drugs.

Of much more practical importance is the mode of origin of resistant strains found in patients. E. A. North and R. Christie<sup>5</sup> have studied this question intensively in the ward of a plastic surgery unit where many resistant strains of *Staph. aureus* were encountered. Regular specimens were taken, and all coagulase-positive strains subjected to biochemical and serological examination as well as tests for susceptibility to penicillin. An interesting fact is that resistant strains appeared mainly in wounds of such a nature that treatment with penicillin was unlikely to be fully effective. These authors give reasons for rejecting the very plausible hypothesis that the appearance of resistant strains was due to cross-infection, nor do they believe that selection accounted for it. Reasons for the latter view are that resistant strains were never encountered before treatment, and that a mixture of sensitive and resistant colonies was never obtained. They incline, there-

<sup>22</sup> Bull. N.Y. Acad. Med., 1946, 22, 57.

<sup>23</sup> Ann. Surg., 1946, 124, 579.

<sup>24</sup> J. Amer. med. Ass., 1946, 132, 627.

<sup>25</sup> British Medical Journal, 1947, 1, 571.

<sup>1</sup> Acta path. microbiol. scand., 1946, 23, 284.

<sup>2</sup> J. Path. Bact., 1946, 53, 501.

<sup>3</sup> Nature, 1946, Dec. 7, 818.

<sup>4</sup> J. Hyg., 1947, 45, 28.

<sup>5</sup> Med. J. Australia, 1946, 2, 43.

fore, to the adaptation hypothesis, suggesting that "the stimulation by penicillin to change potential penicillinase-producing staphylococci into actual penicillinase-producing variants offers the most satisfactory explanation."

The organism which has been most anxiously watched from this point of view is the gonococcus, and so far no unequivocal evidence that it can become seriously penicillin-resistant has yet been forthcoming. It is therefore somewhat alarming to read that C. Huriez and M. Desurmont,<sup>6</sup> of Lille, believe they have observed the "beginnings of penicillin-resistance" in gonorrhoea. Since the "liberalization" of penicillin (to what degree of freedom of use this refers is not clear) the number of cases coming to their clinic has diminished, and there have been patients requiring very large doses—as much as 4,400,000 units in all—together with sulphonamide treatment and artificial fever, before cure was effected. This is certainly a tendency which, if verified and maintained, will call for rigorous measures of control.

### BLINDNESS IN SCOTLAND

A statistical survey of 3,219 blind persons in Glasgow and south-west Scotland was undertaken in 1942 by Marshall and Seiler.<sup>7</sup> Dickson<sup>8</sup> has now studied 4,078 certified cases in other parts of Scotland. The sexes were equally represented in the records studied by Dickson, and the group aged 65 or over contributed the largest number of cases—1,612; the age group 50–64 came next with 1,307. In the 40–49 group there were 443 cases, and there were progressively fewer in the younger groups. Thus there were only 33 cases in the age group 1–4, and none under 1 year. The causes of blindness were: cataract in 17.3% of the patients, myopia (13.8%), venereal disease (12.8%), chronic septicaemia (10.9%), glaucoma (7.6%), and injury (4.0%).

The individual causes of blindness varied in the different age groups. Where the onset of blindness was in the pre-school period (0–4 years) Dickson found that congenital anomalies and ophthalmia neonatorum were together responsible for 62.8% of the total of 366 cases; congenital syphilis was the cause in only 8.4% of these cases. With onset in the school period (5–15 years), however, the commonest cause of blindness was congenital syphilis, accounting for 22.6%; congenital anomalies and abiotrophies came next and were responsible for 19%. The causes of blindness with onset in the adolescent period (16–29 years) were: congenital anomalies (20%), congenital syphilis (13.2%), chronic septicaemia (12.2%), trauma (11.7%), and myopia (11%). Onset during the working period (30–49 years) followed myopia in 16.7% of cases. Other causes were chronic septicaemia (15.1%), abiotrophies (9.2%), acquired (8.1%) and congenital (7.4%) syphilis, and trauma (7.1%), including sympathetic ophthalmia. Over the age of 50 cataract (29.1%) was the most usual cause, and then myopia (16.3%), glaucoma (12%), chronic septicaemia (10.5%), and vascular diseases (6.6%).

On the basis of actual duration of blindness in "patient years" the more important causes were a miscellaneous group. Chronic septicaemia came first with 12.3% of all the "patient years" of blindness; congenital syphilis, congenital anomalies, and ophthalmia neonatorum were almost as significant. Next in importance were injury and myopia, and then cataract, local infections, and abiotrophy. Glaucoma, acquired syphilis, and phlyctenular disease were each the cause of about 3% of the total of "patient years" of blindness. In about 13% of the cases some improvement by treatment seemed likely. But the regional survey indi-

cated that, for example, in the Inverness and Zetland regions the importance of cataract as a cause of blindness was at least partly due to lack of facilities for operative treatment in the sparsely populated country areas. In Dundee myopia was particularly common, while in Aberdeen retinitis pigmentosa was relatively prevalent.

Dickson's report agrees closely with that of Marshall and Seiler, and he gives consolidated tables for the two investigations. The causes of blindness in Scotland are not dissimilar from the causes observed in England and Wales as recorded by Sorsby,<sup>9</sup> except that the Scottish figures show a distinctly greater incidence of infections. These differences may be adventitious, owing to individual and local variations in registration, but Dickson's plea for more precise statistics is sound. There is much to be said for his advocacy of annual publication of authoritative statistics of blindness.

### HUMAN NUTRITION LABORATORY AT OXFORD

The Trustees of the Will of the late Sir Henry Wellcome have offered Oxford University up to £25,000 to buy suitable premises for a Wellcome Laboratory of Human Nutrition. This handsome gift of money will also be used to alter and equip the premises adequately as a centre for fundamental research on human nutrition. The Wellcome Trustees have made this gift on condition that the University will provide an annual sum of £5,000 for the maintenance of the laboratory for a period of at least five years from the date that it becomes available for occupation. Another proviso is that if the laboratory ceases to be used for its initial purpose the house and its equipment, or its realized value, will be applied by the University for research "within the wide range of the sciences contributory to medicine and to the physical well-being of men and animals." The University has gratefully accepted the gift and has decreed that such a laboratory shall be instituted for the conduct of fundamental research into the problem of human nutrition which have their origin in physiology, biochemistry, pathology, anthropology, or clinical science. Field research may be undertaken either in this country or abroad. The management of the laboratory will be in the hands of a standing committee of two members appointed by the Board of the Faculty of Medicine, two appointed by the Board of the Faculty of Biological Sciences, and the Reader in Human Nutrition, who will act as secretary of the committee. The committee may decide to transfer to the laboratory some of the apparatus and equipment formerly belonging to the Oxford Nutrition Survey. This handsome gift of the Wellcome Trustees will enable Oxford to follow the example already set by Cambridge.

### THE HALF-YEARLY INDEXES

The half-yearly indexes to Vol. II of the *Journal* and the *Supplement* for 1946 have been printed. They will, however, not be issued with all copies of the *Journal* but only to those readers who ask for them. Any member or subscriber who wishes to have one or both of the indexes post free, should send a postcard to the Accountant B.M.A. House, Tavistock Square, London, W.C.1. Those wishing to receive the indexes regularly should intimate this.

On July 10 Sir Alfred Webb-Johnson, Bt., was re-elected President of the Royal College of Surgeons of England for the seventh successive year. This is a record. Lord Moynihan held the office for six years from 1926 to 1931, and Sir William MacCormac for five years from 1896 to 1900.

<sup>6</sup> *Presse méd.*, 1947, 2, 13.  
<sup>7</sup> *Brit. J. Ophthalmol.*, 1942, 25, 337.  
<sup>8</sup> *Ibid.*, 1946, 26, 281.

<sup>9</sup> *British Medical Journal*, 1945, 2, 557.

## TUBERCULOSIS AND THE HEALTH ACT

MR. ANEURIN BEVAN AT ANTI-TUBERCULOSIS  
CONFERENCE

A Commonwealth and Empire Health and Tuberculosis Conference, arranged by the National Association for the Prevention of Tuberculosis, was held in London from July 8 to 10. It was attended by delegates from over thirty Dominions and Colonies and nearly twenty foreign countries. Government departments, local authorities, voluntary organizations, and industrial and commercial concerns were represented, the last-named not only by their medical and welfare officers, but by their executives, personnel managers, and trade union officials. Sir Robert Young was chairman of the Conference, and the Duchess of Kent, president of the National Association, welcomed the members.

Mr. Aneurin Bevan, Minister of Health, attended a session at which the discussion was on the National Health Service Act and its effect on tuberculosis work. He said that after a setback during the earlier part of the war the tuberculosis mortality rate was again declining, and although notifications were increasing in number this was due only to the greater accuracy in diagnosis and to earlier discovery. Mr. Bevan went on to say that he had inherited "a very considerable apparatus" in the shape of sanatoriums and specialist staff. "I do not propose so much to change what exists as to continue, amplify, and improve it."

## Not a "Soulless Affair"

There were sceptics who talked as if the health service of the future was going to be a centralized, State-run, soulless affair in which human personality would not be able to find expression. That was the very opposite of what was proposed. He wanted each sanatorium to maintain its identity and continue to be run under its separate name. Although the sanatoriums and dispensaries would be made an integrated part of the health service as a whole, the institutions would be maintained on as independent and voluntary a basis as possible.

"In this health service we are making a big experiment which, if it succeeds, is going to be very important indeed, not only in this field but in many others. We are placing upon the Government the obligation of providing a health service, which at first gives rise to the impression of centralization; but although the Minister will be responsible, the service will be worked through Regional Boards and Management Committees of hospitals, which will be voluntary and as far as possible independent bodies."

Some of the Regional Boards had already held their first meetings, and it was gratifying to find so large a body of experienced and zealous people ready to take on this great work at this moment. Mr. Bevan was fully alive to the fact that once the administration started there would arise a chorus of criticism, a cataract of complaints, and people would say, "There you are! It is all going wrong." Actually the complaints had always been felt, but only now would they become vocal. The administration of the Act gave the complainers a means of articulation. The Minister would have to face a barrage of questions in the House of Commons. "That is excellent. That is how a democratic constitution works. And if the Minister is kicked hard enough he passes the kicks on, and the whole service is energized."

The Minister would be sharing with voluntary bodies (Mr. Bevan continued) the responsibility for day-to-day administration. In this experiment of centralized responsibility and decentralized administration a new chapter was opened in the constitution of Britain. Some seemed to think that it would make a dichotomy in the service, whereby the Ministry would be responsible for diagnosis and institutional treatment and the local authority for after-care. "I do not see that that schism actually threatens, because we hope that tuberculosis officers will hold joint appointments with the local health authority. We shall make the link where it is important to make it—at the executive point where the actual work is done."

Next year, on July 5, there would come into operation the National Insurance Act, the Health Act, and—if Parliament passed it (and there was no reason why it should not)—an Act to complete the break-up of the Poor Law system. In three

big steps the social services of this country would have been revolutionized. The Health Act was not merely a contract which the Government made with the citizen; it was a living and developing service, improving with the expansion of knowledge and resources. With the operation of the Health Act, the development of social services generally, the provision of roomy and well-planned houses, and attention to child nutrition, he looked forward to the conquest of tuberculosis.

## "A Fatal Cleavage"

Dr. Norman Tattersall, the principal medical officer of the Welsh National Memorial Association, said that the tuberculosis service in Great Britain was operated by 200 scheme-making authorities, with the result that the standard of achievement varied enormously. Under the new Act institutional provision and the control of the tuberculosis medical staff operated at regional level, but prevention and after-care were left in the hands of the local health authorities. Surely the obvious result would be that those features which came under the control of the Regional Board would reach a certain level of achievement throughout the whole region, but the vital preventive and after-care services would vary according to the vision, energy, wealth, and knowledge of the local authorities.

In most of the small schemes which would now be fused into the regional pattern there was no serious divorce between the preventive and the treatment aspects; it would appear, therefore, that regionalization would ultimately improve their diagnostic and treatment set-up. But would it not also bring about a fatal cleavage—(Mr. Bevan shook his head)—between prevention and treatment? The Minister had just told them that the problem was to be met in some measure by "loaning" the tuberculosis officer to the local authority, so that he would be the servant of two masters—the local authority and the Regional Board—and there was biblical authority for predicting the failure of such an arrangement.

Another defect which Dr. Tattersall pointed out was that while the tuberculosis officer would be in charge of chest clinics attached to the hospitals of the new service he would have no responsibility for cases of non-pulmonary tuberculosis, which would be dealt with by the appropriate departments of the hospital. Surely this meant that the unity of tuberculosis as a disease would be obscured. Admittedly the treatment of particular phases of the infection must be the province of special departments, but in whatever part of the body the main lesion was situated tuberculosis was still an infectious disease combined with a social problem. Of course, the orthopaedic surgeon must advise and direct the treatment of his cases, but if they ceased to be the interest also of the tuberculosis officer it would mean a reversal of the principle which had guided the development of the service ever since Sir Robert Philip opened his first dispensary in 1887.

Dr. Tattersall also asked whether each Regional Board would be left free to develop the service in its area on widely different lines from its neighbours; or would there be such central direction as would ensure a fairly uniform pattern?

"The success or failure of the revolutionary changes which lie ahead will depend in no small measure on the Regulations with which the Minister will clothe the bare bones of the Act. Let him remember St. Paul's advice: 'Prove all things; hold fast that which is good.'"

The discussion was continued by Dr. Brice Richard Clarke, director of the Northern Ireland Tuberculosis Authority, who said that he believed the Act would mean a great advance in diagnosis and treatment, but while they could not expect an Act of Parliament to be as alluring as a company prospectus they would have welcomed indications of a more definite national campaign against tuberculosis. If there was a feeling that enough was being done at present, such complacency was not shared by other countries—Holland, for example. Councillor G. P. Achurch, chairman of the Birmingham Tuberculosis Committee, said that in his city they believed that sanatorium treatment detached from rehabilitation and re-employment was largely ineffectual or at any rate wasteful of effort.

Mr. Bevan could not remain for the whole of the discussion, but before leaving he said that a good deal of misunderstanding



which he had detected in particular in Dr. Tattersall's speech and in the speech of a Glasgow delegate was due to the fact that the Act was merely a sketch. For anything the speakers knew, their criticisms had already been anticipated.

### Tuberculosis in the Commonwealth

Two sessions of the Conference were devoted to reports from the Dominion and Colonial representatives. The secretary of the Canadian Tuberculosis Association, Dr. G. J. Wherrett, described the sanatorium and tuberculosis hospital provision in Canada (one bed per 1,000 population) and said that treatment was free for all in five of the nine provinces and in others not more than 10% of the patients had to pay. B.C.G. vaccine was first used in Canada in 1928, in the vaccination of newborn babies from tuberculous households in Montreal. The results of B.C.G. were shown in a significant reduction in the morbidity and mortality in the vaccinated as compared with the unvaccinated groups. Dr. F. J. Wiles (Union of South Africa) said that the medical authorities on the Rand gold mines were the first in the world to start mass radiography. He referred to the low incidence of the disease in the native reserves. One rural community of 2,000 Bantu was kept under observation for eight years and during that period only three people died from tuberculosis. Investigators had found over 65% of the population in rural areas tuberculin-positive, and in a recent survey 73% of children under 15 were positive. There must be ample opportunity for infection in the reserves, but despite this the mortality was relatively low. Mr. W. H. Kitson, agent-general for Western Australia, said that the government of his province had undertaken a programme of mass radiography of the civil population.

Other speakers were from New Zealand and India, and, at a subsequent session, from Cyprus, the Gold Coast, Ceylon, Fiji, Singapore, and the West Indies.

Mr. A. Creech Jones, Colonial Secretary, in addressing the Conference on the colonial aspects of the anti-tuberculosis campaign, acknowledged the debt which the Colonial Empire owed to the National Association for the Prevention of Tuberculosis. Through the agency of that body, he said, detailed surveys of tuberculosis in the West Indies and in Cyprus had been carried out, and others were envisaged.

### B.C.G.

An important session was devoted to specific measures in the prevention and treatment of tuberculosis, including B.C.G. and streptomycin. The chair was taken by Prof. S. Lyle Cummins. Prof. W. H. Tytler, of the Welsh National School of Medicine, said that for specific immunization there was only one well-established method—namely, inoculation with the bacillus of Calmette and Guérin (B.C.G.). Its only prospective rival was the vole bacillus, or murine tubercle bacillus of Wells. Specific treatment to-day meant streptomycin; here again there were some potential competitors in the background. Before he died in 1933 Calmette claimed that among a million vaccinated not a single case had been proved due to B.C.G. culture, and that claim remained unrefuted to-day for double the total. The effectiveness of the method was more difficult to assess. The earlier French statistics were open to criticism, but the impression remained that the reduction in deaths was real. In countries where child tuberculosis had decreased under improved control the interest in B.C.G. as applied to infants had waned; its main interest to-day arose out of its new use in the immunization of those who had reached adult life uninfected and therefore non-immune. Immunization of young adults was applied mostly to those in contact with infection, such as nurses and medical students, but it was steadily being extended to the whole population in a number of countries. As the infection rate in childhood fell, more and more people would reach adult life uninfected and, so long as infection was widely present in the community, would require artificial immunization.

Touching on streptomycin, Prof. Tytler left the question of its value to later speakers, but he said a word on what it could not do. It could not cure advanced tuberculosis in the dramatic way in which penicillin acted on acute infections. He himself thought they were more likely to have prevented advanced tuberculosis before they were able to cure the disease rapidly.

Streptomycin had produced some striking results in certain limited forms of tuberculosis and it had had a generally favourable effect in early pulmonary disease. For these effects alone it was probably worth while going on with its expensive production, but it was difficult to hold a proper balance between, on the one hand, crying down a drug which did not produce dramatic results and, on the other, expressing a too favourable opinion which would raise public hopes.

Dr. K. Neville Irvine, medical superintendent, South Oxfordshire Isolation Hospital, said that he understood that B.C.G. vaccine was shortly to be introduced into this country in a manner in which it could be fitted into existing tuberculosis services. Ideally, B.C.G. vaccination should be carried out first by segregating all the tuberculous members of the community, Mantoux-testing the remainder to see if they had ever had a tuberculous infection, putting aside the Mantoux positives as having already their acquired immunity, and inoculating the Mantoux negatives with B.C.G. vaccine, allowing six weeks for their immunity to develop. A scheme formulated on these principles, though feasible in Great Britain, would be impracticable in remote native villages, and he suggested for such territories a greatly simplified scheme, using the existing service for the vaccination of the natives against smallpox. Empire laboratories should be suitably placed for the production of B.C.G. vaccine, which should be issued direct to the vaccination service. A subsequent speaker, Dr. K. S. Sanjivi, of Madras, as representing a country with communities heavily infected with tuberculosis, thought that Dr. Irvine's plan was dangerous over-simplification.

### The Vole Bacillus

Dr. Arthur Quinton Wells, of the Sir William Dunn School of Pathology, Oxford, compared B.C.G. with the vole bacillus, the murine strain of tubercle bacillus widespread among small rodents. He agreed that the safety of B.C.G. was beyond dispute, and that it would be wrong to make so categorical a claim for the vole bacillus, but from the limited experience he had had and the few published reports the vole bacillus was innocuous to man. He had vaccinated 121 persons by various methods, nearly half of them three years or more ago, and the remainder about a year ago, and no cases other than of a purely localized disease had been seen. The local reaction caused by the vole bacillus in man was dependent on the depth of the injection into or beneath the skin. A subcutaneous injection frequently gave rise to a severe reaction, manifested by an indolent ulcer which might take many months to heal. He had abandoned that route of injection. The least troublesome reaction followed injection of the vaccine by multiple puncture, involving a number of simultaneous pricks into the skin. He admitted that there was no actual evidence that the vole bacillus reduced the incidence or severity of tuberculosis in man; there was, unfortunately, no known method of measuring human resistance, but if it was agreed that tuberculin-positive persons were less likely to contract tuberculosis it was interesting to note that reports from this country and overseas agreed that sensitivity to tuberculin following vaccination with the vole bacillus was greater and occurred earlier than that following vaccination with B.C.G.

### American Work on Streptomycin

Dr. H. S. Willis, superintendent of the W. H. Maybury Sanatorium, Michigan, and Dr. H. C. Hinshaw, of the Mayo Clinic, then told the story of streptomycin. Dr. Willis said that in the United States to-day six or more excellent laboratories were making explorations into streptomycin the chief feature of their research work. In the clinical field about 1,000 patients had completed their experience with streptomycin—an average course of from 90 to 120 days—and 600 more were now under study. Plans were also proposed for the regular clinical application of the drug to several hundred others, these apart from many more who were treated privately and without regard to study regimes. As a result of the work to date the use of streptomycin was regarded as "mandatory" in miliary tuberculosis and tuberculous meningitis, also in acute pulmonary tuberculosis, and in certain extra-pulmonary lesions. Here the application of streptomycin was "as essential as the use of anaesthesia in operations."

The research work on streptomycin was a co-operative venture in which the National Tuberculosis Association (Medical Section), the Veterans Administration, and the U.S. Public Health Service were concerned. A committee on streptomycin, of which Dr. Hinshaw was chairman, obtained 54 kg. as a donation from the manufacturers. The drug was parcelled out among eight investigators, whose work was co-ordinated by the committee. It was now well known that the average strain of tubercle bacillus sensitive to streptomycin at the beginning of therapy for some reason became drug-fast after the patient had had several weeks of treatment. The nature of this resistance was being explored, because it was an important factor in bringing about discontinuance of streptomycin treatment. Other laboratory studies consisted of investigations of dosage and the toxicity of the drug as it related to blood levels and its use in patients with damaged kidneys. The clinical work with patients was divided into two parts, one of them pioneer and testing, and the other mass application. Pilot studies had been made in connexion with several types of tuberculosis in which variables in dose and dose schedules were used. At present the acceptable cases fell into the following categories:

- (1) Cases of bad prognosis in which some improvement seemed likely;
- (2) Cases of bilateral acute disease not amenable to collapse therapy;
- (3) Cases in which the lesion was known to be recent and progressive;
- (4) Cases in which the patient had collateral symptoms out of proportion to the degree of pulmonary involvement.

The reason for co-ordinated effort was obvious in the study of a drug in so important a disease as tuberculosis. In ordinary circumstances someone evolved a drug or biological product with certain bactericidal or bacteriostatic properties and published a report. Another investigator read the report and decided to try the drug on animals. Then experimental pathologists took it up and confirmed or refuted the claims. Meanwhile clinicians decided to apply the product to patients, and in due course the results of these observations became common knowledge. But it often happens that enthusiastic workers were found to have claimed too much, the public were misled, and the general establishment of the treatment delayed. Co-ordinated effort justified itself when entered into by investigators for a given section of work and for the accomplishment of a certain job, recognizing that research needed and must have independence of thought and action. It was felt in the U.S.A. that very real progress was being made against the disease by the use of this drug; but only a relatively small proportion of all cases of tuberculosis were amenable to the drug as used at present, and streptomycin in no way replaced conventional methods of therapy.

Dr. Hinshaw added that the clinical work started less than three years ago, and the total number of cases reviewed to date was nearly 1,000. Streptomycin was being produced on a large scale commercially, probably about 500 kg. per month. He agreed that over-enthusiastic evaluation was a tragedy, and it was unfortunate that the discovery of streptomycin did not precede that of a drug like penicillin, of which it was not the equivalent. Unless all other forms of therapy were unavailing streptomycin should not be regarded as a satisfactory substitute for existing methods of treating pulmonary tuberculosis, but in tuberculous meningitis it might be found that its use would halve the death rate.

Dr. Selman Waksman, the discoverer of streptomycin, who was given a hearty reception by the Conference, said that he hoped to deal fully with the question at the International Congress of Pure and Applied Chemistry which is being held in London at the end of July. Streptomycin might not be the final word, but it pointed the way.

#### Spanish Work

Prof. F. Bustinza mentioned the work of two Spanish colleagues—Dr. Urgoiti, of Coruna, and Dr. Gaston de Iriarte, of Madrid. Dr. Urgoiti had been working for 15 years on anti-tuberculosis prophylaxis with B.C.G. and during the last 12 years had used the vaccine not only for the protection of the newborn but also for non-infected children and adults who were negative to tuberculin tests. He believed it to be a

weapon of great efficacy. Dr. de Iriarte had devoted himself for 17 years to experimental study of anti-tuberculous vaccine therapy. The vaccine he used was prepared with *Mycobacterium tuberculosis* isolated from the patient and grown on a fluid medium, and he had used the filtrate in treatment with ultra-violet rays. Dr. Bustinza suggested that possibly the substance responsible for the antigen preparation might be some kind of polysaccharide present in the metabolic liquid in which the tubercle bacillus had been cultivated. If sufficient human tests confirmed the excellent results already obtained with this vaccine in animal experiments its use in combination with streptomycin might be found to give better results than either used alone, the streptomycin checking the growth of the tubercle bacillus and the other preparation bringing about the development of a specific immunity necessary for a complete success.

Dr. Esmond Long, director of the Henry Phipps Institute, University of Pennsylvania, said that he was wholly in accord with Prof. Tytler's views as to the possibilities and limitations of B.C.G. immunization. In the U.S.A. they had been cautious in the use of B.C.G. vaccine, first because they realized the need of rigid insistence upon statistical analysis of results, and, secondly, because the campaign against tuberculosis, as in Great Britain, was proceeding successfully. As Dr. Tytler had said, there were many reports for and against B.C.G. vaccination, perhaps the minority on the negative side; but the results obtained by men of impartial outlook and accustomed to statistical inquiry could not be ignored. Everybody would agree that B.C.G. was harmless for man, but there were reports of variations in strength, and some strains produced more significant skin reactions than others.

#### M.R.C. Experiments

Dr. P. M. D'Arcy Hart, member of the Scientific Staff of the Medical Research Council, who wound up the discussion, said that at the end of 1946 the Medical Research Council was provided with about 50 kg. of streptomycin imported in bulk from the U.S.A. The amount was sufficient for the treatment of 150 to 200 cases. A special "T.B. Trials" Committee was formed, Dr. Geoffrey Marshall presiding, and a "Non-T.B. Trials" Committee, with Sir Alexander Fleming in the chair. A small number of centres were opened, two in London, one in Glasgow, and one in Liverpool, and these had been increased until there were now eight meningitis centres in the country. The centres were all in hospitals with specialist staff available, and so far 60 patients had been placed in the centres. A small number of cases of acute miliary tuberculosis had been accommodated at three centres, and there were also some 40 or 50 cases of pulmonary tuberculosis under treatment, thanks to the co-operation of local authorities. It was much too early to assess the results with these last. It was evident that streptomycin benefited at least a small proportion of sufferers from meningitis and miliary tuberculosis, though the long-term results were in doubt. The results were sufficiently promising, however, to justify considering the wider use of the drug in these two diseases. Although British production was going forward, they were dependent on importation and on American allocation. Even when supplies became easier a proportion would be required for a long time for research in tuberculous meningitis, not to mention other forms of tuberculosis, especially pulmonary, where the results were much less definite. But the discovery of streptomycin represented the first real break in the struggle for specific treatment of certain forms of tuberculosis, and it was likely to be followed in the course of years by a stream of natural or synthetic drugs.

Striking claims for the value of B.C.G. in tuberculin-negative children and young adults exposed to more than average infection and in mass immunization of negative members of whole population groups had been made in a number of countries, particularly Scandinavia. A cautious approach was still evident in the U.S.A., and the same might be said to be true of Great Britain. As a balanced view it might be said that B.C.G. appeared to be of some value in grossly exposed persons, though degree of response and duration were still uncertain. The value in mass immunization seemed less clear. The danger of indiscriminate use in whole population groups was

the slackening of responsibility in other preventive fields. The Ministry of Health had authorized him to say that, having had under consideration for some time the necessary preliminary arrangements for the production of B.C.G. vaccine, it was now in a position to allow the production to go ahead. What use to make of the vaccine when produced should be the subject of careful discussion. It might be that it should be made available for further research by tuberculosis authorities in respect of tuberculin-negative infants in tuberculous families. More research was needed on the degree and duration of protection, and for this purpose controlled trials might be valuable. It seemed improbable that any well-tried methods of attack on tuberculosis would be abandoned, and they would all agree that the most important factor in lowering the incidence of tuberculosis in any community was a steady rise in the standard of living.

## THE ROTUNDA BICENTENARY INTERNATIONAL CONGRESS

The International Congress of Obstetricians and Gynaecologists held in Dublin from July 7 to 11 attracted nearly 600 doctors from all over the world. Nowhere could they have been more hospitably received or entertained.

The Congress was opened by the President of Eire, who welcomed the delegates first in Irish and then in English. Sir Eardley Holland presided over the first brief session on the history of midwifery, and then the real business of the Congress began with six papers and a long and lively discussion on puerperal sepsis. In the evening An Taoiseach, Mr. de Valera, attended the reception in the Royal College of Physicians of Ireland given by Dr. and Mrs. Bethel Solomons. He was also present at the Tuesday evening reception given by the President of Ireland and Mrs. O'Kelly at Arus an Uachtairain. This was a reception in the grand manner with a thousand guests converging on Phoenix Park. Ministers of State, diplomats, and dignitaries of the Church strolled amicably on the great lawns, where green-kilted pipers were performing evolutions as complimented as the day's discussion on eclampsia had been.

On Wednesday there was a garden party in the grounds of the Rotunda Hospital. Dr. Ninian McL. Falkiner and Mrs. Falkiner received the guests, most of whom seized the opportunity to admire the chapel and to look in on a pathological display in the out-patient department. There was also an excellent film, and a conducted tour round the hospital. Many of the foreign visitors seemed to be most impressed with the clutch of premature babies incubating happily in air-conditioned splendour. Later the delegates were the guests of the Medical Association of Eire at a reception in University College, where they were received by Dr. A. Ryan, the President of the Association, and Mrs. Ryan. The Congress Dinner was on the Thursday, and on Friday a sherry party arranged by the Editors of the *Irish Journal of Medical Science* was followed by a special performance at the Abbey Theatre.

### Exhibitions

There were two exhibitions. Dr. James Ryan, the Minister of Health and Social Welfare, opened the one at the Mansion House, where 44 firms contrived to display their wares in a manner that would barely have been adequate for half that number. White panelling, chromium plating, and skilful lighting attracted the curious. They were then exhorted by bright young spellbinders who, despite their accents, might well have been born within shouting distance of Blarney Castle. Less obtrusive and nearly as popular was the exhibition of books and manuscripts which Dr. J. D. H. Widdess had arranged in the library of the Royal College of Surgeons in Ireland. Noteworthy exhibits were McBride's case-book and his notes on Smellie's lectures; the book of sedan chair licences issued by the Governors of the Rotunda; early minute books of the hospital; and the Master's Book for 1793 and some more recent years. Also displayed was a copy of the *Speculum Matricis*, or the *Expert Midwives' Handmaid* of 1671. It is the rarest of all midwifery books. The only known specimen of a Rotunda Hospital Governor's Pass was also displayed. It was from this Metal Pass that the design was made for the Bicentenary Congress badge.

Though this was a Rotunda Bicentenary, both the Coombe and the National Maternity Hospital had their share of visitors and took as active a part in entertaining them. Thanks to the Sweepstakes funds large sums have been spent in recent years in extending the Rotunda. The National Hospital has been newly built and finely equipped and the Coombe is next in line for a new building.

### Six Sessions

Justice will be done to the six sessions of the Congress only when the *Transactions* are finally published. Ireland fortunately seems to have no shortage of paper. On each subject there were one or two outstanding contributions, and it was noteworthy that they came as a rule from the pathologists and bacteriologists, from the laboratory rather than the labour ward. The least satisfactory morning was that devoted to eclampsia. Dr. Gibbon FitzGibbon, a former Master of the Rotunda, paid a tribute to Tweedy. Dr. Falkiner, the present Master, said that he had never been able to subscribe to the theory and method of treatment propounded by Tweedy and promoted by his successors. Other speakers were just as divided on questions of aetiology and of treatment. Prof. H. J. Stander, of New York, presented a classification of old and new theories of causation and seemed to sum up the general feeling with his considered conclusion: "There are more than enough theories. What is needed is more data!"

One of the most satisfactory sessions was that on shock in obstetrics. One speaker after another urged the abandonment of Crédé's manoeuvre for expression of the placenta and stressed the need for blood or plasma given early and often. In this as in other discussions all the speakers seemed concerned about the problem of improving the standard of obstetric practice of the general practitioner. The point was well put by Prof. J. P. Greenhill, of Chicago. In the final session on foetal and neonatal mortality he quoted Yerushalmy's estimate that 1,225 conceptions were necessary to produce 1,000 infants surviving their first year of life. Foetal lives could be saved by proper antenatal care and by the prevention and treatment of proper maturity, birth injuries, and the toxæmias of pregnancy. Ideal antenatal care should start with a thorough examination "before she plans to become pregnant." Then he went on to say that obstetricians were aware of the methods of preventing many foetal and neonatal deaths, but they conducted only a very small proportion of deliveries. Any future reduction in maternal, foetal, and neonatal mortalities could be achieved only by the proper training and instruction of students and practitioners. The same point was brought out in the session on puerperal sepsis and, with a different emphasis, in that on sterility.

This was a successful Congress and it was clear to everyone attending it that those responsible for its organization must have been planning carefully for two years and working hard for at least six months. Yet every day showed again the dilemma peculiar to Congresses of this kind. Many of the opening speakers were reading thoughtful papers which were intended for publication. They may well make good reading but they are not easy to listen to, and Prof. Subodh Mitra, of Calcutta, had the courage to say in one general discussion that he had been disappointed. He had, he said, not travelled all the way from India to listen to a series of postgraduate lectures. What he wanted was the to-and-fro of discussion, and the length and number of the opening papers left too little time for this. In an attempt to meet this difficulty later sessions were conducted on exact time-limits with the offenders being ruthlessly "gonged." This helped in some instances, but was unfortunately in that at least one distinguished visitor was cut short in the middle of a carefully prepared thesis.

All the sessions were recorded, and, for those who wanted to listen again, could be played back. It may be that the Editors of the *Transactions* have a verbatim account in mind. This was a notable Congress, a cordial demonstration of Irish hospitality, and a fitting celebration of the Bicentenary of the Rotunda.

On the appointed day for the National Health Service all hospitals vested in a local authority will be transferred to the Ministry of Health. The Minister has therefore asked local authorities to inform him of interest in land and premises held by them on March 31 of this year for hospital purposes.

## Reports of Societies

### BRONCHIECTASIS IN CHILDREN

A meeting of the Faculty of Radiologists was held in Birmingham on June 26 and 27, when discussions were arranged on bronchiectasis in children and on primary bronchogenic carcinoma, and various other papers were read.

Prof. J. M. SNEELLIE, of the Children's Hospital, Birmingham, defined bronchiectasis as a permanent dilatation of one or more bronchi, in association with chronic inflammatory and degenerative changes, a progressive disease, localized or diffuse, affecting any part of the lung but uncommon in the upper lobes. He discussed the aetiology, symptomatology, and physical signs. A few cases arose without any antecedent history of respiratory infection, but in the large majority one or more attacks of pneumonia was the common story. In a series of 34 cases recently investigated at his hospital three-fourths gave a history of antecedent pneumonia, half of them associated with whooping-cough. The significance of early symptoms could not be overestimated. Cough, usually dry in the early stages, was an almost constant symptom. A common story was repeated attacks of bronchitis. Pain in the chest was rarely complained of, and haemoptysis was infrequent. Anaemia, night sweats, dyspnoea, and clubbing of fingers were evidences of advanced and widespread disease.

Physical signs varied widely. In general the signs were those of bronchitis. At their best, physical signs could never be more than suggestive and might be misleading. For decisive diagnosis radiological examination of the chest following the introduction of lipiodol was essential. To wait until the radiological picture was unequivocal in a straight postero-anterior or lateral film was to wait too long. Until recent years treatment had been largely medical, but brilliant advances in thoracic surgery and in chemotherapy had already revolutionized prognosis in the established case and focused attention on the importance of diagnosis at an early stage. The keynote to prophylactic therapy was promptness in the treatment of all children suffering from pneumonia whose resolution was delayed. Elimination of sinus infection, combined with penicillin sprays and aerosols, was a major measure. At a later stage, when some dilatation of the bronchi was demonstrable, medical measures might still suffice, but treatment must be energetic, sustained, and continuous. Upper respiratory tract infection must be treated, postural drainage instituted, inhalations of penicillin employed. The practice adopted at his hospital in cases of early bronchiectasis was inhalations of 20,000 units of penicillin dissolved in 1 ml. of isotonic sodium chloride in a nebulizer, each inhalation being continued for 8 to 12 minutes and repeated three-hourly seven times in 24 hours. In cases of frank bronchiectasis lobectomy was now recognized to be the best treatment. Here again, however, a full course of medical treatment should be given before operation.

Dr. JOHN C. BISHOP supplemented this contribution with a paper dealing more particularly with radiographic technique. The radiological diagnosis of bronchiectasis, he said, depended on two separate procedures, the examination of the routine radiograph and of the radiograph made after the introduction of radio-opaque oil into the bronchial tree. The routine film of the congenital form would vary according to whether the cysts had or had not become infected. That of the acquired form was far less typical, and the appearance might range from that of normality to gross radiological disease. It was on the bronchogram that the diagnosis of acquired bronchiectasis must be based. He indicated the findings which demanded a bronchogram.

Dr. Bishop then summarized the four methods used for introducing the oil into the bronchial tree—namely, the supra-glottic, the endotracheal, and the intranasal routes, and crico-thyroid puncture. For children the choice lay between the last two, and every case must be considered on its merits. In any case postural drainage was an essential immediate preliminary to ensure that the bronchi were as empty as possible. At the Children's Hospital, Edgbaston, for the past few years

the intranasal method—the oil being injected directly into the nasal cavity, with the tongue pulled firmly forwards—had been used, with a general anaesthetic. To his constant amazement the oil trickled down through the larynx—incidentally a pretty demonstration of what might be the fate of the discharge from an infected sinus when the cough reflex was dulled by sleep.

### Primary Bronchogenic Carcinoma

In the second principal discussion Dr. THOMAS LODGE, of Sheffield, reviewed 130 cases of primary bronchogenic carcinoma, of which 55 had been confirmed by biopsy, bronchoscopy, or necropsy. The predominant symptoms in order of frequency corresponded roughly with other published series. In 32% of the cases the pain was entirely on the side of the tumour. The pain was higher in the chest with upper lobe lesions and in most cases was not at first associated with pleural effusion. In distribution the disease seemed to have a predilection for the right lung. As for radiological types, the largest group showed collapse, which supervened rapidly rather than slowly. Bronchiectatic collapse in a patient of cancer age, with cough, pain, loss of weight, and dyspnoea, should be regarded as due to cancer until proved otherwise. The hilar type accounted for the next largest group. This type of appearance, without collapse, usually meant that the peribronchial or tracheo-bronchial lymph nodes were involved and that surgery was not likely to be successful, though some cases of the so-called hilar type, as seen in postero-anterior projection, were really segmental in distribution, and offered the surgeon a better chance of removal. The peripheral carcinoma was a commonly occurring form.

Bronchography showed an early intra-lumen lesion more convincingly than tomography, especially when the bronchus was not greatly narrowed, as in some inflammatory conditions. But tomography had many important uses, especially in the peripheral growth. It brought out the typical ragged thick-walled cavity of the breaking-down growth, not visible in the straight radiograph, or the peripheral tumour beginning to reach out along the lymphatic pathways towards the hilum.

Dr. A. BRIAN TAYLOR said that there was no doubt that carcinoma of the bronchus was occurring more frequently than formerly; this increase was absolute and not due merely to improved diagnosis. From 1936 to 1943 at the Birmingham United Hospital there were 604 cases. The preponderance in males, 5 to 1, was striking, and the average age, 54, compared closely with other series of figures. The disease was rapidly fatal, and though a few cases survived for periods up to 39 months, the average duration of life after diagnosis was 4 months. A suitable case for pneumonectomy was one diagnosed early enough for a radical resection of the lung which could remove the whole growth before extension to neighbouring structures or glands had occurred and while the patient's general condition made the operation itself feasible. But it was early diagnosis that was difficult. Radiology offered great help in many cases, but in the earliest stages a small lesion in the region of the hilum might show little or no significant shadow. Bronchoscopy was the final and most valuable method of diagnosis.

Mr. A. L. D'ABREU said that although many successful pneumonectomies were performed, a large number of cases were quite inoperable when first seen by the surgeon. After mentioning the criteria of inoperability and describing the operable case, he said that he had the conviction that in the treatment of lung carcinoma there was not sufficient co-operation between radiotherapists and surgeons. When a surgeon referred a case for irradiation he should state whether the treatment expected was palliative or radical. The exact bronchoscopic findings giving the precise position of the growth should be clearly stated so that the therapy could be directed to the lesion itself and not, for instance, to the resultant atelectasis.

Among other speakers Dr. PETER KERLEY gave a statistical review of carcinoma of the lung based on the mass radiography figures of the Registrar-General and the Ministry of Health, but as both these departments had requested him not to publish the figures he had to tell the meeting that for the time being they were confidential.



## Correspondence

### Medicine in the United States

SIR,—Being a very young doctor, it is with some diffidence that I criticize our old-established customs and institutions, but the letter of Dr. S. L. Simpson (June 28, p. 949) shows up in sharp contrast to many of the criticisms I have heard from my friends and seniors about medicine in the U.S.A.

I spent 2½ years at medical school in Boston, with a three-month break to visit Johns Hopkins, and feel justified in making a few comments on the contrast between these schools and our own London and university teaching systems. Without doubt the most inspiring teaching that I have ever had was at Harvard Medical School; and yet, taken as individual teachers, some of those from whom I have been privileged to learn in this country are without equal anywhere. It was not the system of teaching at Harvard that impressed me, with its frequent examinations throughout the course, which came first as a rude shock and then as a rather unpleasant stimulant to one used to the more haphazard and individualistic Cambridge ideas, but the atmosphere. It was the continual thirst after new knowledge of our teachers and the way in which they accepted all criticism and questioning, whether from students or colleagues, as genuine attempts at furthering knowledge rather than sly traps by rivals. Everyone was kept very much alive, and a spirit of friendship and co-operation pervaded.

Dr. Simpson mentions the "collaborative sessions" at the Peter Bent Brigham Hospital. One of these was a weekly event called the "Clinico-Pathological Conference" and locally known as the C.P.C. (The Massachusetts General Hospital also had one weekly.) These were so good and so helpful to us as students that I feel justified in describing them in the hopes that a similar session may be introduced into some of our hospitals. They were organized by the pathology department, which would collect the notes from an old case that had been treated in the hospital and extract them on to a mimeographed sheet containing: (1) the patient's complaint as described by himself; (2) the past history of the patient up to admission; (3) the clinical findings as recorded on entry and the relevant laboratory findings; (4) a very brief outline of the patient's course in hospital, finishing with either "an operation was performed" or "the patient died." These sheets were distributed to all those attending, and a guest speaker, usually from another hospital but certainly a doctor who had no previous knowledge of the case, was invited to discuss the diagnosis and therapy. X-ray films were provided, and he could, if he wished, ask for and expect advice on any points outside his own specialty. The case was always chosen taking into consideration the speaker's special subjects, so that we could listen to an expert analysing a case in his own field. The speaker would go through the case point by point giving his differential diagnoses and stating how he thought the recorded course of the patient fitted these or ruled them out. At the end, if the case was surgical, the surgeon who operated would tell of his findings, or, if medical, the pathologist would give the necropsy findings, illustrated with photographs and sections on the screen. The speaker was often wrong in his diagnosis, because the cases were difficult and had often caught out the staff of the hospital, but no one was offended and everyone felt that they had gained by the experience.

Latterly the Brigham went further, and final-year students, usually about eight at a time, were occasionally briefed a week beforehand for the discussion, being given the case history to think about. This gave them a chance to look up the relevant literature. (I believe that most of the speakers were given some warning.) On the appointed day the students took the front seats and one was drawn by lot to speak. This victim then had to discuss the case before his teachers. These conferences were voluntary but were very well attended, being one of the most popular features at the medical school.

There is just one other point that I should like to make emphasizing a statement in Dr. Simpson's letter, because I hear so much about the American laboratory diagnostician. I had more teaching in psychosomatic medicine at Harvard than I have seen or heard of in England. Also my instructor in medicine once said to me, "If the laboratory data do not agree with your clinical findings, have the tests repeated. If they still do not agree, neglect them." The laboratory work at Harvard is not a short cut to diagnosis but an adjunct to research and sometimes a gauge of the patient's progress under treatment. My criticism of medicine in Boston is that it aims too much at research, if that is possible.—I am, etc.,

Dr. Camh.

N. K. CONNOLLY.

### World Medical Association

SIR,—In the Supplementary Report of Council (Supplement, June 21) I was very glad to see that the Council had prepared a statement to be submitted to the General Assembly of the World Medical Association in September, 1947. As I have been appointed by the Medical Women's International Association in my capacity as their honorary treasurer to act as an observer at the meeting of the Assembly, I should like to take the opportunity of saying how strongly I agree with the Council's view that the medical profession as a whole have a grave responsibility towards their fellow men, not only as doctors but as leaders of public opinion in the field of moral and ethical values.

During the terrible years of occupation by a brutal enemy the large majority of doctors of most of the occupied countries maintained their moral integrity, their unswerving loyalty to their patients, and their spiritual and professional freedom, even at the risk of torture and death. They thereby set a great example and vindicated the honour of their profession.

Now that the war is over we are faced with a curious and dangerous shift of values. On the one hand men and women in so many countries are refusing to submit in any particular to the power of individual employers, while on the other hand they appear willing and even eager to denude themselves of every vestige of personal and political freedom and to surrender all their liberties to the State. This must lead insidiously but surely, as it did in Germany, to a growing disregard for the value of the life and human rights of the individual. As the Council so truly says in its statement, "The doctors who took part in these deeds (i.e., medical war crimes) did not become criminals in a moment. Their amoral methods were the result of training and conditioning to regard science as an instrument in the hands of the State to be applied in any way desired by its rulers." The Council might have added that the doctors were trained and conditioned to regard human beings, including their patients, as mere robots or sub-human statistics entirely unimportant in themselves, and therefore subordinate to the will and interests of the State and its rulers.

This horrible distortion of values is one which doctors have an especial duty and, if we will only use it, a considerable measure of power to resist and overthrow wherever we find it developing in our midst. The principles which are included in Appendix 2 to form a part of a Charter of Medicine are fundamental, but I would suggest that they should be extended to include a statement that the medical profession affirm their belief in the sanctity of the rights of the individual as a human being, and pledge themselves to safeguard these rights in all their dealings both with their patients and in relation to any function which they may be called upon to exercise in their capacity as medical men and women. Let us never forget that "the price of freedom is eternal vigilance."—I am, etc.,

London, W.1.

DORIS M. ODLUM.

### Symmetrical Gangrene in the African

SIR,—The condition described by Dr. Michael Gelfand (June 14, p. 847) appears to be of sufficient rarity to justify my quoting an almost identical case which fulfils his six diagnostic criteria. The patient was seen in the province of Sidamo, Ethiopia, in 1945.

#### CASE REPORT

An adult male Sidamo aged between 30 and 35 was brought by his friends from a village some long distance away. He gave history of being in good health and symptomless until some 3 months previously, when quite suddenly he had an attack of "rheumatism" in his legs and feet, which became swollen and painful. A little later the toes and soles of his feet appeared "as though dead." There was no history of recent attacks of malaria, typhus, or other disease. He had had syphilis at least ten years before, for which he had not received any treatment. His general nutritional state was good, and his diet appeared satisfactory.

On examination a condition rather similar to that shown in Gelfand's first photograph was seen, though more advanced. Both feet were blackened, dry, and wizened, particularly on the under side, and flies were crawling in and out of the various cavities in the mummified gangrenous area. The line of demarcation was not as pronounced as is shown in Gelfand's second photograph, but ran from about 1½ in. (3.81 cm.) proximal to the base of the toes just below the level of the malleoli. No pulsation could be felt in the dorsalis pedis or in the femoral artery of either side. There was



apparent slight hyperaesthesia proximal to the line of demarcation, which might be explained by the band of hyperaemia as described by Gelfand. Knee-jerks were indeterminate. Wassermann examination and blood counts could not be performed. The urine was free of sugar and albumin.

The patient refused operation and would not enter hospital, so his further progress is not known.

Williams (1939), discussing the results of 894 post-mortem examinations in Uganda, found 86 cases showing syphilitic arterial disease and considers that this is common in East Africa. Coombs (1932) points out that lesions most commonly follow one, two, or more decades after infection. This would fit in with the age groups of both Gelfand's and my cases, particularly when it is remembered that the African often acquires his syphilis relatively early in life.

Prior to Gelfand's paper I had considered my case to be definitely one of syphilitic origin. Now the question requires reconsideration. It may be that the part played by syphilis is merely an initial damage to the artery (Gordon *et al.*, 1942), on which further processes later bring about an ischaemia sufficiently suddenly to cause gangrene. On the other hand in cases where gangrene has followed syphilis the onset has usually been much less sudden than in these seven cases. Choussat (1938), for instance, describes a case of bilateral dry gangrene of the feet, of slow onset, in a child of 10. Bilateral gangrenous areas on the arms of a white woman of 61, in which the lesion on the left preceded that on the right, is cited by Goodman (1939). Similar cases will be found in papers by Fusco and Kell (1943) and Leone Bloise (1936), though I have personally not yet been able to trace them.

When the high rate of syphilis in certain native populations is taken into account, figures ranging from 23% (Kark and Le Riche, 1944) to 40% (Rauch and Saayman, 1938) being substantiated by various authors, the fact that three out of these seven cases of bilateral gangrene of the feet had syphilis may not be of significance but merely a coincidental finding.—I am, etc.,

London, W.C.1.

JOHN G. SALTER.

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#### Peptic Ulcers and Radiology

SIR.—It was with considerable interest that I read Dr. A. Landau's contribution under "Medical Memoranda" (June 28, p. 928) in which he describes a case of peptic ulcer responding rapidly to a line of treatment advocated by himself. Without wishing to comment on the efficacy of the treatment described by Dr. Landau I would like to point out that it is not an uncommon experience among radiologists to find an apparently large gastric ulcer become almost undemonstrable radiologically after a few weeks' medical treatment on the usual accepted lines. This is due mainly to the fact that the apparent depth and size of the ulcer, as demonstrated on the x-ray film, is much greater than the actual depth. Most of the apparent depth is made up of the swollen oedematous edges of the ulcer projecting into the lumen of the stomach, while the actual ulcer crater is often quite shallow, as has been demonstrated at operation.

On conservative medical treatment the first thing to subside is the oedema, thus producing apparently rapid healing radiologically, but the actual shallow ulcer crater can often be demonstrated for some time after the initial rapid reduction in size. The first x-ray photograph illustrating Dr. Landau's case (allowing for loss of detail in reproduction) would appear to show one of these typical apparently large craters with some narrowing of the neck and projection inwards of the oedematous edges. If the normal line of the lesser curve is followed, it will

be found to include only a small proportion of the ulcer base, which is probably the true depth. In view of the above points I am of the opinion that to describe this ulcer as "the size of a cherry" is misleading in the assessment of its ultimate progress with regard to the treatment described.—I am, etc.,

Orpington, Kent.

RONALD L. MANSI.

#### The Thalamic Syndrome

SIR.—Any new approach to the treatment of psychoses is welcome in view of the limited value of present methods. I do not think, however, that the dogmatic statements with which Dr. G. Tayleur Stockings (June 28, p. 918) prefaces his account of work on a drug resembling Indian hemp are very helpful. He blames the thalamus for the symptoms associated with reactive depression, the list of which reads like a proprietary medicine advertisement. The logic of this claim is, however, not apparent. To pick out two of the symptoms at random, it is not clear on what evidence tremors and obsessional thoughts are attributed to dysfunction of the thalamus. True, Stockings goes so far as to admit that the hypothalamus may also be involved in "the thalamic syndrome," but why seek to exclude any part of the brain from involvement in this pantechnicon syndrome? At one point the thalamus is referred to as a "higher centre." It would appear to have been promoted recently. In fact the majority of the symptoms which he describes as being produced by the drug under investigation, which Stockings refers to as having a specific effect on the thalamus, appear to be at least equally attributable to cortical changes. Thus photopsias, simple coloured patterns, visual illusions, increase in the power of phantasy, and vividness of visual imagery are surely not characteristic of thalamic activity.

In the past there has been a tendency to neglect the thalamus as a factor in the production of neuroses and psychoses. This fault will not be remedied, however, by swinging violently to the other extreme. What is needed now is an effort to see the brain as a functioning unit with the different centres balanced harmoniously, one against the other. This dialectical concept would avoid the clumsy attempt to divide off "neurotic depression" artificially from psychotic depression, and to divorce it on the other hand from environmental factors, and to pin it for the sake of formal neatness on to one particular region of the brain.

Incidentally, Stockings states that the "true addiction syndrome" is peculiar to morphine and cocaine. I had always been under the impression that alcohol sometimes caused addiction, but possibly this drug is now in such short supply that it can be neglected.—I am, etc.,

St. Mary Cray, Kent

BRIAN H. KIRMAN.

#### Vaccination against Variola

SIR.—The outbreaks of variola in this country in recent years represent a danger which should not be regarded as negligible in a population whose standard of vaccination is constantly declining. The number of contacts who develop the disease although vaccinated—or to the greater part revaccinated—at a time when successful vaccination, due to its shorter incubation period, should protect against the outbreak of variola is not very small. What is the reason?

I think that it will often be very difficult even for an experienced vaccinator to decide whether a small local reaction can be regarded as evidence of successful revaccination. How much more so in the case of many practitioners who had little opportunity to acquire the necessary experience with revaccination. It is, therefore, very likely that those contacts who developed variola under the above-mentioned conditions have been revaccinated unsuccessfully.

I should like to mention a point in my own personal experience. During my own medical career I have been in contact with variola patients on a number of occasions, and I have been revaccinated about ten times. Only once, many years ago, a very slight papular reaction made it rather likely that vaccination was successful. On all the other occasions the evidence was at least very doubtful. The last time this happened was in the third year of the last war. About two years later I inoculated myself from pure curiosity with the contents of a vesicle of a primarily vaccinated child, and I developed a large and very typical vesicle which would have given an excellent

textbook illustration for the effect of primary vaccination. Also the clinical course was only slightly shorter than that of primary vaccination.

This proves again the well-known fact that, especially in the case of revaccination, much better results can be expected from the use of human lymph as compared with calf lymph. The use of human lymph has practically been abandoned because of the danger of transferring syphilis, erysipelas, and other infections. But nowadays syphilis can be easily excluded by serological examination, and penicillin and the sulphonamides have greatly diminished the danger of septic infections.

Under these circumstances might it not be quite reasonable to use human lymph, if available, instead of calf lymph in such persons who as contacts are in immediate danger of developing variola and becoming themselves again a focus of further spread?—I am, etc.,

London, N.W.1.

G. FRIEDLAENDER.

### Physical Therapy of Mental Disorder

SIR,—The numerous letters you have published recently and in 1946 on physical therapy in mental disease indicate the interest the profession takes in the subject, and many of the general public show considerable interest also. In my letter in the *Journal* of March 23, 1946 (p. 447), I suggested proof of the efficacy of this treatment should be the percentage of recoveries on admissions in the report of the Board of Control. The report for 1945 was issued some time ago, and the recovery rate for that year was 33.2%—males 28.1% and females 36.7%—of the direct admissions, or slightly less than in 1939. The recovery rate for many years has been practically stationary.

The percentage of cases discharged as relieved has, however, risen considerably, the combined number of recovered and relieved being 63%, compared with 48% before the Mental Treatment Act of 1930. In their comments the Board state, "It is difficult to say whether the increased discharge rate is due to improved treatment or to the large number of voluntary admissions." It will be noted it is an increased discharge, not recovery, rate that reference is made to, and at least one popular paper seems to have confused the two. In 1945 the voluntary, temporary, and certified admissions were 50.7, 4.1, and 45.2% respectively. In 1934 the voluntary admissions were 29%. In 1945 the number of voluntary patients discharged as relieved was 5,872, as compared with 2,672 certified, the recoveries being 4,900 and 4,544 respectively. Possibly shortage of staff and beds may have contributed to the relieved discharges.

The stationary recovery discharge rate does not necessarily imply that E.C.T., leptazol, etc., are not of some use. Owing to the advanced average age of the community more senile admissions may have taken place; also there are fewer admissions of recent alcoholic psychoses, the latter a favourable type as regards prognosis. A good many Service patients may have been treated with or without convulsion therapy, and recovered, in places outside the jurisdiction of the Board of Control, and possibly the same applies to a number of civilians. Nevertheless the stationary rate in the mental hospitals does tend to show that the treatment may not be so efficacious as many consider.

In your issue of April 6, 1946 (p. 548), you published a letter from Dr. Ian Skottowe in which he stated that in 1945 the "useful discharge" rate for the Bucks Mental Hospital was 63.4%, or, excluding those over 60, 57.8%, and that E.C.T. was used in not more than half a dozen cases. He did not state the separate percentages of recovered and relieved, but his results seem to compare favourably with those obtained in hospitals where E.C.T. is extensively used, and may be regarded as a useful control experiment. In any form of therapy in mental disease it may be said—it is more or less a platitude—that the better the original make-up of the patient the better the results. The best results with E.C.T. are with the affective psychoses, especially involution melancholia—i.e., where there is no dementia, and where the nerve cells, unlike those in dementia praecox, are durable. If those involution cases associated with arteriosclerosis, etc., are excluded a certain amount of depression at the involution age might be regarded as normal, and some cases of melancholia are merely exaggerations of this. Further, a person having no mental attack until that age must have had a better brain than one breaking down at 20, except perhaps in some cases that have had no severe environmental stress.

Half a century ago Bevan Lewis and Clouston in their textbook gave a 50 to 60% recovery rate in climacteric insanity. We know, however, that a number of involution cases go on to severe agitation,

with distressing delusions, and if in fact E.C.T. prevents this it is indeed a boon. One would like, however, to see statistical proof.

In 1937 two medical commissioners of the Board of Control were instructed to visit Vienna, Budapest, and Frankfurt, also some English hospitals, to study treatment by leptazol and insulin, and their interesting report was published in 1938. I suggest that the time has now come when the Board of Control, the R.M.P.A., or the B.M.A. should appoint a body to make an exhaustive investigation into modern methods of treatment of the insane. So much E.C.T., etc., has been given in British hospitals that there would be no need to visit the Continent, where no doubt the ravages of war have seriously hampered treatment, but a visit to America might be of much use. Even if a satisfactory explanation of the mechanisms of these treatments cannot yet be given—and I understand anoxaemia is held by many to be the explanation in convulsive therapy—a comprehensive report would be of great value.—I am, etc.,

Hastings.

HARVEY BAIRD.

\* \* This correspondence is now closed.—ED., B.M.J.

### Sulphone Treatment of Leprosy

SIR,—A considerable amount of attention is being given to the question of the treatment of leprosy by means of the derivatives of diaminodiphenyl sulphone, and once again there is a tendency for treatment to receive precedence over prevention. In view of the fact that I started leprosy work some twenty-three years ago at a time when the enthusiasm for the hydnoecarpus (chaulmoogra) derivatives was reaching its height and when responsible authorities stated that leprosy should be eliminated from the Empire within thirty years, I think it might be well if I sounded a warning note. It would be a tragedy if errors of the past were repeated and a belief encouraged that the leprosy problem could be solved by curative measures alone.

Leprosy has its roots in the dim ages and has a disconcerting habit of confounding those who would be over-optimistic. The past twenty-five years are strewn with the results of alleged cures. It therefore would be wise for us to remember this and not publicize too widely a new hope. If we do, administrative authorities may once again find themselves thwarted when they had high expectations that the problem had become easy of solution. Further, we tend to forget the psychological effect on the patients, for those who have severe lepromatous leprosy clutch at a new remedy as a drowning man would grasp at a straw.

We have been using these new preparations in India for the past year or eighteen months, and the following is a brief summary of our preliminary findings:

"Promin."—This substance is too toxic for ordinary use, and patients, in India at any rate, tend to show intolerance after some months.

"Diasone."—In the dosage recommended it is very liable to set up lepra reactions, frequently extremely severe. Fourteen out of twenty-two cases showed such reactions, and five of these fourteen asked that diasone should be discontinued. The reactions could not be attributed to the usual course of the disease, for regular records of the number of reactions and the interval between the reactions before the administration of diasone had been kept. We found, however, that adequate blood levels (5 mg. %) were impossible to maintain.

"Sulphetrone."—This remedy is not likely to be on the market for a considerable time. It is the least toxic of the sulphone preparations and has up to now caused no serious reactions. Further the levels of the drug in the blood were satisfactory. Sulphetrone in our opinion, has not been used over a long enough period for definite conclusions to be drawn. All that can be said at present is that workers are encouraged by the clinical improvement in lepromatous leprosy.

In conclusion I should like to emphasize the following points:

(1) The present methods of administration are not practicable of application on an extensive scale, except in institutions where patients are well regimented or sufficiently keen to be prepared to swallow these drugs in varying amounts, from three capsules of diasone to twelve tablets of sulphetrone per day, for long periods (2-4 years).

(2) These drugs should not be used without adequate blood level estimations. Regular blood counts and haemoglobin

estimations are not sufficient. A tendency to take lightly possible toxic effects may end in disaster.

(3) Failure, disappointment, or completely unreliable conclusions are likely to be drawn if used on cases other than the straightforward lepromatous type. It is to be remembered that the minority of the cases of leprosy in most countries are lepromatous.

(4) Even though the diaminodiphenyl sulphone derivatives proved to be effective in lepromatous leprosy, which is everyone's sincere hope, the leprosy problem would not be solved. It is essential to a better understanding of the disease that pathological studies, especially in connexion with cellular reactions in the skin, and epidemiological surveys should be continued. A proper appreciation of preventive measures, both with regard to infection as well as to the correction and prevention of deformities, is equally important. To reduce the problem of leprosy merely to one of therapeutics is to invite disaster and disillusionment.—I am, etc.,

London, N.I.

ROBERT G. COCHRANE.

### Gastrectomy and Gall-bladder Disease

SIR,—Drs. C. L. H. Majoor and Th. J. J. Suren (July 5, p. 8) postulate a possible relationship between subtotal gastrectomy and gall-bladder disease appearing subsequent to the operation. A relationship is known to exist between hiatus hernia and gall-bladder disease, and Bockus states that of all the complications of hiatus hernia gall-bladder disease and peptic ulceration occur most commonly.

Might I suggest that similar factors act in the production of cholecystitis (and, later, cholelithiasis) with both these entities? Points of similarity that spring to my mind are: (1) In both hiatus hernia and the post-gastrectomy stomach one has a reduced stomach volume, if one uses the herniated portion in the former for purposes of comparison. (2) Both conditions subject the oesophagus, stomach, duodenum, and jejunum to abnormal degrees of tension and reduce external mobility, and this may in turn lead to distortion of the biliary system. (3) Ecchymosis and mucosal disruption are common to both conditions—in subtotal gastrectomy at the time of operation and in hiatus hernia where strangulation exists or is imminent.

Other comparisons can be made with regard to blood supply, innervation, and emptying times in each. Whatever the causal or contributory relationship each has to the onset of cholecystitis and cholelithiasis, the immediate moral would appear to me to be that surgeons, after removing our stomachs, should leave us with a combination of viscera less closely simulating that seen in hiatus hernia.—I am, etc.,

Beckenham, Kent.

BRYAN WILLIAMS.

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### Bornholm Disease

SIR,—Sir Humphry Rolleston<sup>1</sup> describes in the *British Encyclopaedia of Medical Practice* the condition variously known as Bornholm disease, epidemic myalgia, or acute epidemic myositis. It is a disease of the later summer months, more common in patients under the age of puberty, and is apparently transmissible (by a virus not yet isolated) by direct contact, with an incubation period of 2–4 days. It is characterized by pain—specially associated with respiration—whose onset may be very sudden, commonly in the upper abdomen, also experienced in the pectoral muscles and in the back. Slight fever is constant, vomiting is rare. Headache and hiccough are also said to be features. It was previously described on the Danish island of Bornholm, but has also been reported (*inter alia*) in Holland, N. America, and this country by Pickles<sup>2</sup> in 1933. It runs its course in a week and the prognosis is good. Treatment is symptomatic.

The two cases described here appear to fit in in spite of the fact that headache and hiccough were not prominent features. They were seen in a north-east country practice. Pickles<sup>2</sup> discusses the diagnosis of this condition and states that three useful points are (1) the almost invariable absence of vomiting, (2) increased respiratory rate, (3) rarity or absence of cough. He also mentions intervals of well-being between attacks of the muscle pain. Weterings,<sup>4</sup> describing Dutch cases, stated

that symptoms tended to pass off in 24 hours, often returning on the third day. These features are found in my two cases, which at first presented a diagnostic puzzle in which acute abdomen, lobar pneumonia, and pleurisy had at some stage to be excluded, but the absence of cough or vomiting, and the fact that there was probably a common cause of the two sisters' condition, led to the conclusion that they were cases of Bornholm disease. I have not seen any other cases to my knowledge.

#### CASE HISTORIES

*Case 1.*—An otherwise healthy girl from a good home, aged 9 years. Previous history, nil of significance. Chicken-pox and whooping-cough in infancy, and tonsils and adenoids removed three years ago. She was first seen early on the morning of May 31, 1947, having been awake most of the night with epigastric pain and pain in the right shoulder. Bowels had been regularly opened till May 30. There had been no vomit or cough and no sore throat or coryzal symptoms. The previous day she had been walking a lot on stilts and her parents thought the unaccustomed exercise had strained her muscles.

On examination temperature was 99° F. (37.2° C.), pulse 96, and respirations 24. Tongue furred white. No abnormality was detected in nasopharynx, chest, or abdomen. No rash seen. By the evening her temperature had risen to 100° F. (37.8° C.), pulse was 120, and respirations 32 per minute. She complained that the pain was catching her breath, and the movement of the right base was diminished, but apart from fainter breath sounds at this location no abnormal physical signs could be detected in the chest or abdomen. There was still no cough or sickness.

Next day, June 1, the temperature, pulse, and respirations were normal, and the pains had diminished. On June 2 temperature was normal, pulse 96, respirations 36. Respirations were laboured and she complained of pain in the back catching her breath. No abnormal physical signs could be elicited. She was treated with an acetosalicylic mixture and made a good recovery. When seen four days later she had no complaints and has remained well since.

*Case 2.*—The older sister of Case 1, aged 12 years, had come in from tennis on May 31 complaining of pains across the front of her chest, which were thought little of owing to her apparent good health and the exercise she had just undergone. The weather was warm at this time, it should be said. Two days later, however, she complained of pains in the chest and left shoulder and upper abdomen and felt feverish. Her temperature was 99° F. and never seemed to exceed this during the ensuing days. She had no cough or sore throat, no sickness, and the bowels were regular. No urinary symptoms were complained of, but there was some malaise.

No abnormality could be detected in the chest or abdomen, and the throat was clear. (Previous history very similar to her sister's and not significant.)

She was also treated symptomatically, and with an acetosalicylic acid mixture. Her pains disappeared, and in four days' time she appeared to have recovered completely and has continued well since.

The two girls had been away with their parents for the week-end before they fell ill. Their movements were: May 22, Corbridge (Northumberland) to Bolton (night stop); May 23, 24, and 25, at Colwyn Bay; May 26, night at Bolton again; and from May 27 on they were back at home in Corbridge. Although the incubation period mentioned by Rolleston is 2–4 days, and the week-end at Colwyn Bay and the night at Bolton would therefore seem to be exempted as the dates of infection, it would be interesting to know if other cases have been seen in those districts lately, as otherwise the source(s) of infection remain a complete mystery.—I am, etc.,

Corbridge, Northumberland.

A. MCE. TURNBULL.

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- <sup>4</sup> Weterings, P. A. A., *Nederl. Tijdschr. Geneesk.*, 1939, 83, 2526, and *Lancet*, 1939, 2, 146.

\* An article on Bornholm disease appeared in last week's *Journal* at p. 47.—Ed., B.M.J.

### Training a Psychiatrist

SIR,—From the recent vitriolic correspondence which the article of Dr. D. W. Winnicott (May 17, p. 688) provoked a point emerges of more general significance than the merits or demerits of physical treatment in mental disorder, and that is the almost fanatical bias of the writers. This is a time of transition for medicine and especially for psychological medicine, and nothing retards progress more than failure to examine a problem with

a perfectly open mind. The dispute is analogous to that which raged and still rages round the Freudian school.

Closely related to such breadth of outlook is the question of the training and experience of would-be specialists in psychological medicine. Such experience should include residence in a mental hospital for at least two years, two years' experience as a certifying officer in mental deficiency, and a minimum of five years in a busy general practice (with obstetric experience). After such training one finds that on entering consulting practice as a psychiatrist one's experience dovetails to give a very different conception of the patient and his problem than would otherwise have been the case.—I am, etc.,

London, W.1.

R. M. AYTON-ORMSTON.

### Occupational Disease in Review

SIR,—The attention of the Departmental Committee on Industrial Diseases has been drawn to the leading article in the *Journal* of May 17 (p. 685) entitled "Occupational Disease in Review." The Committee welcomes the attention which the *B.M.J.* is giving to this subject but is concerned that the article should have failed to reproduce accurately its terms of reference, especially in regard to the phrase "to advise on the selection of diseases." It is feared that this may mislead some of your readers who may be in a position to give very valuable assistance to us in our work. The phrase might imply that the Committee has to recommend individual diseases for insurance. In actual fact it has to advise on "the principles which should govern the selection of diseases for insurance"—a task which involves careful reconsideration of the Samuel Committee's tests, but does not necessitate consideration of individual diseases except in so far as they represent questions of principle. The Committee's full terms of reference are:

"To review, in the light of modern industrial conditions, the policy adopted in scheduling diseases as industrial diseases under the Workmen's Compensation Acts, and to advise as to the principles which should govern the selection of diseases for insurance under the National Insurance (Industrial Injuries) Act, having regard to the extended system of insurance to be set up by the National Insurance Act and any other relevant considerations."

The Committee would appreciate evidence or suggestions from any persons or bodies interested in its task, who are asked to communicate with me. I shall be glad to supply an explanatory memorandum which has been prepared by the Committee, on request.—I am, etc.,

London, W.1.

F. K. FORRESTER,  
Secretary, Departmental Committee  
on Industrial Diseases.

### Remuneration in the N.H.S.

SIR,—The patient who waits until he is ill, possibly at 3 a.m., before presenting his medical card for inclusion in one's list annoys, as also does his reply to one's subsequent query: "Oh, I didn't bother about it, as I wasn't ill." No amount of knowledge of payments from a central pool serves to eradicate the feeling that the man's capitation fee for the last, say, three years could have been one's own. As Dr. W. W. Newton anticipates (p. 21, p. 902), the annoyance is likely to be greater and more materially felt after the appointed day. I do not agree with Dr. Newton's suggestion of introducing penalties to operate against those who fail to register with us. For one thing we as a profession do not wish to be party to penalizing our patients. The problem of the patient who is not on a doctor's list, or is on the list of the wrong doctor—i.e., after change of residence—is likely to be a serious one when the whole population is involved.

I would suggest that strong reminders be sent out to all who have not chosen a doctor within three months of the inception of the N.H.S., coupled with a warning that unless a doctor is chosen by the end of six months the patient will be allotted to a doctor, who may not necessarily be the one of his or her choice. (A rotation method fair to all doctors in an area could be easily devised.) As only a proportion of patients would be involved, doctors could probably stand a time-lag of six months without suffering financial hardship.

To avoid the central pool system and to ensure (a) that the doctor receives the capitation fees to which he is entitled and of which he has hitherto (on the N.H.S.) been deprived owing to defection on the part of the patient, and (b) that the doctor does not receive capitation fees relating to patients that have removed out of his

district, I suggest that, at whatever time a medical card is presented to the doctor, his entitlement to capitation fee is reckoned from (1) the commencement of operation of the N.H.S., (2) the commencement of entitlement to treatment, or (3) the date of taking up residence in that doctor's area, whichever is appropriate, the date being taken to the subsequent quarter day.

Thus, in the case of a patient who moves from A to B and then delays a year before presenting his medical card to the doctor at B this doctor would receive one year's capitation fee, which sum would be deducted from the doctor at A, with whom the patient was formerly registered, but who for the last year was not in a position to render treatment.

I agree with Dr. Newton that everything should be done to publicize the necessity for the patients' timely action, but it is of no use to expect perfection or anything like it. One has only to ask one's patients to-day if they have read the instructions on their medical cards. The answer gives little promise, even though the card is headed "Please read carefully."—I am, etc.,

Beer, Devon.

S. J. HADFIELD.

### Filling in the Health Act

SIR,—Section 28 of the *National Health Act* has not received the attention it deserves. It should be called the National Health Charter. It enables the local authorities to launch schemes for prevention, care, and after-care of disease. A little reflection will show that the scope of this section is infinite in its possibilities. Local authorities must submit schemes to the Minister by Nov. 30, 1947. Here is a chance for all health enthusiasts to push forward any progressive ideas they may have. It is quite certain that the Minister will approve any reasonable scheme.

Unfortunately there is no sign as yet that much attention is being paid to this invaluable section. People are so steeped in the past that they cannot make a leap into the future. A certain important body has sent me some suggestions. Among them the following seven points appeal to me:

(1) Establishment and supervision for special industrial premises for categories of persons who could do certain types of work under proper supervised conditions (mentioned by the Minister in Committee C when replying to a question on mental patients). (2) Night sanatoria (referred to by the Minister in Committee C). (3) Local rehabilitation committees, acting with representatives of the Ministry of Labour, voluntary organizations, etc. (4) Homes for unmarried mothers. (5) Care of elderly persons, including recreational centres. (6) Periodic health examinations. (7) Bureau for health advice.

These are just a few of the possibilities that open out. In conclusion it is hoped that the schemes suggested will not be final, that an opening will be left in the scheme for additions in the light of experience.—I am, etc.,

Southampton.

E. SAKOSCHANSKY.

### International System of Weights and Measures

SIR,—I agree with much of what Mr. H. V. Stopes-Roe says in a rather recondite way in his letter (June 28, p. 950), and I have dealt with some of his relevant points, explicitly or implicitly, and rather more simply, in my article on the International System of Weights and Measures (April 5, p. 460). The litre is an arbitrary and independent unit, or, as Mr. Stopes-Roe puts it, "a unit in its own right," and if he likes to consider it as a mere stage towards a fundamental unit, he must nevertheless accept the fact that the litre has no derivative or cognate relationship with the cubic centimetre: each is completely independent of the other. Of course a volume relationship between the litre and the cubic centimetre can be established, but this relationship is purely empirical and can be ascertained only by an empirical method—the method of determination by experiment. I explained this in my article, and I gave the factors which enable this empirical relationship to be expressed in terms of one or other of the units.

I should like to have been able to go more fully into general meteorological considerations which interest Mr. Stopes-Roe (and me also), but my task was a narrow one; it was to set forth as concisely as possible the essential features of one system of weights and measures—the international system—and it was this only that I endeavoured to do.—I am, etc.,

London, W.14.

J. M. HAMILL.

\* \* This correspondence is now closed.—Ed., *B.M.J.*

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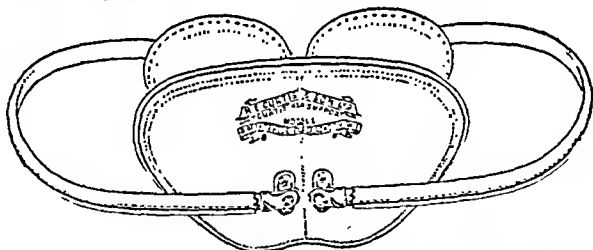
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## POINTS FROM LETTERS

## Shortage of Nurses

SURGEON LIEUTENANT, R.N.V.R., writes: I wish to dissociate myself most strongly from the views expressed in the letter of "Ex-Q.A.R.N.N.S.R." (June 21, p. 903). Her sweeping and totally unjustified attack will be resented by a great number of patients, doctors, and Naval nursing sisters. The V.A.D. has done and is continuing to do a very good job of work. Having recently been in charge of a ward staffed by V.A.D.s I should like to bear witness to their not inconsiderable nursing skill and devotion to what is often a thankless job. The standard of nursing in any ward depends to a large extent upon the example and training given by those in charge, and for any lowering of that standard the sister must be held partly to blame. The educational and cultural level of the average V.A.D. compares very favourably with that of the first-year nurses whom I examined for the General Nursing Council. V.A.D.s often enrolled with the idea of making nursing a permanent career, but many have since been disillusioned, and such hasty and ill-conceived criticism and evaluation of their work may deter many others.

Miss Doris C. HUGHES (Leamington Spa) writes: With reference to the letter of "Ex-Q.A.R.N.N.S.R." (June 21, p. 903), as a V.A.D. with 64 years' service in the Navy I should like to point out: (1) I have received no encouragement whatsoever to take my training, and moreover when I applied to train at a well-known midland hospital in 1941 I was told, at an interview with the matron, that I was more use as a V.A.D. (2) At a sick quarters on the East Coast, where the staff was small and casualties frequently being admitted, V.A.D.s did all the dressings and assisted M.O.s with the cleaning up of wounds and burns in the dressing-room. There was a separate zymotic block in which we "specialised" cerebrospinal meningitis cases, nasal diphtheria with scalded throats—in fact, any fever case placed on the D.C.L. (3) Temperatures and medicines were always entrusted to a responsible V.A.D., and several sisters for whom I worked said that a capable V.A.D. was quite as competent as many S.R.N.s. I could cite several examples of "fingers instead of forceps" used by sisters. Many of my colleagues were so disheartened by their treatment with some sisters that any desire to train was crushed. If closer co-operation and less professional "jealousy" existed between S.R.N.s and V.A.D.s there would be many more nurses available now.

## Land of Excuses

Dr. G. C. PETHER (Colchester) writes: Dr. Bruce Williamson (June 28, p. 950) suggests that as a profession we failed to persuade the public to improve conditions of feeding, sanitation, and health. He then suggests that the public, sensing our neglect, has chosen to saddle us with a State service. I feel that this approach is unfair. Doctors know quite well that health comes largely from good houses built at reasonable cost, good food produced at a fair price and sold under hygienic conditions. Why should we, as a profession, be blamed for bricklayers who only lay 300 bricks a day and plumbers who are so incompetent that their pipes burst in winter? Why should we be blamed for the insane expenditure on films, greyhounds, drink, and tobacco? Why should we, who with the housewives work an eighty-hour week, be blamed by those whose contribution to the country's recovery is to work half this time? I resent very keenly the suggestion that these things are our fault. The country gets the politicians it deserves, and few of them have the courage to stress what I write here. Doctors have very little to do with health and our opinions on the matters described have been well known for years. If people will not listen it is not our fault. In conclusion many of us honestly believe that increasing interference by the State, which has neither soul to be damned nor body to be kicked, will aggravate many of our troubles. Let the plumbers and bricklayers get on with the job of promoting better health, and let their value in this matter be properly explained to them. Many houses built by the State are rotten.

## Euphoriant for Depression

Dr. MARGARET A. QUINE (Torquay) writes: I wish to congratulate Dr. G. Tayleur Stockings on his able and illuminating work (June 28, p. 918) on the relief of depression through the medium of the euphorizing drug synhexyl. In this work, however, there seems to me something much more far-reaching than the empiric dose—this is the link he furnishes between mood and metabolism. Other illnesses that have a definite "affect" tone in addition to a demonstrable lesion in the brain are disseminated sclerosis, with its early facility; Kinnier Wilson's hepato-lenticular degeneration; subacute combined, with its depression; and in G.P.I. the grandiose euphoria or depression. Three at least of these are known to have frank disease or dysfunction of the liver. Is it not possible that before long we shall prove that the ancients were right in believing the liver to be the seat of the soul?

## Obituary

JOHN THOMSON MACCURDY, M.A., M.D., Sc.D.

Dr. J. T. MacCurdy died on July 1 after a brief illness. For some years he had occupied the position of Lecturer in Psychopathology at Cambridge, but his standing in psychiatry rests more upon his writings and his work in the war than on his lecturing, which did not absorb much of his time. His early experience in psychiatry was obtained in Canada and the United States. In Canada he took his B.A. in biology at Toronto University in 1908, and after attending the famous courses at the Johns Hopkins University, where he proceeded M.D. in 1911, he continued his studies in Germany. He then returned to a fellowship at Johns Hopkins and later lectured at Cornell University. In the war of 1914-18 he passed from the Psychiatric Institute of New York to the American Army, in which he held the rank of captain in the Medical Corps.

He came to England in 1922 after his election to the Presidency of the American Psychopathological Association. From then Cambridge became his home, and in 1926 he became a Fellow of Corpus Christi College, where he spent most of the rest of his life. He was always an esteemed member of this College, both for his high intellectual qualities and for his social attributes, which played a large part in his interesting personality. His contributions to psychology, although not widely known, display a discriminating mind and a fine philosophical attitude towards a subject which can so easily become a happy hunting ground for the dilettante and the indiscriminating. His book *The Psychology of Emotion* broke new ground as well as sounding a firm critical note of then existing theories; although time has proved his criticisms and views were not always tenable, his honesty of purpose was transparent. He followed this later in *Common Principles in Psychology and Physiology*. He attempted to explore the no-man's-land between the two disciplines where so many acrimonious battles have been fought. In his book *Mind and Money*, published in 1933, with both daring and wit he handed economics over to the applied psychologists; and later, during the last war, his volume entitled *The Structure of Morale* exhibited a deep knowledge of current affairs and an equally shrewd insight into national character. During the war he did much work on psychological warfare, assisting Government Departments, aiding the B.B.C. in their efforts to undermine German morale, and devising tests for the R.A.F. He looked forward to a time when the Army Council would have a psychiatrist on its Board, who would influence the conduct of war not merely by suggestions but almost in framing a war policy. That he did not succeed was not his fault. While Army psychiatry achieved much in many unexpected fields, MacCurdy's hopes could not be achieved in his time. Prejudice dies hard, particularly where concepts about human behaviour are concerned.

Dr. MacCurdy was a big-framed, athletic-looking man, though giving an impression of indolence. But under his apparent façade of cynical inaction there resided a deep thinker who preferred clear concepts to therapeutic adventures. He married in 1914 Winifred, daughter of Mr. David B. Jones, of Chicago, and leaves a son and a daughter.

Dr. FRANCIS ELLIOT FOX, who died on April 27, was medical superintendent of Brislington House, Bristol, a private mental hospital which has been owned and administered by his family for several generations. His father, Dr. Bonville Fox, died when Francis Elliot was a boy, and the succession from father to son was further delayed by service in the 1914-18 war. On leaving Winchester F. E. Fox joined the Army, where he reached the rank of captain. While stationed in Persia towards the end of the war he received grave head injuries, but he made a good recovery and was able in 1919 to begin the study of medicine at Cambridge. From Caius College he went to the London Hospital and qualified in 1924. After holding a clinical assistantship at the London and a house appointment at the Bethlem Royal Hospital, he was for a time assistant medical officer at Peckham House before he returned to Bristol to take up the work for which he had trained. In 1940 he published in the *British Medical Journal* a paper describing his clinical

experience with electrically induced convulsions. A man of fine presence and kindly bearing, "Sonny" Fox (as he was affectionately called by his many friends) was capable in both professional and public affairs. He was a member of the Bristol city council and for many years chairman of the Frome Conservative and Unionist Association. His chief hobby was gardening, and at Brislington House he made a beautiful garden even more beautiful. He married in 1941 Ethel Mary Skuse, who survives him with one son.

Mr. ALFRED ERNEST MAYLARD died at his home in Peebles on June 27 at the age of 93. Mr. Maylard was well known in Glasgow, where he was associated with the Victoria Infirmary from 1890. Mr. Maylard was a student at Guy's Hospital, where he was one of the demonstrators in anatomy in the early 'eighties. He was a fellow of the Royal Faculty of Physicians and Surgeons and of the Royal Society of Edinburgh. Mr. Maylard will be remembered as a general surgeon with a particular interest in the surgery of the abdomen. On his retirement in 1919 from the post of visiting surgeon at the Victoria Infirmary he was appointed honorary consulting surgeon and elected to the board of governors. His interest in this work was actively maintained until 1933. His principal recreations were walking and mountaineering, and he was at one time president of the Scottish Mountaineering Club. He had been a member of the British Medical Association for 64 years.

We announce with regret the death at the age of 86 of Lieutenant-Colonel W. T. Frederick Davies, C.M.G., D.S.O., a former President of the South African Medical Council. William Thomas Frederick Davies received his medical education at Guy's Hospital, London. He qualified M.R.C.S. in 1882, and took the M.B.Lond. in 1883 and the B.S. in 1884, proceeding to the M.D. in 1887. He served in the South African War as Surgeon-Major to the Imperial Light Horse in 1899-1900, when he was awarded the D.S.O. He commanded the 2nd Imperial Light Horse in 1914-15 in South-West Africa and was wounded. He served in the R.A.M.C. in 1917-19, and was appointed surgeon specialist to the General Military Hospital at Colchester. Dr. Davies was Vice-President of the Witwatersrand Branch of the B.M.A. in 1921 and President of the Transvaal Medical Council in 1925. He was elected a member of the South African Medical Council in 1928. He was honorary consulting surgeon to the Johannesburg Hospital.

The death of Dr. HERBERT HENRY MILLS, after only three days of acute illness, removes one who was possibly the doyen of Kensington practitioners, for he started in practice there over fifty years ago and was at work right up to the time of his last illness. He was born at Peterborough in 1868, and after attending the grammar school in that city won a scholarship to University College School. Thence he entered the school of medicine at Westminster Hospital, and he qualified in 1891 as M.R.C.S., L.R.C.P., taking his M.D.Lond. in 1896; in his final year he had been awarded the prize in clinical medicine. He was house-physician and later assistant demonstrator in anatomy at his own hospital. Mills came into prominence at the time of the controversies aroused by the National Health Insurance Act of 1911, when his downright support of the Lloyd George scheme brought him into antagonism with the policy approved by the Representative Meeting of the B.M.A., from which body he resigned in that year after 8 years membership; however, the animosities then aroused died down, and in 1928 he rejoined the Association. He served on the Advisory Committee created under the Act, and on the London Insurance Committee. For many years he was Medical Referee to the Prudential Assurance Company. He was a Fellow of the Medical Society of London, of which he had been a council member; and served as president of the West London Medico-Chirurgical Society in 1931-2. He married Miss Ernestine Evans Bell, who survives him, together with their only child, Dr. Hermia Mills, now working at Aylesbury.

Dr. FRANCIS MARTIN BERNARD DOUGHERTY died recently at the early age of 40. He qualified M.B., Ch.B. in Capetown in 1930, and took the B.Hy. and D.P.H. of Durham in 1938. He was senior resident medical officer of the Royal Victoria Infirmary, Newcastle-on-Tyne, and District Medical Officer of Richmond, Natal. Dr. Dougherty was also assistant medical officer of health to the Surrey County Council, a post he gave up in 1940 when he returned to South Africa to enter the Army Medical Service there. In 1943 he became second in command of No. 2 S.A. Convalescent Depot in Italy. In 1945 he resumed practice in South Africa at Howick. He is survived by his widow and one son.

## Medico-Legal

### RECOMMENDATION AS A MEDICINE

[FROM OUR MEDICO-LEGAL CORRESPONDENT]

By the Pharmacy and Medicines Act, 1941, if a person sells by retail any article recommended as a medicine the article or its container must be labelled with the appropriate designation and quantities of its ingredients. A "substance recommended as a medicine" may only be sold by a doctor, a dentist, an authorized seller of poisons, or a person who has served a regular apprenticeship to a registered pharmacist. It is closely defined by the Act as a substance which is referred to on the label, or on a placard in the shop, or in an advertisement, in terms which are calculated to lead to its use for the prevention or treatment of any ailment, infirmity, or injury affecting the human body, but which do not give a definite indication that the substance is intended to be used as a food or drink and not as a medicine.

Messrs. Potter and Clarke, manufacturing chemists, asked the opinion of the High Court in a friendly action against the Pharmaceutical Society on whether a specified series of common laxatives with specified labels were "substances recommended as a medicine." The label on senna pods merely gave the name and the name and address of the firm. Their cascara was labelled "Trade Mark: Winged Lion Brand. Fluid Extract of Cascara Sagrada. British Pharmacopoeia. Dose, half to one teaspoonful in half a wineglass of water." Lemon and squill linctus was merely labelled with its name and the name and address of the firm. Compound rhubarb pills also bore the name and the dose. "Effervescing Powders" was labelled "Extra strong Effervescing Powders. Prepared by Carter and Sons, Sheffield, a wartime substitute for Seidlitz Powders Carters," with instructions for use and the manufacturer's address. The firm maintained that these medicines, so labelled were not "substances recommended as a medicine" and so could lawfully be sold by unqualified persons. Mr. Justice Wynn-Parry held that they were right in regard to the senna pods and the linctus but not in regard to the other substances presumably because the dosage was specified.

The firm appealed, arguing that the written terms must specify the particular ailment or groups of ailments for the prevention or treatment of which the substance is appropriate. The Pharmaceutical Society argued that this was not necessary if it was common knowledge that the substance was in fact used for the prevention or treatment of a specific ailment or group of ailments. For example, the label on the cascara though it did not mention constipation, might be nevertheless calculated to lead to the use of fluid extract of cascara sagrada for the prevention or the treatment of constipation. The same, they said, applied to the rhubarb pills and the seidlitz powder substitute: both were well-known household remedies.

The Court of Appeal held that the relevant words of the Act were neither doubtful nor ambiguous. They did not think that Parliament would have desired to make the criminal liability of a seller of medicine depend on the accuracy of his speculation concerning the exact extent to which the general public knows that a particular medicine is a remedy for a particular ailment. If the written terms contain only an accurate description of the substance it is not "recommended." To render it "recommended" its description must indicate that it is a remedy for a specified ailment. They therefore held that the three laxatives in question could, with the given labels, be sold by unqualified persons.

1947 1 All E.R. 802.

The Hebrew medical journal, *Harofé Haivri*, the first number of which appeared in 1927, celebrates its twentieth anniversary in the current number. It is published in New York and written in Hebrew and English. General articles on Jewish culture and medical terminology in Hebrew are usually included in the journal, and in addition the present number contains articles on streptomycin, anticoagulant therapy in thrombosis, and narco-analysis.

\* With commendation.

## Medical Notes in Parliament

### Penicillin

On July 7 the House of Lords agreed to the Commons' amendments to the Penicillin Bill.

### Noxious Fumes

On July 8 Mr. SOMERVILLE HASTINGS asked the Minister of Town and Country Planning when he expected to be able to report the result of his investigations into the elimination of harmful and unpleasant products from the gases produced by oil-fired furnaces.

In replying Mr. SILKIN recalled that a month previously he said he was satisfied from advice received that sulphur and other noxious fumes could be eliminated, but that to ensure that the design of the necessary plant was satisfactory a pilot gas-washing plant was to be constructed. This plant had now been designed. Construction would take six months to complete. The results of this experiment should be available in about a year.

### Ministry of National Insurance Posts

Mr. JAMES GRIFFITHS announced on July 8 that an invitation to apply for posts in the Ministry of National Insurance would, he hoped, be issued within the next fortnight to all full-time approved society staffs wholly or mainly engaged on National Health Insurance work. There would, however, be vacancies in his Department for others with suitable experience. He expected to be ready to advertise in the early autumn for applications from such persons.

### Merging Service Medical Branches

Cmdr. NOBLE on July 9 asked the Minister of Defence what progress had been made towards merging the three Service medical branches.

Mr. ALEXANDER, in reply, said this question was still under examination. It had not yet been established that the complete merger of the three medical services was to be preferred to the alternative of the maximum degree of co-ordination between those services.

Col. STODDART-SCOTT asserted that the merger of these services would result in great economy in military manpower. He asked Mr. Alexander also to consider the merging of the three nursing services.

Mr. Alexander said that he himself and the other Departments which had examined the subject had so far not been convinced of the economies to be achieved. The matter, as he had already said, was still under consideration.

### Regional Hospital Boards

Col. STODDART-SCOTT on July 9 asked the Prime Minister to set up a Select Committee to consider the effect on the hospital services of the appointment to regional hospital boards of M.P.s from one side only of the House of Commons, although members of other parties had similar qualifications in hospital work, administration, and management.

Mr. ATTLEE replied that he repudiated the suggestion that these appointments were political. He said that examination of the boards' membership would prove that persons with suitable experience had been chosen without any shadow of political exclusiveness. The question of setting up a Select Committee therefore did not arise.

Col. Stoddart-Scott said that four members of the Commons, all of Mr. Attlee's Party, and four members of the House of Lords, none of whom was a Conservative, had been chosen to sit on these boards. Such political appointments, he predicted, would make changes in the hospital boards inevitable after the next general election and would be to the detriment of the hospital service.

Mr. Attlee then said that Col. Stoddart-Scott's facts were not correct. He believed that on these boards were five M.P.s from the Government side of the House. From the House of Lords there were Lord Cunliffe, the Earl of Cranbrook, and Lord Henley, who were certainly not members of the Labour Party. There was also Lord Eustace Percy, an eminent Conservative. It was unjustifiable to complain that, after so many years, some Labour people were appointed to these various boards.

Sir HENRY MORRIS-JONES asserted that some of the names on these boards, particularly in North Wales, had been received with perplexity. He asked why the names of well-known people who had given their lives to hospital service were omitted.

Mr. Attlee suggested that perhaps they were too old.

Mr. GORONWY ROBERTS asked on July 10 what was the procedure followed in appointing regional hospital boards; and whether Mr. Bevan was satisfied that an adequate proportion of suitable women representatives were being appointed to these boards.

Mr. BEVAN replied that the boards had been appointed after consulting all the principal organizations and bodies concerned. The object had been to select the persons of best experience and qualification for the task, not representatives as such. However, the answer to the latter part of the question was in the affirmative.

Mr. GORONWY ROBERTS asked on July 10 how many appointments had been made to the Welsh Regional Hospitals Board; whether this number was fixed; and what procedure would be followed in filling casual vacancies.

Mr. BEVAN answered that a chairman and 31 other members had been appointed in accordance with the constitution laid down in the National Health Service (Constitution of Regional Hospital Boards) Order of June 24. Casual vacancies would be filled by the Minister of Health after consultation with the board and with any other bodies which appeared to be concerned.

Major LEGGE-BOURKE inquired why, in view of there being two isolation hospitals and two general hospitals in the Isle of Ely, no member from the Isle of Ely had been appointed to serve on the East Anglian Regional Hospital Board.

Mr. BEVAN replied that though every effort had been made to secure a reasonable balance of local knowledge on this and other boards, they were not intended to be constituted on a basis representative of particular areas or interests.

### Temporary Registration

On July 10 Mr. JANNER asked the Minister of Health what was to be done to assist doctors and pharmacists with foreign qualifications who were on the temporary *Register* and who would be unable to continue to practise when temporary registration came to an end in December next.

Mr. BEVAN announced that the Government would seek the approval of Parliament to legislate on this subject. It intended to introduce a Bill before the end of the session, although it could not be passed during the session, in order to make the detailed proposals fully known as soon as possible. He hoped there would be general agreement with them.

### Calf Lymph

A question put by Mr. HOBSON on July 10 asked whether the lymph used in vaccination against smallpox was still manufactured in the skins of animals; and whether the calves used for the production of lymph at the Lister Institute were slaughtered before the lymph was extracted.

Mr. BEVAN said that the answer to both parts of the question was "Yes," except that sheep and not calves were used by the Institute.

**Nutrition.**—The proportion of school children examined in England and Wales whose nutritional state was classified as bad was 0.5% in 1939 and 0.3% in 1943 and 1945. The figure for 1946 is not available.

**Milk for Schools.**—At the end of last year 93.8% of the school milk to grant-aided schools was heat-treated or tuberculin-tested. Where neither of these types is at present supplied the Ministry of Food is endeavouring to arrange, in co-operation with medical officers of health, that they shall be.

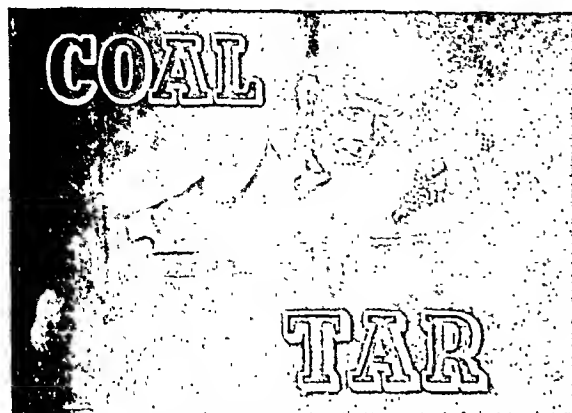
**Double Day Shifts.**—Mr. Isaacs stated recently that the Government was not satisfied that it was necessary to retain in full the present legal obstacles to adoption of the double day-shift system, provided that proper protection was afforded for the health and welfare of persons employed on that system.

**Additional Bread.**—Mr. Strachey regretted that he could not extend to hospital cleaners or workers with similar duties the additional bread ration coupons to which nurses were already entitled.

**Disabled Unemployed.**—A count is taken each month of the number of disabled persons recorded at employment exchanges as unemployed. On May 19 last the number was 64,754. Special steps are taken to put disabled applicants in touch with suitable employment or to give them vocational training if that is required. For the severely disabled special provision is made by the Factories of the Disabled Persons Employment Corporation.

**Financial Benefits.**—In framing the National Assistance Bill Mr. James Griffiths will consider sympathetically the inclusion of a provision that financial help to be given in respect of any disease over and above the benefits payable under the National Insurance Act, shall not be confined solely to cases where recovery is probable.





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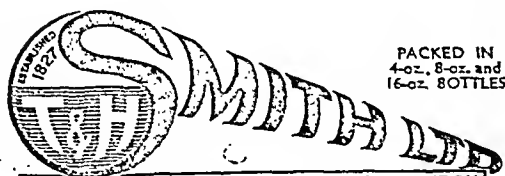
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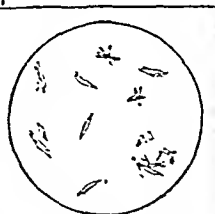
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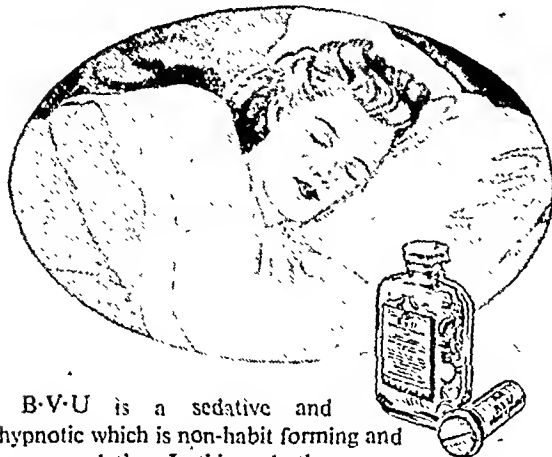
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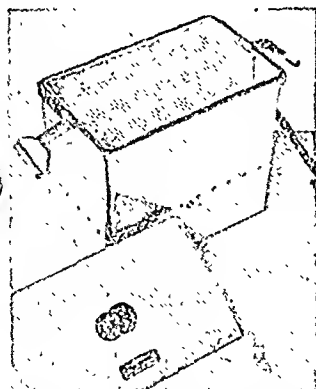
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No. 26

## EPIDEMIOLOGICAL NOTES

## INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended June 28.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included), (b) London (administrative county), (c) Scotland, (d) Eire, (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London), (b) London (administrative county), (c) The 16 principal towns in Scotland, (d) The 13 principal towns in Eire, (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1947					1946 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	57	8	24	1	—	39	—	25	1	2
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Diphtheria	182	15	47	31	5	313	25	75	29	10
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Dysentery	66	7	14	—	—	123	15	33	7	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Encephalitis lethargica, acute	2	1	—	—	—	3	1	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Erysipelas	—	—	31	7	—	—	—	32	7	5
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Infective enteritis or diarrhoea under 2 years	—	—	—	—	—	—	—	—	—	—
Deaths .. ..	76	3	18	4	4	45	6	9	9	2
Measles*	9,377	439	104	142	8	4,177	866	487	32	25
Deaths .. ..	3	—	—	—	—	1	—	—	—	—
Ophthalmia neonatorum	62	6	12	—	1	70	7	22	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Paratyphoid fever	10	—	1(B)	1(A)	—	5	—	5(B)	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal ..	342	20	3	—	3	440	24	4	—	2
Deaths (from influenza)†	7	1	—	—	—	5	—	—	—	—
Pneumonia, primary ..	—	—	155	5	8	—	—	164	21	7
Deaths .. ..	27	—	—	—	—	—	26	—	—	—
Polio-encephalitis, acute	11	2	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Poliomyelitis, acute ..	56	5	5	5	2	8	1	1	2	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Puerperal fever .. ..	—	3	13	—	—	—	4	15	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Puerperal pyrexia‡	94	10	12	—	—	125	8	15	1	—
Deaths .. ..	—	1	—	—	—	—	—	—	—	—
Relapsing fever	—	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Scarlet fever	947	69	110	25	38	1,063	100	159	23	24
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Smallpox	2	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Typhoid fever	10	—	1	5	7	6	—	2	4	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Whooping-cough*	2,052	188	78	73	—	2,073	157	64	38	18
Deaths .. ..	9	4	3	—	1	7	1	1	—	1
Deaths (0-1 year)	365	26	65	22	16	385	48	47	37	16
Infant mortality rate (per 1,000 live births)	—	—	—	—	—	—	—	—	—	—
Deaths (excluding stillbirths)	3,982	657	562	140	122	4,136	626	574	183	103
Annual death rate (per 1,000 persons living)	—	—	11.7	8.5	—	—	—	12.6	11.7	—
Live births	9,012	1404	1096	459	265	8,777	1390	1004	468	250
Annual rate per 1,000 persons living	—	—	22.1	29.0	—	—	—	20.2	30.0	—
Stillbirths	272	27	30	—	—	276	37	46	—	—
Rate per 1,000 total births (including stillborn)	—	—	27	—	—	—	—	44	—	—

\* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

## Smallpox

At Bilston M.B. the diagnosis in a boy aged 10 removed on July 3 has now been confirmed. Modified rash appeared on July 2. He had been vaccinated for the first time on June 23. Contacts are still under surveillance.

The first case at Willenhall U.D., adjacent to Bilston, was removed on July 9. She is aged 19 and unvaccinated. She sickened on July 3 and a confluent rash appeared on July 6. Numerous contacts are under surveillance.

At Barnsley C.B. the daughter and son-in-law of the 62-year-old woman admitted to the smallpox hospital on June 30 were removed on July 11, when smallpox rashes appeared. Both had been vaccinated on July 2, one primarily and the other after an interval of 30 years.

The suspected case removed from the *Carnarvon Castle* on her arrival at Southampton on July 8 is suffering from chicken-pox. There is no smallpox in Southampton.

Up to July 12 there had been 10 cases of smallpox in two generations in Calais, and one in Lille secondary to the focus in Calais.

## Anterior Poliomyelitis

The Registrar-General's returns for the week ending July 5 record 79 notifications (9 in corresponding week of 1946). This figure has been exceeded on only very few occasions since the disease became notifiable in 1912. The maximum recorded incidence was in 1938 (1,489 cases), and in the first 27 weeks of that year 127 cases were notified. The figures for the corresponding periods of 1946 and 1947 have been 206 and 435 respectively (uncorrected).

The disease is widely spread. Notifications in the week ending July 5 were received in 65 sanitary districts and were mainly singletons. However, since July 5 multiple cases have been reported from several districts. An unprecedented prevalence is to be expected.

Acute onsets with marked meningeal reactions leading to a diagnosis of meningitis or meningo-encephalitis appear to have been a feature in the present outbreak. In such cases the pre-paralytic stage lasts some days, and it may be presumed that infectivity is greatest in this period. Early isolation on suspicion before there is any evidence of paralysis is probably the most effective action towards preventing the spread of the disease. Bulbar and respiratory paralysis are unduly frequent, and respirators are in demand.

In one extra-metropolitan borough 7 children have been admitted to the isolation hospital since June 18, 5 of them in the first eleven days of July. Two required treatment in respirators. Tonsillectomy was performed on one of them, aged 4, fourteen days before paralysis of the bulbar type appeared. It has been advised that when poliomyelitis is prevalent nose and throat operations should be postponed whenever possible.

## Cerebrospinal Fever

A rise in cerebrospinal fever notifications contrary to the expected seasonal decline may be an expression of the increased incidence of anterior poliomyelitis with marked meningeal signs at onset. The figures for the week ending July 5 were 64.

## Bubonic Plague in East Prussia

A report has been received that epidemic bubonic plague appeared in Königsberg during June and has inflicted an extremely serious mortality among the civilian population.

## Food-poisoning

An outbreak of food-poisoning caused by *Salmonella typhimurium* has occurred at Lincoln. Thirty-three cases have been reported, including one death. The faeces of 16 were examined; the organism was demonstrated in 15. Infection occurred from some salami sausage served at a dinner at which 77 people sat down on July 5. Investigations into the source of the contamination are proceeding.

Nine cases of typhoid are reported at Rattlesden, Suffolk. Three households are involved. Two further suspected cases are under observation. The source of the infection was contaminated lettuces from a local supply. The probable carrier is being investigated.

Nine cases of food poisoning have been reported from Winchester, and further suspected cases are being investigated. The causative organism is one of the salmonella group.

## Typhus in London

A case of murine typhus is reported from Bermondsey, London. The patient, who has now recovered, was a man

employed in unpacking crates of eggs from Poland. Flea-bites were discovered on his body. He had never been abroad. There have been no further cases.

### Discussion of Table

In *England and Wales* there was a decreased incidence of measles 1,255, whooping-cough 55, diphtheria 38, and an increased incidence of scarlet fever 77, dysentery 19, cerebrospinal fever 18, and poliomyelitis 12.

Large decreases in the notifications of measles were reported from London 198, Kent 171, Essex 148, Staffordshire 132, Derbyshire 117, while the only increase of any size was that in Yorkshire West Riding 71. No large variations from the total of the preceding weeks were recorded in the local returns of scarlet fever. The only changes of any size in the local incidence of whooping-cough were decreases in London 88, and Lancashire 41. The chief feature of the diphtheria returns was a decrease in Lancashire of 12 cases and in London of 9.

A new outbreak of dysentery was reported from Surrey, where the number of cases rose from 0 to 28, the chief centre of infection being Leatherhead U.D., where 21 cases were notified.

The two cases of smallpox were notified from Staffordshire, Bilston M.B. 1 and Willenhall U.D. 1. Another death, the fifth, from smallpox has been recorded at Bilston; the latest victim was an unvaccinated boy aged seven.

The number of cases of cerebrospinal fever notified rose after declining for three weeks; the 57 notifications involved 20 counties. For the fourth consecutive week an increase was reported in the notifications of acute poliomyelitis; the 56 cases were distributed through 18 counties.

In *Scotland* only small changes occurred in the incidence of infectious diseases with the exception of acute primary pneumonia, cases of which decreased by 34. In the eastern area the notifications of diphtheria increased from 2 to 9.

In *Northern Ireland* there were decreases of measles 18 and whooping-cough 10.

In *Eire* the notifications of diarrhoea and enteritis increased by 17; 46 of the 56 cases were reported from Dublin C.B. Increased notifications were also recorded for whooping-cough 19 and diphtheria 7. The rise in whooping-cough was mainly due to an outbreak in Mayo, Claremorris R.D.

### Infectious Diseases During the Half-year

The returns of the infectious diseases for the first half of 1947 show that, generally, the incidence was below the average. The notifications of diphtheria were the lowest ever-recorded and were less than half of the number in the corresponding period of last year. The notifications of scarlet fever have shown a progressive decline and were only about half of the total for four years earlier. Cerebrospinal fever was more prevalent, and more cases were notified than in the preceding three half-years. The total incidence of dysentery cases was slightly more than one-quarter of the preceding half-year. The notifications for the first six months of 1943-7 in England and Wales were:

	1943	1944	1945	1946	1947
Scarlet fever .. ..	50,544	48,654	36,302	30,910	27,423
Whooping-cough ..	50,302	56,488	33,687	45,592	53,791
Diphtheria .. ..	19,154	15,978	12,032	10,882	5,393
Measles .. ..	347,687	52,622	412,843	59,818	302,299
Acute pneumonia ..	28,442	24,499	21,472	24,078	22,555
Cerebrospinal fever ..	2,203	1,851	1,691	1,662	1,959
Dysentery .. ..	3,002	5,669	10,006	6,703	1,763
Shifoid and paratyphoid ..	358	247	259	250	248
Great towns:					
No. of births .. ..	169,924	186,651	174,276	206,638	259,060
No. of deaths .. ..	124,090	128,656	132,693	138,955	154,657
Infant mortality .. ..	59	54	58	51	52
Case fatality per cent:					
Scarlet fever .. ..	0.16	0.15	0.17	0.10	0.12
Whooping-cough ..	1.25	1.21	1.33	0.90	1.37
Diphtheria .. ..	4.2	3.0	2.7	2.6	2.0
Measles .. ..	0.25	0.14	0.19	0.17	0.21

A large increase occurred in the number of births and deaths during the first half of 1947 in the great towns compared with the experience of preceding years. Not only has the incidence of diphtheria decreased but an improvement has also been recorded in the case fatality.

### Week Ending July 5

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 966, whooping-cough 2,240, diphtheria 188, measles 10,269, acute pneumonia 353, cerebrospinal fever 64, acute poliomyelitis 79, dysentery 57, smallpox 3, paratyphoid 8, typhoid 15.

## Medical News

### Assistant Editor, B.M.J.

An advertisement appears in this issue for a Medical Assistant Editor to the *British Medical Journal*. The salary scale is £1,000 to £1,875 a year. The appointment may attract those who combine with literary or journalistic ability an interest in medical science. There is no prescribed age limit, and youth should not deter anyone from putting in an application.

### Vitamin Tablets for Mothers

From Aug. 1 every mother will be entitled to free vitamin A and D tablets for 30 weeks after the birth of her child at the rate of one packet each 6 weeks. She will receive coupons for the tablets when she notifies the food office of the birth. The tablets will be distributed through the food offices and maternity and child welfare centres. Mothers with babies under 30 weeks old on Aug. 1 should apply to their local food office, taking their own and their babies' ration books with them.

### Oliver Memorial Fund

The trustees of the Oliver Memorial Fund will make their first award of £50 to a British subject whose original work is considered to have made the most notable contribution to the subject of blood transfusion in the last five years. The committee welcomes applications, or information drawing their attention to suitable candidates. Correspondence, with a brief summary of such work, should be sent to F. W. Mills, Esq., National Provincial Bank, Ltd., Holborn Circus, London, E.C.1, before Oct. 1.

### Dr. Jessie Macgregor Prize

The Dr. Jessie Macgregor Prize in Medical Science will be awarded to the applicant who presents the best record of original work in the science of medicine, published or unpublished, but which must not have been published earlier than three years prior to July, 1947. The value of the prize is about £50, and it is open to medical women who are graduates in medicine of the University of Edinburgh, or who have taken the Scottish triple qualification, and who, before becoming qualified, have studied medicine for at least one year in Edinburgh. The successful applicant shall, within six months following the award, deliver a lecture to the medical profession in Edinburgh on the subject of the work for which the prize has been awarded, such lecture to be entitled "The Dr. Jessie Macgregor Lecture." Applications, marked "Dr. Jessie Macgregor Prize," must reach the convener of trustees, 9, Queen Street, Edinburgh, 2, not later than July 31.

### War Memorial Fund

The British Empire Nurses War Memorial Fund now stands at £45,791, £37,400 of which has been contributed by the nurses of the Commonwealth and Empire. At a meeting held in February the gift of two travelling scholarships, to the value of £350-£375 was announced, one from the Royal College of Physicians, through Lord Moran, the other from Viscountess Mountbatten of Burma. The Fund held a garden party at St. James's Palace on July 8 to pay tribute to the nurses and midwives for the part they played in the war and for their generous help to the Fund.

### Wills

Lieut.-Col. John du Plessis Langrishe, formerly lecturer in the Public Health Department of Edinburgh University, who died on Feb. 28, left £3,428 5s. 3d.

## COMING EVENTS

### Residential Summer Schools

The Central Council for Health Education will hold residential summer schools at Keble College, Oxford, from July 25 to Aug. 8, at an inclusive cost of £16 16s., and at Bede College, Durham, from Aug. 20 to Sept. 3, at an inclusive cost of £14 14s. Particulars may be obtained from the Medical Adviser and Secretary, Central Council for Health Education, Tavistock House, Tavistock Square, London, W.C.1.

### Cystine and Protein Reaction

A meeting of the Polarographic Discussion Panel of the Society of Public Analysts and Other Analytical Chemists will be held at 3 p.m. on July 25 in the Chemistry Department, University College, Gower Street, London, W.C.1. Dr. R. Brdicka will deliver a lecture, of interest to medical men, on analytical applications of the cystine and protein reaction in biochemistry and medicine. Prof. J. Heyrovsky will discuss "New trends of polarographic analysis, differential and oscillographic."

**Banting Memorial Lecture**

Prof. Charles Best, F.R.S., will deliver the Banting Memorial Lecture under the auspices of the Diabetic Association on Friday, July 18, at 10.30 a.m. in the Medical School, King's College Hospital. The lecture will be followed by other lectures and demonstrations on the treatment of diabetes, on Friday afternoon, July 18, and Saturday morning, July 19. Medical men and students are invited to attend.

**Veneral Disease in N.H.S.**

The annual general meeting of the Medical Society for the Study of Veneral Diseases will be held at 11, Chandos Street, London, W., on Saturday, July 26, at 3 p.m., when a discussion on "Venereal Disease in the National Health Scheme" will be opened by Col. L. W. Harrison.

**Colour Vision**

The Colour Group of the Physical Society announces that a Conference on Colour Vision will be held at Cambridge from July 28 to Aug. 2. The provisional programme includes the following papers: Prof. S. L. Polyak (Chicago), "Retinal Structure and Colour Vision"; Prof. R. Granit (Stockholm), "Electrophysiology of the Retina"; Dr. D. L. McAdam (Rochester, N.Y.), "Colour and Brightness Discrimination"; Dr. W. S. Stiles (Teddington), "Fundamental Sensation Curves"; Dr. D. B. Judd (Washington), "Colour Blindness"; and a contribution by Prof. S. Hecht (New York). Further information may be obtained from Dr. E. N. Willmer, Physiological Laboratory, Cambridge, to whom all applications for tickets should be addressed.

**SOCIETIES AND LECTURES**

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.—Thursday, July 24, 6.15 p.m., Charles Tomes Lecture by Prof. E. Sprawson: Foods and Feeding as they Affect Teeth and their Environment.

KENT PAEDIATRIC SOCIETY.—At County Hospital, Farnborough. Saturday, July 26, 3 p.m. Prof. Lionel Penrose: Genetics in Relation to Paediatrics.

MEDICAL ART SOCIETY.—Exhibition at Royal Society of Medicine, 1, Wimpole Street, London, W., Thursday, July 17, to Saturday, July 26.

**POSTGRADUATE DIARY**

FELLOWSHIP OF MEDICINE, 1, Wimpole Street, London, W.—Royal Hospital, Richmond, Surrey: Saturday, July 26, 9 a.m. to 5.30 p.m. One day course on the Diagnosis and Treatment of Varicose Veins. Open only to those holding Surgical Appointments. Dreadnought Hospital Greenwich S.E.: Saturday and Sunday, July 26 and 27. All-day week-end course in Medicine and Surgery.

INSTITUTE OF LARYNGOLOGY AND OTOLGY, 330, Gray's Inn Road, London, W.C.—Monday, July 21, 4.30 p.m. Mr. W. M. McIlison: The Nose, Nasopharynx and Paranasal Sinuses.

The Fellowship of Medicine announces: (1) A week-end course on chronic rheumatic diseases to be given at the Rheumatic Unit, St. Stephens Hospital, Fulham Road, S.W., on Saturday and Sunday, October 25 and 26. (2) A course of lectures on Anatomy, Physiology, Pathology, Bacteriology, and Pharmacology, for Primary F.R.C.S. candidates; to be given at the Lecture Room of the Royal Cancer Hospital, Fulham Road, S.W., on Mondays, Wednesdays and Fridays, from August 18 to October 24. All particulars from the Fellowship of Medicine, 1, Wimpole Street, London, W.

**BIRTHS, MARRIAGES, AND DEATHS**

The charge for an insertion under this head is 10s. 6d. for 15 words or less. Extra words 3s. 6d. for each six or less. Payment should be forwarded with the notice, authenticated by the name and permanent address of the sender and should reach the Advertisement Manager not later than first post Monday morning.

**BIRTHS**

CONDIE.—On June 1, 1947, at Perth Royal Infirmary, to Martha Rennie (née Scott), wife of Dr. William Hall Condie, M.B., Ch.B., Schoolhouse, Kinnairds, Perth, a son. Both well.

HILL.—On July 4, 1947, at Dublin, to Dr. Nancy Hill (née Hinchcliff), wife of Dr. William J. C. Hill, Duncegan, Portrush, Northern Ireland, a daughter—Valerie Elizabeth.

MACARTNEY.—On July 7, 1947, at Crumppall Hospital, Manchester, to Joyce (née Worthington), wife of Dr. Donald W. Macartney, a son.

TAY.—On July 3, 1947, at Chesterfield, to the wife of Dr. A. P. Tait, a daughter.

TAYLOR.—On July 6, 1947, at Kirtler Nursing Home, Arbroath, to Dr. and Mrs. Taylor (Peggy Reid), Hyde Park House, Arbroath—a daughter.

**DEATHS**

ARMSTRONG.—On June 23, 1947, at 11, Sefton Drive, Liverpool, S. Hubert Armstrong, M.D.

BAKER.—On July 8, 1947, Helen Baker, M.D., D.P.M., wife of John Peterson, University House, Bethnal Green.

HUMER.—On June 25, 1947, suddenly, at George, South Africa, John Daniel Humer, O.B.E., F.R.C.S. Ed., beloved husband of Marjorie Harmer, of Langford, Kingswear, Devon.

O'MEARA.—On May 18, 1947, at Luton, Beds, Dr. Hubert O'Meara, M.B., B.S. Lond.

**Any Questions ?**

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

**Poliomyelitis and Water**

Q.—Is there any foundation for this statement recently published in a lay paper: "Current medical opinion is that acute anterior poliomyelitis is spread by contaminated water and the recent incidence is a result of the rise in level of ground water owing to heavy rains and the consequent pollution of unprotected water supplies by the virus"? An annotation in the British Medical Journal last year said that since the virus was demonstrated in faeces in 1940 it had focused attention on the importance of the four F's in its spread; but it did not stress the importance of water.

A.—There is no foundation for the suggestion that the recent occurrence of poliomyelitis is due to a rise in the level of ground water, since this infection has its greatest incidence in the autumn, when ground-water levels are ordinarily low. However, the virus of poliomyelitis is present in the faeces of typical and abortive cases during the acute and convalescent stages of the infection, and it has been recovered from the sewage of towns at the time when cases were occurring in that area. Some outbreaks have also shown a geographical relationship to water courses, so that the possibility that water from sewage-contaminated rivers and swimming-pools may be a vehicle for the spread of the virus cannot be gainsaid. When a case has occurred in a household, therefore, all the necessary precautions should be taken to prevent the spread of infection to food or drink by contaminated hands or flies. At the same time, there is a considerable body of evidence that infection is most often spread by direct contact, which may mean that droplets from the upper respiratory tract may also spread the disease. The virus can be demonstrated in the oropharynx during the acute stage, and it has lately been recovered from the throats of school-children in contact with a case. A high standard of personal hygiene in a household or semi-closed community where infection has appeared is therefore the most likely means of controlling spread of poliomyelitis.

**Vaccination against Smallpox**

Q.—What should be the frequency of vaccination in areas where smallpox is endemic? What interpretation as to the subject's immunity is to be given to the so-called "immune response"—that is, a fleeting papule appearing 48 to 72 hours after immunization?

A.—Revaccination every 10 to 12 months should be carried out in areas where smallpox is endemic. A fleeting papule 48 to 72 hours after vaccination with vaccine lymph merely indicates a previous contact with the antigen and may occur with dead virus. Thus it is probably only a "sensitivity" reaction and not an indication of immunity. It is considered safest to record "successful vaccination" only when a vesicle appears. It is interesting to note in this connexion that vaccination by the multiple pressure method has recently resulted in good takes in numerous individuals who had several unsuccessful vaccinations by the usual scratch method.

**Lisping**

Q.—A boy aged 6, of normal intelligence, has lisped since learning to speak. Should an effort be made to correct the defect now, or should it be left to right itself?

A.—In lisping (or dyslalia) there is a persistent impairment of enunciation of one or more consonants. Its causes and degree vary considerably. In this case local causes, such as a shortened fraenum linguae or a malformed palate, should be sought and treated, together with any other pathological states of the nose and throat not obviously connected with the trouble. If dyslalia persists after this, or if no such causes are found, treatment by a speech therapist should be given if



the defect is marked or if the child moves in an environment where clarity of speech is not observed. Children with mild lips moving among clear speakers tend to recover without treatment.

### Orchitis after Mumps

**Q.**—*As the result of severe orchitis following mumps a 52-year-old patient has become impotent. I have been giving him methyl testosterone sublingually, pushed to 45 mg. a day, without result. Can anything more be done?*

**A.**—Orchitis following mumps is an important cause of impotence, so much so that in the case of bilateral orchitis it is advocated that an incision of the capsule of the testis on one side should be made to relieve compression tension. If the procedure is carried out on both sides, and the attempt fails to prevent destruction of the interstitial cells, the surgeon might wrongly be blamed. The condition should have responded to the treatment given, but it may be that larger doses are required initially—for example, the injection of 25 mg. of testosterone daily. An alternative therapy is the subcutaneous implantation of 800 mg. of testosterone propionate.

### Oxygen Inhalation

**Q.**—*I have been told that the B.L.B. mask, under ideal conditions in a healthy subject, can produce an alveolar oxygen concentration of 96%. I believe there is also experimental evidence that concentrations of oxygen much above 60% cannot be breathed for more than a few hours without ill effects, such as pulmonary congestion and oedema. Are there any conditions in which oxygen would appear necessary but, given in this way, could be dangerous?*

**A.**—Inhalation of oxygen at a pressure of one atmosphere is said to produce symptoms of lung irritation in normal young men after about fourteen hours' exposure. The subjects complain of cough, sore throat, nasal congestion, and substernal pain. At or below concentrations of 60% the inhalation of oxygen is apparently harmless, but there is not complete agreement among clinical workers on this point. Actually it is difficult to get an alveolar oxygen concentration of anywhere near 95% with the usual type of B.L.B. mask unless all the ports can be closed, the mask is well fitted, and mouth-breathing prevented. The nasal mask may deliver from 40 to 95% oxygen according to circumstances. In general, oxygen is necessary to combat arterial anoxaemia or to hyperoxygenate the blood—that is, to carry oxygen in solution as well as combined with haemoglobin. It is probable that 100% oxygen can be safely given for short periods to all patients, but if it is necessary to continue for longer than twelve hours then the concentration should not exceed 50 to 60%, provided this is sufficient to oxygenate fully the arterial blood. If it is not, then the risk of continued anoxia must be balanced against that of a tracheo-bronchitis due to the use of oxygen.

### "Dyspeptic" Ulcers

**Q.**—*What is the best treatment for a woman of 50 who suffers from periodical crops of small ulcers on the inside of her cheeks? She has no dyspeptic symptoms.*

**A.**—So-called dyspeptic ulcers which appear in crops on the buccal mucous membrane are usually quite unconnected with dyspepsia, and the term is a misnomer. Bacteriological investigation, while often showing mixed oral types with no predominating organism, often reveals pneumococci and haemolytic streptococci. Apart from general measures, and vitamins A, B, etc., to ensure that the mucous membrane is in a healthy state, local measures should include general oral hygiene. The administration of penicillin in pastille form, which appears in some cases to get rid of the infection (MacGregor and Long, *Journal*, 1944, 2, 686), is worth a trial.

### Diphtheria and Vitamin B

**Q.**—*Is there any evidence that any of the B vitamins are useful in the treatment of the cardiac debility and paresis caused by diphtheria toxin?*

**A.**—There is no controlled evidence that any member of the vitamin B complex has a beneficial prophylactic or therapeutic effect on diphtheritic paralysis or on the cardiovascular compli-

cations of diphtheria (see this *Journal*, 1941, 1, 359). The administration of such vitamins in a debilitated patient may, however, produce a sense of well-being.

### Dehydrocholic Acid

**Q.**—*What is known about the therapeutic action of dehydrocholic acid?*

**A.**—Dehydrocholic acid is useful for its ability to increase the volume of the bile. It does not stimulate evacuation of the gall-bladder, but it may be of value to remove mucus or debris from the bile ducts. A copious flow of bile may flush the ducts but does not necessarily affect the gall-bladder. Dehydrocholic acid is contraindicated in complete mechanical biliary obstruction. The dose is 0.25 to 0.5 g. two or three times daily after meals for a period of four to six weeks.

### Metal-fume Fever

**Q.**—*Oxy-acetylene welders who inhale zinc oxide fume sometimes develop an acute characterised by sickness, general malaise, joint pains, and signs of general toxæmia. Is milk good antidote?*

**A.**—When galvanized metal is being welded the fume may contain zinc oxide, and unless the inhalation of this fume is prevented "metal-fume fever" with the characteristics described may occur. These effects are acute and transitory, with an onset some hours after inhaling the fumes; the views of Lehmann (*Arch. Hyg. Berl.*, 1910, 72, 358) on the pathology of the condition are still the accepted ones—namely, that the metal particles in the fume damage the epithelial cells of the lung alveoli, and that the ill effects are attributable to the absorption of proteins from these dead cells. It is clear from this that milk is not an antidote, and the general principles of treatment will be those of an acute infection. Prevention lies in ventilation which is adequate to remove and harmlessly dispose of fumes arising from welding and other operations which give rise to metal fume. Particular attention should be paid to ventilation when welding is performed in a confined space, as inside a boiler, tank, or compartment of a ship.

## NOTES AND COMMENTS

**Fissured Lip.**—Dr. F. F. HELLIER (Leeds) writes: The answer given to the question about fissured lips (July 5, p. 41) did not mention treating the cause of the condition. The most likely cause is ill-fitting dentures which produce a fold of skin at the corner of the mouth. This has been called pseudo-riboflavinosis because it somewhat resembles that caused by lack of riboflavin. The condition is cured by increasing the vertical dimension of the denture and filling it out a little so that the fold is eliminated. Obviously if there is a lack of vitamin B this should be corrected but this is a very uncommon cause in this country.

**Scabies Infection of Anus.**—Dr. J. G. DAVIES (Edinburgh) writes With reference to the answer under "Any Questions?" on the above subject (July 5, p. 41) I would like to make the following observations. In the Army in W. Africa and India scabies was regarded in the great majority of cases as being acquired by sexual intercourse. The distribution was different from that commonly observed in this country and the areas most frequently affected were the genitals and the buttocks. The fingers and wrists were comparatively rarely affected. I would suggest that the case occurring in Natal may have been acquired venereally, and the mention of urine as a possible means of spreading the infection tends to support my belief that in those cases of peri-anal involvement the penis may have been the original source of infection. In V.D. clinics in Britain, too, scabies mainly affecting the genital organs following sexual exposure is frequently seen.

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Atiologia*, *Westcent*, London. ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Authors desiring REPRINTS should communicate with the Publishing Manager, B.M.A. HOUSE, Tavistock Square, W.C.1, on receipt of proofs. Author overseas should indicate on MSS. if reprints are required, as proofs are not sent abroad. ADVERTISEMENTS should be addressed to the Advertisement Manager, B.M.A. HOUSE, Tavistock Square, London, W.C.1 (hours 9 a.m. to 5 p.m.). TELEPHONE: ... GRAMS: *Britmedads*, *Westcent*, London. MEMBERS' ... should be sent to the SECRETARY of the Association, ... 2111. TELEGRAMS: *Medisecra*, *Westcent*, London. B.M.A. SCOTTISH OFFICE: 7, Drumsheugh Gardens, Edinburgh.

# SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY JULY 19 1947

## MEDICAL ORGANIZATION IN DENMARK PUBLIC HEALTH SERVICES

BY

E. JUEL HENNINGSSEN

*Chief Physician, National Health Service*

In the year 1740 Denmark acquired her first supreme medical board, the Collegium Medicum, "in order that everything in relation to hygiene and its improvement may be carried out in the best manner and according to the best knowledge and with the best conscience by means of a harmonious council." That board and its successor, the Royal Health College (which replaced the Collegium Medicum in 1803), both consisted of a chosen number of physicians who, without remuneration, placed their professional knowledge at the disposal of the nation as the supreme medico-legal authority, as medical advisers to the Government as that body might desire, and as head of the public health system. There was no lack of eminent and discerning members on these boards, but they had no real influence on the organization of the country's health service or the administrative status of the medical personnel by virtue of their position. However, notwithstanding their relatively unimportant standing, the boards were the driving force in passing a number of far-sighted laws.

An Ordinance of April 17, 1782, provided that during epidemics among the peasantry the cost of medical attendance and drugs was to be defrayed at public expense, and a Rescript of July 2, 1790, ordained that all cases of venereal disease (syphilis) were to be notified to the authorities and that "every one of the common people" suffering from this disease must undergo treatment, which he had the right to receive free of charge—a principle that has been preserved in our modern legislation, though nowadays the law applies to all and not merely the "common people." Our first quarantine law was given in the Ordinance of Feb. 18, 1805, and by the Ordinance of April 3, 1810, smallpox vaccination was introduced as a voluntary and free measure.

For the promotion of the treatment of disease it was laid down in a Royal Resolution of June 6, 1806, that a certain number of hospitals were to be erected in every county, primarily for venereal disease cases but also for those who were unable to get the necessary attendance in their homes. The cost of these hospitals was to be borne by counties and boroughs, as is the case to-day.

As a consequence of the experience gained during a cholera epidemic in 1853 an Act of Jan. 12, 1858, was passed by which all Danish towns were to have by-laws regulating public hygiene (sewerage, drinking water, dwellings, foodstuffs). Earlier legislation had provided only for Government measures, supervised and put into practice by the publicly employed medical officers; but the Health By-law Act meant that the local authorities acquired rights and obligations to concern themselves with important aspects of public health, a line still followed in Denmark's public health system to-day.

A characteristic feature of the close of last century was the interest taken in the care of the sick; and to make the necessary nursing and treatment at home or in a hospital available for everyone in the event of sickness our first Sick Club Act (1892) provided that sick club members were to receive medical attendance and hospital treatment free of charge, or at only very slight personal expense. These principles hold good in our health insurance to this day. The new developments engen-

dered the building of many new hospitals all over the country and the modernization of the old ones. Surgeons were appointed as principals to the hospitals, and the law compelled hospitals to allow the sick clubs a considerable reduction of the charge for treating members, the balance of the expense being defrayed by counties and boroughs.

In 1900 Denmark's first tuberculosis sanatorium was opened by the General Danish Medical Association, and 1901 saw the foundation of the National Society for the Combating of Tuberculosis as a private association. In 1905 Parliament legislated to provide Government support in the campaign against tuberculosis, including help to local authorities and private persons wishing to build and run hospitals and sanatoria.

### Public Health Reform

The rapid growth of the country's public health system made it increasingly necessary that the affairs of the health authorities and the medical personnel should be regulated by law. The Collegium was instructed to devise a medical system to replace the arrangement created by the famous Thomas Bartholin in 1672 to cover the work of the doctors, the apothecaries, and the midwives. However, it fell to the lot of neither the Collegium Medicum nor its successor, the Royal College of Health, to cope with that task. It was only as a result of the work of the Medical Commission, appointed in 1908, that it was possible to introduce a new statutory organization of these matters.

If the two colleges were unsuccessful in creating a new medical system it was due to no lack of initiative or brains on their part; nor was there a dearth of suggestions from the profession itself. Throughout its almost centenary existence the Royal College of Health took up the cudgels again and again, only to fail because of its lack of influence. It was only with the acceptance of parliamentary government in 1901 that the proper basis was established. The awakened interest of the politicians of the new system in working for social aims led to the appointment of a mixed commission, consisting of professional men (physicians) and Members of Parliament from all parties as representing the interests of the people. It was not difficult to convince that body that reform was not a matter of bowing to theoretical "medical demands" but of creating the best possible organization of the public health system in all its ramifications. A flourishing period for public health followed. The ancient laws on venereal diseases, on quarantine, and on fighting epidemics were revised. The activities of medical officers, midwives, and dental surgeons were regulated by law. The hospital system grew apace.

After 1932 the development in our hospital system began which has now reached such a stage that every county—apart from those with several hospitals of moderate size, all modern and directed by fully qualified surgeons—has at least one central hospital, with separate medical, surgical, and x-ray departments, some of them also with departments for other special branches. In 1933 came the Authorized Trained Nurses Act, and in 1934 Parliament passed a Physicians Act, the first since the old Ordinance of 1672 on Physicians and Apothecaries. In 1928 the building of tuberculosis dispensaries was started, and to-day they cover even the most remote parts of the country. By examining and controlling consumptives, school-children, workers in various trades, soldiers, etc., they contribute importantly towards protecting the healthy from tuberculosis.

With this a new phase in the history of Danish public health was initiated, a phase characterized by systematic work on a

legal basis, administered by State and local authorities in collaboration, for the purpose of preserving the health of the healthy. By the Infant Mortality Act of 1937 the State promises financial support to local authorities if they will employ public health nurses who, by visiting all homes within their area, well-to-do or poor, can advise mothers on the care of their babies. The number of local bodies employing public health nurses is growing steadily. During the second world war the country was menaced by a malignant form of diphtheria. A law was passed entitling every person up to the age of 18 to be vaccinated against this disease by a doctor free of charge. The Government paid the doctors for the operation.

Much legislation prepared during hostilities has been enacted since the war. Under the Pregnancy Hygiene Act of 1945 every pregnant woman has the right to three antenatal examinations by a doctor and up to seven by a midwife. The State bears the cost. An Act of April 30, 1946, provides that children of pre-school age (0-7) have the right, free of charge, to have up to nine supervisory examinations by a doctor, three of them in the first year of life. The cost is defrayed by State and local authority, each paying half. By an Act of July 12, 1946, every school—State, local council, or private—must supervise the health of its pupils through a school doctor and arrange regular health examinations. State and local authority bear the cost.

#### Place of General Practitioners

The principle introduced by these laws, as in diphtheria vaccination during the war, is that this new and important work is placed in the hands of the general practitioners, the people's usual physicians. The school doctors are chosen and appointed from among the local practitioners. This arrangement, which arose out of the important position held by Danish general practitioners, their high average standard and their intimate association with the people, opens up the question of the rational education of practising doctors with special reference to health control work. The settlement of this question is at present occupying the attention of the General Danish Medical Association and others.

One of the first results of the recommendations made by the medical commission was the creation in 1909 by Parliament of a central body, the National Health Service, which not only acted in an advisory capacity to the country's authorities but, by virtue of its structure and position within the administration, had every chance of initiating reforms in the country's public health services. A revision of the Act in 1932 ensured that the position of the National Health Service was adapted to the latest public health developments.

#### National Health Service

The activities of the National Health Service are threefold: advisory, supervisory, and administrative. The medico-legal work of the old colleges has been transferred to a special Medico-legal Council, which is independent of the National Health Service. The Service is chief adviser to the public—first and foremost to the central administration (the Ministries), which must hear the opinion of the N.H.S. in all matters requiring the expert insight of a medical man or a chemist—and also to other administrative authorities such as county and municipal councils. It must preserve close contact with health conditions in the country and see that health laws are observed: regulations are being neglected the responsible authorities are informed. The National Health Service must also submit suggestions for the improvement of public health whenever it considers them necessary. It should be mentioned in this connexion that it is one of its duties to inform and guide the people by means of publications and lectures on special health measures or special risks of disease.

The National Health Service is the chief supervisor of all hospitals, public or private, all nursing homes, children's homes, and homes for the aged; of all prisons and work-houses; and of all premises which, having regard to their nature and the purpose to which they are put, are subject to special health regulations. The head of the Service, or his deputy, therefore has access at all times to these premises. When hospitals or the other institutions referred to are to be erected or radically altered, the plans must be submitted to the Health

Service authorities for their opinion. Chemists' shops or drug stores are licensed, and the National Health Service draws up rules for their working, sanctions their premises, fixes the prices to be charged for the medicines sold there, and inspects and supervises them all.

All physicians, dentists, midwives, nurses, masseurs, and the like are under the National Health Service as regards their office and professional duties, and it can order them to send in such notifications and reports as may be required. The same applies to all proprietors of drug stores and to their assistants.

The National Health Service authorizes physicians and dentists to practise. As regards the former, the condition is that they take the medical degree at a Danish university and put in a year's service as assistant at a hospital approved by the Health Service for the purpose. For dentists the condition is the examination set by the Copenhagen School of Dentistry and two years' service with a qualified dentist.

No physician may call himself a specialist or practise as such unless he has gone through special training and thereafter received authorization from the National Health Service as a specialist. Midwives are authorized by the School of Midwives in Copenhagen. No one may practise as a physician, dentist, or midwife without authority. Nursing is not restricted to specially trained nurses, but nurses who have done three years' training at a hospital approved by the National Health Service as a training hospital are authorized as trained nurses and only such nurses are employed in public health posts.

Administratively the National Health Service comes under the Ministry for Home Affairs, which is responsible for its annual estimate. This, however, does not affect it in its aforesaid capacity of chief adviser on health questions to the various Government departments, with which it corresponds and communicates directly.

#### Director of the Service

The Director of the National Health Service, who is appointed by the Crown, must be a physician. The Service consists of two departments and a secretariat. The Hygiene-Medical Department employs a number of physicians with special training as advisers, and also a general practitioner and a dentist. The advisers with special professional knowledge as well as the practising physician and dentist are selected from among the leading specialists in their own particular sphere. They all perform this advisory work while continuing their actual duties as professors, chief physicians at hospitals, private practitioners, whereby they represent a constantly free connexion between the National Health Service, medical research, and practical medicine.

The Director is responsible for handling matters dealt with by the Hygiene-Medical Department and obtaining the necessary expert advice. This, however, does not include matters respecting recommendations to administrative hospital authorities on appointments to leading medical positions in the hospitals or the filling of other vacancies in the public service. Such matters are dealt with by the National Health Service Medical Council, which consists of the aforementioned advisers and the Director, with the latter as chairman. Nor does his responsibility extend to matters concerned with depriving physicians, dentists, midwives, etc., of the right to practise; such matters are decided by a special council consisting of the Director, the practitioner attached to the Service as adviser (physician, dentist, or midwife as the case may be), and at least one member of the Medical Council.

The Director is chairman of the Board of Housing Inspection, of the National Health Service Food Committee, and of the Medical Veterinary Committee, which forms a connecting link with the Directorate of Veterinary Affairs.

#### Laboratories in the Service

In the Pharmacy Department a pharmacist is chief and he is assisted by a graduated pharmacist working at a chemist's shop. Matters in this department are decided not on the responsibility of the Director alone but by him in conjunction with the two pharmaceutically trained officials. In this department there are three specially qualified pharmacists who, together with the county medical officers, make an annual visit of inspection

to the chemists' shops, and analyse in the Control Laboratory of the National Health Service medical and other samples taken on their rounds. The Control Laboratory also has an analyst for testing proprietary medicines sold in the country.

Under the National Health Service, but working independently, there is a special committee consisting of medical and pharmaceutical experts whose task it is to draw up and revise the *Pharmacopoeia Danica* and to make recommendations to the National Health Service concerning proprietary medicines. In addition to the pharmaceutical control laboratory the following institutions and laboratories are associated with the National Health Service: (1) The State Serum Institute, a large institution doing both practical and purely scientific work. It manufactures sera and vaccines and is also the central epidemiological research laboratory for the entire country. It undertakes many other diagnostic investigations, among which are various blood tests for syphilis and the more special bacteriological tuberculosis tests. (2) The Institute of General Hygiene Research, which also draws up diet regulations for hospitals and other public institutions. (3) The State Vitamin Laboratory, which analyses foods advertised for their vitamin content as well as therapeutic vitamin preparations.

The medical officers of health are directly under the N.H.S. In every county there are a county medical officer and two or three district medical officers. To become an M.O.H. a doctor must go through a special course of training and pass an examination in public health. Medical officers represent the N.H.S. *vis-à-vis* the local authorities, and within his district each one is engaged on advisory, supervisory, and administrative work similar to that of the N.H.S. The local authorities must consult the M.O.H. on all matters requiring medical insight. He takes an active part in the fighting of epidemic and venereal diseases and tuberculosis. One of his duties is to collect the medical statistical material. As a member of the local Epidemic and Health Committees (see below) he shares in decisions on many questions of hygiene dealt with by these committees.

### Local Ownership of Hospitals

The administration of public health in Denmark rests almost exclusively on central and local authorities, who also bear most of the expense incurred. Only a few hospitals are owned and run by private societies and religious bodies. The local councils elect health committees. The M.O.H. is a member, and their object is to see that the health by-laws are observed and keep an eye on sanitation within their area (drinking water, sewerage, foodstuffs, dwellings, cemeteries, etc.). An epidemic committee takes the local action against epidemic diseases delegated to it by the Epidemic Act. The local authorities direct the campaign against venereal diseases. Tuberculosis dispensaries and hospitals are built and conducted by them, though the State bears half the running expenses.

The hospitals are mainly run by the local councils, and all are erected and owned by the local authorities—as was decided by Royal Resolution as long ago as 1806, and there is no doubt that a factor of great importance to the development of the Danish hospital system is that the local population have always been the owners of these institutions and through their elected representatives have influenced their building, rebuilding, and working.

The public health nurse service and the school doctor service are in the hands of the local bodies, but the State shares the cost. Most of the mental diseases hospitals and one or two hospitals and maternity homes come under the State. Occupational hygiene is in the hands of a Government directorate with specially appointed doctors.

Thus, whereas only a small part of the public health administration is directly in the hands of the central Government, the latter's various departments handle and decide many matters that are often of vital importance to public health and its future development. Practically every Ministerial department is concerned with matters relating to public health. It will be sufficient here to note our social legislation and the importance of the national sickness, accident, and invalidity insurance scheme. The N.H.S.'s central advisory position within the central administration, and its contact with all Ministries

whenever they deal with affairs of health, stand out as being particularly significant on this background.

It might seem as if decentralization so pronounced as that outlined above would make the health work in a country difficult. In actual fact, however, the results achieved in Denmark under this system are equal to the best in the world in the prevention of disease and the promotion of health. Everything indicates that the system suits the people's mentality, political system, and cultural status. There seems to be no obvious reason for departing from the line hitherto followed, harmonizing as it does with the fundamental characteristics of the people.

## ANNUAL REPRESENTATIVE MEETING, 1947

### FURTHER MOTIONS AND AMENDMENTS FROM DIVISIONS

#### PRELIMINARY

#### *Priority Supplies of Milk to Invalids*

**Motion by CITY:** That this meeting protests against the order of the Ministry of Food instructing local food offices to insist on the renewal of milk priority certificates with the issue of new ration books even where these certificates have been given just prior to the new issue. This order throws extra work on already overburdened doctors.

#### *Ex-Service Practitioners*

**Motion by BELFAST:** That, with reference to para. 10 of the Council's Report, this meeting requests the Council to make special representation on behalf of ex-Service doctors in Northern Ireland with a view to the establishment of a postgraduate scheme for ex-Service practitioners in that country, as under the Government Act of 1920 the Northern Ireland Government is precluded from making grants specifically for the training of ex-Service graduates.

#### NATIONAL HEALTH SERVICE ACT

#### *Statutory Bodies under the Act*

**Motion by CITY:** That this meeting demands that general practitioner representation must be assured on the various statutory committees and councils set up under the Act, with particular reference to Regional Hospital Boards, Hospital Management Committees, and the Health Committees of Local Health Authorities.

**Motion by CLEVELAND:** That this meeting views with alarm the situation that has arisen over the appointments to the Regional Hospital Boards, where nominations put forward—at the request of the Minister—and elected by regular ballot, have not been accepted.

**Motion by WEST SUFFOLK:** That the Council be instructed to press for adequate representation of the medical profession on Regional Hospital Boards.

#### *Report of Negotiating Committee*

**Motion by BRONLEY:** That this meeting is profoundly disturbed at the secrecy which surrounds the negotiations at present in progress, and requests early information on the position up to date.

#### *Whole-time Medical Officers employed by Central, Regional, or Local Authorities*

**Motion by HENDON:** That the Ministry of Health be informed that the Representative Body is of the opinion that all whole-time medical officers employed by the central, regional, or local authorities should have a right of appeal to a suitably appointed committee when an appointment has been determined on grounds that reflect adversely on a practitioner's professional reputation or procedure.

#### *Group Practice*

**Motion by CITY:** That the inclusion of women and children in a 24-hour service will throw a heavy strain on doctors under the Act. This meeting therefore recommends that grouping of doctors be encouraged in the interests of general practitioners and their patients.

#### GENERAL PRACTICE

#### *Fees for Medical Examination in connexion with Life Insurance*

**Amendment by CLEVELAND:** That for the words in lines 14-16, "where he is required to carry out a domiciliary examination an additional fee of 5s. should be paid," there be substituted "where

he is required to carry out domiciliary examination an additional fee of one guinea should be paid."

#### Telephone Facilities for Doctors

Motion by WEST SUFFOLK: That, with reference to para. 23 of Council's Report, the Postmaster-General be requested to resume the telephone message service as soon as possible.

#### Surgical Corsets

Amendment by BELFAST: That, with reference to para. 31 of Council's Report, this meeting is of opinion that medical certification for surgical corsets should be completely abolished.

#### Allowances to Medical Witnesses in Civil Cases

Motion by HENDON: That, while noting the recommendations of the Departmental Committee on the up-grading of allowances payable to medical witnesses appearing in criminal cases (upon the adequacy of which comment is withheld temporarily), the Representative Body is firmly of opinion that any new scale of fees officially prepared for the guidance of Taxing Masters in assessing the sums payable to medical witnesses in civil cases should be fixed at a rate higher than that recommended as suitable for similar witnesses in criminal cases.

#### Fees payable to Examining Surgeons under the Factories Act

Amendment by WEST SUFFOLK: That the fees payable to certifying surgeons under the Factories Act are inadequate even with the present increase.

#### Examination of Candidates for Civil Service

Motion by BELFAST: That where in an examination of a candidate for the Civil Service the fee is paid by the patient, the patient should be entitled to a copy of the examiner's report.

### HOSPITALS

#### Shortage of Nurses

Motion by CITY: That this meeting is alarmed at the continued closure of wards and beds in hospitals and sanatoria through inadequate nursing and domestic staff. It calls on the Government to speed up all measures for attracting and retaining new entrants to the hospital service as a matter of extreme urgency, particularly by improved conditions of service and remuneration and simplification of the nursing curriculum.

Motion by BROMLEY: That this meeting is seriously worried by the shortage of nurses and domestic staff, which is interfering with the present hospital services, and which would prevent extension of these services; and proposes that the matter should be given urgent consideration by a special *ad hoc* committee with a view to making recommendations to the Council.

### MEDICAL ETHICS

#### Family Planning Association

Motion by HENDON: That the Representative Body is of the opinion that official recognition should not be accorded to the Family Planning Association by the appointment of B.M.A. representatives to their various committees.

### ORGANIZATION

#### Expenses of Members attending Meetings

Motion by MERIONETHSHIRE AND MONTGOMERYSHIRE: That legitimate out-of-pocket expenses be paid to representatives from central funds where such attendance at Representative Meetings necessitates staying a night or more away from home.

#### Grants to Divisions

Motion by WINCHESTER: That in the opinion of this meeting the grants received from Branch Councils for Divisional expenditure are inadequate, have been inadequate for a number of years, and are more so now in view of the increased cost of living. This meeting considers that grants should be increased to at least 10s. per head per annum.

### PUBLIC RELATIONS

Motion by DOVER AND FOLKESTONE: That in view of the adverse publicity being given to the medical profession in the lay press this meeting is dismayed at absence of counter propaganda from B.M.A. headquarters.

#### OTHER MOTIONS OF DIVISIONS

Motion by BROMLEY: That this meeting, having studied the proceedings of Council, congratulates them on so extensive a report, representing so much constructive work.

## GENERAL PRACTITIONER OBSTETRICIANS

A circular issued from the Ministry of Health to local authorities on July 10 reviews various services to be provided under the National Health Service Act. On the appointed day the maternity hospitals and homes now maintained by many welfare authorities will be transferred to the Minister; specialist services will be made available by the regional hospital boards and the services of a family doctor will be available to every expectant or nursing mother, as well as to every child. The Minister proposes that certain medical practitioners in each district shall be selected to practise midwifery; they will be called general practitioner obstetricians. The circular refers to these practitioners in the following words:

Subject to Regulations which have yet to be made, it is contemplated that every general practitioner will be given an opportunity to say whether or not he desires to practise midwifery under the general medical services of Part IV of the Act, and to answer calls by midwives for medical aid. The experience of the practitioners who desire to do so will be reviewed by a local *ad hoc* committee of a wholly professional character (consisting of local general practitioners, a consultant obstetrician, and the local health authority's medical officer of health) in each local health authority's area. This local committee will draw up a list of approved local practitioners and will be entitled to indicate to those who are not accepted for such a list the need for further obstetrical experience. The list would, of course, need to be reviewed from time to time with such objects as ensuring that the doctors on it are continuing to undertake enough midwifery to remain competent in practice, and adding the names of future entrants to the profession as they acquire the necessary experience. The duty of a family doctor, when consulted by a woman who is pregnant, will be to see that she knows how to obtain the services of a midwife and, if he himself is not on the local approved list, to help the woman to choose a "general practitioner obstetrician" from the approved list who will give her the necessary antenatal and post-natal care and will be present, if he thinks it necessary, or is called in by the midwife, at the confinement. An inclusive fee for general practitioner obstetricians, which will be additional to that payable for other general medical services under Part IV of the Act, will be centrally negotiated with the profession. The general practitioner obstetricians, together with the selected officers of the local health authority (see paragraph 14 (a) below), the midwives and a consultant obstetrician, will form composite obstetrical teams in each local health authority's area. In the course of time the general practitioner obstetricians will no doubt provide the bulk, if not the whole, of the medical staff for the local health authority's antenatal clinics, at which consultative clinics will also be held by the specialist obstetricians.

The Minister later points out in this circular that the Act empowers him to prescribe conditions as to the qualifications of the medical practitioners whose aid may be sought by midwives. Since he will use this power in relation to the general practitioner obstetricians, local authorities should not include any conditions about qualifications in their proposals.

## PETROL RATIONING PERIODS

The Ministry of Fuel and Power has decided to extend from four months to six months the rationing periods for supplementary allowances of petrol for private cars and certain other vehicles. For medical practitioners the next rationing period will cover the six months from Oct. 1, 1947, to March 31, 1948. This will be made clear in a printed letter which will accompany the issue of coupons in September. The change has been made for the convenience of business and professional car users and to secure staff savings in the regional petroleum offices. It does not mean that in future a four months' allowance will have to last for six months.

The Minister of Health is enlisting the aid of insurance committees in carrying out preparatory work on behalf of the executive councils which, under the N.H.S. Act, will organize the local family-doctor services. Insurance committees are co-operating by checking and bringing up to date their records of insured persons. The executive councils will need two registers—a nominal register of persons who have been accepted by doctors, and a medical register. The existing records of the insurance committees, reorganized in alphabetical order, will form the nucleus of the new registers.



## HEARD AT HEADQUARTERS

### A Word in Season

A ripple appeared on the surface of the Oxford Ophthalmological Congress when the smooth course of its scientific discussions was interrupted by a paper entitled "Making Perimetry Pay." The author was inclined to apologize for the use of the word "pay," and to interpret it as meaning rewarding in the scientific or clinical sense. His argument was that there was too great a tendency for field-taking in ophthalmology to be relegated to the junior or to the nurse or perhaps to the hospital porter, and that it was worth while for the senior man in the clinic to get off his perch and take the field himself. But one subsequent speaker insisted on the commercial aspect. He was delighted that Oxford should have allowed the word "pay" to come into prominence. "It shows we are coming on. We have got to make ophthalmology pay if we are to provide a good service."

### Motions at the A.R.M.

The agenda of the Annual Representative Meeting contains 159 motions and amendments. Nevertheless, it is hoped not to prolong the meeting beyond two days and a half. One feature which will strike those accustomed to the proceedings of the A.R.M. is that there is only one motion which does not relate to the Annual Report of Council. Generally there have been a score or so of such "Other motions from Divisions and Branches," which have often occupied a whole morning. The single motion on this occasion is one from Bromley congratulating the Council on its extensive report, representing so much constructive work. It has been decided to recommend that there is to be no curtailment of speeches beyond the time limits laid down in standing orders—15 minutes for the mover of a resolution, 10 minutes for an amendment, and 5 minutes for other speakers—a generous allowance in comparison with what obtains in other assemblies. But this time the duration of the speeches is to be recorded and will be reviewed in time for the next Annual Representative Meeting. Of course, it will still be possible for a representative to move at a later stage that in view of the state of business the time allowed to speakers be curtailed for the rest of the session.

### The Prescient Minister

Mr. Bevan, speaking at the Tuberculosis Conference, seemed to hint that an amending Act was likely. After making his speech to the delegates he listened to criticisms from Wales and Scotland concerning arrangements for the tuberculosis service under the new Act, and then in a few words before he left for the House of Commons he said that a good deal of the misunderstanding which had been voiced was due to the fact that the present Act was simply a sketch, and that, for anything his critics knew, their objections had been anticipated already. "You may not have thought that the Minister of Health was so prescient," he said, and he added *sotto voce* something about new legislation which was not properly caught even at the Press table just below him.

### The First Executive Council

What Lancashire thinks to-day . . . The first Executive Council to be formed in the country under the National Health Service Act, according to the mayor of Oldham, has been set up in that town, and in a manner which promises well. No difficulty was experienced in securing the professional side of the Council. The meeting to transform the old Insurance Committee into the Executive Council was held on June 13, when it was announced that the chairman of the Insurance Committee had been chosen by the Minister as chairman of the new body, a choice acceptable to all concerned. For the vice-chairmanship a doctor was elected—Dr. R. I. Poston, honorary secretary of the Oldham Medical and Panel Committee. A local alderman was also nominated for the position, but Dr. Poston was elected by a majority of about two to one. It will be remembered that according to the Act the Executive Council which each local health authority is required to set up must consist, in addition to the chairman, of 24 members, of whom seven are appointed by the Local Medical Committee.

It is gratifying to find in this cotton city the amicable tradition of the Insurance Committee continued, and also a doctor in the vice-chair.

### The Voluntary Principle

Sir Wilson Jameson, Chief Medical Officer to the Ministry of Health, must have blushed when, occupying the chair at the International Conference on Maternity and Child Welfare, he heard himself described by a lady speaker as "the architect of the new Health Service whose wand will awaken the Sleeping Beauty and whose rod will ward off Caliban." Evidently the tools of an architect are more varied than we had thought. But when another lady councillor said, rather complacently, that the change-over from voluntary to State organization meant the replacement of the untrained worker by the trained, Sir Wilson Jameson spoke very emphatically (as his Minister had done earlier in the conference) on the value of voluntary organizations. He declared that voluntary organizations had to be given as prominent a place in the future as in the past, and it would be a sad day when voluntary work came to an end. Both voluntary and official organizations employ trained people to do technical work, and there is no question of any change in this respect. But the voluntary organization can do something which the official organization cannot do—it can take a chance.

### Government Hearing Aids

From letters received at Headquarters there seems to be a good deal of questioning about the scheme for distribution of hearing aids. It should be said at once that no approval of any scheme has been given by the British Medical Association. About two years ago a special committee was set up to advise the Medical Research Council on research into problems relating to the design and production of instruments for the alleviation of deafness. The purpose in view was to devise an instrument that could be produced at reasonable cost, and the Minister of Health has given an undertaking that arrangements will be made for facilities for the proper diagnosis of cases and the adjustment of the apparatus to the individual case. Obviously the important thing in this venture is not the mass production of 50,000 instruments but the individual adjustment and, moreover, instruction in use and maintenance.

## H.M. Forces Appointments

### ROYAL NAVY

Temporary Surgeon Lieutenants (R.N.V.R.) T. C. Barras, P. V. G. Dawson, and B. Marsden have been transferred to the Royal Navy.

### ARMY

Major-General W. C. Hargitt, C.B., O.B.E., M.C., K.H.S., late R.A.M.C., having completed four years in the rank, is retained on the Active List supernumerary.

Colonel (Temporary Major-General) W. E. Tyndall, C.B., C.B.E., M.C., late R.A.M.C., to be Major-General.

Colonels F. Harris, C.B.E., M.C., and J. J. Magner, M.C., late R.A.M.C., have been granted the acting rank of Major-General.

Colonel H. B. F. Dixon, M.C., late R.A.M.C., has retired on retired pay and has been granted the honorary rank of Brigadier.

Colonels K. P. Mackenzie, R. H. Alexander, M.C., and W. Campbell, late R.A.M.C., have retired on retired pay.

Colonel C. Scales, M.C., late R.A.M.C., having attained the age for retirement, is retained on the Active List supernumerary.

Lieutenant-Colonel (Local Brigadier) J. Bennet, from R.A.M.C., to be Colonel.

Lieutenant-Colonels R. H. C. Pryn and B. J. Daunt, O.B.E., from R.A.M.C., to be Colonels.

Major J. B. Hanafin, C.I.E., I.M.S., retired pay, has been restored to the rank of Lieutenant-Colonel on ceasing to be re-employed.

### ROYAL ARMY MEDICAL CORPS

Lieutenant-Colonels D. F. Panton, C.B.E., and D. W. M. MacKenzie, having attained the age for retirement, are retained on the Active List supernumerary.

Lieutenant-Colonel W. H. Cornelius has reverted to retired pay on ceasing to be employed.

Lieutenant-Colonel T. F. M. Woods, O.B.E., has been seconded under the Ministry of Food. (Substituted for the notification in a *Supplement to the London Gazette* dated Feb. 25.)

Majors (War Substantive Lieutenant-Colonels) R. Johnston, J. C. Barnesen, O.B.E., J. B. Macfarlane, H. J. R. Thorne, D.S.O., and B. Blewitt to be Lieutenant-Colonels.

War Substantive Major G. L. Ritchie has been seconded under the Ministry of Food.

War Substantive Major R. G. Boyd, M.C., has retired on account of disability and has been granted the honorary rank of Lieutenant-Colonel.



LONDON SATURDAY JULY 26 1947

## MEDICINE IN THE POST-WAR WORLD\*

BY

Sir HUGH LETT, Bt., K.C.V.O., C.B.E., F.R.C.S.

It is not usual for the President to review the work of the Association when he gives his Address at the Annual Meeting, but so much has happened during the last twelve months that it is perhaps well to recall some of the principal events, if only to remind ourselves—and others—of the immense amount of work that is done by the Association and the wide field it covers.

### The B.M.A. and National Health Service

The National Health Service Act has, of course, overshadowed everything else. Its far-reaching clauses have called for the most careful scrutiny and the Act has placed a heavy responsibility on the Council, for the Association now has over 55,000 members, including 75% of those actively engaged in practice in Great Britain and Northern Ireland. I need not say how essential it is that every member of the profession should be fully informed of all that the Act implies, that he should study its various clauses in the light of his special knowledge as a medical practitioner and consider how they will ultimately affect the care of the sick and the interests of the patients and how they will influence medical practice.

In some quarters there are misunderstanding and misrepresentation of the attitude of the B.M.A. and the medical profession. It is said that from a narrow self-centred interest the Association is opposing the Act as a whole, and, indeed, that it is prepared to obstruct any attempt to improve the medical services of the country. In actual fact the Association has been responsible for much progress in many directions to the great advantage of the health of the people, and for the last twenty-five years it has repeatedly urged that there should be a reorganization of the medical services. In 1941, with the co-operation of the Royal Colleges, the Scottish Corporations, and other bodies, it set up the Medical Planning Commission to consider and make recommendations for a national health service. In due course the Commission published an interim report, and this had its influence on the development of the present Act. But there are clauses in the Act which many doctors feel that they cannot accept, for while they are looking forward to a co-ordinated national health service, which is so much needed, they are most anxious that it shall be one that will give the greatest possible help to the community, one that will preserve the best traditions of the profession in their treatment of the sick, and one that will allow doctors to work under conditions which will enable them to give of their best. Above all, nothing must be allowed to interfere with the trust of the patient in his doctor and the belief that he is his doctor's first con-

sideration, for this trust and belief mean much to the patient and play an important part in successful treatment.

### Co-operation within the Profession

Unity within the profession is perhaps our greatest need to-day and we have been trying to meet this need by strengthening our organization. We are fortunate in our admirable secretariat led by Dr. Charles Hill, and the new arrangement is working well by which the Assistant Secretaries make periodic visits to different parts of the country, helping to keep the profession in touch with what is going on in London at the centre, and—equally important—conveying back to Headquarters the views, criticisms, and suggestions from our members in the Divisions.

Anything that makes for wider co-operation and unity is important, because it is only on the basis of such unity that we can move on to fruitful work in other fields. The Association has been exploring means whereby medicine throughout the Commonwealth and Empire can be advanced and can play its part in strengthening those bonds which mean so much to us all and which in years to come may prove a pattern to the whole world. We have long been anxious that our relations with our colleagues overseas should be developed and become still closer, and we know that this feeling is shared by them. To this end we believe that greater opportunities should be provided for personal contact so that views can be exchanged and difficulties discussed by word of mouth. In no other way can we have a complete understanding of each other's problems, nor can anything do more to strengthen our relations than the development of personal friendships. The Council has therefore decided to recommend that the affiliated and daughter Associations in the Commonwealths should be invited to co-operate in establishing a British Commonwealth Medical Council. Each would appoint its own direct representatives, and it is suggested that the meetings should be held in the principal centres overseas as well as in London.

The objects of this Council would be:

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To advance the status of British medicine.

To stimulate discussions and exchange of advice on matters of common interest.

To promote an interchange of professional facilities.

It is also proposed to establish an Empire Medical Advisory Bureau at B.M.A. House for giving advice and help to those who come here from the Commonwealths and the Colonies for postgraduate or under-

\* The Presidential Address delivered to the Annual General Meeting of the Association on July 23.

*Short Service Commissions, Specialists.*—War Substantive Major R. P. Boyd, from Emergency Commission, to be Captain; War Substantive Captain B. Bevan, from Emergency Commission, to be Captain.

*Short Service Commissions.*—War Substantive Captains F. J. B. Douglas and A. H. L. Wilson, from Emergency Commissions, to be Captains. Lieutenants R. W. Campbell and J. Prentice, from Emergency Commissions, to be Lieutenants. The notification regarding R. Saffley in a *Supplement to the London Gazette* dated May 13 is cancelled.

## LAND FORCES: EMERGENCY COMMISSIONS

### ROYAL ARMY MEDICAL CORPS

War Substantive Captains R. P. Baird and A. D. Cuthbert have relinquished their commissions and have been granted the honorary rank of Captain.

War Substantive Captains L. G. Kiloh, R. B. Coles, R. J. Jameson, and M. J. Morton have relinquished their commissions on account of disability and have been granted the honorary rank of Captain.

Lieutenant C. L. Dubberley has relinquished his commission on account of disability and has been granted the honorary rank of Lieutenant.

*Short Service Commission, Specialist.*—Lieutenant R. Saffley to be Lieutenant.

To be Lieutenants: F. G. Badger, H. L. Binnie, W. Brodie, J. Carswell, D. A. Chadwick, I. W. Clark, B. S. Cooper, P. W. Darby, A. Deuchars, T. Dungavel, R. M. Duncan, M. P. Durham, G. H. Field, K. D. Foggitt, R. B. Forbes, W. Garrett, A. Goldberg, E. G. Green, A. W. I. Hall, T. Hart, M. M. Herbert, P. Holliday, J. J. Hopkinson, A. W. J. Houghton, R. Houston, J. M. Hughes, K. Hugh-Jones, R. McG. Inglis, G. Jarratt, D. H. Johnson, P. D. Kelsall, S. S. Lawton, J. D. L. Jones, A. McClelland, E. Macdonagh, F. McKerracher, J. Maclean, J. K. McMyn, J. R. Milne, F. R. D. Minett, R. R. W. Mirrey, F. S. Mooney, N. A. Oppenheim, O. E. Owen, M. D. M. Reilly, D. A. Richmond, H. A. Scott, J. S. Scott, J. A. Stoll, J. S. Swallow, A. H. Swithinbank, M. Symons, W. D. G. Tellam, C. G. Teverson, J. H. M. Thomas, H. J. Voss, R. W. E. Watts, T. Wilson, B. A. Woodger, K. D. Woolas, J. T. Wright, D. Yuille, D. M. C. Ainscow, W. G. L. Allan, J. G. Bearn, G. H. F. Beith, W. L. Blackett, W. J. O. Box, D. K. Briggs, J. A. W. Brown, D. M. Caird, H. MacD. Cameron, M. G. Cox, D. M. Davies, W. H. Davies, D. J. Dennison, D. Dexter, A. W. Downie, H. Droller, D. Duncan, J. C. Duggan, M. R. Fell, H. Fishbone, A. D. B. Fotheringham, K. H. Fraser, J. B. Frost, A. Gillis, C. E. T. Gordon, D. Hamilton, J. Harding-Cox, C. A. Haxton, R. B. Hendry, R. W. L. Hurt, J. S. Inkster, C. M. Jockel, K. S. Jones, W. de M. Kellock, J. W. Laws, E. T. Lay, J. Leary, R. E. D. Leigh, W. D. Linsell, D. M. O. Lowry, P. M. F. McGarry, W. J. M. Mackenzie, I. K. R. McMillan, R. H. McVean, T. C. H. Matthews, J. J. Medalia, P. H. Merlin, G. D. N. Milne, R. G. Milne, W. Oldham, R. E. O'Neal, J. R. Page, T. J. S. Patterson, B. W. Perlow, R. W. Povey, J. Price, M. Redfern, N. C. Rees, J. W. A. Rodgers, G. E. Stein, C. C. D. Shute, C. E. D. Taylor, A. K. Thomas, R. H. Thomlinson, W. P. Thomson, and C. D. Davoine.

### ROYAL AIR FORCE

Air Commodore K. Biggs, C.B.E., M.C., has retired and is re-employed.

Group Captain P. A. Hall has retired and is re-employed. Wing Commander C. R. Palfreyman has retired at his own request, retaining the rank of Group Captain.

Squadron-Leader (Temporary Wing Commander) H. L. Willcox to be Wing Commander.

To be Squadron-Leaders: E. A. Rice, C. G. Burgess, E. H. Lamb, R. Maycock, S. Paul, F. V. MacLaine, R. C. O'Grady, J. H. Lewis.

To be Flight-Lieutenants: D. Crichton, M.B.E., W. G. Alexander, J. M. Ferguson, D. Stevenson, M.B.E., W. L. Price, E. C. B. Bramwell, J. M. Urquhart, J. K. F. Mason, H. C. Thomas, W. C. Baird, P. S. Krusin, W. O. Davies, T. N. N. Brennan, and S. E. Cupples.

J. N. C. Cooke to be Flying Officer.

### AUXILIARY AIR FORCE

To be Flight-Lieutenants: F. R. C. Manning, W. D. Coltart, J. H. Pool, A. Skene, M.B.E., T. F. Stewart, J. L. Coleman.

### ROYAL AIR FORCE VOLUNTEER RESERVE

To be Squadron-Leaders: M. Lentin, D. A. J. Ebrill, A. H. Galley, H. Kopelman, W. C. Lawrence, E. J. Radley-Smith, L. E. Jones, J. S. Lawrence, D. C. Devitt, J. E. G. Pearson, J. S. F. Sutton, W. C. Good, O. Janus, J. Rubin, R. H. Dale, R. A. Fleming, E. G. Hall, W. Tennent, B. J. Sanger, J. L. Reid, D. A. Sanford. Flight-Lieutenants (honorary) J. G. Lynch, R. J. Sims, and J. Tolson-Smith have relinquished their commissions on cessation of duty.

Flight-Lieutenants A. Skene, T. F. Stewart, and J. L. Coleman have relinquished their commissions on appointment to the reconstituted A.A.F., retaining the rank of Squadron-Leader.

Flight-Lieutenants D. G. Ismay and O. L. S. Scott have resigned their commissions retaining the rank of Squadron-Leader.

Flight-Lieutenant W. F. Buchanan has resigned his commission, retaining his rank.

Flight-Lieutenant F. R. C. Manning has relinquished his commission on appointment to the reconstituted A.A.F., retaining his rank.

Flight-Lieutenant G. Wilkinson has relinquished his commission on account of medical unfitness for Air Force service.

To be Flight-Lieutenants (Emergency): G. H. Bancroft-Livingstone and A. J. K. Gallagher.

Flying Officers T. W. G. Donohoe, T. D. Duke, I. S. Ferguson, D. F. Gibbs, L. Griffiths, J. Lawson, R. S. MacLachlan, I. D. W. Skempton, N. C. T. Watford, G. I. Clarke, R. W. Drew, B. R. Hillis, R. F. Jackson, I. H. Pratt, W. T. D. Ray, J. H. Robinson, M. G. Scott, A. A. Cohen, M. Evans, I. H. Foy, W. Hamilton, J. T. Hutchinson, D. Leigh, D. MacLeod, A. R. Makey, J. Rubin, P. H. Thomas, P. West, T. A. Evershed, J. J. Fleming, D. P. Greaves, B. A. J. C. Gregory, D. G. Jones, W. K. Jones, N. B. Malleon, S. H. Manners, J. H. Murphy, P. R. Ormrod, I. A. Porter, T. M. Roulston, W. M. Sandeman, G. H. Seale, D. W. S. Shelddon, D. L. Davies, R. T. D. Emond, P. Foster, J. Freedman, R. Just, G. M. McGillivray, I. H. Mercer, I. S. Mudie, L. Shuck, E. Silver, R. D. Simpson, C. J. W. Soutar, R. H. Stillman, J. B. Stirling, H. F. Sugden, H. D. Symon, J. M. Thomas, D. K. M. Toye, J. D. Willins, R. R. Wilson, J. R. Anderson, M. M. Andrew, G. M. Burns, A. Campbell, W. J. Jenkins, W. J. W. Sharrard, J. D. Abbott, E. M. Allen, J. A. Cameron, J. A. Chalmers, J. D. Chalmers, R. S. Crow, L. D. Davidson, P. S. Dearden, H. Debovitch, J. Edwards, T. Ellis, D. Emslie-Smith, D. I. Ferguson, A. G. C. Findlater, J. K. Fleming, J. A. Gavin, C. Gething, H. S. Heddl, W. N. Kingsbury, J. R. McPherson, J. B. Masefield, P. F. New, J. C. Reid, J. B. Russell, D. A. Sherman, T. J. Thomson, W. S. T. Thomson, N. D. Ashe, G. F. Bacon, G. L. Bickler, N. F. W. Brueton, J. G. Coxon, W. J. A. Dobson, L. G. Duff, J. Fraser, W. E. Hassan, J. F. Hudson, P. K. S. Joynton, C. H. Kinder, W. R. Lee, K. E. Melver, I. Mackenzie, R. W. P. Mellish, D. O'Keefe, A. S. Oxier, I. M. Perkins, A. P. Roberts, P. Seltzer, J. G. Shirreffs, H. Shooman, D. F. Street, W. C. Taylor, C. C. Vidot, R. V. Walley, L. P. Whittaker, R. A. Wilkinson, D. G. Wilson, D. Wimborne, J. Bart, J. S. Caldwell, K. D. Cochran, N. N. Davies, E. F. Ducat, R. F. Ewing, K. J. R. Ford, J. D. Galletly, G. E. Griffiths, F. Latham, P. S. London, R. C. McGregor, C. B. McKerrrow, J. McMillan, P. R. Montgomery, G. W. Morrison, J. A. B. Mounsey, W. D. Nicoll, A. C. F. Ogilvie, J. O. Robinson, P. F. Scott, P. H. S. Silver, D. L. C. Thomas, M. Tobias, J. C. L. Wade, R. W. Wilkinson, C. D. Wilson-Sharpe, and C. E. Phillip to be War Substantive Flight-Lieutenants.

Flying Officer M. A. Coleman has relinquished his commission on account of medical unfitness for Air Force service.

To be Flying Officers (Emergency): R. R. Davis, A. J. Fouracre, N. L. Gilburn, J. Hegarty, M. S. Hughes, G. A. S. Lloyd, W. Lyons, E. P. Mackenzie, J. Alterman, I. C. Geddes, G. C. Hunter, D. M. Leahy, E. C. Levine, P. M. Lynch, A. McDermott, P. N. Magee, J. S. Marshall, M. D. Warren, N. P. Watson, C. E. Williams, and R. W. Watson.

## WOMEN'S FORCES

### EMPLOYED WITH THE MEDICAL BRANCH OF THE R.A.F.

B. D. Wright to be War Substantive Flight-Lieutenant. Anne M. O'Riordan to be Flying Officer (Emergency).

### ARMY IN BURMA RESERVE OF OFFICERS

#### EMERGENCY COMMISSION

V. Natarajan to be Lieutenant.

### COLONIAL MEDICAL SERVICE

The following appointments have been announced: G. C. Cochrane, M.R.C.S., L.R.C.P., Medical Officer, Kenya; M. G. Corcos, M.R.C.S., L.R.C.P., Medical Officer, Leprosy Control Service, Nigeria; J. O. Creighton, M.R.C.S., L.R.C.P., Medical Officer, Nyasaland; D. C. Davidson, M.R.C.S., L.R.C.P., Medical Officer, Northern Rhodesia; D. J. B. Falconer, F.R.C.S., Lady Medical Officer, Nigeria; I. P. Mackenzie, M.B., Ch.B., D.P.H., Woman Medical Officer, Tanganyika Territory; B. M. Mcowan, M.B., B.S., Medical Officer, Malaya; E. M. Sawdon, M.B., Ch.B., Lady Medical Officer, Malaya; R. H. O. Bannerman, M.B., B.S., Medical Officer (African), Gold Coast; K. Brown, M.B., Lady Medical Officer, Northern Rhodesia; Z. Galis, M.D., District Medical Officer, Grenada, Windward Islands; F. A. E. Hamilton, M.R.C.S., L.R.C.P., Medical Officer, Grade "C," Trinidad; L. D. Healy, M.B., B.Ch., Medical Officer, Sierra Leone; J. Ross-Innes, M.D., Leprosy Specialist, East Africa; A. Relwicz, M.D., Medical Officer, British Guiana; J. M. K. Robertson, L.R.C.P.&S., Medical Officer, Gold Coast; N. C. Macleod, M.B., Ch.B., D.P.H., Deputy Director of Medical Services, Gold Coast.

## Association Notices

### Diary of Central Meetings

#### JULY

22. Tues. Council, 11 a.m.  
Annual Representative Meeting, 2 p.m.
23. Wed. Annual Representative Meeting, 10 a.m.  
Annual General Meeting, 12.30 p.m.
24. Thurs. Annual Representative Meeting, 10 a.m.

### Branch and Division Meetings to be Held

**SOUTH-EASTERN COUNTIES DIVISION.**—At Royal Hotel, Galashiels, Sunday, July 20, 2.30 p.m. Agenda: To determine method of election of Local Medical Committee under National Health Service Act, 1947, etc. All medical practitioners in the area of the Division are invited.

# BRITISH MEDICAL JOURNAL

LONDON SATURDAY JULY 26 1947

## MEDICINE IN THE POST-WAR WORLD\*

BY

Sir HUGH LETT, Bt., K.C.V.O., C.B.E., F.R.C.S.

It is not usual for the President to review the work of the Association when he gives his Address at the Annual Meeting, but so much has happened during the last twelve months that it is perhaps well to recall some of the principal events, if only to remind ourselves—and others—of the immense amount of work that is done by the Association and the wide field it covers.

### The B.M.A. and National Health Service

The National Health Service Act has, of course, overshadowed everything else. Its far-reaching clauses have called for the most careful scrutiny and the Act has placed a heavy responsibility on the Council, for the Association now has over 55,000 members, including 75% of those actively engaged in practice in Great Britain and Northern Ireland. I need not say how essential it is that every member of the profession should be fully informed of all that the Act implies, that he should study its various clauses in the light of his special knowledge as a medical practitioner and consider how they will ultimately affect the care of the sick and the interests of the patients and how they will influence medical practice.

In some quarters there are misunderstanding and misrepresentation of the attitude of the B.M.A. and the medical profession. It is said that from a narrow self-centred interest the Association is opposing the Act as a whole, and, indeed, that it is prepared to obstruct any attempt to improve the medical services of the country. In actual fact the Association has been responsible for much progress in many directions to the great advantage of the health of the people, and for the last twenty-five years it has repeatedly urged that there should be a reorganization of the medical services. In 1941, with the co-operation of the Royal Colleges, the Scottish Corporations, and other bodies, it set up the Medical Planning Commission to consider and make recommendations for a national health service. In due course the Commission published an interim report, and this had its influence on the development of the present Act. But there are clauses in the Act which many doctors feel that they cannot accept, for while they are looking forward to a co-ordinated national health service, which is so much needed, they are most anxious that it shall be one that will give the greatest possible help to the community, one that will preserve the best traditions of the profession in their treatment of the sick, and one that will allow doctors to work under conditions which will enable them to give of their best. Above all, nothing must be allowed to interfere with the trust of the patient in his doctor and the belief that he is his doctor's first con-

sideration, for this trust and belief mean much to the patient and play an important part in successful treatment.

### Co-operation within the Profession

Unity within the profession is perhaps our greatest need to-day and we have been trying to meet this need by strengthening our organization. We are fortunate in our admirable secretariat led by Dr. Charles Hill, and the new arrangement is working well by which the Assistant Secretaries make periodic visits to different parts of the country, helping to keep the profession in touch with what is going on in London at the centre, and—equally important—conveying back to Headquarters the views, criticisms, and suggestions from our members in the Divisions.

Anything that makes for wider co-operation and unity is important, because it is only on the basis of such unity that we can move on to fruitful work in other fields. The Association has been exploring means whereby medicine throughout the Commonwealth and Empire can be advanced and can play its part in strengthening those bonds which mean so much to us all and which in years to come may prove a pattern to the whole world. We have long been anxious that our relations with our colleagues overseas should be developed and become still closer, and we know that this feeling is shared by them. To this end we believe that greater opportunities should be provided for personal contact so that views can be exchanged and difficulties discussed by word of mouth. In no other way can we have a complete understanding of each other's problems, nor can anything do more to strengthen our relations than the development of personal friendships. The Council has therefore decided to recommend that the affiliated and daughter Associations in the Commonwealths should be invited to co-operate in establishing a British Commonwealth Medical Council. Each would appoint its own direct representatives, and it is suggested that the meetings should be held in the principal centres overseas as well as in London.

The objects of this Council would be:

To develop and maintain closer contact between practitioners in the United Kingdom and in the Dominions and between medical practitioners in the various Dominions.

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To stimulate discussions and exchange of advice on matters of common interest.

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It is also proposed to establish an Empire Medical Advisory Bureau at B.M.A. House for giving advice and help to those who come here from the Commonwealths and the Colonies for postgraduate or under-

\* The Presidential Address delivered to the Annual General Meeting of the Association on July 23.



graduate study, and I am glad to say that in this work we are already assured of the sympathetic co-operation of London House. The work of the Bureau will not be limited to giving advice on academic matters; it is hoped that it will also help socially in various ways, as, for example, by assisting men to find accommodation and putting them in touch with their British colleagues. Some of those who come to this great metropolis feel lost, rather bewildered, and not a little lonely, and one of the main objects in setting up this Bureau is to provide a centre where all who come from overseas to study medicine in this country will receive a warm welcome and be made to feel that they are at home and not visitors in a strange land.

### The World Medical Association

I have pursued this theme of professional co-operation, and of unity in co-operation, from our domestic matters at home to the wider field of work in our relations with the Commonwealth. There is still one further stage, and here too an advance has been made in the last year. I refer to the world-wide interests of medicine. Last September an International Medical Conference was held in London on the initiation of the British Medical Association, and as a result there was formed the World Medical Association, which will be holding its first annual meeting in Paris in September. It is expected that the delegates of at least thirty countries will be present at this inaugural conference. The objects set out in the provisional Articles and By-Laws of the W.M.A. are as follows:

(1) To provide closer ties among the national medical organizations and among the doctors of the world by personal contact and all other means available in order to assist all peoples of the world to attain the highest possible level of health.

(2) To study the professional problems which confront the medical profession in the different countries.

(3) To organize an exchange of information on matters of interest to the medical profession.

(4) To establish relations with, and to present the view of the medical profession to, the World Health Organization, other appropriate bodies.

It is thought that the formation of the World Medical Association is unnecessary and redundant in view of the existence of the World Health Organization, but the difference between these two bodies in composition and function should be clear. The World Health Organization is the organization of the Governments of the world; the World Medical Association will represent the medical associations of the world. In to-day's jargon the one will function as the Government "level," the other at the professional level. The W.H.O. cannot be fully effective unless it has the support of the medical profession, and concerted action on which will enable the profession to present its views to the W.H.O. is surely desirable. I would only add that the organizing committee of the W.M.A. has received cordial messages of approval and encouragement both from W.H.O. and from Unesco.

The W.M.A. has already taken steps in the pursuit of its second object, and has set on foot an inquiry into the trend of State policy in relation to medicine in different countries. The underlying question of this fact-finding inquiry is whether and to what extent State intervention in medical services has involved radical changes in professional conditions and methods of medical practice. We may hope that the W.M.A. by its ability to put forward to the different political authorities the experience of those actually engaged in the practice of medicine in so many countries will be able to exert a valuable influence on national medical policies.

### Association Activities

You will all have had the Annual Report of the Council, so I need not do more than refer very briefly to the many other activities of the Association. Valuable scientific reports making far-reaching recommendations have been published by the Association during the year—those, for example, on the care and treatment of the elderly and infirm, and on various problems touching psychiatry and the law. Again, the constantly developing field of medical education has not been neglected, as witness the work on films and on the curriculum. All these developments demonstrate the Association's interest in all that touches the advance of medicine. I would also refer to a committee that was recently appointed to make a full investigation into the form or forms health centres might take. Extensive inquiries are being made from doctors engaged in group practices, smaller partnerships, and single-handed practices in town and country, with a view to finding out the advantages and disadvantages and difficulties of each type. A large mass of information will be collected and the report should be very valuable. We hope that both it and the *Memorandum on the Care and Treatment of the Elderly and Infirm* will be of assistance to the Minister, the regional bodies, and local authorities, and prove useful guides in what must be important parts of the new Health Service.

A special word of praise is due to the Journal Committee and the Editor of the *British Medical Journal*; for, although the difficulties in connexion with paper and printing during the last year have been greater than at any time since 1939, they have not only maintained the high standard of the *B.M.J.* and provided for its steadily increasing circulation, but they have been able to embark on new ventures. The most important was the publication of the first numbers of *World Abstracts*—one volume devoted to medicine and another to surgery, obstetrics, and gynaecology. They cover the world literature and are a great undertaking. It is clear from the early numbers that they will prove of the utmost value to medical men throughout the world.

For many years the Association has undertaken the publication of quarterly journals on special branches of medicine and surgery, and during the last twelve months it has arranged to publish two more, thus bringing the total number to ten. It is to be congratulated on the important contributions it is making to medical literature and to the progress of medical science.

### Conclusion

In this brief sketch I have touched on only a few of the activities of the Association, but they are enough to show how wide its interests are and to give some indication of its value both to the country and to the profession.

The British Medical Association holds a unique position, for it represents the great majority of the practitioners in every branch of medicine, and in particular those who are engaged in general practice. In its constitution it is essentially democratic, and each practitioner through its Branches and Divisions, or by direct communication to the Council, can draw attention to his difficulties. The Council is the executive body, helped by numerous committees, but all questions of policy are decided by the Representative Body at its Annual Meeting of representatives of Branches and Divisions.

The steady increase in membership is very satisfactory and encouraging, but, great as our numbers are now, we hope they will be even larger; for we are at the beginning of an age that is bringing many changes, and the future is obscure. In the past many doctors have devoted them-

selves entirely to their practice and have given little thought to the organization of the profession. But the time has come when this isolation and inertia must give place to an active interest. The attempt by some local authorities to compel their medical officers (and nurses) to belong to a particular body, whether a trade union or not, is a threat to our freedom as individuals, and in it we see a warning of what is to come. We stand for professional and individual freedom: our membership is voluntary—we are proud of it, and intend that it shall remain so.

We are living in days when the individual is coming to count for little, and there is a danger that excessive concentration of power in the hands of the State may in time tend to reduce all voluntary associations to an ancillary if not a decorative function. Yet in most great nations, certainly in all the Anglo-Saxon communities, innumerable voluntary associations—professional, cultural, economic, spiritual—have been the pioneers of all humanitarian development, the “cutting edge” as it were of Progress. It is true that the present Government is anxious for voluntary effort to continue; but Ministers and officials come and go, and we must take thought for the future. For this reason we must be vigilant and do all that is possible to secure and maintain the unity of our profession. Vigilance alone is not enough—in union will lie our strength.

The difficulties that confront us are many and considerable, but with wise resolution and statesmanship the Association will emerge with even greater authority, and, in the forefront of all that concerns the national health, it will continue its pursuit of the aims laid down in its Memorandum of Association nearly three-quarters of a century ago: “To promote the medical and allied sciences and to maintain the honour and interests of the profession.”

## SURGICAL ASPECTS OF AMOEBIASIS

BY

P. THERON, F.R.C.S.Ed.

*From the Department of Surgery, University of Aberdeen*

During the recent war amoebic colitis was so prevalent that it constituted a major problem for the medical services. Of greater importance, however, was the disturbingly high relapse rate after treatment: Payne (1945) estimated that in India alone a 20% carrier rate existed among British troops. It seems likely, therefore, that the complications of amoebic dysentery will play an important part in post-war civilian practice. In the surgical sphere an infection of this type is apt to give rise to considerable difficulty in diagnosis, and may at the same time exert a great influence on the course and outcome of surgical ailments and, in particular, on the results of operative treatment. A discussion of some aspects of amoebiasis, based mainly on experience gained in the surgical wards of the King Edward VII Hospital, Durban, may therefore be of interest.

### General Influence on Operative Treatment

The mortality rate following operations on patients suffering from untreated and often undiagnosed amoebic infection is considerable. This is largely explained by: (a) The reduced resistance as a result of the chronic infection, with consequent increase in the number and severity of post-operative complications. A factor of importance is the frequent association of hypoproteinaemia with amoebic infection (Faust, 1930; Elsdon-Dew, 1946). The predisposition towards the development of post-operative complications

caused by this type of deficiency is too well known to require amplification. (b) The interference with wound-healing, with the occurrence in some cases of ulceration and sloughing of the skin of the abdominal wall. This complication is especially apt to occur after the establishment of a colostomy. (c) The tendency to “breakdown” at the suture line after operative intervention on the bowel. Consequently, procedures such as intestinal anastomosis, appendicectomy, etc., may be associated with the development of faecal fistulae and general peritonitis. (d) The development of acute amoebic dysentery during the immediate post-operative period—probably the result of handling of the bowel during operation. In most cases this is of little moment, provided that early treatment is instituted. On occasion, however, the condition may simulate bacillary dysentery in the severity of the diarrhoea, with a consequent adverse effect on the prognosis. It is of interest that this phase of acute diarrhoea may occur within forty-eight hours of operation on patients suffering from severe general peritonitis. This was a feature in two cases in which the development of paralytic ileus had appeared almost inevitable; stool examination revealed the presence of numerous free forms of *Entamoeba histolytica* with ingested erythrocytes. (e) During the post-operative period a mild hepatitis is not uncommon. Spontaneous remission is usual, but occasionally a progressive form is encountered. The following case report is illustrative.

A Zulu male aged 58 was admitted to hospital shortly after being stabbed in the left lumbar region. Laparotomy revealed partial severance of the renal pedicle, with laceration of the tail of the pancreas. Nephrectomy was followed by repair of the pancreatic lesion, with drainage of the site. The development of a pancreatic fistula caused a stormy convalescence, but by the twenty-first day the wounds had healed and the patient was allowed up. Four days later sudden relapse occurred, and rapid deterioration culminated in death. Post-mortem examination revealed the presence of a typical amoebic abscess, partly protruding from the lower surface of the liver and surrounded by numerous smaller areas of necrosis and liquefaction. It seems probable that the combination of operative trauma and the general reduction in resistance precipitated a rapidly progressive type of hepatitis.

Many of these post-operative complications are likely to occur in Britain during the post-war years. Failure to recognize the cause may be disastrous. Thus it would be good policy to view with suspicion every candidate for operation who has seen service in a tropical or subtropical zone, whether or not a history of dysentery is elicited; and, where possible, pre-operative investigation in the form of sigmoidoscopy and stool examination should be employed. After emergency operations a watchful eye should be kept for complications suggestive of amoebiasis, so that early and energetic treatment may be instituted if necessary.

### Abdominal Amoebiasis

#### Acute Hepatitis and Hepatic Abscess

In the classical case of acute hepatitis, in which the maximum intensity of pain is present in the lower costal, subcostal, or epigastric areas, the diagnosis is seldom difficult. However, the atypical form, simulating acute cholecystitis, perforation of peptic ulcer, acute appendicitis, or even renal colic may act as a surgical stumbling-block. During the early stages of a severe infection of this type pain, tenderness, and resistance may be so generalized as to suggest the onset of general peritonitis, while not infrequently the signs may be maximal in the right iliac fossa. Occasionally the presence of a “reflex ileus” in association with persistent vomiting, constipation, and distension provides a picture difficult to distinguish from that of acute intestinal obstruction. The immediate problem,

therefore, is the elimination of acute abdominal conditions requiring urgent operative treatment.

Although a history of amoebic dysentery may be lacking, the patient should be carefully questioned regarding overseas travel. Any previous contact with a tropical or sub-tropical zone should be viewed with suspicion in relation to possible exposure to infection. It is characteristic of this condition that the clinical picture may change completely over a period of one or two hours. It is advisable, therefore, to repeat the examination at frequent intervals until such time as the diagnosis is established. Antero-posterior compression of the thorax, gentle "fist" percussion over the lower ribs, and auscultation of the right pulmonary base are measures which may be of value when locating the site of the lesion. Constipation, rather than diarrhoea, is the common finding. Consequently, during the initial phase, when the diagnostic difficulties are most pronounced, adequate stool examination is rarely possible. Sigmoidoscopy, however, should be performed in all doubtful cases and should reveal the presence of amoebic ulcers or, more frequently, the "raised crateriform pits" which, as pointed out by Cropper (1945) and Morton (1946), are pathognomonic of quiescent amoebic colitis in about half the number.

A moderate leucocytosis is almost invariably present, and a differential count should help to exclude a pyogenic infection by showing that the polymorphonuclear cells form, at most, only 75 to 80% of the total count. Radiological examination, preferably by screening, will often establish the fact that the right cupola of the diaphragm is elevated, and the degree of fixation is a reliable pointer as to whether abscess formation has occurred.

If operation is withheld during the first twelve to twenty-four hours the diagnostic difficulties are considerably reduced. Pain and tenderness tend to become localized, and as the result of reduction in the resistance of the abdominal musculature an enlarged liver may become palpable. Should reasonable doubt still exist at this stage and there be no urgent indications for operative intervention, a therapeutic trial of emetine is justified. This procedure usually helps to establish the diagnosis within twenty-four to forty-eight hours.

*Treatment.*—The treatment of acute hepatitis is standardized and the response is generally satisfactory. However, it should be emphasized that unless the primary and often symptomless bowel lesion receives attention, preferably by means of E.B.I. together with "quinoxyl" retention enemata, reinfection of the liver at a later date is likely.

#### Amoebic Liver Abscess

This condition is invariably preceded by a diffuse hepatitis, and during the early stages often presents similar diagnostic difficulties. A history of previous dysentery is obtained in less than half the cases, and even then the symptoms attributable to the colon may antedate the hepatic lesion by as much as fifteen years. Although general debility, loss of appetite, progressive weakness, and emaciation are characteristic, many cases are on record in which the diagnosis was established only after an apparently symptomless abscess had ruptured into the peritoneal cavity. The fact that pyrexia is often inconstant or absent and that adhesions following perihepatitis may prevent downward enlargement of the liver further helps to cloud the issue.

Leucocytosis is present in over 80% of cases and, as already mentioned in connexion with acute hepatitis, the differential count is of value in excluding a pyogenic infection. In addition, in the absence of secondary infection a total count in excess of 20,000 is suggestive of multiple abscess formation. Radiological screening should

in the great majority of cases place the diagnosis beyond dispute. The immobile tented appearance of the right cupola of the diaphragm, with obliteration of the costophrenic angle, is characteristic. A small effusion, often blood-stained during the early stages, is commonly associated with a variable degree of basal consolidation. In the type of case in which the pulmonary signs tend to overshadow the hepatic lesion this sero-sanguineous effusion is apt to suggest the diagnosis of pulmonary neoplasm.

*Treatment.*—Repeated courses of emetine will cure cases in which pus formation has been minimal, but as a rule it is necessary to empty the abscess cavity by aspiration through a large-bore needle. However, it is advisable to delay this procedure until such time as 3–4 gr. (0.2–0.26 g.) of emetine has been administered. Air instillation is of value as a means of utilizing radiological control, and is to be preferred to lipiodol. Should this procedure be employed, a volume of air equivalent to half the quantity of pus aspirated is introduced into the cavity. Thereafter the fluid level and the size of the cavity, as shown by a series of weekly x-ray examinations, will indicate the necessity or otherwise for further aspiration. Owing to the absorption of air it may be necessary to repeat the instillation at the end of three or four weeks.

After the adoption of the aspiration technique in preference to operative drainage the mortality rate fell from over 40% to approximately 6%. However, operation is still indicated under the following circumstances: in the presence of secondary infection by non-penicillin-sensitive organisms; when an abscess points on the abdominal wall or through an intercostal space; in resistant cases in which no improvement has occurred despite aspiration and repeated courses of emetine; and following rupture of an abscess (usually of the left lobe) into the peritoneal cavity.

Rogers (1922) showed that the high mortality rate following operative drainage was almost entirely due to toxæmia resulting from secondary infection of the large previously sterile cavity. It is possible, however, by means of close drainage, employing the fluid-seal principle, to eliminate this hazard to a large extent. The local and parenteral use of penicillin has further added to the safety of operative drainage. It should therefore be accepted that in the cases which do not respond to aspiration and emetine operative drainage should not be unnecessarily delayed.

*Results.*—Although in a small personal series penicillin was not employed, operative drainage performed on 11 cases resulted in one death, this being due to acute congestive cardiac failure occurring within six hours of operation under local anaesthesia. One case of rupture of an abscess of the left lobe into the peritoneal cavity was treated by laparotomy and drainage, with an uneventful recovery.

#### Perforations of Colon

This type of complication is usually described as being rare and almost uniformly fatal. There are, however, two distinct groups. In the first group the perforation is single and there is a marked tendency towards the formation of a localized abscess. These patients are often in good general condition, and a number of recoveries are on record. Four out of five of my own patients survived, following simple drainage of a pericolic retroperitoneal abscess. Treatment during the earlier stage is rather more difficult. The friability and induration of the colon usually necessitate an exteriorization procedure rather than closure of the perforation by suture.

In the second type the perforations are multiple and are associated with a severe general peritonitis, which, according

to the literature is invariably fatal. As most of the standard works on tropical medicine devote only a few lines to this type of complication, the following more detailed observations may be of value.

#### Multiple Perforations with General Peritonitis

This condition seems to occur mainly as a result of an acute or fulminating attack of dysentery superimposed on a long-standing chronic colitis of amoebic origin. The frequency of occurrence of this complication amongst African patients treated in Durban largely accounts for an over-all mortality rate of 10.8% in cases of amoebic dysentery (Elsdon-Dew, 1946).

The clinical picture is characteristic. The patient is admitted with acute dysentery, usually giving a history of numerous previous attacks over a period of some years. The toxic appearance, high temperature, tachycardia, and severity of diarrhoea tend to suggest a bacillary infection, but examination only reveals numerous free forms of *Entamoeba histolytica*, motile and haematophagous in type. Neither emetine nor chemotherapy appears to exert any appreciable effect, and deterioration is progressive. The earliest positive sign is that of gradually increasing tenderness, most pronounced over the caecum and pelvic colon. This is followed in two or three days by a moderate accumulation of intraperitoneal fluid. Guarding and rigidity are often fleeting in character and less marked than in cases with perforation of a single ulcer. Finally, sudden collapse, with subnormal temperature and signs of acute peripheral vascular failure, occurs.

Post-mortem examination, performed on 15 such cases, showed numerous perforations, with an average of five per case and ranging from 0.5 to 1.5 cm. in diameter. Distribution was generalized, the sites being the caecum and ascending colon, pelvic colon, hepatic and splenic flexures, and transverse colon, in that order of frequency. Gross thickening of the bowel wall was associated with diffuse ulceration and often a polypoid appearance, while the presence of numerous small areas of gangrene served to explain the multiplicity of the perforations. A peculiar feature of these cases, as distinct from the single-perforation variety, was the fact that the peritoneal fluid tended to be serous rather than purulent even when death had been delayed for three or four days after perforation. Of importance in relation to possible treatment was the finding that the omentum was usually adherent to the colon, and in many cases the perforations were completely sealed off. This fact suggested a comparatively slow process of erosion with peritoneal irritation, causing omental adhesion prior to the actual terminal thrombosis and perforation. Supporting evidence in favour of such an assumption is the fact that clinical examination usually revealed signs of peritoneal irritation and the presence of free fluid for one or two days before the final catastrophe.

**Treatment.**—In view of the depressing clinical picture and the findings at necropsy, it is obvious that the choice of a suitable operative procedure is a matter of some difficulty. In fact, the condition of the patient when first seen and the lack of response to resuscitative measures are usually sufficient to eliminate any idea of operation. Fortunately, it was found that when plasma transfusion was augmented by intravenous injection of adrenal cortical extract in 2-ml. doses repeated at hourly intervals a slight but definite improvement occurred, often just enough to allow of a minimal degree of operative intervention under local anaesthesia. The relatively extensive procedures such as exteriorization or repair by suture were precluded by the number and wide distribution of the perforations and the friable, necrotic condition of the colon, apart altogether

from any immediate disturbance to the patient entailed by their performance.

In view of the localizing action of the omentum, as demonstrated at post-mortem examination, and the absence of faecal content in the colon, as a result of the continuous diarrhoea, a simple procedure such as a "defunctioning ileostomy" appeared to be logical. Consequently, the following routine was adopted. A small muscle-cutting incision was made over the right iliac fossa, and the caecum, ascending colon, and, if possible, transverse colon were examined. Caecostomy was then performed, using a 3/4-in. (1.9-cm.) bore rubber tube, which was manoeuvred through the ileo-caecal valve into the ileum. In cases where induration, friability, and fixity of the caecum prevented this move the more time-consuming but also more efficient double-barrel ileostomy procedure was adopted. During the first twenty-four hours after operation adrenal cortical extract was given at four-hourly intervals. Intestinal decompression, intravenous fluid, electrolytes, and protein, and the administration of sulphathiazole constituted the routine post-operative treatment. Emetine was not given until the end of the first week.

**Results.**—Twelve cases were not treated by operation, but otherwise received the full routine. There were no recoveries. Out of 15 cases which received operative treatment seven recovered.

#### Affections of the Caecum

**Amoeboma.**—The differentiation between amoeboma and carcinoma of the caecum may be very difficult. If after full routine investigation there is still some doubt a full course of emetine should be given, preferably preceded by chemotherapy in order to reduce any secondary infection present. Only if resolution is complete, and confirmed radiologically, should the diagnosis be accepted. However, as pointed out by Naunton Morgan (1944), the degree of fibrosis present as a result of secondary infection may prevent a satisfactory response to emetine. In such a case it may be impossible to confirm the diagnosis except by microscopical examination following operative removal.

**Acute Typhlitis.**—Acute amoebic infection of the caecum may provide a picture indistinguishable from that of acute appendicitis. However, provided that this possibility is kept in mind, a careful history and examination will suggest the correct diagnosis in the majority of cases; but in some the element of doubt will necessitate laparotomy. Recent observers, dealing mainly with military cases of relatively short duration, tend to regard the incidence of acute appendicitis in association with amoebic typhlitis as negligible. However, experience in non-European practice does not altogether support this view, and one-third of my cases required appendicectomy for obstructive lesions. It should be emphasized, however, that obstruction or interference with the blood supply is the only indication for appendicectomy in the presence of active amoebiasis. If under these circumstances it is found necessary to proceed with the operation, certain additional safeguards are required in order to minimize the risk of the formation of faecal fistula. A double purse-string of silk or linen is used to invaginate the stump, the omentum is brought down to reinforce the suture line, and a soft rubber tissue drain is inserted into the right paracolic gutter. Emetine is administered immediately after operation.

**Results.**—In seven cases in which appendicectomy was performed convalescence was uneventful. Fourteen cases not subjected to operation showed dramatic response to emetine. Symptoms diminished after twenty-four hours, and were usually absent by the end of one week.

### Acute Intestinal Obstruction due to Amoeboma

A number of cases of intestinal obstruction were encountered in which amoebic dysentery appeared to be the major causative agent.

**Case 1.**—The patient, a boy aged 3½, had no history of dysentery. Examination revealed the presence of a tumour in the epigastrium, and a diagnosis of intussusception was made. Laparotomy revealed an inflammatory mass the size of a billiard ball arising from the wall of the transverse colon; it was adherent to the surrounding structures and the anterior abdominal wall. There was no pus formation, and the mass was mobilized without difficulty. In view of the degree of obstruction, a Mikulicz resection was performed, with drainage of the proximal loop by means of Paul's tube. Death occurred from bronchopneumonia seven days later. The inflammatory mass was found to be a non-specific granuloma, almost certainly amoebic in origin.

**Case 2.**—A woman aged 54 had a palpable mass in the right hypochondrium. There was no history of dysentery. Operation showed a granulomatous mass the size of an orange arising from the proximal part of the transverse colon and presenting signs of central softening. After mobilization it was found that the intestinal lumen was only partially obliterated. The mass was therefore marsupialized through a small wound in the flank, the omentum being used as an aid in sealing it off from the peritoneal cavity. Relief of tension following aspiration of the central abscess ensured the patency of the colon. After the closure of the original paramedian wound a drainage-tube was introduced into the abscess cavity. Convalescence was not complicated by the development of a faecal fistula, and resolution of the mass appeared to be complete.

### Acute Intestinal Obstruction due to Ileo-caecal Intussusception

During a period of less than a year four cases of intussusception were encountered in adults. In each of these operation showed chronic inflammatory thickening of the colon suggestive of chronic amoebic dysentery. Two cases, with histories of four and seven days, were too far advanced for effective surgical treatment, and death resulted soon after admission.

**Case 3.**—A girl aged 14 developed severe abdominal colic while in hospital under treatment for dysentery. Rectal examination carried out twelve hours later revealed the presence of an intussusception. In view of its extent operative reduction proved to be surprisingly easy, and the bowel was found to be viable. Convalescence was uneventful.

**Case 4.**—A man aged 32 came with nine days' history of abdominal pain. Operation revealed an ileo-caecal intussusception which had advanced as far as the middle of the transverse colon. Complete reduction proved to be impossible and the caecum was found to be gangrenous. The proximal opening formed by the walls of the ensheathing layer was therefore closed by means of mattress sutures; the addition of interrupted sutures to anchor the entering portion of the ileum completed the procedure, by which the devitalized bowel was excluded from the peritoneal cavity. Ileotransversostomy was then performed with some difficulty owing to the friability and chronic induration of the colon. After ten days the devitalized portion of the intussusceptum was passed as slough per rectum, and further progress was uneventful.

### Summary

The high carrier rate of *E. histolytica* among repatriated Service personnel is emphasized in relation to probable effects on post-war civilian practice.

Some of the surgical aspects of amoebiasis are discussed on the basis of experience gained in the treatment of African patients.

The results are given in a series of cases which include infection of the liver, perforation of the colon, acute infection of the caecum, and intestinal obstruction due to amoeboma.

My thanks are due to Mr. Arthur Copley and Mr. Algar Sweetapple for their advice and guidance in the treatment of these cases.

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## IODINE AND FAILING LACTATION

BY

MARGARET ROBINSON, M.D., D.P.H.\*

An investigation into the part played by hormones in failing lactation was started under the auspices of the Medical Research Council on the suggestion of Prof. F. G. Young, D.Sc. The work began in 1944 in St. Thomas's Hospital by permission of Mr. J. M. Wyatt and Mr. A. J. Wrigley. It was extended in 1946 to University College Hospital by permission of Prof. W. C. Nixon and Prof. F. J. Browne. During this investigation it was discovered that large doses of dried thyroid gland caused a greater increase in milk yield per day in puerperal women than any of the other hormone preparations. This led to the trial of Lugol's solution in similar cases of failure to establish lactation in the puerperium. The results from the administration of Lugol's solution were found to be even more satisfactory. It was therefore decided to publish this preliminary report.

### Method

**Criteria of Failure to Establish Lactation in the Puerperium.**—In 500 untreated lactations in St. Thomas's Hospital the infants were test-fed each day during the puerperium, and were then followed up during the next six months. It was found that failure of lactation before the infant was 6 months old was rare where the total milk output on the fifth day of the puerperium had been at least 10 oz. (285 ml.) and on the tenth day of the puerperium at least 16 oz. (455 ml.). Nearly all the failures occurring in the first three months of lactation had had a total milk output either of less than 10 oz. on the fifth day of the puerperium or of less than 16 oz. on the tenth day. Therefore an output of at least 10 oz. on the fifth day of the puerperium or of at least 16 oz. on the tenth day was taken as the standard of establishment of lactation in the puerperium.

**Assessment of Milk Yield.**—From the fifth day of the puerperium until discharge from hospital the infants were test-fed at every feed. The sum of all the test feeds done in any one day gave the total output of milk for that day. The total output was calculated for each day of the puerperium. Owing to the fact that the patients were being discharged early from hospital on account of shortage of maternity beds, it was possible to treat only those patients who showed signs of failure on the fifth day—that is to say, those patients whose total milk yield as estimated from test feeds was then less than 10 oz. Treatment was started on the sixth day of the puerperium and continued either until the total daily milk yield had risen to 16 oz. a day or until the patient was discharged from hospital. After discharge from hospital the mothers reported with their infants when they were 4 weeks old. Owing to the shortage of beds and the distances the patients had to travel only two consecutive test feeds were

\* Working with a full-time grant from the Medical Research Council at St. Thomas's Hospital, London, and at University College Hospital, London.



possible. The times of these two test feeds were either 10 a.m. and 2 p.m. or 12 noon and 3 p.m. The average of the two test feeds was multiplied by five or by six, according to whether the infant was being fed four-hourly or three-hourly. This gave a rough estimate of the output of milk per day in the fourth week of lactation, and made it possible to compare the results from treatment with Lugol's solution with the results produced by other treatment.

**Procedure.**—A total of 99 cases of failure to establish lactation in the puerperium were investigated. Seventy-two were used as controls and 27 were treated with Lugol's solution. All the infants were test-fed on the fifth day of the puerperium. If, according to the criteria mentioned above, failure to establish lactation was present on the fifth day, treatment was begun on the sixth day of the puerperium. In the case of saline injections the treatment lasted for five days. In the case of massage and treatment with Lugol's solution it lasted until the patient was discharged from hospital or until the output of milk per day had reached 16 oz. Test-feeding started on the fifth day and continued until the patient was discharged from hospital, on the tenth or fourteenth day. The subsequent course of each lactation was followed up by two consecutive test feeds done when the infant was 4 weeks old.

**Materials.**—Six drops of Lugol's solution (5% iodine in 10% aqueous potassium iodide) in milk were given by mouth twice a day. This treatment was continued until the yield of breast milk had risen to 16 oz. a day. Twenty-seven cases were treated. Seven had to be discarded for the following reasons: (1) Three of the infants were premature and were not fit to be test-fed. It was found impossible to obtain an accurate estimate of the daily amount expressed. (2) Three mothers had painful nipples. Breast-feeding had to be stopped within twenty-four hours of starting treatment, as the patients refused to go on breast-feeding because of the pain. (3) One mother had had lumpy breasts, which became painful after twenty-four hours' treatment with Lugol's solution. The Lugol's solution had to be stopped, and treatment with oestrogens was begun. By the time the breasts were rendered soft and painless with the oestrogens it was too late to start treatment with Lugol's solution, because she had to be discharged on account of the shortage of maternity beds. The infant was bottle-fed.

It has been found that thickened, tender, and lumpy breasts that produce a scanty secretion of a thick fatty material are only made worse by treatment with Lugol's solution, and the amount of secretion is not increased. If, however, the lumps and tenderness are removed by giving 5 mg. of stilboestrol four-hourly by mouth, then Lugol's solution will increase the output of milk and the lumps do not recur.

**Controls.**—(1) Eleven cases were given breast massage as advocated by Randall (1943). Treatment started on the sixth day and continued until the thirteenth day of the puerperium. (2) *Physiological saline.*—Nineteen cases were treated with intramuscular injections of 1 ml. of physiological saline. The injections were given into alternate buttocks on five consecutive days, starting on the sixth day of the puerperium. (3) *No treatment.*—Twenty-one cases were given no treatment. Test-feeds were done from the fifth day until the thirteenth day of the puerperium. In four of them secretion had completely ceased before the thirteenth day. (4) *Normal lactation.*—Twenty-one women who had no difficulty with lactation were test-fed from the fifth day of the puerperium until the thirteenth day, and then at intervals up to the sixth month of lactation. The mean output of these 21 women was calculated for each day of the puerperium.

## Results

The results are set out in a table, which gives the mean total output per day in each group of patients during the puerperium and at one month after parturition. In the group that were given Lugol's solution four patients were discharged from hospital on the tenth day and two on the twelfth day. Eight have since reported when their infants were 4 weeks old. The control groups were all investigated in St. Thomas's Hospital, and were therefore not discharged until the fourteenth day of the puerperium. All the controls reported when their infants were 4 weeks old. Among the cases treated with Lugol's solution only eight have as yet reached the age of 4 weeks.

From the table it can be seen that the patients made less effort to feed their infants when they were given no treatment than when they were given either massage or daily injections of physiological saline. The increase in output is greatest in the group of patients who were given Lugol's

Table showing the mean daily milk yield

	No. of Cases	Day of Puerperium											At Four Wks.
		5th	6th	7th	8th	9th	10th	11th	12th	13th			
Massage ..	11	0z.	0z.	0z.	0z.	0z.	0z.	0z.	0z.	0z.	0z.	0z.	0z.
No treatment ..	21	7	9*	9	9	9	11	10	11	8†	8†	11	11
Saline injections	19	4	4	5	6	6	6	8	8	6	6	6	6
Lugol's solution	20	5	5*	6	6	6	8†	8	9	9	12	12	12
Normal ..	21	5	6*	8	11	12	15	15	16†	17	17	21	21
		14	14	19	18	18	18	17	18	18	18	25	25

\* Beginning of treatment. † End of treatment.

solution. On the thirteenth day of the puerperium the mean output of the patients taking Lugol's solution was not much less than the mean output of the normally lactating women. No iodism was encountered. All but one of the infants in this group were discharged fully breast-fed.

In this one case the mother had at no time from the birth of her infant to the seventh day of her puerperium produced more than a few drops of thick yellow fluid. On the second day her breasts became thick and rosy. She was treated with oestrogens from the third day onwards. Not until the seventh day did her breasts feel soft and empty on palpation. Treatment with Lugol's solution was therefore not begun until the seventh day. On that day she produced one teaspoonful of milk, which was manually expressed; on her thirteenth day she produced 7 oz. (200 ml.), as calculated from test feeds on that day. The infant was sent out partly breast-fed, as owing to the shortage of maternity beds it was not possible to keep the mother in longer for further treatment.

The three mothers who had premature infants too small to test feed were all discharged from hospital with more than enough breast milk to feed their infants. They had had about seven to ten days' treatment with Lugol's solution.

**Treatment of Failing Lactation After End of Puerperium.**—Collection of these cases for treatment with Lugol's solution has only recently begun. So far only nine patients have started treatment. 10 min. (0.6 ml.) of Lugol's solution was given by mouth in milk three times a day. Three of the nine infants were fully breast-fed after three weeks' treatment. In two cases the output of milk per day failed to rise. Four patients defaulted. In the successful cases the increase in output ranged from 5 to 9 oz. (140 to 255 ml.) per day.

## Conclusions

Failure to establish a satisfactory milk output in women is apparently due to two deficiencies—oestrogens and iodine. The need for oestrogens to control the milk flow through the breast is present in the first four days after labour; the need for iodine to increase the output of milk

is present from the fourth day onwards. These deficiencies may be present singly or together. If together, the oestrogens must be given first. Until the oestrogen deficiency is cured it is often difficult to tell whether there is an iodine deficiency. Giving Lugol's solution to a case with an oestrogen deficiency untreated only aggravates the condition and does not increase the milk output. The sign of an oestrogen deficiency is lumpy breasts with a thick yellow secretion that is difficult to express. The sign of an iodine deficiency is soft empty breasts with a scanty secretion of milk. Both oestrogens and Lugol's solution are safe and easy to give. The duration of the treatment is short. The treatment does not upset either the mother or the infant.

The number of patients with older infants who have so far been treated with Lugol's solution for failure of lactation are too few for any conclusions to be drawn. However, the outlook is hopeful, as in three cases out of five in which the mothers took the Lugol's solution for three weeks the infants became fully breast-fed. The sign that the infant has become fully breast-fed is a sudden large increase in the weekly weight gain and an increase in the number of stools. The stools return to normal when the bottle-feeds are stopped.

### Summary

Twenty cases of failure to establish lactation in the puerperium were treated with Lugol's solution. The mean output per day increased by 300%. One-third of a small number of failures of lactation in mothers with older infants have responded to Lugol's solution.

I am indebted to the Medical Research Council for a personal grant and to Prof. F. G. Young for his help and criticism. I wish to thank the medical and nursing staffs of St. Thomas's Hospital and University College Hospital for their co-operation.

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## ACUTE DILATATION OF THE STOMACH

BY

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Most recorded cases of acute dilatation of the stomach have appeared as post-operative or post-anaesthetic complications. Only a few authors have described acute dilatation caused by overloading of the stomach with food. Four such cases were admitted to my surgical department within a short period.

### Case 1

A Russian prisoner-of-war aged 20 was admitted to hospital in February, 1942, with frostbite of the lower limbs. His general condition was very poor and he was emaciated and pale. The lungs, heart, and alimentary system showed no abnormality. There was wasting of the upper and lower limbs with bilateral partial paralysis of the radial nerve. Both feet showed moist gangrene. He had been treated by removal of the necrotic parts of both feet and by general anti-infection therapy. On Nov. 5, 1942, after having eaten a larger dinner than usual (about 1 litre of soup and ten potatoes), he complained of abdominal pain.

*Condition on Examination.*—Pulse rate 60; temperature 98.6° F. (37° C.). Both feet amputated but amputation stumps unhealed and considerable purulent discharge. Left thigh oedematous. Heart and lungs normal. Abdomen dis-

tended, particularly the epigastrium, but not rigid; slight epigastric tenderness; liver and spleen not enlarged; on percussion areas of dullness, and on auscultation peristaltic sound were heard. There had been no passage of flatus since the onset of symptoms three hours before. The patient vomited frequently but only small amounts. He was sleepy, apathetic and complaining of slight abdominal pain. A diagnosis of acute dilatation of the stomach was made.

*Treatment.*—A stomach tube was passed, and an injection of "prostigmin," intravenous hypertonic saline, and an enema were ordered. After three hours repeated attempts to evacuate the stomach had failed. The abdominal distension was increasing and the pain was more severe. Fluid injected down the tube to dilute the stomach contents did not return. After six hours of the same treatment there was still no evacuation of stomach contents. The patient's general condition was worse, with increasing pain and much retching. The pulse rate was now 90. Some flatus had been passed, but with no reduction in the abdominal distension.

The stomach tube was then passed once more, but with the patient lying on his side with the knees bent. There was an immediate good result and emptying of the stomach proceeded rapidly. The total amount evacuated was 8 litres, which was mainly fluid but mixed with a certain amount of digested and undigested food, mostly potatoes. After this the patient felt considerable relief and went to sleep. A few hours later he awoke feeling much better; flatus was passed normally. He remained in hospital for a further twelve months for treatment of his legs, but during this period he had no further stomach trouble.

### Case 2

An Italian prisoner-of-war aged 30 was admitted to hospital on March 17, 1944, with a diagnosis of acute appendicitis. In 1941 he had had malaria and he also gave a history of several attacks of bronchitis. For the last three and a half months he had worked very hard in a factory. As a result of this he became so exhausted that he was admitted to the sick bay for a special diet and nursing. On March 17 his diet was as follows:—

7 a.m.—Half litre "ersatz" tea and 100 g. of biscuits.  
10 a.m.—One piece (100–150 g.) of bread and two potatoes.  
12 a.m.—One and a quarter litres of turnip soup.  
2 p.m.—Half litre of skimmed milk and two biscuits.  
4 p.m.—About one litre of potato purée.

After eating these meals he felt slight abdominal pain and noticed some distension of the abdomen. In spite of this he had a further meal at 6.30 p.m. consisting of half a litre of potato purée and about 500 g. of bread. Almost immediately he developed severe abdominal pain and distension, with dyspnoea and difficulty in passing flatus.

*Condition on Examination.*—At 9 p.m. on March 17 his pulse rate was 109. He was well-built but emaciated. Rapid shallow respirations. No vomiting, and only a small amount of flatus passed. Lips and tongue were rather dry. Lungs normal; apex beat displaced upwards. Limbs slightly oedematous.

There was marked distension, particularly in the upper abdomen, but no rigidity; some tenderness in the epigastrium. One seemed to feel the outlines of the distended stomach but this was not definite. On percussion the abdomen was tympanitic; the liver and spleen were not obviously enlarged. Normal peristaltic sounds were heard on auscultation. A diagnosis of acute dilatation of the stomach was made.

*Treatment.*—The patient was placed in the lateral position with the knees bent and a stomach tube was passed. He was also given an enema, an intravenous hypertonic saline, and subcutaneous saline. The first and second attempts at lavage failed, but after pouring in a quantity of water to dilute the stomach contents about 4½ litres (with potatoes, vegetables, and bread) were removed. During each of the next five washouts 1–1½ litres of fluid gastric contents were evacuated together with much gas. After two enemata, within three hours of admission to hospital, the patient had a good movement of the bowels.

By midnight he felt well. There was frequent passage of flatus, the abdominal distension had disappeared, and the belly wall was soft. Some epigastric tenderness persisted and the pulse rate was now 86. Thereafter his recovery was uneventful. A radiological examination on April 2 showed "gastro-entero-typonia and -ptosis." He was discharged from hospital on April 8.

### Case 3

An Italian prisoner-of-war aged 19 had had synovitis in 1925 and frequent "indigestion" during recent years. After a long period of starvation he had eaten several meals in the course of one day. This was on Dec. 16, 1943, when his meals were as follows:

6.30 a.m.—Three-quarters of a litre of "ersatz" coffee.

10 a.m.—Half a litre of coffee, 200 g. of bread, 15 pieces of carrot.

12 a.m.—Vegetable soup and meat—2½ litres.

4 p.m.—One litre of milk soup and 15 pieces of carrot.

He then had abdominal pain, but in spite of this at 5.30 p.m. he ate 450 g. of bread, 30 g. of margarine, and 50 g. of biscuits. This exceptionally good food was given, accidentally, to encourage the patient to enlist in an Italian Brigade for the German Army. A few hours after the last meal there was further abdominal pain and he vomited. There was no passage of flatus and no bowel movement after the onset of pain. The next morning, Dec. 17, 1943, he was transferred to hospital with a diagnosis of appendicitis.

**Condition on Examination.**—He was a pale, emaciated, sthenic type; pulse 90 and irregular. Lungs normal and heart displaced upwards. There was marked abdominal distension and slight rigidity; on percussion the abdomen was tympanitic. The liver and spleen were not enlarged. No peristaltic sounds were heard on auscultation. His urine was normal, and he had a leucocyte count of 16,000 per c.mm. During the examination he lay on his back with his knees drawn up, complaining of abdominal pain, dyspnoea, and failure to pass flatus. He was diagnosed as a case of ileus following acute dilatation of the stomach.

**Treatment.**—The patient was placed in the lateral position with the knees bent and a stomach tube was passed. He was also given an enema, intravenous hypertonic saline, subcutaneous saline, and an injection of prostigmin. After three hours of this treatment repeated attempts to empty the stomach all failed. His pain increased and signs of toxæmia developed with a rapid irregular pulse; his general condition became worse. Immediate operation was then undertaken.

**Operation.**—Under spinal anaesthesia a midline incision was made. On opening the abdomen the small bowel was found to be distended, particularly in its proximal part. The distal part of the small bowel and the large intestine were normal in appearance. The stomach was distended and immobile, extending downwards and pressing on the duodenum. There was no other obvious obstruction either inside or outside the stomach and intestines. There was no sharp line of demarcation between the normal and the distended bowel. There was much free fluid in the abdomen.

After lifting the stomach the bowels were successfully evacuated and the distension almost disappeared. The appearance of the stomach, however, remained unchanged. It was decided to close the abdomen and to resume conservative treatment. During the suture of the wound the patient had a good action of the bowels. Energetic conservative treatment was then resumed. His general condition improved on the following day but deteriorated on Dec. 19. No flatus was passed and the patient vomited, bringing up faecal fluid. There was marked abdominal distension and severe pain.

**Operation.**—The abdomen was opened at McBurney's point under local anaesthesia. The distended caecum presented in the wound and caecostomy was performed. There was free drainage of the bowel contents and for three days improvement in the general and local condition continued. The patient felt well and did not vomit.

On Dec. 22 there was again a sudden deterioration in his general condition with symptoms of small bowel obstruction. Attempts at evacuation through the caecostomy failed.

**Operation.**—Under local anaesthesia at a third operation an incision was made in the left side of the abdomen. Enterostomy was performed by inserting a "T" drainage tube in the small bowel. A considerable amount of liquid and gas was expelled. The patient's condition after operation was satisfactory. There was good drainage through both tubes and the bowels opened normally as well. During the next two months there was a remarkable improvement. The patient's appetite increased and he put on weight. Both enterostomy openings were then closed and he was discharged cured.

### Case 4

This prisoner-of-war was admitted to hospital with a diagnosis of peritonitis. He had a history of malaria and he had suffered burns of the feet twenty days before admission. After a period of starvation he had eaten in the course of one day 2 litres of soup, 300 g. of bread, 1 litre of coffee, and some potatoes. This was on Feb. 27, 1944, and the next morning he noticed some distension of the abdomen. In the afternoon he developed epigastric pain and difficulty in passing flatus; he also vomited. He was then examined by the camp medical officer and transferred to hospital.

**Condition on Examination.**—He had a pulse rate of 68 and was well built but emaciated. There were enlarged lymphatic glands in the groin. His tongue was moist and he had many carious teeth. The lungs were normal and the heart was displaced upwards. There was marked abdominal distension, particularly in the epigastrium. The distended stomach appeared to be outlined through the abdominal wall, but this was not definite. There was no rigidity, and on percussion the epigastrium was tympanitic. The liver and spleen were not enlarged. There was slight tenderness in the epigastrium and no clinical evidence of peritonitis.

On the dorsum of the left foot there was the scar of a recent burn and the leg was slightly swollen. The patient complained of pain in the abdomen, and particularly in the epigastrium. He was drowsy and apathetic, and was retching and vomiting. He was diagnosed as a case of acute dilatation of the stomach.

**Treatment.**—A stomach tube was passed with the patient in the lateral position, and an enema and intravenous hypertonic saline were given. Repeated attempts at evacuation of the stomach failed and water which was intended to dilute the stomach contents was not returned. The patient became drowsy and tired and after six hours of unsuccessful treatment it was decided to operate.

**Operation.**—Laparotomy was performed through a midline incision under spinal anaesthesia. There was free fluid in the abdomen with distension of the upper part of the small intestine. There was no sharp demarcation between the distended and the normal bowel. The stomach was grossly distended and immobile and was pressing on the duodenum. Apart from this there was no evidence of obstruction of the bowel, and the other abdominal organs appeared to be normal. An attempt was made to empty the stomach by aspiration, but only a little gas was removed. An attempt to "milk" the contents of the bowel was also unsuccessful. A jejunostomy was therefore performed and the abdomen closed. A large amount of fluid and gas was removed through the jejunostomy tube.

**Post-operative Treatment.**—Further gastric lavage was undertaken and a hypertonic saline and an injection of prostigmin were given. There was obvious improvement within a few hours of operation. Flatus and faeces were passed normally as well as through the tube and the distension subsided. On the next day there was a good bowel movement normally. Three days later an attempt to close the jejunostomy gave rise to symptoms of ileus. After eight days the operation wound was completely healed and the patient felt well. After two months' treatment (including operative closure of the jejunostomy) he was discharged.

### Aetiology and Diagnosis

In these four cases acute dilatation of the stomach appeared after eating an increased amount of food. In Cases 2 and 3 the amount of food eaten was large, but the same amount eaten by many normal people would not cause any complication. In Cases 1 and 4 the amount was not larger than the average meal taken in normal circumstances. There must, therefore, have been some predisposing cause.

All our patients were emaciated and were admitted to hospital after a period of starvation. This starvation I consider to be a predisposing cause, but the part it plays is not clear. It is possible that the acute dilatation follows a chronic dilatation of the stomach. In other words, a sudden intake of food causes paralysis of the already weakened walls of the stomach. Chronic dilatation of the stomach, due to the prolonged intake of large amounts of food of poor calorie value, was so common that we used to call it "the occupational disease of prisoners-of-war."

I would not venture to discuss more fully the part played by starvation as a predisposing cause, but I would stress the fact that in an emaciated and starving individual acute dilatation of the stomach may be precipitated by the intake of a comparatively small amount of food, an amount which in a normal individual would cause no disturbance. This observation, I think, is important from the point of view of aetiology.

Clinically there were three signs of practical importance: (1) drowsiness; (2) objection to the passing of a stomach tube, and particularly to the pouring in of water to dilute the stomach contents; and (3) failure of fluids to return from the stomach. These small points may be useful in the differential diagnosis from other causes of ileus.

### Methods of Treatment

In each of these cases, immediately after the diagnosis had been made, treatment was begun. In the first two cases gastric lavage through a stomach tube was successful. It is important, however, to adjust the position of the patient, or failure will result. The patient should be in the left lateral position with bent knees.

In the two other cases conservative measures failed. Intubation through the nose also failed, probably because the stomach contents were not sufficiently fluid. In both cases the pain increased and toxæmia developed. This led to operation, an additional indication being the possibility of an error in diagnosis. It was known, too, from the literature that sudden death might occur during a prolonged period of dilatation of the stomach, and postponement of the operation might be dangerous.

Laparotomy in both cases showed only distension of the stomach and no obstruction either inside or outside the stomach and intestines. It was interesting to find no clear demarcation between the distended and the normal jejunum. I did not perform gastrotomy, because I considered that incision of the stomach walls might have an adverse effect. Evacuation of the stomach is important in conservative treatment but it is not the essential aim at operation; indeed, complete evacuation is impossible, because of the hypersecretion which accompanies dilatation. Puncture with a wide-bore needle showed that the atonic stomach contained much fluid and only a small amount of gas. An attempt to evacuate the intestine by "milking" it was followed by bowel movements just after operation, or even during the operation.

In Case 3, after temporary improvement, the general condition deteriorated, and it was necessary to operate again. I performed enterostomy, which caused evacuation

of the stomach and intestines, and doubtless helped to restore the tone of the stomach walls. In Case 4 the patient had good bowel movements normally half an hour after operation. It is possible that further delay would have rendered operation unnecessary, but lack of experience and the presence of signs of toxæmia compelled us to operate.

### Danger of Gastrotomy

While compiling this report I found the bed ticket of a German soldier treated in a German hospital. The most important points in his case history are summarized.

Aged 43. Sudden onset of abdominal pain at 6 p.m. on Dec. 11, 1942. Admitted to hospital at 10.45 p.m. Stated that he had never had abdominal pain previously and that he did not eat too much. Clinical examination showed ileus.

At operation the intestines were found to be distended and the stomach grossly distended. Puncture of stomach and removal of gas. Gastrotomy and removal of contents (three kidney dishes of stinking fluid mixed with potatoes, meat, and carrots). Suture of stomach. Suture of abdominal wall. Condition after operation grave. Died at 4 p.m. on Dec. 13.

Necropsy revealed acute dilatation of the stomach and intestines, which had caused circulatory failure. Cause of dilatation—overloading of stomach.

In this case gastrotomy did not prevent the patient's death. Other cases in the literature emphasize the danger of gastrotomy. I suggest that the danger of gastrotomy can be avoided and satisfactory results obtained by enterostomy and energetic conservative measures. Conservative treatment alone may be insufficient and dangerous in some cases; enterostomy may then be helpful.

### Summary

Four cases of acute dilatation of the stomach in prisoners-of-war are described.

In emaciated and starving individuals acute dilatation of the stomach may be precipitated by the intake of a comparatively small amount of food.

Clinical signs to which attention is drawn include drowsiness, objection to gastric lavage, and the failure of fluids to return from the stomach.

Lavage with the patient in the lateral position with knees bent was successful in two cases. In the other two cases enterostomy was performed. Gastrotomy is dangerous.

My thanks are due to Mr. Ch. Langmaid, F.R.C.S., for help and translation.

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A circular from the Ministry of Education to local educational authorities on the selection of medical officers for the examination of educationally subnormal children states that after Dec. 31 of this year the medical officer must have been selected by the authority on the advice of their school medical officer as a suitable person to have been given an opportunity for observing examinations by an approved medical officer, have attended, after such observation, an approved course of practical and theoretical instruction, and after a further period of observation be recommended to the Minister of Education on the advice of their school medical officer for approval. In exceptional circumstances the Minister may waive these conditions. The approved courses of training are conducted by the London University Extension and Tutorial Classes Council in conjunction with the National Association for Mental Health. Three courses have been arranged for 1947, and it is likely that a similar number will be held in 1948. Candidates have been selected for the first two courses this year; applications have been invited for the September course.

## BILE PERITONITIS IN INFANCY

BY

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So far as I have been able to ascertain this is the first case of bile peritonitis in infancy occurring without trauma to be reported in this country. Caulfield (1936) published two similar cases in America, and stated that severe trauma had caused rupture to the gall-bladder or common duct in all the reported cases he could find.

## Case Report

The patient, a baby girl aged 1 year and 10 months, was admitted to the children's department of the Royal Victoria Infirmary on Nov. 28, 1946. The child had been well until 36 hours before admission. She woke her parents up in the early morning of the 27th, was restless but did not cry. She had complete loss of appetite, and vomited once towards evening. Her bowels moved four times during the day, but the motions were apparently normal in colour. On the day of admission she again vomited, but slept fitfully and did not appear to be in much pain.

On admission at 7.30 p.m. she was collapsed, her extremities were cold and cyanotic, her respiration was rapid, but her chest showed no abnormal physical signs. The abdomen was slightly distended, with some generalized tenderness. The child's condition was so poor that it was decided to give an intravenous transfusion of plasma and to re-examine her when some improvement had occurred. Consequently 200 ml. of plasma was given in about two hours, by which time her condition was much improved. A further examination showed a somewhat distended abdomen, with generalized tenderness, especially in the upper abdomen. There were diminished resonance in the flanks and tenderness per rectum. The temperature was 103° F. (39.4° C.), pulse 150, and respirations 50. The white cell count was 31,500 per c.mm. A diagnosis of peritonitis, probably associated with appendicitis, was made.

The abdomen was opened through a right paramedian paramedian incision. A large quantity of bile-stained fluid escaped from the peritoneal cavity; this was not measured, but it was estimated to be about 400-500 ml. The incision was enlarged upwards, and a rapid inspection of the gall-bladder and common duct did not reveal any gross abnormality. There was some retroperitoneal oedema, and flecks of lymph were present in the region of the duodenum. As the child's condition was not very satisfactory simple drainage in the region of the common duct was performed. Culture of the bile proved sterile. The origin of the bile being uncertain it was decided to aspirate the stomach post-operatively, giving 100 ml. of saline every three hours intravenously. This treatment was continued until Nov. 30. Bile was still draining from the wound. The drainage-tube was removed on the seventh post-operative day, and by Dec. 10 the wound was almost healed and the bile drainage had cleared up.

The patient was discharged from hospital on Dec. 11, but was readmitted on Jan. 2, 1947, complaining of abdominal pain and vomiting; this, however, settled down very quickly. A cholecystogram revealed a gall-bladder which seemed to function normally. The child was discharged again, apparently well, on Jan. 8.

## Discussion

Bile peritonitis following trauma to the liver is relatively common. I saw two cases due to bomb-splinter wounds while serving with a field surgical unit. Both these cases recovered. I have also seen bile peritonitis associated with crush injury and laceration of the liver; this patient survived the onset of bile peritonitis but subsequently died of uraemia.

Most surgeons have seen a case of bile peritonitis in adults without apparent cause. One case reported to me

by Mr. T. A. Hindmarsh (personal communication) had two such attacks, separated by an interval of seven years' normal health. It is certainly not the fatal condition it is sometimes said to be, unless it is associated with gall-bladder disease.

It is thought that in the above case there must have been a small cyst or aberrant duct which had ruptured; the abnormality must have been a minor one, as recovery was rapid and apparently complete. As an alternative cause, in view of the retroperitoneal oedema, I considered the possibility of a duodenal sacculi which had ruptured, but the subsequent behaviour of the case ruled this out of court. Remarkable features are the leucocytosis and the pyrexia, suggesting an inflammatory cause; as already stated, however, the bile was sterile.

Caulfield's cases were somewhat similar to the above case: both his cases occurred in male infants under six months old, but the onset was more gradual, the babies had no abnormal temperature, and they were jaundiced. It is interesting to notice that in the surviving case simple drainage in the region of the common duct, such as I performed, was sufficient apparently to cure the condition. Caulfield came to the same conclusion—that there must have been some minor abnormality of the ducts. In his other case no operation was performed, and it was found post mortem that there was a congenital stricture of the common duct.

## Summary

A case of bile peritonitis in early childhood is described. It is claimed to be the first reported case in this country. Simple drainage in the region of the common duct effected an apparent cure.

The possible aetiology of the case is discussed.

Comparison is made with Caulfield's cases.

I would like to thank Prof. J. C. Spence for permission to publish this case, and Miss M. Swinburne and other members of the Children's Department for their co-operation in the pre- and post-operative treatment.

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THE BERGER-KHAN TEST FOR  
SYPHILIS

BY

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Whilst using the dye isamine blue as an indicator in serological tests for syphilis Berger (1943) found that certain other dyes when mixed with a suitable alcoholic heart extract caused, in syphilitic sera, not only the formation of coloured precipitates but an increase in the sensitivity of the reaction. This sensitivity was directly proportional to the amount of dye present in the antigen. Janus green and Victoria blue were the dyes of choice, as they appeared to be the best sensitizers and in their presence heavy flocculation rapidly occurred. The precipitate was intensely coloured and took up all the dye from the solution, leaving a water-clear supernatant fluid. Sera containing amounts of syphilis antibody too small to react with a given antigen without dye showed marked flocculation in the presence of Victoria blue or Janus green. Berger pictured the sensitizing action of the dye as an antibody-like effect which had been deprived of its specificity and which was



conditioned by the presence of a specific factor in syphilitic serum. In the dye test he devised for syphilis Berger chose Victoria blue because very fine dispersion of the alcoholic antigen could be obtained with this dye as compared with Janus green.

For the purpose of the investigation this laboratory carried out in triplicate 970 routine serological tests for syphilis. The washed-antigen method of Price (1946) was also used for a short time, but in our hands appeared to be too sensitive. We therefore discontinued parallel tests to avoid undue complications in the interpretation of results.

The standard antigen for the Kahn test as supplied by the Ministry of Health Special Laboratories was used. The preparation of reagents and the technique of the test as recommended by Berger were carried out in the following manner.

A stock antigen (which keeps for at least a year at room temperature) is prepared thus: To 10 parts of standard antigen containing 0.6% of cholesterol and having a titre of 1 + 1.2 add 1 part of tinct. benz. co. B.P. To 10 ml. of this mixture add 17 mg. of Victoria blue 4R (Gurr). The container should be kept well stoppered.

#### Method of Test

(1) Pipette 1 part of the stock antigen (0.1 ml.) into the bottom of a dry tube. (2) Add 10 parts (1 ml.) of 0.85% sodium chloride solution rapidly to the tube from the pipette. This dispersed antigen is sufficient for at least thirty tests, and can be used at once or during any time on the day of preparation. It should be shaken immediately before use. (3) Place on a prepared glass slide one drop of the serum to be tested and add a drop of equal size of the dispersed antigen. (4) Mix the drops with a glass rod, rock the slide for two minutes, and read results immediately. (Note: To help in the rapid handling of large numbers of sera use may be made of ordinary clear glass sheets with rows of rings painted on the surface. A convenient size would be 8 in. by 10 in. (20 by 25 cm.), as this allows four rows of six rings,  $1\frac{1}{4}$  in. (3.2 cm.) in diameter, per plate. High-gloss black enamel has proved most useful and durable under test.) (5) The results are read macroscopically, and as a distinct aid to easy reading the slide is held over a sheet of white paper. Positive reactions show large deep-blue floccules easily visible in a water-clear fluid. Negatives at two minutes show no flocculation whatever, the mixed drop remaining quite homogeneous and of a sky-blue colour.

It is the custom in this laboratory when reading positive Kahn tests to assign to each result a numerical indicator to express the strength of the positive reaction as judged by the degree of flocculation. The standard Kahn method often showed lower numerical grading, and in the case of weak positives by the other methods some were missed. This was particularly marked when dealing with old treated cases. Difficulty in reading weakly positive standard Kahn tests is overcome in the Berger-Kahn test by the pronounced staining of the floccules which occurs. The strongly positive sera are easily read, as the floccules in this case are very large and absorb the whole of the dye. In our experience, whenever this result was obtained we always noticed that the Wassermann reaction read 2 + or 3 +. We wish to emphasize that every one of our positive Wassermann results gave a positive reaction with the Berger-Kahn test.

We are at present observing the results of this method upon cerebrospinal fluid from cases of neurological syphilis and hope to report separately upon a series of such tests.

#### Comment

The reaction should be read at two minutes, and not four minutes as recommended by Berger, as reading at the latter time yields a high proportion of mixtures showing very faint granularity, which can lead to some confusion.

Berger made no reference to the graduation in size of the blue floccules in assessing the strength of a positive result. We found it quite easy to grade positives on the size of particles given by the Berger-Kahn test. We found such gradation in particle size very constant and most helpful.

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## Medical Memoranda

### Arsenical Dermatitis Successfully Treated with BAL

As the treatment of this condition has always been difficult and rather unsatisfactory I thought these two cases worth recording.

#### CASE REPORTS

**Case 1.**—A labourer aged 27 first attended the V.D. clinic at the Royal Victoria and West Hants Hospital, Bournemouth, on June 12, 1946. He then had a large ulcer at the base of the glans penis, and dark-ground examination revealed the presence of *Treponema pallidum*. The Wassermann reaction was negative. Treatment was started at once with 300,000 units of penicillin twice daily for five days, together with N.A.B. and bismuth. He was given 0.45 g. of N.A.B. twice weekly for four injections, followed by 0.6 g. twice weekly for a further eight injections—a total of 6.6 g. of arsenic. Bismuth, 0.2 g. twice weekly, was given for six weeks, total 2.4 g. The full course was completed on Aug. 17. On Aug. 28 an erythematous rash with desquamation appeared on the limbs and trunk. The patient was given daily intravenous injections of 6 ml. of calcium thiosulphate. There was no improvement on Sept. 4; he then had oedema of the hands, fissuring of the palms with some exfoliation, and similar fissures at the ankles and on the soles of the feet. There was oozing from all fissures. On Sept. 5 treatment with 2 ml. of BAL (British anti-lewisite) intramuscularly every hour was started. The next three days he had 2 ml. twice a day and then 2 ml. a day for two days. On Sept. 11 there was desquamation and the fissures were drying up. On the 18th oedema of the hands was much less and the fissures were healed. On the 25th there were slight cracks on the palms of hands and soles of the feet. By Oct. 9 the hands and feet were quite healed and the patient was back at work.

**Case 2.**—A housewife aged 26 first attended the V.D. clinic on Sept. 18, 1946, with a secondary syphilitic rash involving the arms and trunk (Wassermann++, Kahn +++). There was some dental sepsis, but as she was seven months pregnant it was thought advisable to prescribe arsenic and bismuth as well as penicillin. She was given 600,000 units of penicillin daily from Sept. 25 to Oct. 1; three injections of 0.45 g. and five of 0.6 g. of N.A.B. (a total of 4.35 g. of arsenic) and eight injections of 0.2 g. of bismuth between Sept. 25 and Oct. 23. On Oct. 30 erythematous patches with oedema were noticed on the buttocks, and smaller patches were seen at the bends of the elbows. Calcium thiosulphate, 6 ml., was prescribed twice weekly till Nov. 15. As there was no improvement BAL was given from Nov. 22 to 25. Owing to her confinement the patient did not attend again until Jan. 22, 1947, when no rash was to be seen, and she stated that it had quite disappeared before her confinement on Dec. 17.

It seems to me that BAL may well be the answer to the syphilologist's prayer, for, instead of cases of arsenical dermatitis being in hospital for weeks at a time, they may now be treated as out-patients. The response is most dramatic, as the rash begins to clear as soon as treatment is started.

I would like to thank Dr. R. H. S. Thompson, of the Department of Biochemistry, Oxford, for his help and interest, and for supplying the BAL; also my colleague, Dr. L. Heasman, for his help in treating these cases.

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## Reviews

### TEXTBOOK OF PHYSIOLOGY

*Lehrbuch der Physiologie.* By Emil Abderhalden. New and enlarged edition. (Pp. 480; illustrated. 34 francs.) Basle: Benno Schwabe and Co. 1946.

This well-produced handbook, with its companion volume *Lehrbuch der Physiologischen Chemie*, is intended to give without excessive detail an account of the functioning of the various organs of the body and of their relationships to one another in the normal circumstances of life. An English reader may find the German rather difficult—perhaps because it is too good—and the absence of side headings does not allow easy perusal; but this steam-roller effect is common in books in German. What is recorded is up to date.

The transference to another volume of those parts of the subject which have a chemical aspect or interest makes the book appear unbalanced—19 chapters out of 33 being devoted to special-sense physiology and the nervous system, while there are no chapters on heat regulation, diet, reproduction, or the endocrine system. The author mentions the last incidentally in connexion with the systems that he describes more fully—namely, digestion, circulation, respiration, and urinary secretion. We may perhaps concede that biochemistry is the science that fully treats of such subjects as diet and general and intermediary metabolism, but we would not have thought that a general textbook of physiology could omit them altogether. The methods and viewpoints of the chemist and physicist are essential for the solution of the problems of physiology, but these problems and their solutions remain within the framework of general biology. If the transference of much of the subject matter of physiology into the realm of biochemistry is before long to be followed by the removal into the realm of biophysics of all the remaining matter capable of exact and quantitative treatment, then indeed physiology, like the Cheshire Cat, will leave behind nothing but a smile.

C. LOVATT EVANS.

### MENTAL CONFLICT

*Our Inner Conflicts. A Constructive Theory of Neurosis.* By Karen Horney, M.D. (Pp. 250. 10s. 6d.) London: Kegan Paul, Trench, Trubner and Co. 1946.

The author does not write of different mental diseases in this book but discusses only the type of conflict which underlies any or all of the functional mental disorders. She regards this as a split in the total personality, which may be manifest in the sexual, social, or spiritual life of the individual. She considers that some of the leading medical psychologists may have interpreted the phenomena of psychopathology too narrowly. She believes that the conflicts of the neurotic are fundamentally no different from those of the normal person, but that the former is less able to resolve them; they therefore become more deeply unconscious and the two alternatives more incompatible. The author sees the basic conflict as between two attitudes towards people. A man may incline to be friendly towards people, in which case he will appear complacent and amiable, or he may incline to be hostile, when he will appear aggressive. In either case the repressed inclination will tend to break through, and only analysis will bring the conflict to the surface and resolve it. The conflict may be partially avoided by withdrawal from people; the patient will then appear indifferent. Dissatisfied with his real self, the neurotic often formulates an idealized image of himself to which he can never attain—a source of further dissatisfaction and conflict. The author also describes other mechanisms such as the neurotic's rejection of his own characteristics on to others, "god alightness," elusiveness, cynicism, and so on. She then considers the consequences of conflict such as fears, impoverishment of the personality, hopelessness and depression, aggression and sadistic trends, which, when the subject is subjected to them, may appear in the guise of their opposites. Finally the author refers to the difficulties of resolving these conflicts. She believes that prolonged deep analysis is necessary, though the process may be somewhat shortened if the

therapist understands the nature of the basic conflict and how the patient reacts to it. Superficial and brief analyses may benefit milder cases, but they do not get to the root of the trouble. Case histories clarify without unduly lengthening this unusual study of conflict. Psychotherapists will find it worth studying.

R. G. GORDON.

### RHEOCARDIOGRAPHY

*R.K.G. Rheocardiography. A Method of Circulation's Investigation and Diagnosis in Circular Motion.* By W. Holzer, K. Polzer, and A. Marko. Authorized English translation by Mrs. Emma M. Kreidl, of Vienna. (Pp. 43; 44 illustrations. 7 Swiss francs.) Vienna: Wilhelm Maudrich.

In this book Holzer and his collaborators describe a new method of recording the variations of impedance, which are very small, caused by the beating heart, to alternating current of moderately high frequency. They claim that this method records instantaneous changes of volume of the heart and therefore gives an indication of its output and the speed and power of contraction of the heart muscle. Leaky or stenosed valves will therefore also cause alterations in the "R.K.G." The technique used is briefly as follows: The source of alternating current is a short-wave oscillator, to which is coupled a secondary circuit that includes the subject; he is connected in circuit by the usual type of electrodes used in electrocardiography. The modulated high frequency wave is then rectified, the H.F. component filtered off, and the slow wave remaining amplified for examination by means of ordinary electrocardiographic equipment. The circuits are carefully stabilized, since the subject's impedance alterations, and consequently the voltages of the modulations, are small; most of the elaborations in the circuit diagrams are for this reason. The authors show a number of rheocardiograms, both experimental and pathological, and by simultaneous recordings of E.C.G., heart sounds, and R.K.G. are able to identify some of the features of the last—though perhaps not very convincingly. Atzler (*Arbeitsphysiologie*, 1932, 5, 6S., 636; *Disch. med. Wschr.*, 1933, 59, 1347) placed the subject's chest between the plates of a condenser which formed part of the secondary circuit of a short-wave oscillator. Since the dielectric constants of air (the lungs) and water (the blood) are very different, this method, by similar modulation, gives an indication of the immediate heart volume. The resulting curves are the same in many respects as those in this book, but the technical difficulties are too great for the method to be of any practical clinical importance. It is, however, possible that rheocardiography may prove to be of use, though more exact basic experimental work is required.

Unfortunately the translation spoils for English readers an otherwise interesting though sketchy monograph. Errors of translation, spelling, and grammar abound, and many electrical terms are unrecognizable except to one familiar with them in both languages.

DOUGLAS ROBERTSON.

### EXPERIMENTAL CANCER INHIBITION

*Effect of a Carcinogenic Hydrocarbon on Manifest Malignant Tumors in Mice.* By S. Stamer. With a summary in Danish. Translated from the Danish by Hans Andersen, M.D. (Pp. 158; illustrated. 12s.) Copenhagen: Einar Munksgaard. London: Geoffrey Cumberlege (Oxford University Press).

This monograph records experiments designed to test the inhibitory action of carcinogenic hydrocarbons on the growth of tumours as reported by Haddow and others. Stamer tested the highly potent carcinogen 9:10-dimethyl-1:2-benzanthracene on transplanted carcinoma, sarcoma, and leukaemia in mice. The carcinogen was very toxic when administered by intraperitoneal injection. The mice lost weight and the growth of tumours was inhibited, though not more than by a comparable reduction in body-weight effected by underfeeding. Most previous investigators did not take into account the loss of weight caused by the carcinogens, and their conclusions must be accepted with reserve.

Large doses of carcinogen injected intravenously did not appear to harm the mice; when so administered the carcinogen had no substantial effect on the growth of transplanted carcinoma or sarcoma but caused complete regression of transplanted

leukaemia. Stamer concludes from his experiments that for the treatment of human cancer large intravenous doses of carcinogens would be required and that the least differentiated tumours should respond most favourably. The discussion on the danger of producing new tumours is inconclusive. This book will interest the cancer research worker rather than the general medical reader.

L. FOULDS.

### TRAUMATIC INJURY

*The Pathology of Traumatic Injury.* A General Review. By James V. Wilson, M.D., M.R.C.P. Foreword by Philip H. Mitebner, M.D., M.S., F.R.C.S. (Pp. 192; 61 illustrations (several in colour). 20s. plus 7d. postage.) Edinburgh: E. and S. Livingstone. 1946.

Clinicians and pathologists will be grateful to Major J. V. Wilson for having compiled this general review of the pathology of traumatic injury. His main object has been to record wartime progress and to define the many problems that still remain unsolved. He reviews a considerable amount of the research work on trauma published in isolated papers during the war. Much of this research is recorded in inaccessible Service and official documents, and when it becomes available another edition of the book will certainly include it. He discusses shock, burns, crush, and blast with commendable precision, as well as such conditions as arterial spasm and concussion.

The author wrote this book under the stress of war while abroad, and references were difficult to obtain; this accounts for the occasional omission of up-to-date information—a relatively minor failing that will be rectified in the next edition. The illustrations are excellent and the subject matter is well presented and easy to read.

GEOFFREY HADFIELD.

*Alfred Adler: Apostle of Freedom.* By Phyllis Bottome. (Pp. 280. 12s. 6d. London: Faber and Faber. 1946.) Enthusiasm often distorts judgment, and the reader of this book must be careful not to confuse an appreciation of a master by a passionately devoted pupil with a scientific appraisal. Phyllis Bottome writes well and holds the attention of the reader from cover to cover, but her words are entirely adulatory: the master can do no wrong. Adler was more a teacher than a psychiatrist and his work appeals more to educationists than to doctors. The author thoroughly dislikes the Freudians, who would have no relations with Adler after his secession from the psycho-analytical school, and assures us that the latter was far the greater psychologist. It is too early to decide which of the eminent twentieth-century medical psychologists has the greater claim to fame; but it is, to say the least of it, uncertain that Adler will head the list. Again, Adler's advocacy of neighbourliness and the promotion of others' happiness is of course important and entirely admirable, but it might be thought from this book that it was an original idea; yet have we not heard of it, for example, in the Gospels, the books of Moses, and even in the ancient Egyptian Book of the Dead?

The second edition of *Local Anaesthesia: Brachial Plexus*, by R. R. Macintosh and W. W. Mushin (Oxford: Blackwell; 10s. 6d.), could more accurately be described as a reprint, since the only discernible difference from the original printing is the addition of a single paragraph on p. 10. The abundance of illustrations (many in colour), which are largely self-explanatory, makes unnecessary any account of tedious details of technique. Our only serious criticism is of terminology. The authors in their preface show clearly why the term "local analgesia" is more accurate than "local anaesthesia" but fail to carry this into practice in the body of the book, for the words are used as if they were interchangeable. It seems a pity that the opportunity to straighten out the terminology has been missed in this excellent monograph from the Nuffield School of Anaesthesia.

*The Medical Annual, 1946*, the sixty-fourth of its kind, faithfully reflects the advances recorded in every department of medicine. The emphasis is still on wartime experience, and references to D.D.T., atabrin, and penicillin are numerous. The alphabetical arrangement of the sections and the excellent index make it easy for the reader to refer to whatever subject is of immediate interest. "Books of the Year" lists English and American medical works and provides an easy guide for the postgraduate student. The editors, Sir Henry Tidy and Mr. A. Rendle Short, and their many contributors are to be congratulated on maintaining the high standard expected from this annual. The publishers are John Wright and Sons, Ltd., and the price is 25s.

### BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

*Gas and Air Analgesia.* By R. J. Minnitt, M.D., D.A. 3rd ed. (Pp. 80. 5s.) London: Baillière, Tindall and Cox. 1947.

A practical handbook for the midwife and medical practitioner includes the latest regulations of the Central Midwives Board.

*Quantitative Clinical Chemistry Interpretations.* Vol. 1. By John P. Peters, M.D., M.A., and Donald D. Van Slyke, Ph.D. Sc.D. 2nd ed. (Pp. 1,041. 38s. 6d.) London: Baillière, Tindall and Cox. 1946.

Discusses energy exchanges and the chemistry and metabolism of carbohydrates, lipids, and proteins.

*The Diagnosis and Treatment of Bronchial Asthma.* By Leslie N. Gay, Ph.B., M.D. (Pp. 334. 27s. 6d.) London: Baillière, Tindall and Cox. 1946.

Intended for the student and medical practitioner; with reference and many illustrations.

*Modern Methods of Feeding in Infancy and Childhood.* By Donald Paterson, M.D., F.R.C.P., and J. Forest Smith, F.R.C.P. 9th ed. (Pp. 184. 8s. 6d.) London: Constable and Co. 1946.

Includes revised diet sheets for evaporated milk and recent information on the diet in coeliac disease.

*Medicine in the Changing Order.* Report of the New York Academy of Medicine Committee on Medicine and the Changing Order. (Pp. 240. 11s. 6d.) New York: The Commonwealth Fund (London: Geoffrey Cumberlege). 1947.

Reviews medical care in city and country, in public health and in the hospital, and suggests remedies for present inadequacies.

*Osler's Principles and Practice of Medicine.* By Henry A. Christian, A.M., M.D., F.A.C.P. 16th ed. (Pp. 1,539. \$10.) New York and London: D. Appleton-Century Company. 1947.

Changes in this edition include accounts of the sulphonamides and antibiotics, the regrouping of certain infectious diseases and a brief history of the edition of the textbook.

*Transactions of the American Ophthalmological Society.* Vol. XLIV. (Pp. 554. No price.) Philadelphia: American Ophthalmological Society. 1946.

Includes papers on cataract, the treatment of corneal wound healing, and ulceration, diagnosis of early glaucoma, and a number of experimental studies.

*Digest of British Social Insurance.* By T. S. Newman. (Pp. 322. 10s. 6d.) London: Stone and Cox. 1947.

An exposition for the layman of the Acts relating to National Insurance, Industrial Injuries, and Family Allowances, with index.

*Les Processus de Guérison des Cavernes Pulmonaires Tuberculeuses.* By Jean Tricore. (Pp. 174. No price.) Paris: G. Doin et Cie. 1947.

A monograph on tuberculous cavities in the lung and their treatment.

*Pédagogie du Nourrisson et du Premier Age.* By A. Thooris. (Pp. 184. No price.) Paris: G. Doin et Cie. 1947.

A practical account of the care of the infant; intended primarily for the layman.

*Maladies des Nourrissons et des Enfants.* By Germain Blechmann. 5th ed. (Pp. 758. No price.) Paris: G. Doin et Cie. 1947.

A textbook of children's diseases for the medical practitioner.

*L'Acetilcolina nelle Sindromi Schizofreniche.* By A. M. Fiamberti. (Pp. 454. No price.) Florence: Ditta Editrice Luigi Niccolai. 1946.

A monograph on acetylcholine deficiency in schizophrenia and its use in treatment.

*La Streptomycine: Etude Expérimentale et Thérapeutique.* By Alphonse Abaza. (Pp. 94. No price.) Paris: G. Doin et Cie. 1947.

Experimental investigation into streptomycin, its pharmacology and therapeutic applications.

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## POLIOMYELITIS

The notifications of poliomyelitis in England and Wales rose in mid-June this year, which is earlier than their usual rise in late July. For the week ending July 5, 79 cases were notified; as we pointed out in "Epidemiological Notes," this represented a level which has seldom been exceeded since the disease was made notifiable in 1912. For the week ending July 12 the notifications numbered 110. The cases have been widely spread over the country, and, as is usual, it has seldom been possible to trace a connexion between them. In some patients a marked meningeal reaction at the onset and a prolonged pre-paralytic stage have led to a diagnosis of meningitis or meningo-encephalitis: this is perhaps reflected in the increase of notifications of meningitis. Bulbar and respiratory paralyses have been frequent. It is expected that many more cases will occur, and it may be useful to review briefly some points in our knowledge of the disease. We would draw attention to a memorandum from the Ministry of Health which appears at page 141.

The diagnosis has to be made on clinical grounds because there is no routine laboratory test for the presence of the virus. Suspicion is aroused when stiffness of neck or spine occurs during an acute infection with moderate fever in a child or young adult or occasionally an older person. Drowsiness alternating with irritability, hyperaesthesia, and exaggerated muscular reflexes may be present. Later, in a frank case there is diminution of some reflexes and weakness of some muscle group. Examination of cerebrospinal fluid will not give results specific for poliomyelitis, but it will help to differentiate meningococcal meningitis. Any of the symptoms mentioned may be absent, and it should be realized that infection with the virus of poliomyelitis may produce only a minor illness that cannot with certainty be diagnosed as poliomyelitis.

In dealing with a suspicious case it is advisable to isolate the patient because infectivity is probably greatest during the pre-paralytic stage. It is also wise to insist on rest in bed, since strenuous exercise has appeared to induce severe paralysis in some cases. There is no specific treatment: neither drugs, antibiotics, convalescent serum, nor any other treatment has been proved to decrease the incidence of paralysis or to limit its spread. When respiratory paralysis develops, as it may do quite suddenly, the use of an artificial respirator may be a matter of urgency. Other paralyses should be dealt with by appropriate splinting<sup>1 2</sup> under the supervision of an orthopaedic sur-

geon. Isolation of cases is advised for three weeks from the date of onset.

Attempts to control the spread of infection must be based on the knowledge derived from many field and laboratory investigations that when cases of poliomyelitis occur the virus is already widespread in the community. There is, in fact, a carrier epidemic with many symptomless infections, some cases of minor illness, and a few frank cases. Infection is spread usually from person to person and chiefly by carriers and children with minor illnesses. The virus is present in the throat of patients during the acute stage and during the incubation period, and is expelled from the mouth by blowing or spitting.<sup>3</sup> The virus is also present in the faeces during the acute stage and has been isolated from them in one instance nineteen days before the onset and in some many weeks after it. The virus enters the body by the pharynx or intestine, rarely if ever by the olfactory nerves. The incubation period is from 7 to 14 days or longer. The uncommon second case in a family usually occurs within a few days of the first.

U.S.A. studies<sup>4 5</sup> in the neighbourhood of cases have shown that the virus can be isolated more frequently from the family contacts of a patient than from persons in less intimate contact, and that it can be found, though still less frequently, in persons with no known contact. Virus has been isolated more frequently from children than from adults. There is thus some justification for excluding from school for a fortnight any children who are home contacts and for imposing quarantine on adult home contacts if they are food handlers or engaged in an occupation which brings them into touch with children. However, the value of quarantine in arresting the spread of poliomyelitis, as of other endemic infectious disease, is far less than the public usually thinks it is. It would be foolish to attempt to impose it so rigorously as to interfere with the occupations of adults and the activities of the community. There are arguments for abandoning it altogether, as has been done in some States of the U.S.A.

Closure of day schools is not advisable unless there is clear evidence of spread in a school, and even then it may be better to keep the children under supervision than to give them increased opportunities for closer contacts outside school. It is probably worth while to search for children with minor illness in school or absent from it and to isolate them for a fortnight. The procedure to be followed in a residential school on the occurrence of a case has recently been considered by a committee of medical men at the request of the Medical Officers of Schools Association. Their report<sup>6</sup> states that the known epidemiological facts do not allow of a dogmatic ruling about school dispersal, and that dispersal should be advised only after careful consideration of the circumstances and consultation with the local medical officer of health. Where poliomyelitis is prevalent, tonsillectomies should if possible be postponed, because the operation may precipitate a bulbar paralysis.

<sup>1</sup> Ward, R., and Walters, B., *Johns Hopk. Hosp. Bull.*, 1947, 60, 98.

<sup>2</sup> Pearson, H. E., *et al. Amer. J. Hyg.*, 1945, 41, 155.

<sup>3</sup> Howe, H. A., and Bodian, D., *ibid.*, 1947, 45, 219.

<sup>4</sup> Report, *Lancet*, 1946, 1, 972.

<sup>5</sup> Seddon, H. J., Hawes, E. I. B., Raffray, J. R., *Lancet*, 1946, 2, 207.

<sup>6</sup> Macnamara, J., *Med. J. Austral.*, 1946, 2, 577.

Experiments have shown that flies may spread the virus by faecal contamination of food, and food ought of course to be protected from flies; but there is as yet no epidemiological evidence to justify an anti-fly campaign as a major item in a programme for the control of poliomyelitis. No vaccine is available, and there is no convincing evidence of the value of immune serum in prophylaxis; there is in fact some evidence<sup>7</sup> that serum antibodies do not confer immunity to paralysis.

A state of panic is rather easily produced by Press publicity, and it is to be hoped that the daily papers in this country will not draw undue attention to the present outbreak. In any year the cases and deaths due to poliomyelitis will be far fewer than the injuries and deaths caused by road accidents. The natural anxiety of parents might be allayed to some extent if it were more generally known that attack rates in large populations during the most severe epidemics have been only 2 or 3 per 1,000 and that second cases in families are uncommon. It should also be emphasized that the ultimate prognosis is not so bad as is popularly imagined. In a series of 296 cases in Baltimore<sup>8</sup> 50% recovered completely and 29% regained practically normal movement. There was marked paralysis in 18%, and 3% died. Similar results were recorded<sup>1</sup> in the Mauritius epidemic.

### STREPTOMYCIN IN TUBERCULOSIS

A number of speakers at the recent Commonwealth and Empire Health and Tuberculosis Conference in London gave the medical world at large some idea of what at this stage may be expected from streptomycin in the treatment of tuberculosis. Dr. H. S. Willis, Superintendent of the W. H. Maybury Sanatorium, Michigan, said that six or more laboratories were now concentrating on research into streptomycin, and that in the U.S.A. they already had records of 1,000 patients who had completed a course of streptomycin—the average course lasting from 90–120 days.

According to Dr. H. C. Hinshaw, of the Mayo Clinic, something like 500 kg. of streptomycin are being produced commercially each month. The American workers stressed the fact that in such a serious disease as tuberculosis a co-ordinated study was essential. While they had enough evidence to show that the use of streptomycin was a real advance in the treatment of tuberculosis, it was emphasized that only a small proportion of tuberculous cases were at present amenable to this treatment, and that the drug by no means replaced other current methods of caring for the tuberculous.

Streptomycin is looked upon as being an essential in the treatment of miliary tuberculosis, tuberculous meningitis, acute pulmonary tuberculosis, and certain other pulmonary lesions. Dr. P. M. D'Arcy Hart, a member of the Scientific Staff of the Medical Research Council, said that at the end of 1946 the M.R.C. had received from the U.S.A. about 50 kg. of streptomycin, sufficient to treat between 150 and

200 cases. The Report of the M.R.C. on streptomycin is awaited, but its main conclusion may be anticipated from Dr. Hart's statement that streptomycin benefits at least a small proportion of cases of miliary tuberculosis and tuberculous meningitis, and that the results were sufficiently promising to justify considering a wider use of the drug in these two conditions. He added, however, that the long-term results of treatment were still in doubt.

These observations are similar to those summarized in a report of the Committee of the American Trudeau Society which has just come to hand. This Committee and its Subcommittee on Streptomycin Therapy, under the chairmanship of Dr. H. C. Hinshaw, have carried out a series of trials with streptomycin during the past year and have also had the opportunity of reviewing results of trials conducted by the U.S. Veterans' Administration, the U.S. Army, and the U.S. Navy. They have also reviewed results of work previously undertaken at Cornell University, Mineral Springs Sanatorium, and the Mayo Clinic. The Committee considers that cases of tuberculous meningitis should receive intensive parenteral and intrathecal streptomycin therapy. It is pointed out that, though clinical remissions are frequently brought about by such treatment, subsequent relapse is likely to occur—this underlines Dr. D'Arcy Hart's cautious observation. The Committee also observes that "residual neurologic disorders are frequently noted." In view of the importance of prompt treatment the Committee states that this must often be instituted before bacteriological diagnosis is made. The Committee also recommends streptomycin for acute haematogenous miliary tuberculosis, tuberculous laryngitis, ulcerating tuberculous lesions of the oropharynx, and for progressive tracheobronchial tuberculous ulcers. It is not clear yet whether in this last condition results are superior when aerosol is combined with parenteral administration.

Streptomycin appears to be highly effective in the treatment of tuberculous sinuses of the skin. Although it is recommended that tuberculous pneumonia should be treated with streptomycin, it is not recommended for all types of pulmonary tuberculosis. Streptomycin is not indicated for chronic fibroid or fibrocaceous pulmonary tuberculosis, for acute destructive and apparently terminating types, or for early cases with a favourable prognosis; but encouraging results have been reported in the treatment of recent but extensive and progressing lesions. Streptomycin, it should be added, is apparently ineffective in the treatment of chronic tuberculous empyema. It is stressed that tuberculosis with a favourable prognosis should not be treated with streptomycin until more is known about toxicity and the appearance of drug-resistant strains; the latter seem to be one of the gravest drawbacks to streptomycin therapy. Drug resistant strains of *Mycobacterium tuberculosis* undoubtedly appear. This may be either because a normal bacterial population contains certain bacteria which are naturally resistant to streptomycin and flourish because the more sensitive organisms are killed off, or because a specific resistance to the drug is acquired, selection then coming into play. If the latter suggestion were proved it would seem, incidentally, to offer support to the Lamarckian theory of evolution. In a paper read at the

<sup>7</sup> Burnet, F. M., and Jackson, A. V., *Austral. J. exp. Biol. med. Sci.*, 1939, 17, 261.

<sup>8</sup> *Facts and Figures about Infantile Paralysis*, National Foundation Infantile Paralysis, New York, 1946.



Atlantic City Centenary Meeting of the American Medical Association, Drs. H. J. Corper and Maurice Cohn said that in experimental work on tuberculosis in guinea-pigs they found that prolonged treatment with streptomycin, while it retarded the disease, did not prevent the death of animals from tuberculosis, and that positive cultures could be obtained from the organs of animals treated for as long as 181 days. "In no treatment test in animals," they observed, "have we definitely been able to prevent a lethal outcome from tuberculosis by the use of streptomycin, although we have been able to delay such issue." This observation shows how necessary it is to be extremely careful in assessing the results of treatment. But Baggenstoss, Feldman, and Hinshaw,<sup>1</sup> describing five fatal cases of miliary tuberculosis treated with streptomycin, provide post-mortem evidence "of an inhibitory action exerted by streptomycin on human miliary tuberculosis and tuberculous meningitis." They demonstrated regression and healing in the miliary tubercles of the lungs, liver, and spleen—and by healing they meant the occurrence of fibrosis, hyalinization, and the absence of caseation: tubercle bacilli could, however, be demonstrated in the lesions. They stressed two important factors—namely, the size or mass of the lesion at the time of treatment, and the concentration of streptomycin in fluids and tissues. One striking fact was the presence of a significant concentration of streptomycin in the cerebrospinal fluid in contrast to its complete absence from the brain. The drug was given in these cases at 3-hourly intervals with a daily dosage ranging in the five cases between 1 and 10 g. Some workers in the U.S.A. at the moment seem to be obtaining satisfactory results with a daily dose of 1 g.

Much has been written about the toxic effects of streptomycin, but U.S.A. workers believe the greatest drawback to the use of the drug is the appearance of drug-resistant strains of the tubercle bacillus. Four types of toxic reaction have been observed: (1) the so-called histamine reaction characterized by flushing, headache, and an abrupt fall in blood pressure; (2) anaphylactic reactions; (3) disturbances of vestibular function and occasional deafness; (4) irritation of the kidney. This question of toxicity is the subject of a recent article by Farrington, Hull-Smith, Bunn, and McDermott<sup>2</sup> in an investigation conducted under the direction of the National Research Council Committee on Chemotherapeutics and Other Agents, under the chairmanship of Dr. Chester S. Keefer. It is not certain whether the toxic effects are due to streptomycin itself or to other substances present in the impure product. These observers believe that the so-called histamine reaction is the effect of the latter. In experiments with "chemically pure" streptomycin Molitor and his colleagues<sup>3</sup> found that daily doses of 25 mg. per kg. of body weight produced a fatty change in the liver and occasionally also in the kidney—changes which apparently were reversible. Evidence of labyrinthine or cerebellar disturbance was also noted. Farrington and his colleagues<sup>2</sup> have investigated the toxic effects in a group of human subjects given a four-month course of treatment

with highly purified streptomycin sulphate, a product "at least 95% pure." Sixteen patients received 3 g. of the drug daily for about 120 days, given at 3-hourly intervals in doses of 0.375 g. Three hours after injection the average concentration of streptomycin in the blood was between 10 and 20 micrograms per ml. of serum. In only two of the sixteen patients was it necessary to interrupt treatment because of toxic effects, in both cases anaphylactic—maculopapular rash, rise of temperature, nausea and vomiting, hypotension, and eosinophilia, and in one case an acute synovitis of the interphalangeal joints of the extremities. Apart from these obvious manifestations of anaphylaxis, Farrington and his colleagues observed eosinophilia in 14 of their 16 cases at one time or another during the 120 days of treatment. They regard this as a disquieting phenomenon "in view of the work of Rich and others<sup>4</sup> on the possible association of sensitivity to the drug with the development of diffuse vascular disease." Casts appeared in the urine of 14 of the patients and were related to the acidity of the urine. If the urine was kept neutral or slightly alkaline casts could be demonstrated in only one of these patients. In 14 of the 16 patients tests showed that renal function remained within normal limits throughout the period of treatment. Post-mortem observations on three patients who had received streptomycin up to 154 days and who had had numerous casts in the urine showed no renal abnormality. Deafness as a complication is a matter of excessive dosage and can be avoided.

Disturbed vestibular function is the commonest and most marked toxic effect and appeared in all 16 patients, usually between the 17th and 25th day of treatment. In 4 fatal cases of meningitis treated with streptomycin, Stevenson and his colleagues<sup>5</sup> found liquefactive necrosis in the ventral cochlear nuclei, and in two of them similar changes in the inferior vestibular nucleus; during treatment these patients had become deaf. In 14 of the 16 patients described by Farrington and his colleagues no tinnitus or impairment of hearing was observed, nor any other form of neurological abnormality. As to other toxic effects, leucopenia without granulocytopenia was observed in 2 of Farrington's cases. Repeated tests for liver function showed no evidence of damage. Although Farrington and his colleagues still consider that some of the toxic effects may be caused by residual impurities in the streptomycin preparation, they consider it is the streptomycin itself which irritates the kidney and causes the disturbance of vestibular function, brought about, in their opinion, by central action. Their general conclusion is as follows: "It is evident that highly purified streptomycin is a chemotherapeutic agent of low toxicity, since it was possible to administer moderately large doses of the drug for such a long period to persons who were seriously ill." The grave disabilities suffered by many patients temporarily recovering from tuberculous meningitis are, it would seem, the after effects of the meningitis rather than the after effects of the drug. Patients with disturbed vestibular function seem to be able to compensate for the disability when streptomycin therapy is discontinued, and in the view of U.S.A. observers the disability is slight compared with

<sup>1</sup> *Amer. Rev. Tuberc.*, 1947, 55, 54.  
<sup>2</sup> *J. Amer. med. Ass.*, 1947, 134, 679.  
<sup>3</sup> *J. Pharmacol.*, 1946, 86, 151.

<sup>4</sup> *J. Clin. Invest.*, 1942, 21, 123.

<sup>5</sup> Observations which will be recorded in *Proc. Soc. exp. Biol.*, N.Y.

the disability of a severe illness. It should be added that repeated intrathecal administration of 0.1 g. of streptomycin is well tolerated.

Apart from the toxic effects of streptomycin there is another peculiar complication that has worried many thoughtful people in this country during the past few months, and that is the intermittent appeals sent out over the air from the B.B.C. for supplies to individual patients. This disquieting innovation in conducting medical treatment is, we believe, partly the result of the secrecy that has prevailed—a secrecy that was lifted when we were able to publish in the *Journal* of June 7 the names of those centres where treatment is being conducted on a very small national allocation of the drug. It seemed pertinent to inquire what were the results of the B.B.C. broadcasts, and this was done by the Public Relations Department of the British Medical Association. These are the results: Between Nov. 19, 1946, and April 17, 1947, the B.B.C. broadcast 21 appeals at the instance of hospital authorities. Twenty-one hospitals were asked for results of the appeal. Of the 18 who replied 15 stated that no streptomycin had been received as a result of the appeals. One hospital received 150,000 units, one received 3 g., and one received 5 g. When it is recalled that each of the patients studied by Farrington and his colleagues received 3-g. doses of streptomycin daily for approximately 120 days—a total dosage of 360 g. each—further comment hardly seems necessary. The response to the appeal produced totally inadequate supplies of the drug and can have done little but harm in that the appeal must have raised false hopes in the minds of the sufferers or their relatives. Streptomycin is still in very short supply. There is still need for prolonged investigations before the position of this drug in the treatment of tuberculosis can be accurately assessed, and there is still need for a far greater allocation of the drug from America until our own manufacturers are able to produce it in adequate quantities. Great Britain still seems to be getting less streptomycin than, for example, France. While we may sympathize with the B.B.C.'s desire to aid those who ask for an appeal to be made, we cannot but believe that the use of the radio for this purpose is improper.

### BOTULISM

The report of a recent inquest has again drawn attention to the rare form of food poisoning caused by the exotoxin of *Clostridium botulinum*. The best-known outbreak of this disease in Great Britain is that at Loch Maree in 1922, due to contamination of wild duck paste, but since then less dramatic episodes have occurred from time to time. An outbreak in Hampstead in 1935 due to infected "nut meat brawn" was commented on in a leading article in this *Journal*.<sup>1</sup> The usual sequence of events is that some article of food contaminated with *Cl. botulinum* is preserved in either tin or bottle without being adequately heated. The spores are highly resistant to heat, being able to survive for some three hours at 212° F. (100° C.) and 36 minutes at 230° F. (110° C.). The anaerobic conditions in the tin or bottle enable the organism to proliferate and produce toxin. If the contents are then eaten

either uncooked or inadequately cooked the toxin causes botulism. The toxin, unlike the spores of the organism, is relatively easily destroyed by heat—for example, usually by boiling for five minutes. When the victims have taken a large dose of toxin, as at Loch Maree, symptoms will begin to appear in some in about fifteen hours.

The symptoms are vomiting, obstinate constipation, and cranial nerve palsies. Diplopia, ptosis, and difficulty in speech, swallowing, and breathing are particularly prominent. There is no loss of consciousness. In fatal cases these symptoms become worse, but consciousness generally remains to the end. Even at Loch Maree, where all eight patients died within a week, there was great variability in the rapidity of onset of symptoms; in some the onset was insidious. In cases in which the dose of toxin has presumably been small the clinical picture may be very puzzling, and the relationship of the symptoms to food poisoning may be obscured. There is usually a history of vomiting associated with constipation. The characteristic cranial nerve palsies may come on very gradually—in days rather than hours—but when they do appear they are apt to persist. Disturbances of vision and diplopia are common symptoms. Fixed dilated pupils are a common physical sign.

The mild case is probably less common than the severe because the concentration of toxin in the food is generally considerable, but it is probable that under conditions relatively unfavourable to the organism small amounts of toxin may be produced and mild cases may result. It is likely, for example, that in a large mass of foodstuff which contains spores toxin may be produced in the centre even when the surface of the foodstuff is exposed to the air. The long list of foodstuffs given by Meyer<sup>2</sup> as having caused botulism in the U.S.A. shows that strictly anaerobic conditions in tin or bottle are not essential. As the natural habitat of the organism is the soil, the vehicle has commonly been inadequately heated home-canned vegetables, but unsealed foods may exceptionally be to blame. Quite moderate cooking of the foodstuff before eating is sufficient to destroy the toxin.

### FOOD POISONING

Food poisoning may be defined as any illness that results from the ingestion of food. This includes a wide variety of different substances, such as poisonous plants, fungi, metals, organic and inorganic chemicals, and bacteria and their products which have become incorporated in the food. In addition it may be correct to include the individual idiosyncrasies of certain persons in their reaction to, for example, shell-fish or strawberries, the eating of which may be followed by an attack of urticaria. There is a widespread tendency for the public to blame the quality of the food as being the cause of illness, instead of realizing that the food is in most cases contaminated by those who handle it and by flies and vermin that are allowed to gain access to it. There is no question that the number of outbreaks appear to be increasing, but it is difficult to say how much this is due to an actual increase and how much to the greater interest taken in food at the present time and to the fact that food poisoning is now notifiable. Communal feeding cuts both ways; thus, if an outbreak occurs in a large canteen attention is drawn to the numbers affected, whereas if the same number fed at home it would be impossible to assess how many would have been affected by a gastric enteritis that passed off rapidly and was never reported.

<sup>1</sup> *British Medical Journal*, 1936, 1, 64.

<sup>2</sup> Meyer, K. F., *Amer. J. publ. Hlth.*, 1931, 21, 762.

The great majority of outbreaks are due to the enterotoxin produced by the *Staphylococcus aureus* (coagulase positive), which is ubiquitous and is introduced into the food by those who handle it. Contamination may come from the hands, which may be infected from any septic condition the subject has on his person, and also from the nose, especially if a catarrhal condition is present. In canteens and elsewhere much food is prepared the day before it is eaten and reheated the next day before the meal is served. During this time the enterotoxin is formed; it is not destroyed by heat except at a temperature above boiling point. The difficulty therefore of implicating the infected food when the staphylococci have been killed can be appreciated.

The salmonella is responsible for many outbreaks, and *Salm. typhi-murium* is the most common in Britain. The clinical symptoms when infection is due to food contaminated by this organism occur much later after consumption than when the staphylococcal enterotoxin is the contaminant—12 to 24 hours in contrast to 3 to 4 hours. In severe cases the symptoms produced by the *Salm. typhi-murium* are indistinguishable from those of the enteric group. The effects are very variable, since many healthy carriers are found, others have only a mild gastro-enteritis, and every grade of illness up to a fatal issue may occur. Every year the consumption of duck eggs gives rise to a varying number of infections. They should therefore be boiled for 8 minutes; in Germany a notice to this effect must be displayed in shops which sell them. Dried egg has been incriminated in many cases, but after an extensive research by the Medical Research Council they were able to state: "If dried egg is efficiently cooked immediately after reconstitution, the risk of salmonella infection therefrom does not arise."

To diminish food poisoning it is essential to insist on a high standard of cleanliness, the minimum amount of handling of the food, and that all who handle food must scrub their hands with soap and hot water before starting work; if they must dry their hands they should do so on a clean towel. This measure is especially important after using the lavatory. It has been said that much illness has been caused by consuming some person's excreta—nasal, oral, or intestinal.

### RADIO-ACTIVE PROGRESS

Previous assessments of the value of radio-phosphorus ( $P^{32}$ ) in the treatment of polycythemia vera<sup>1,2,3</sup> have necessarily been based on comparatively few cases, with only short periods of follow-up. In delivering the 24th Mackenzie Davidson Memorial Lecture of the British Institute of Radiology last week, Dr. John Lawrence, of the Crocker Radiation Laboratory, Berkeley, California, paid his audience the same compliment in proceeding beyond the published record that Prof. Robley Evans, of the Massachusetts Institute of Technology, had lately extended in describing, also in London, the latest results from the treatment of Graves's disease with radio-iodine.<sup>4</sup> Dr. Lawrence is a brother of Prof. E. O. Lawrence, the physicist, who designed and built the first cyclotron, and from 1934 onwards, as he stated, he has had access to radio-isotopes "in fairly large quantities." He brought with him the first analysis of 90 cases of polycythemia vera treated with  $P^{32}$ , and 20 further cases which had not been. His real controls were, however, a Mayo Clinic series of 163 cases, of which the survivors at the end of five years numbered 36.

This proportion is liable to revision, but at the moment is regarded as the best figure available. Of the 90 cases treated at Berkeley, the earliest goes back to 1939, and the number of deaths to date has been 13. Also, whereas the average age of those treated was 48 years, the average age of those who died was 66.6 years. More encouraging even than these overall figures was the analysis given of causes of death. These included four cases of cardiovascular disease (of which three were at ages between 70 and 80), 1 of acute pancreatitis, and 3 of carcinoma. None of these eight deaths was regarded as attributable, nor in particular was there any evidence in the three latter cases of induction of carcinoma. At the most, therefore, only five cases remained in which it appeared possible that the cause of death could reasonably be connected with either the polycythemia or the treatment given for it. As to four out of these five cases (3 leukaemia and 1 multiple myeloma) no useful opinion could be expressed. Finally, there was only one death in the whole series from thrombosis, which in most previous series has been a common sequel. Follow-up studies are being continued, but in relation to the severity of the disease radio-phosphorus therapy would appear to have already been justified.

For the future Dr. Lawrence raised some interesting and frankly speculative prospects by his preliminary account of the work which has been done on the administration of radio-active substances in colloidal form. There is here the possibility of selective absorption with the properties of the individual cell membrane as the determining factor. By a suitable choice of chemical form and particle size it is suggested that it may be possible to guide radio-active colloids to the spleen, lymph nodes, or bone marrow as might be required. Work on these lines will be further described at the International Congress of Physiology at Oxford during the present week.

As two examples of the tracer technique of direct and related interest to medicine, Dr. Lawrence instanced the use of radio-sodium and radio-gold for the study of the symptoms and treatment respectively of rheumatoid arthritis. The effect in the former case has been to confirm quantitatively the clinical picture of impaired circulation. Using a rabbit in one leg of which arthritis had been chemically induced it was demonstrated with radio-sodium ( $Na^{24}$ ) that the rate of blood flow in the affected leg was nearly twice as slow to the articular cortex, more than three times as slow to the synovia, and more than four times as slow to the tendons as in the other and normal leg. On the side of treatment, it has been similarly shown with the aid of radio-gold ( $Au^{199}$ ) that the distribution of colloidal gold is such as to lend plausibility at least to this form of therapy. The concentration in the synovia has proved to be rather more than ten times as great as in the muscles, so that absorption may fairly be claimed to be selective to that extent—although, as Dr. Lawrence was careful to point out, the presence of the gold in the desired locations provides no proof in itself of beneficial effect. Such evidence has the same kind of value as the use of x-ray analysis in the testing of chemical theories of protein structure. It can prove that any particular theory is wrong; but not necessarily, as Bernal lately pointed out, that it is right. "No chemist," he stated characteristically, "can to-day put forward a bogus theory and get away with it." Neither, as radio-isotopes become more widely available, will the medical research worker be able to postulate selective absorption which does not in fact take place. This is no mean contribution to have been initiated by a laboratory which, in Dr. Lawrence's words, was "founded and organized in the belief that the future of medicine will be increasingly tied up with chemistry and physics."

<sup>1</sup> Reinhard, E. H., et al., *J. lab. clin. Med.*, 1946, 31, 167.

<sup>2</sup> Mitchell, J. S., *British Medical Journal*, 1947, 1, 250.

<sup>3</sup> Chadwick, J., *Ibid.*, 1947, 1, 263.

<sup>4</sup> *British Medical Journal*, 1947, 1, 894.

# CINERADIOGRAPHY IN ORTHOPAEDIC SURGERY

BY

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In 1897 Dr. John MacIntyre produced a pseudo-cineradiographic record by taking a series of ordinary skiagrams of the frog's leg in different positions and arranging them in order to show the movements. These were afterwards transferred to a cinematographic film. Since then three distinct methods have been adopted: (1) The original synthetic method of MacIntyre. (2) The direct method, in which a band of film is exposed direct to x rays in a rapid series of exposures, as in ordinary radiography. (This method has been successfully developed in recent years by Van de Maele, of Brussels, and Barclay, of Oxford.) (3) The indirect method, where a motion picture record is made of the fluorescent screen image.

Russell Reynolds has worked on the indirect method since 1921; later he coined the word "cineradiography." To this pioneer must be given most of the credit for the development of this particular method into a true cinematographic recording. The indirect method is the only practical method available for study to-day.

Cineradiographic films can be studied indefinitely, and repeated examinations within reason are not detrimental to the health of the patient or examiner. The strips of film recording these examinations can be kept with the case notes and may accompany the case anywhere. Their value lies in a permanent record of movements which can be used for: (1) diagnosis; (2) comparison with former records to watch the effect of treatment or the progress of a pathological condition; (3) research (as in cases where it is impossible to visualize a whole physiological process or, for instance, the behaviour of a stump within an artificial-limb socket); and (4) teaching purposes. The immediate advantages of a record of what can be seen on the fluorescent screen are that the film will permit a leisurely and repeatable study of movement and that the action can be stopped at any stage for a closer scrutiny of any particular image which may excite interest.

## Normal and Abnormal Joint Movements

In 1905 Levy-Dorn showed a synthetic film of the movement of the knee and elbow obtained by placing in order a number

of exposures, taken in series, of various positions of the bones. In 1907 Köhler followed with another synthetic film. To-day we can study joints in the body and record their movements accurately, and so obtain a knowledge of the disposition of the elements of the joints in any particular phase of the cycle of their movement.

The physiologist and the anatomist benefit by this knowledge, and the orthopaedic surgeon who is in doubt as to what is actually happening in a joint can see, without the introduction of any contrast medium, any alteration in its mechanics—for example, abnormal movement consequent on a torn cartilage or ligament in a knee-joint.

It is possible to see whether a joint has been successfully arthrodesed. Recently an arthrodesis of a wrist was attempted by two well-known surgeons, but the wrist remained painful in spite of prolonged immobilization. A skiagram showed that there was apparently complete bony fixation. Clinically no movement could be detected, yet the patient complained of pain. A cineradiographic film revealed that movement was taking place. An exploratory operation showed that bony union had not in fact occurred.

Often it is difficult to tell radiographically and clinically whether a fracture is soundly united. In cases of doubt cineradiography may show that movement is still present. A large series of abnormal joint movements have been filmed, examined and compared with the normal. It is revealing to see the deviations from normal joint movement caused by abnormal posture, ligamentous injuries, subluxations, and fractures.

## Artificial Limbs

Even with the employment of the best artificial limbs there remain some cases in which the wearer of an appliance complains of pain in his stump. It is in such cases that cineradiography opens up a completely new field of investigation. The cause of the pain may be obvious. It may be due to ulceration to a bursitis, or to a septic sebaceous adenitis. On the other hand, there may be nothing to see, or even to feel, and the diagnosis may not be apparent. The painful stump may be relieved by leaving off the limb, in which case the limb is probably to blame. In order to be able to understand why the pain is either initiated or aggravated while the limb is being worn it is necessary to know the behaviour of an ideal stump in a well-fitting limb. Hitherto we have relied on experience and clinical judgment in the diagnosis and treatment of the causes of a painful stump.

Cineradiography opens up a new field in the diagnosis and treatment of this condition and provides us with a new

Table showing Cineradiographic Observations on Stumps with Artificial Limbs

Case No.	Amput. Level	View	Markers	Shape of Stump	Spur Form	Movements of Stump In Prosthesis				Result on Soft Tissues at Apex of Stump	Correspondence of Axis of Stump with Axis of Limb	Remarks
						Ant.-post.	Side to Side	Rotation	Piston Action			
Above-knee Amputations												
1160	Upper 1/3	A.-P.	+	Conical	-	Slight	Slight	-	-	-	+	No movement at all between limb and prosthesis
1162	Upper 1/4	A.-P.	+	Square	++	0	++	-	-	+	+	Very marked lateral movement. Ischial bearing
1178	Lower 1/3	A.-P.	+	"	++	+	+	-	++	-	+	A curious lateral-medial-lateral movement of stump in socket on weight-bearing. Very large medial spur. On slight A.-P. movement
Below-knee Amputations												
1164a	Upper 1/3	A.-P.	-	Conical	-	0	-	-	Marked	-	0	Bone-end very close to skin
1164b	Upper 1/3	Lat.	-	"	On fibula	+	0	-	++	-	0	Bone-end of tibia very close to skin. Stump became more pointed with weight-bearing; there is slight latero-medial movement of stump on weight-bearing and also antero-posterior movement
1164c	Upper 1/3	A.-P.	-	"	"	0	Slight	-	++	-	0	
1194	Upper 1/3	A.-P.	-	Tends to square	-	0	-	0	++	-	0	
1195	Above upper 1/3	Lat.	-	"	-	+	0	-	++	-	0	Bone-end well padded. Stump tends to square. Fibula about 2 in. (5 cm.) shorter than tibia, which is amputated above upper third level. A.-P. movement present on weight-bearing. Stump more conical in lateral than in A.-P. view. Film shows that when weight is applied correspondence of axis of prosthesis and joint is good at through flexion
1195a	Above upper 1/3	Lat. flexing knee	-	"	-	0	0	-	0	0	Good	
1150	Upper 1/3	A.-P.	+	0	-	0	-	0	+++	0	0	A little longitudinal movement on weight-bearing. Movement of bone very great and of soft tissue much less. Skin attached on the medial side. This is the most marked feature
1151	Upper 1/3	A.-P.	+	Square	-	+	Slight	0	+++	+++	0	

0 = Not observed. - = No movement. + = Movement. +++ = High degree of movement.

valuable method of investigation into the combined behaviour of the stump and prosthesis in any movement which the patient is able to make. I have recently been carrying out such examinations on both painless and painful stumps fitted with various types of artificial limbs. Study of such films shows that a mass of useful information may be obtained and that the interaction of stump and prosthesis is often unexpected and complicated.

In the usual method of investigation lead wires are fastened securely in various positions to the skin of the stump before the artificial limb is put on. When the films are projected the wires show clearly the degree of movement between the skin and the prosthesis, and indicate also the amount of stretching of the tissues which results from piston action. If the stump is painful the patient is provided with a "pain indicator" so arranged that by pressing a button at the moment when pain occurs an opaque pointer or a point of light appears beside the shadow of the limb on the fluorescent screen and is simultaneously photographed. In this way it is possible to determine the moment at which pain occurs and to see the movement of the stump within the prosthesis which produces it.

Much valuable information has already been obtained. As might be expected, the relative movement of stump and prosthesis varies considerably, depending on the length of the stump, the type of amputation, and the design of the artificial limb. In many cases piston action is a prominent feature, and in these it is instructive to compare the relative movement of the bone and the soft tissues in the stump. In some cases piston action is replaced or added to by antero-posterior, lateral, or rotary movement. In some types of socket with a short femoral stump the bone actually tends to rise out of the prosthesis when weight-bearing.

The table gives a few facts which I observed in a series of cases, and some of these seem paradoxical.

### Illustrative Cases

**Case 1164a.**—This case shows two outstanding features: (1) that the axis of the artificial limb and the axis of the stump correspond very poorly, and (2) that there is a great deal of piston action. The patient complained of much pain in his stump when walking. After realignment of the artificial limb the axis of the stump and that of the artificial limb were found to synchronize much better, the piston action was eliminated, and the patient said he was comfortable. It is noteworthy here that the piston action and the poor axial relation between the stump and the artificial limb coexisted.

**Case 1195a.**—This patient complained of a painful below-knee stump. There was no obvious neuroma to be felt. The stump was not tender. Cineradiography showed that there was good co-axial correspondence between the stump and the artificial limb. Piston action was practically absent. This indicated that the artificial limb was satisfactory and that the fault lay in the stump itself. The patient was subjected to an operation for division of the popliteal nerves. The artificial limb was not altered. He was discharged relieved.

### Comment

The above are two of the many cases that have been analysed and successfully treated along these lines.

**Points noted and studied include:** (1) The varying axes of stump and different prostheses. (2) The varying relations between the artificial joint and the natural joint in short below-knee and below-elbow amputations during movement. (3) The relation of the direction of painful and non-painful spurs to the movement of the stump in the prosthesis.

Active research is being continued both to obtain more data on the behaviour of a stump in an artificial limb and also to determine the most suitable type of stump and prosthesis in amputations at various levels. For this purpose not only are more examinations of existing prostheses required but other experimental types of artificial limbs with various stumps should be tried. The problem is not one which can be rapidly solved, as a certain time must elapse before effects become apparent.

### Summary

Cineradiography is shown to have great scope in research—for example, the behaviour of stumps within artificial limbs.

The application of cineradiography in the diagnosis and the control of treatment is discussed.

I should like to thank Sir Walter Haward, Director-General Medical Services, Ministry of Pensions, for permission to publish this article. To Dr. Russell J. Reynolds I am most grateful for the facilities he has made available. I also wish to thank the energetic team, comprising Drs. Seymour J. Reynolds, Hugh Hay, and Stewart Russell Reynolds, for their co-operation.

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## ACUTE POLIOMYELITIS

### Memorandum by Medical Officers to the Ministry of Health

Notifications of poliomyelitis and polio-encephalitis for the week ending July 12, 1947, are 110 and 16 respectively. The highest weekly figure previously recorded since poliomyelitis became notifiable in 1912 was 82 in 1938. This peak was reached in the week ending Aug. 13, 1938. Having in mind the usual seasonal trend and the fact that a significant increase in notifications rarely appears until the end of July, we may expect the early start this year and the present high figures to be reasons for anticipating an unprecedented prevalence.

So far this year the notifications of polio-encephalitis have been higher than ever before. Bulbar and respiratory paralysis and meningeal reactions preceding paralysis appear to be more common than is usual in poliomyelitis.

### Clinical Appearance

Typically there are three phases in the illness recognizable as poliomyelitis. In many cases there is also an initial or prodromal illness followed by a distinct interval of five to seven days before more serious signs of disease appear. The chronology may be tabulated as follows.

		Usual Incubation Period from Date of Infection	Manifestations
Stage A	Prodromal illness	1-4 days	Fever, weakness, perhaps sore throat or diarrhoea, and occasionally pain in chest or limbs
Stage B	Anterior poliomyelitis: Phase 1 (onset)	7-18 days (up to 3 weeks)	Fever, flushed face, furrowed tongue, considerable headache, sometimes vomiting; drowsiness, irritability, and vague subjective phenomena; increasing stiff neck; sometimes exaggerated tendon reflexes
	Phase 2 (pre-paralytic or meningitic)	10-15 days	Sometimes marked intoxication and coma; pain on flexion of neck and spine; tenderness and hyperaesthesia; sometimes nystagmus
	Phase 3 (paralytic)	13-18 days (up to 35 days)	Hyperaesthesia and weakness of muscle groups going on to flaccid paralysis due to anterior horn cell lesions; diminution in tendon reflexes. There is a marked tendency for paralysis to improve after it has reached its height

The prominent symptoms in all phases of Stage B are referable to the C.N.S. They suggest a certain order of progression, which may be indicative of the progress of inflammation within the central nervous system. There may be intermissions in this progression, and one or both of the later phases may not develop.

An illness probably due to the same virus, in which the lower motor neurones escape and the signs and symptoms are predominantly those of meningeal and cerebral involvement, is notifiable as polio-encephalitis.



### Infectivity

The disease has been notified from many different centres throughout the country, and from some of these there has been evidence of radial or concentric spread. It is known that non-paralytic cases of the disease are able to transmit it to others; who may or may not develop paralysis. Laboratory investigations have amply confirmed this and have also demonstrated the presence of poliomyelitis virus in healthy contacts. Infectivity is, however, probably greatest during the phases preceding paralysis; in fact the clinical paralytic disease is essentially an infrequent incident occurring among a far larger number of cases aborting in Stage A or Phase 1 of Stage B. These are none the less infectious.

### Action by Practitioner

At this time poliomyelitis should be considered whenever a practitioner is called to see a febrile child (or even an adult) with indeterminate symptoms, particularly if there are other persons in the environment exhibiting the same symptoms or if there has been, within a period of two weeks, any other febrile illness—e.g., "flu," sore throat of unknown origin—in the patient or his contacts. The patient should be put to bed in a room by himself and examined at every visit until a diagnosis has been made. Careful search should be made for the early indications of invasion of the nervous system (e.g., neck rigidity). A good way of eliciting this is to ask the patient to kiss his knees while sitting up in bed. If within 24 to 36 hours the symptoms continue and no signs diagnostic of one or other of the common infections of childhood appear, the medical officer of health should be informed. There should be no hesitation in reporting a case to the medical officer of health if in the presence of the slightest suggestion of rigidity of the neck there have also been psychological disturbances such as fear, bad dreams, disturbance of sleep, drowsiness by day, restlessness by night, peevishness, etc. These disturbances not uncommonly precede the signs of meningeal invasion. Home isolation at onset and on suspicion is a most useful measure in the prevention of spread of the disease. Nose and throat discharges and excreta should be disinfected.

A patient who is suspected of poliomyelitis should be kept continuously in bed in a room by himself for not less than one week, having regard to the well-known tendency for the symptoms and fever to subside in two or three days' time and then to recur. Isolation of confirmed cases from other children should continue for three weeks. Contacts should be excluded from school for three weeks after isolation of the patient. Restrictions need not be placed on adult residents in an affected household provided they remain well.

It is notoriously difficult to judge the value of any treatment in poliomyelitis. There is no evidence that convalescent serum given in the pre-paralytic stage or after has any curative effect. Experience of prophylaxis with gargles and nasal sprays has been disappointing. There is, however, overwhelming evidence that a recent tonsillectomy increases the risk of a child's contracting poliomyelitis, particularly of the bulbar type. Prevalence of poliomyelitis in an area should therefore be an indication for the postponement of operations on the nose and throat whenever possible.

### Action by Medical Officer of Health

On receiving a notification or learning of suspected cases of poliomyelitis the medical officer of health should proceed on the following lines: (a) advise all practitioners in the area; (b) assist in securing suitable accommodation, including isolation, for the patient in hospital or otherwise; (c) investigate the associated circumstances, including a search for missed and abortive cases; (d) ensure that precautions are taken on the assumption that the disease is capable of transmission by mild abortive cases; (e) follow up all notified cases throughout the whole period of their illness to ensure that their treatment is suitable and continuous.

When multiple cases have occurred in a district all crowded assemblies should be discouraged, and so far as is possible all gatherings of young children and unnecessary travel avoided. Young children should not be allowed to enter any house where there is a case of undiagnosed illness. Contacts should avoid

physical strain. School closure is undesirable except under special circumstances.<sup>1</sup> This advice does not apply to day nurseries and nursery schools. So far as possible the normal groupings of the child population should be maintained and sick children removed promptly.

The medical officer of health should also advise his council, first, on what can be done to promote early diagnosis during the acute stage, and, secondly, on what arrangements can be made under the local orthopaedic scheme to send all children affected, whether the condition is slight or serious, to an institution equipped to give such special treatment as may be required to prevent avoidable muscular weakness or permanent deformity. In view of the common occurrence of cases of poliomyelitis below the age of 5 years, and bearing in mind the good results of effective treatment and the serious consequences of neglect, it is important that doctors should know of the facilities for orthopaedic treatment available through the maternity and child welfare and school health services. In the course of their routine visits health visitors may hear of suspicious early cases or of children with mild paralyses due to an undetected attack. If the local prevalence assumes epidemic proportions information should be circulated to the public regarding the care to be observed in the event of attack and the facilities for treatment available in the district.

In view of the fact that the virus is excreted in the faeces and has been found in flies the possibility of water-borne or other alimentary infection should be kept in mind, although reliable evidence of spread by these means is lacking.

### Laboratory Investigations

In addition to any routine chemical and cytological examinations of cerebrospinal fluid which may be carried out locally for diagnostic purposes there are certain examinations being done at the Central Public Health Laboratory which, although not of direct help in the diagnosis of individual cases, may throw some further light on the epidemiology of the disease. The specimens required for these investigations are: (i) About 5 ml. of serum from definite or suspected cases. Wherever possible two specimens should be sent from each case, one taken in the acute stage and one in the convalescent. (ii) Specimens of cerebrospinal fluid or of fresh post-mortem material from cases of doubtful diagnosis—i.e., those cases in which meningeal or encephalitic signs and symptoms predominate. Post-mortem specimens (brain or spinal cord) should be placed in equal parts of glycerin and normal saline. Both specimens and cerebrospinal fluid must be kept in a refrigerator, and arrangements will be made for collection if the Public Health Laboratory Service is notified.

Specimens should be sent to Dr. F. O. MacCallum, Virus Reference Laboratory, Central Public Health Laboratory, Colindale Avenue, London, N.W.9 (Telephone: Colindale 6041).

### RADIO-ISOTOPE SUPPLIES

Arrangements for the supply of radio-active materials for research were discussed at a conference held in Manchester by the Institute of Physics from July 10 to July 12.

Dr. J. D. Cockcroft, Director of the Ministry of Supply's Atomic Energy Research Establishment, stated that a small nuclear pile of some 50 kilowatts output should be working before the end of the year. This would be followed by a large pile of the order of 1,000 kilowatts output, and also by cyclotron production on a smaller scale of those radio-isotopes which could not be obtained from the piles. The general rule was that radio-isotopes which had masses greater than those of the corresponding stable isotopes of the same chemical element could be obtained from piles, while those of smaller mass had normally to be obtained from a cyclotron. The difference in output was about a thousand to one in favour of the pile method, but United States experience had shown that, with double-shift working, a cyclotron could be effectively operated for an average of 20 hours in every 24. He mentioned with approval the use of an alarm bell to arouse the

<sup>1</sup> *Lancet*, 1946, 1, 972.

night operator if the current represented by the bombarding beam fell by 10% below its proper value.

Estimates had also been prepared of the output which could be expected from a 1,000-kilowatt pile. By concentrating on radio-phosphorus ( $P^{32}$ , half-life 14 days) 40,000 curies of radioactive material could be made in a month. For radio-cobalt ( $Co^{60}$ , half-life 6.3 years) a year's working should yield 5,300 curies. This was the radio-isotope which had been chiefly favoured as a substitute for radium.<sup>1</sup> For radio-hydrogen ( $H^3$ , half-life 31 years), which should be of considerable value in biological and medical research, output during the same period should be 900 curies. These figures were for material irradiated in the central area of the pile. Some additional output could also be obtained in suitable cases by irradiation in the reflecting blocks, which were used to return as many as possible of the fission-producing neutrons to effective use in the pile. Finally, the fission products themselves would be used to provide the most intense source of mixed radiation which the Establishment would provide. From 10 grammes' weight an activity of 5,000 curies, with an effective half-life of about 100 days, could be expected.

All radio-isotopes listed for internal supply in the United States<sup>2</sup> would be produced at Harwell, and there would also be a "consumer demand" service. Laboratories wanting particular radio-isotopes not included on the list could write, stating their requirements, and if possible they would be supplied. In general the order of priority would be Harwell's own research requirements first, university laboratories second, and other users third. Allocations would be made by a committee, on which the Medical Research Council was represented, and it might be assumed therefore that the final criterion would be the value of the research which it was proposed to undertake rather than the formal status of the hospital or laboratory concerned.

A further point which emerged from Dr. Cockcroft's address was that, although small supplies of cyclotron-produced isotopes from United States sources had been made available to the Medical Research Council, the form of existing legislation in that country is such as to prevent the export of any radio-isotope made in a nuclear pile, although their properties have in most cases been freely published.<sup>3</sup>

### Distribution and Disposal

Dr. J. V. Dunworth (A.E.R.E.) referred to the production of "eight-days" radio-iodine ( $I^{131}$ ), which, as Prof. Robley Evans lately indicated,<sup>4</sup> has been adopted as the standard form of radio-iodine in the treatment of Graves's disease. He mentioned also that  $C^{14}$  was among the exceptional radio-isotopes which, although of lower mass than the corresponding stable isotopes, could none the less be prepared in a pile. It had a half-life of only 20 minutes, but on account of the greater energy released in its breakdown would be easier to work with than the more familiar form of radio-carbon ( $C^{14}$ ). The latter had a half-life of more than 6,000 years but, its radio-activity being comparatively feeble, was less easy to detect and to measure.

Mr. W. G. Marley (A.E.R.E.) gave some further information on distribution plans. Radio-isotopes prepared in the pile by irradiation of stable forms of the same chemical element, by a straightforward process of neutron absorption, would be distributed in the original aluminium "cans" in which they had been irradiated. Chemical separation, where necessary, would be undertaken centrally. This applied both to substances such as  $C^{14}$ , which involved transmutation from a different chemical element—nitrogen in the example quoted—and also to those radio-isotopes which were most conveniently obtained from the fission products built up in a pile during its normal operation. Distribution would in general be through the Amersham centre, but direct supply was not excluded in the case of short-lived radio-isotopes, for which speed of transport was essential.

Referring to safety precautions, Dr. Dunworth stated that one microgram of plutonium in a cat would suffice to cause at that point a sarcoma which was likely to be fatal. The

fouling of drains with radio-active material of any kind must be prohibited, and large quantities could be disposed of only by sinking in the ocean. Before distribution competence to handle would have to be established, including the making of routine measurements of contamination. Local committees of physicists, chemists, and medical practitioners might, he suggested, be established for this purpose.

### ANIMAL BENEFACTORS OF EXPERIMENTAL RESEARCH

The tables were turned on anti-vivisectionists by Prof. G. H. Wooldridge in his Stephen Paget Memorial Lecture to the Research Defence Society on June 17, when he described the benefits brought to animals as a result of experimental research. Dealing in the first place with anaesthetics, he pointed out that the vast majority of these agents, general and local, were either discovered or perfected as a result of such research, and that this had meant that hundreds of thousands of essential operations annually performed on animals were now carried out without any pain or suffering whatever. All veterinary surgeons as a routine measure resorted to anaesthetics on every possible occasion to prevent and relieve pain. Many suffering animals whose recovery was hopeless had been given the benefit of euthanasia by means of "nembutal."

The use of sulphonamides, again, had been established by experimental research, and such drugs had enabled thousands of animals suffering from pneumonia and other infections to be relieved and cured. It was conservatively estimated before the war that a quarter of the cows in milk were affected with mastitis, a disease in which sulphanilamide, if given in the early stages, brought about favourable results in from 60 to 90% of cases. Penicillin also gave promise in the treatment of this condition, as well as in infections caused by *Staphylococcus aureus* in the udder. The disease known as redwater in cattle, caused by parasites invading and destroying the red corpuscles, formerly took an enormous toll of life in most tropical countries, but by the use of trypan blue, a discovery due to experiments on animals, this loss and attendant suffering had been reduced to insignificance. Another parasitic blood affection, known in South Africa as East Coast fever, had yielded to preventive inoculation. The same was true of rinderpest, or cattle plague. As a result of intensive experimental research an immunization technique had been perfected and cattle plague totally eradicated from South Africa, where at one time it had threatened to exterminate all the cattle. This was not merely an economic gain, for cattle plague was an extremely painful disease to the animals themselves owing to the local lesions produced.

### Diagnosis and Control

Other diseases of cattle which had been controlled as the result of inoculation were anthrax and "black leg" or "black quarter," the latter due to a soil organism. It had also been demonstrated that vaccination of young heifers effectively prevented contagious abortion in cows. As for bovine tuberculosis, tuberculin had been shown by guinea-pig and cattle experiments to be a satisfactory diagnostic agent, and with its aid there was a good prospect that tuberculosis of cattle might ultimately be stamped out in this country. Among diseases of horses which had been largely controlled by experimental research Prof. Wooldridge mentioned glanders and tetanus; among diseases of sheep, lamb dysentery and "swayback"; and of pigs, swine erysipelas and swine fever. In dogs and cats experimental work on nutrition had resulted in the reduction of the incidence of rickets almost to vanishing-point. Prophylaxis had enormously reduced the incidence of distemper, while rabies in this country had been exterminated simply because, as a result of experimental research, its cause and mode of transmission had been discovered.

Prof. Wooldridge concluded by saying that it was abundantly clear that practically all species, at any rate of domesticated animals, had come to enjoy most remarkable benefits as a result of experimental research, and no veterinary surgeon could possibly do his duty to the animal world unless he took full advantage of the discoveries made by research workers.

<sup>1</sup> *British Medical Journal*, 1946, 2, 951.

<sup>2</sup> *Rev. sci. Instrum.*, 1946, 17, 345.

<sup>3</sup> *Brit. J. Radiol.*, 1946, 19, 481.

<sup>4</sup> *British Medical Journal*, 1947, 1, 594.

Yet, as a later speaker reminded the audience, the late Prof. Hobday was attacked by the anti-vivisectionists when he was carrying out his long series of experiments on the production of anaesthesia in domestic animals by means of inhalants such as chloroform and ether—experiments which put an end alike to the physical anguish of the animal patient undergoing operation and the mental anguish of the operator.

## INTERNATIONAL MATERNITY AND CHILD WELFARE

An international conference on maternity and child welfare was held in London during the last week of June. Delegates from many European countries, including Germany, Austria, and Italy, attended, and two of the sessions were devoted to a discussion of Europe, her present needs and future outlook, in which delegates from twelve countries participated. The Minister of Health, in opening the conference, referred to the gratifying fall in infant and maternal mortality in Great Britain. In 1946, when the birth rate was the highest for over twenty years, infant mortality stood at 43 per 1,000 live births, and maternal mortality at 1.43 per 1,000 births, or less than half the figure for 1938. The stillbirth rate was about two-thirds of what it was before the war. These advances, said Mr. Bevan, had been made because the Government was trying to ensure that such resources as were available reached those who most needed them. The improved vitality and "bonniness" of infants was also to be attributed to the higher standard of infant care brought about as a result of propaganda and the more intelligent devotion of the modern mother. He believed that still greater improvement could be effected through the planning of available resources, which was the aim of the National Health Service Act.

Mr. Bevan praised the work of voluntary organizations in this as in other fields, and said that local authorities in working out their new schemes would be wise to make use of voluntary organizations and to contribute towards their funds. Sir Wilson Jameson, Chief Medical Officer of the Ministry of Health, who presided over the ensuing session, also stressed the useful part played by voluntary organizations. "We cannot do without voluntary organizations in this country," he said. "They have to be given as prominent a place in the new Health Service as they have had in the past. It would be a sad day for this country if voluntary work were to come to an end."

A discussion developed on the training of doctors and midwives. Sir Andrew Davidson, Chief Medical Officer of the Department of Health for Scotland, said that to gain adequate medical experience for maternity and child welfare work intending practitioners in this branch of medicine should divide their time between maternity and child welfare services, especially those which had a department for breast-feeding difficulties, nurseries which catered exclusively for healthy children, and sick children's hospitals. The singleness of the mother and child as a biological unit should always be kept in mind. Lady Reading urged that medical students as part of their training should attend infant welfare centres in order to see how doctors dealt with normal children.

### Nutrition of Mother and Child

In a session on nutrition Dr. H. E. Magee, adviser in this subject to the Ministry of Health, said that the national indices of the health of mother and child, which had been improving during the war, were checked in 1940-1, but since 1942 maternal, infant, and neonatal mortality rates had been falling. There was less anaemia among women and children in 1943 than in pre-war years, and there had been further improvement since then in some areas. The constructive and protective nutrient requirements of the expectant mother were almost entirely met by her rations and allowances alone, irrespective of canteen or other extra meals and the family pool, and the rations of the nursing mother and infant together provided more than enough of nutrients for both. He held that much of the improvement in the health of mother and child during

and since the war as compared with pre-war years could be attributed to better diet.

Of the reports made by Continental delegates the most encouraging came from Norway. Dr. Hanna Berghoff described the work of the Norwegian Women's Nursing and Health Association, which had 200,000 members (in a country with a population of only three million) and 300 stations for maternity and child welfare spread all over the country. The latest statistics for all Norway gave an infant mortality rate of 35.5 per 1,000 live births, and in Oslo in 1945 the rate was 21.2, the lowest ever recorded. It was stated that in Austria at the present time the question of providing milk for infants is the outstanding problem. In one maternity hospital in Vienna a collecting centre for mothers' milk has been established from which the bottled milk is taken daily to the homes where it is needed.

## PHYSICS IN THE LIFE OF A SURGEON

The Cavendish Lecture of the West London Medico-Chirurgica Society was given at Kensington town hall on July 1 by Mr. H. S. Souttar. His exposition was clarified by diagram and charts—the work of his own hand—one stretching almost half-way across the room and showing the range of radiation through more than sixty octaves, only one of which was visible light.

Speaking first of the physics of the human body, Mr. Souttar said that few were aware of the actual measurement of the forces which the muscles could exert or the exquisite precision with which the movements of the joints were controlled, a fact that was all that was required. By this cunning device of traction he induced the muscles to relax and exert no force at all, for he removed the source of irritation produced by the contact of the fractured ends of the bone. The lecturer gave a simple example of the important secondary effects of the forces which the surgeon employed. If traction were put on the femur of a patient lying in bed there must of course be some counter-pull to prevent the patient from being pulled out of bed, and this was most easily obtained by raising the bed foot. But this counter-pull acted on the centre of the pelvis, while the traction pull passed through the hip. The side of the pelvis was thus pulled down, so that the pelvis lay obliquely and the leg was effectively abducted at the hip. In the case of a fractured femur this was of no importance, but in many conditions of the hip-joint abduction was the essential point of treatment. It might be imagined that this was easily obtained by swinging the leg out, but that was by no means the case, as the pelvis might swing with it. Traction in the line of the leg was the correct physical method of obtaining abduction—a simple fact not always appreciated.

### Resistance to Forces

Mr. Souttar then turned from the forces which the human body was capable of exerting to those which it was capable of resisting. As an example he considered the effects of a blow on the head. If a man were struck on the head by a stone weighing 1 lb. (0.45 kg.) and falling a distance of 9 ft. (2.74 m.) he would probably have some degree of concussion, though his skull might not be broken. If it deformed the skull 1/4 in. (0.63 cm.), which was about the possible limit, any such deformation would be resisted by a rise in intracranial pressure which, in the example quoted, would be at least of the order of 80 lb. to the square inch (5.5 kg./sq. cm.). Such a pressure even though it lasted for only a fraction of a second, might force every drop of blood from the capillaries, leaving the brain anaemic, with the clinical result of instantaneous paralysis, furnishing a complete justification of Trotter's theory that phenomena of concussion were the result of sudden anaerobiosis resulting from the rise of intracranial pressure.

Mr. Souttar described a curious case which many years ago came under his care at the London Hospital. A small child was knocked down by a light cart and the wheel passed over her head. He cleaned up the dirty lacerated wound of the scalp and noticed a fine crack vertically through the temporal region. The condition of the child precluded any further disturbance. Two days later she regained consciousness, but after two days more she became comatose, with clear signs of intracranial pressure. He trephined and found beneath the hair-like crack not blood, as he had expected, but an extradural disk of hard mud 2 in. (5 cm.) in diameter and 0.5 in. (1.25 cm.) thick in the centre, and on removal of this the child made an uninterrupted recovery. This considerable mass of mud could have got in only through the crack, and as the force applied was only momentary the crack must have opened widely. He estimated that a force of 250 lb. (113 kg.) weight must have been supported on an area of 5 sq. in. (32 sq. cm.), so that the pressure within the skull must have been 50 lb. to the square inch (3.2 kg./sq. cm.).

Touching finally on another branch of physics—radiation—he said that x rays and gamma rays of radium had taken their place as established instruments of surgical technique, but to understand their use something must be known of their origin and nature. Both arose within the atom, but from very different sources. X rays were produced by hurling at the atom a stream of electrons driven by powerful electric forces; gamma rays arose from the disturbance of the electron field of the atom owing to the explosion of the nucleus of the atom itself. The radiation was identical in kind with x rays, but with x rays produced by an energy of two million volts. "I believe that in radiation we have one of the greatest weapons of surgical progress, but it is indeed a weapon and not a tool, and only those who are prepared to devote their lives to its study have any right to use it except in very limited fields or with the close co-operation of those who understand its dangers as well as its powers."

Beyond the region of the gamma rays there were the cosmic rays—far shorter and of correspondingly greater energy—arising, it was believed, from the actual destruction of matter and having their sources in the distant nebulae. It was certain that these rays had a profound influence on the cells of the human body, perhaps indeed were essential to life itself

## TEN YEARS OF WAR SURGERY

Dr. J. Trueta lectured to the Abernethian Society at St. Bartholomew's Hospital on June 19 on "Ten Years of War Surgery." This was one of the last lectures he is giving in this country before returning to Barcelona. Dr. Trueta was chief surgeon of a big industrial institution in Catalonia in 1929, and when the Spanish war broke out he became chief surgeon to the general hospital of that province, where he developed in a larger field what he had begun to try industrially—his technique for the treatment of compound fractures. He came to Great Britain in 1939.

In his lecture he pointed out that the experience gained in war had been the main factor in surgical progress for many centuries. War was of benefit to surgery, though this was not paralleled by its benefit to surgeons, because the work had to be done in a hurry under conditions of difficulty and improvisation, and good teaching, so essential to the training of a surgeon, tended to disappear in a war. He had built up for himself a code of principles, and in 1936, when the Spanish war broke out, he had started a propaganda campaign in Spain to endeavour to convince others of those principles. The main and decisive principle was the importance of blood supply. It was no use relying only on the sulphonamides: every bit of bad tissue must be removed. Penicillin, while the greatest of gifts to the good surgeon, was not of much use to the bad. There was a great deal of difference between the surgeon who relied only on these compounds and the one who meticulously removed every trace of damaged tissue. Bacteria were only 50% of the sepsis problem, the other 50% being the condition of the tissues.

With a war wound the pessimistic conception obtained that there would always be bacteria in contact with the damaged tissues. During the Spanish war there had been no sulphonamides and no penicillin, and yet the results were very much

better than they had been in 1918. In a series of 1,073 cases of compound fracture he had had only six deaths; two or three of the cases had come to him fifty minutes after bombing, but some as long as forty-eight hours after, having received no intermediate treatment at all.

The second important point was immobilization. Complete immobilization was essential; partial immobilization was worse than none at all. Plaster had two properties: it kept the limb quiet, and it protected the wound against contamination from outside. Up to that point he thought most surgeons would agree, but there was a difference of opinion among them on the drainage of wounds. He did not have pus from his wounds. He recommended the use of very close mesh dry gauze because it had absorbent powers and fulfilled the necessary duty of starving the bacteria. He had never once seen pus forming under dry gauze.

## COMMONWEALTH FUND FELLOWSHIP AWARDS

The committee of award of the Commonwealth Fund Fellowships (35, Portman Square, London, W.1) has made the following appointments to Medical Fellowships offered by the Commonwealth Fund of New York, which are tenable by British graduates in American universities for one year beginning September, 1947.

J. P. Bentley, M.B., F.R.C.S., Charing Cross Hospital Medical School and King's College, University of London, to Emory University, Atlanta, Georgia (in Surgery).

R. P. Brittain, M.B., Ch.B., LL.B., University of Glasgow, to New York University College of Medicine (in Forensic Medicine).

J. Innes, M.D., F.R.C.P.Ed., University of Edinburgh, to Washington University, St. Louis (in Medicine).

A. Slessor, M.B., Ch.B., University of Glasgow, to Harvard University Medical School (in Medicine).

H. Stalker, M.D., F.R.C.P.Ed., University of Edinburgh, to Cornell University Medical School (in Medicine).

## Preparations and Appliances

### THE SMALLEST HEARING-AID

A demonstration was given in London recently by the Multi-tone Electric Co., Ltd., of a hearing-aid said to be the smallest in the world. Its length is about 8 cm., its width about 4 cm., and with the small battery pack, into which the instrument may be plugged to form a single unit, it weighs only 160 g. The upkeep costs are from one penny for thirteen hours to one penny an hour, according to the degree of deafness. The new instrument is known as M.T.3, short for "midget telesonic three-stage." The three-stage amplifier consists of a space charge double tetrode and an output pentode, used as a pentode when a magnetic miniature earpiece is plugged in. A novel feature is the volume control switch, consisting of a differential condenser used in a negative reaction circuit. This, it is claimed, cannot go wrong or become noisy with age. Another advantage is that with the inductive load of the magnetic earpiece or bone conductor the higher frequencies are emphasized as the amplification is increased. An alternative response curve can be obtained by means of the tone control screw on the back of the instrument, operated by substituting a longer screw than the one with which the instrument is normally delivered. The telesonic system, with which the instrument may be used, was developed during the war as a means of local communication. The deaf person, it seems, has only to attach this hearing-aid to a small adaptor, which automatically cuts out the microphone from the circuit and converts the instrument into a telesonic aid, to be able to use it with the telephone or in buildings where the telesonic system is installed. The M.T.3 costs 30 guineas with crystal miniature earpiece and standard mould.

## Correspondence

### State Medical Service in New Zealand

SIR,—The letter from the pen of Sir Ernest Graham-Little (May 3, p. 611) invites comment. Your heading of "State Medical Service in New Zealand" is unfortunate and quite inaccurate. We have had a State salaried service in this country for many years looking after the mental hospitals, all of which, except one, are under State control. The scheme to which your correspondent refers, however, is simply a compulsory universal prepayed system whereby there is a more equitable distribution of that costly article, medical care. The only part the State plays is to collect the premiums and pay the doctor 7s. 6d. for each service rendered. It also pays the chemist for any drug ordered by the doctor providing it is one listed in the *B.P.* and *Addenda* or *B.P.C.*, and will even pay a portion of the cost of a proprietary equal to the sum payable for the official equivalent if such exists. It also pays all public hospital bills and similar sums to private hospitals, and all x-ray and laboratory facilities. Finally, it pays for immunization of school-children and provides the material free, so that now it is almost impossible to find a child who has not been immunized.

Nowadays people can get medical care for all conditions instead of having to self-diagnose and self-prescribe a patent medicine. Nowadays the doctors can and do order all sorts of laboratory procedures without wondering whether the patient can pay. And at last the profession, for the first time, have learned to think and prescribe in terms of official nomenclature and not in terms of a trade jargon covering a bewildering jumble of proprietary medicines, about the exact composition of which so many were profoundly ignorant. Yet, in spite of these and other great advances, we are told that the standards have dropped. Other people think differently. We are also told that patients cannot get attention at night and during the week-ends. I am sure that hundreds of G.P.s in this country will join with me in saying that this is grossly inaccurate and quite unjust. Certainly it is not true of the South. Finally, a dearth of specialists, if such really exists, could be readily explained by the increased amount of medical work consequent on discovering illness in people who previously could not afford medical attention. At any rate, as the general practitioner scheme has only been in operation for six years, it cannot have played any part in the alleged shortage. Furthermore, the difficulties of taking a postgraduate course in Great Britain at the present time are too real to need any stressing.

It is becoming rather tiresome to see stalwarts of organized medicine in America and Great Britain labelling this country as the Ugly Duckling in reports which are essentially superficial, misleading, and biased. If they must survey the New Zealand cenc, then it is only fair that they do it thoroughly and conscientiously. It will then be found that, while the present scheme is neither wholly good nor wholly bad, yet on points it is much in advance of the old system, and that the establishment of the sociological principle that medical care shall be free and universal is here to stay.—I am, etc.,

Wanaka, New Zealand.

ALBERT D. G. BLANC.

SIR,—The following extract from a letter which has just reached me from a university professor (non-medical) in New Zealand may be found interesting and suggestive:

"If you introduce your own State Service in England, you will probably be able to profit from our mistakes. A common objection is that a young practitioner without much ability can earn a good salary so soon that he has no incentive to specialize. . . . Moreover the system does not discriminate between men of superior and inferior qualities. The general opinion is that our best medical practitioners will tend to leave New Zealand to an even greater extent than before."

I think you will agree that the above stresses a tendency which needs to be borne in mind.—I am, etc.,

Weybridge, Surrey.

A. C. LANKESTER.

### Adder Bite

SIR,—In view of the fact that we have had two cases of adder bite within the last three months, we feel their case histories may be of interest. In both cases we tried the effect of "benadryl" to counter any allergic symptoms which might have arisen; in both cases this appears to have been effective. In the second case we were able to obtain anti-viperine serum, but injection was not possible until several hours after the bite, and its full value could not be assessed. In both cases there was a marked degree of shock, vomiting, and upper abdominal pain of considerable intensity. Recovery was uncomplicated, and both patients have reported no subsequent ill effects.

### CASE REPORTS

*Case 1.*—De B., aged 60, bitten by unidentified snake—an adder from his description—at the junction of the middle and lower third left shin, at 5 p.m. on April 11, 1947. No tourniquet applied, and patient travelled thirty miles before being seen by one of us (H.H.M.) at 7.30 p.m. By this time he was considerably shocked and vomited several times, complaining of severe upper abdominal pain. A cruciate incision was made into the site of bite until blood flowed freely. No tourniquet was applied because of the time lapse (24 hours) since the bite. The patient was given morphine 1/6 gr. (11 mg.), and the leg was immobilized between pillows. That night the patient developed swelling of lips and face; he was given benadryl 50 mg. by mouth, and the swelling subsided by morning. The following day, April 12, his leg began to swell, became brawny, and finally turned mottled blue and black up to and including the groin. This continued for one week with adenitis of left inguinal glands. On the second night his face and lips again swelled, and he was given 50 mg. of benadryl with good effect. His general condition continued satisfactory, the pain and swelling of leg after a initial three days' increase gradually subsiding, and he was discharged upon the tenth day with slight oedema of leg. On May 9 slight oedema still persisted at end of day.

*Case 2.*—P. T., aged 17, on June 17 found a snake coiled up under an earth bank. He picked it up, thinking it was a grass snake whereupon it bit him on the dorsum of his left thumb over the interphalangeal joint, at 6 p.m. His young brother tied a handkerchief tourniquet around base of thumb, but apparently not very tightly. He walked one and a half miles home, where he arrived in a collapsed condition. He was immediately taken to hospital. One of us (G.E.F.) saw him at 6.45 p.m. He was then in a very shocked condition, grey in colour, pulse very rapid and weak, vomiting repeatedly and complaining of severe upper abdominal pain. A cruciate incision was made into the site of the bite and intermittent venous occlusion of upper arm was commenced. By this time there was considerable local swelling and pain. Benadryl (100 mg. in 4 oz. (114 ml.) of saline was injected P.R. and 1/6 gr. morphine given. General condition improved, and at 1 a.m. on June 17 10 ml. of anti-viperine serum was given intramuscularly into left deltoid. After a restless night sulphadiazin (2 g. stat., 1 g. 6-hourly) was commenced and continued to a total of 20 g. Benadryl 50 mg. t.d.s. was given for two days. No allergic symptoms were reported. Brawny swelling of hand, forearm, and upper arm developed, with temperature up to 100° F. (37.8° C.) on first day. Swelling became maximum on third day, involving laterra chest wall and scapular region with axillary adenitis. Region of bite became bluish, with serous discharge. Recovery began on fourth day, and patient was discharged home with slight swelling but no pain on eighth day. June 30, reported fully recovered.

—We are, etc.,

H. H. MATHIAS,  
G. E. FRENCH.

Tenby, Pembrokeshire.

### Choice of Drugs in Treatment of Duodenal Ulcer

SIR,—I have read with interest the article by Dr. A. H. Douthwaite (July 12, p. 43) and in particular his remarks on the use of belladonna in the treatment of peptic ulceration. With him I agree that its effectiveness is undoubted, as indicated in my article on "Dyspepsia and its Surgical Significance" in the *Journal* of June 3, 1933 (p. 954). From my own studies of its effects its main action lies in the prevention of coeliac stimuli reaching the intestinal musculature, in particular the pyloric and other junctional sphincters. By doing so it relieves all stomach excitability. The unfortunate feature in its administration, as pointed out in my article, is the low concentration in the tissues which produces the distressing subjective symptoms of dry mouth and ocular disturbances. An adequate and long course of therapy is required if permanent cure is to be reached.—I have not met the patient who will submit to it.



In the surgery of dyspepsia—and surgery is frequently required—it is essential in many cases that pre-operative treatment be often long and even trying, and it was this feature that led me in my search to discover the value of bromide combined with other aids in the treatment of dyspepsia.—I am, etc.,

Dundee.

JOHN J. ROBB.

### The "Costoclavicular Syndrome"

SIR.—Might I be permitted to make an addition to Mr. M. A. Falconer's valuable letter (July 12, p. 69) on this subject? At operations where the axillary inlet is displayed in the living subject it can easily be shown that depression and retraction of the shoulder cause diminution of the space between the clavicle and the first rib; downward traction of the arm also causes the subclavian artery and lower trunk of the brachial plexus to come into more intimate contact with the uppermost rib. Both these facts can be observed when operating for other conditions on patients who do not complain of the "costoclavicular syndrome."

In fact we are all potential sufferers from compression of the neurovascular bundle in the axillary inlet. Under normal circumstances the arm is only held in the position of strain for relatively short periods; also the natural mobility of the neurovascular bundle allows it to move out of harm's way. If, owing to a number of causes such as congenital abnormalities, loss of mobility, continued postural strain, dropping of the shoulder girdle, etc., compression is long continued, the "costoclavicular syndrome" results. As already stressed, there is no one mechanical cause: symptoms are often due to a combination of causes; therefore, if the symptoms and signs are severe enough to warrant operation, exploration must be thorough.

Secondly there is considerable variation in the exact relationships of the subclavian artery and the components of the brachial plexus. I believe it is the relative vulnerabilities of the artery and nerves which determine whether vascular or nervous symptoms predominate.—I am, etc.,

Liverpool.

R. ROAF.

### Spinal Pumping

SIR.—In your annotation entitled "Spinal Pumping" (July 12, p. 62) you refer to the work of A. D. Speransky, which lies "buried in the Russian tongue." We feel that attention should be drawn to the following facts. The first English translation of Speransky's work *A Basis for the Theory of Medicine* was published in New York in 1935, and was reviewed in your issue of Feb. 8, 1936, p. 263. In this volume the theoretical basis of "pumping" is elaborated, though the reader who is anxious to discover it must be prepared to follow to its conclusion a difficult and lengthy presentation.

However, all the important original papers which constitute the basis of the work appeared not only in Soviet journals but also in German publications (chiefly the *Zeitschrift für die Gesamte Experimentelle Medizin*). Since 1933 isolated papers have also appeared in the *Acta Medica Scandinavica* and other non-German journals.—We are, etc.,

JAMES B. BRIERLEY.  
E. J. FIELD.

University of Bristol.

SIR.—Your annotation on spinal pumping (July 12, p. 62) was somewhat unfortunate in its choice of metaphors. We are told that Soviet medicine, untouched by contemporary medical thought, has been developing behind the only too familiar "iron curtain," likewise that the work of Speransky—one of the most illustrious of Soviet medical scientists—remains "buried in the Russian tongue." But if contemporary medical thought is somewhat absorbed in the study of antibiotics then surely Soviet scientists, by their contributions in this field, particularly with reference to gramicidin, show a similar interest.

With regard to the "iron curtain," the library of the Royal Society of Medicine appears to be well stocked with current Soviet medical publications. It is true that they are mostly untranslated, but is the *B.M.J.* sent to Moscow already printed in the Russian language? It would seem that what is needed here is not a liberal use of threadbare clichés but some diligent and purposive organization. As for Speransky remaining buried

in the Russian tongue, I would recommend your annotator to refer to the *B.M.J.* of Feb. 8, 1936 (p. 263), where the first English edition of Speransky's book *A Basis for the Theory of Medicine* is reviewed, albeit most inadequately. The book was published in English in 1943 by International Publishers, U.S.A.

In his book Speransky gives a very detailed account of the long years of experimental work which eventually led him to formulate—however tentatively—a new attitude to disease processes. Just as it is to be hoped that the results achieved by Gillman and Gillman working along these lines will stimulate others to try the method, so it is even more important for Speransky's basic experiments to be checked on the widest possible scale so that his conclusions may either be rejected or further developed.—I am, etc.,

London, N.W.11.

J. S. HORN.

SIR.—With reference to the annotation of Speransky's method of spinal pumping (July 12, p. 62), I should like to correct an error. Your annotator states: "... the steps that led him to adopt this bizarre method of treatment remain buried in the Russian tongue." Speransky's book *A Basis for the Theory of Medicine*, which contains the information your contributor is after, has been available in English since 1935, and has been in the library of the Royal Society of Medicine for several years to my knowledge. A second edition (1943) is available through any bookseller from the International Publishers, New York.

The question again rises: "Who is responsible for the iron curtain—us or the Russians?"—I am, etc.,

London, W.2.

A. W. LIPMANN KESSEL.

SIR.—In the *Journal* of July 12 (p. 62) there is an annotation on the subject of experiences in treating rheumatism and rheumatoid arthritis by the method called spinal pumping. It sounds from the annotation that this odd treatment was carried out only once on each patient. Is this correct? Naturally if a series of lumbar punctures had to be performed on each patient the procedure would be much more hazardous and less impressive. I should be grateful if you would clear up this point for me.—I am, etc.,

Reading, Berks.

K. D. SALZMANN.

\* Gillman and Gillman pumped their patients once, twice, or three times, according to requirements. They comment in their article referred to in our annotation: "First, a single spinal pumping can be followed by lasting beneficial effects; secondly, when a relapse occurs it is usually not as severe as the original attack; and, thirdly, if spinal pumping induces salutary effects on one occasion then a second or even a third pumping is indicated in the presence of refractory joints or if a partial relapse occurs."—Ed., *B.M.J.*

### Stress Fractures of the Metatarsals in Childhood

SIR.—With reference to Dr. Lewis D. Rutter's article on "Stress Fracture of a Metatarsal in a Young Child" (July 12, p. 5) I should like to quote a case which attended the orthopaedic clinic here over one month ago.

The father brought his child of 3 to us complaining that she was not walking properly, and that she walked on her heel with the intent of saving the fore part of her right foot. Examination revealed some puffiness on the inner side of the foot. Tenderness was doubtful. X-ray examination showed a cuff of new bone formation round the mid-shaft of the third metatarsal, with some subperiosteal new bone formation spreading proximally and distally along the shaft. No fracture line was visible. A differential diagnosis of march fracture and Ewing's tumour was arrived at, a case of the latter having been seen previously in the metatarsals of a child of 9 years. Also with Ewing's tumour in mind, the child was asked to be seen 3 weeks later, and in the meantime weight-bearing was to be restricted. X-ray examination on June 30, 1947, showed a definite fracture line, and the diagnosis was then quite obvious. There was then consolidation at the site of the fracture. The child was walking better and tenderness was completely absent.—I am, etc.,

Scunthorpe, Lincs.

ELIZABETH C. MCCLURE.

**Nicotinamide and Diabetes Mellitus**

SIR,—In the *Journal* of June 14, which I have just received on my return from holiday, I noticed a letter from Dr. W. Gordon (p. 863) in reply to my short memorandum on the subject of nicotinamide and diabetes mellitus (March 29, p. 414). I must hasten to correct the erroneous impression under which Dr. Gordon appears to be labouring—namely, that I am in charge of the Diabetic Clinic at Salford Hospital. This is not so, and my observations on the use of nicotinamide in diabetes mellitus were carried out in my capacity as chief assistant to Prof. T. H. Oliver, at Manchester Royal Infirmary, and were not performed at Salford Royal Hospital. I shall look forward with interest to the publication of further observations on this subject by Dr. Gordon, particularly to learn how an increased production of insulin, which he attributes to nicotinamide, may occur without affecting the sugar tolerance curve.—I am, etc.,

Manchester.

H. J. WADE.

**General Knowledge and General Practice**

SIR,—The reasons for the "distressing lack of culture" in medical students and doctors are the same as those to be found elsewhere. The average boy about to study for one of the professions has a father who is tacitly admitted to be on a lower level of culture than that which the son hopes to reach. Such boys are brought up in households where leisured and informed conversation on a variety of subjects is unknown. From school age onwards they fight against time and examiners. They have no time to read widely, to think deeply, to travel, to make the acquaintance of well-informed persons, and to become aware of their own ignorance. They are caught young and soon begin to know more and more about less and less.

The remedy is early selection, alleviation of financial anxiety, a higher and later standard of general education, and the rising of the age of registration. Our declining civilization cannot provide this. What does the British Medical Association suggest as a palliative?—I am, etc.,

Cricklade, Wilts.

T. R. THOMSON.

**Advice to Lay Committees**

SIR,—I feel I should report a difficulty in connexion with my work as psychiatrist in charge of the child guidance clinic of a local authority which raises a question of principle. The facts are briefly these: A short time ago I recommended that a patient of mine, an 8-year-old boy, should be sent to a boarding school and, with the mother's agreement, put it forward as a case eligible for assistance from the authority under section 8 (2) (d) of the Education Act, 1944. After much delay and repeated applications an interview was finally arranged, first between myself and two members of the authority's education committee, and then between these members and the child's mother. I was then informed that the committee had rejected the application.

The question of principle involved should be of great concern to the doctors who will next year be brought into close relationship with lay committees. The point at issue is whether, or in what circumstances, a lay committee is entitled to reject specialist medical advice.

In this particular case, the distinction between the function of the committee and of the medical officer was perhaps less clear than in some. The Education Act lays it down that local authorities may assist in the costs of boarding school education for those children whose parents wish for it and for whom the authority considers boarding school education desirable. It is a reasonable view that the "authority" is the elected representatives of the people; but the question is, how should these elected representatives form their opinion? On many matters the only basis is the advice of their technical experts. This would be accepted by all were the advice to be, for instance, sanatorium treatment from a tuberculosis officer, surgical treatment from an orthopaedic specialist, or convalescence from a cardiologist. The difficulty in the present case, leading to confusion of thought, is that the advice was not for any highly

technical treatment. It is therefore assumed that the decision is not come to on the basis of technical or specialized knowledge.

I have not specified here, because I could not without betrayal of confidence, and I did not specify fully to the committee, my reasons for this recommendation. It was, however, based on study of the case carried out over many months, and the recommendation for a change of environment was made because I had reached the conclusion that the environment was responsible for the child's condition. The committee may doubt the wisdom of the advice tendered. The medical adviser may be wrong. It is not part of my argument that I was right—merely that I formed my opinion with information, knowledge, experience, and training not available to laymen. If my conclusions were doubted, was not the correct course for my committee to call for further, and more expert, medical advice?

This particular dispute arose in the relatively new field of psychiatry, where the special qualifications of the doctor may be suspect. Similar difficulties can, and undoubtedly will, arise in other fields unless doctors now face these problems, clarify and define their functions as the servants of public bodies, and work to see that these are understood and respected.

I am, Sir, a supporter of the National Health Service, and in that service the role of lay committees as spokesmen for, and protectors of, the public will be indispensable; but I now see, and stress the danger, that lay committees may interfere with medical treatment, not from lack of good will but from lack of understanding. If we do not now collectively act to prevent this, our patients will suffer, while each individual doctor squanders his substance and his enthusiasm fighting his individual battle.—I am, etc.,

London, W.C.1.

PORTIA G. HOLMAN.

**Local Executive Councils in N.H.S.**

SIR,—The Regulations (S.R. and O., 1947, No. 889, Part I, 4 (2 and 3)) relating to local executive councils state that one-third of their total number of 24 members (excluding the chairman) are to retire every year and that the order of retirement is to be decided by lot. By this method it is possible that all the seven doctors, or the three dentists, or the two pharmacists *en bloc* may have to retire in the same year.

I think, myself, that this is not the real intention of the Regulations. I believe that it is intended that every electing body should have, as far as possible, an election every year. If this view is correct I suggest that the drawing of lots for the order of retirement should be carried out in sections. Thus considering the professional half of the council alone, first of all the three dentists should each in turn draw one of three papers marked one, two, or three; then the two pharmacists should each draw from three similar papers; and finally the seven doctors should each draw from two papers marked one two marked two, and two marked three, together with the one paper left over after the pharmacists have made their draw. In this way, one dentist would retire each year, one pharmacist in two years out of the three, and two doctors in two years and three doctors in a third year.—I am, etc.,

Leeds.

J. H. E. MOORE.

**Royal Civilian Medical Corps**

SIR,—It is now almost five minutes to twelve, the chalk lines have been drawn on the parade ground, and the markers are taking up their positions. Is it too late to suggest again that it does not require the conscription of the whole profession and the creation of a vast medical trust, with its wastage of scarce resources and its problems of organization and integration almost beyond the wit of man, to ensure that the poorer members of the community shall not be deprived of aid through lack of means? The formation of a Royal Civilian Medical Corps would effect the most precise adaptation of means to an end, both as regards the Government and the profession. Those members who favour a hierarchical medium in which to express themselves, those who have the power urge, those who feel they have latent administrative ability, those who love uniforms, badges of rank, decorations, regular mealtimes.

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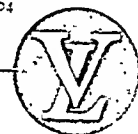
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*References: Shortage of space precludes list of references but full documentation may be obtained on application to Clinical Research Dept. 27 A.*

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pensions, pagantry, and privilege would surely welcome the establishment of such a corps. Volunteers would not be lacking.

From the Government side there would be the immense advantage of having a disciplined permanent cadre ready for an immediate switch in the event of war, the movement of doctors about the country would be facilitated, the difficulties of incorporating remote hotted camps within the present hospital service would be resolved by the formation of parachute troops, and whole divisions could be hurled at will into medically neccessitous areas.

There would be corps d'élite bearing the names of distinguished leaders: the 1st Bourne Brigade, the Ryle (Duodenal) Division, the Black (Eye) Guards, the Stark Murray Chinwits are only a few of the suggestions which spring to mind. Regimental traditions would develop, and in times to come the veterans of many campaigns would forgather in their beta-screened concrete clubs to show their operation scars and fight over again their old battles with disease, real and imaginary. What heroic tales would be told to stir the blood of the young men (subject to the approval of the State haematologist)—the Colonic Lavage Campaign of 1950, the Preventive Raid of 1952 (a blunder this, based on erroneous information from intelligence as to the cause of the falling birth rate, but none the less glorious), and the mysterious Accidie Revolt of 1955 among the survivors of the middle classes, which was finally defeated by the Hormone (Injection) Division.

The problems of organization are large but not immense. These and the avoidance of duplication of services are surely not insuperable obstacles to those who feel themselves gifted in large-scale overall planning with "blue-prints," "items of service," and all the other semantic devices which now pass for thought. All that is required is the idea and the will. Forward the Brigadiers!—I am, etc.,

Bournemouth.

T. R. AYSLEY.

### Standard of Nursing Education in U.K.

SIR,—I am directed by my Council to draw your attention to a letter which has been received from the executive secretary of the Registered Nurses' Association of British Columbia cancelling the existing agreement for reciprocal registration of nurses between this Council and the Association, as it is felt by the Association that the improvements in standards of nursing education in this country, both in respect of general educational qualifications required for entry to the nursing profession and in respect of the nursing training received, have not kept pace with those in British Columbia, and that in fairness to members of the nursing profession in British Columbia and to the public which has come to expect a higher standard of nursing it is not possible to continue the reciprocal agreement entered into with my Council in 1934. In the reply which my Council has sent to the executive secretary of the Association it has been pointed out that, although the hours of instruction a student nurse is required to have undergone before entry to the examinations in British Columbia are considerably in excess of the minimum numbers of lectures laid down by my Council for entry to the examinations in this country, the majority of training schools do in fact arrange for many more lectures to be given than the required minimum, and that, taking into account clinical instruction, tutorials, and revision classes which do not appear on official record sheets, the actual hours of instruction and the variety of clinical experience afforded to most student nurses in this country do approximate much more closely to those in British Columbia than would appear from a comparison of the respective minima laid down. In view of the fact, however, that the General Nursing Council is being pressed from certain quarters to lower its standards of training still further it is felt that attention should be drawn to the fact that nursing education standards in this country would already appear to be falling below those in the Dominions, and that the letter from the Registered Nurses' Association of British Columbia is a timely reminder of the urgent necessity to raise rather than lower the standards of nursing education in this country.—I am, etc.,

M. HENRY,

Registrar.

London, W.1.

General Nursing Council for England and Wales.

### Myopathy with Spina Bifida

SIR.—Dr. Ronald G. Paley (Jan. 11, p. 53) points out the coincidence of the combined occurrence of spina bifida and myopathy. As this association is seldom found, which a perusal of the literature on this subject during the last 25 years indicates, Dr. Paley suggests that it is only an accidental association.

I am not entirely in accordance with the opinion that the status dysraphicus, to whose syndrome belongs the spina bifida, is due to chance concurrence. In 1942, in a review on myotonias (Thomsen and Steinert—diseases and myotonia acquisita) I described 6 cases out of 14 that presented spina bifida. The others, with only one exception, showed different abnormalities in the vertebrae. Later, Passouant (1943) found 3 patients with dystrophica myotonica in a total of 5 cases with spina bifida. The appearance of such skeletal abnormalities in myopathic cases were known by different authors, and in this respect Hirschfeld in 1925 points out the necessity of a more profound analysis in order to elucidate its significance and causal importance. Consequently I feel inclined to accept the idea that the status dysraphicus can be found more frequently at least in certain myopathies than in normal human beings (10% according to Curtius and Lorenz), and that it represents a favourable genotypic milieu for the occurrence of phenotypic myopathies.—I am, etc.,

Buenos Aires, Argentine.

ALFREDO LANARI.

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### Calculation of the Colour Index

SIR.—Dr. W. K. Taylor's letter (July 5, p. 33) is regrettable. The value to the patient is the criterion for the use of any laboratory investigation. Should haematocrit determinations be of enough use in the diagnosis or the treatment of disease, the haematologist must be prepared to perform them even at the risk of becoming a "mathematical robot."

Dr. Taylor states that values for the colour index outside the range 0.9 to 1.05 are probably pathological. In R. G. Macfarlane's study of the error of the Haldane haemoglobin estimation (M.R.C. Special Report Series No. 252, London, 1945, p. 59) the variability of 60 trained observers was studied; 12 had coefficients of variation such that a normal colour index could give values exceeding Dr. Taylor's range (allowing  $\pm 2 \sigma$ ) from variation in the haemoglobin alone without making any allowance for the quite considerable variance of the red-cell count. Finally may I suggest that a nomogram is merely an aid to calculation. Dr. Taylor should construct and use his own nomograms. Was it entirely fortuitous that one of the best photographs of the late Sir Frederick Gowland Hopkins showed him seated in his laboratory holding a slide rule?—I am, etc.,

Sheffield.

ARTHUR JORDAN.

SIR.—Dr. William K. Taylor's arguments (July 5, p. 33) against my suggestion of discarding the conception of the colour index are not easy to follow. Some of them are directed against windmills. Against his opinion that the colour index is a valuable guide to treatment I would say that I should not be surprised if, by and large, the amount of liver extract needlessly administered at private or public expense on the basis of a colour index above unity irrespective of anything else would exceed that given with a properly established indication. Any method of reporting haematological findings which avoids this pitfall and which tends to force the recipient to think in a less facile manner seems thereby alone worthy of consideration.

Regarding the use of a nomogram, Dr. Taylor's twice uttered dictum that a scientist using such a device will thereby convert himself into an automatic machine might have been apposite in a poem condemning time-sparing inventions but sounds a little odd in a note where reasoning is expected to follow logical rather than magical rules. His view that "any improvement in . . . haematology should follow the lines of establishing specialist haematology departments in hospital laboratories" (italics are mine) implies that progress in this subject is not



likely to be achieved by clinicians. With the notable exception of the field of immunology such an opinion is scarcely substantiated by past experience, and there seems no reason to doubt that future progress will similarly be shared between clinicians and pathologists.—I am, etc.,

London, E.2.

HERBERT LEVY.

### Insulin Treatment for Schizophrenia

Sir,—In the *Journal* of May 31 (p. 779) a letter by Dr. L. F. Donnan was published in which it was stated that I had informed the writer that the relapse rate after insulin treatment for schizophrenia is greater than in those cases which recovered spontaneously. This statement was not made by me to Dr. Donnan or to anyone else.

Insulin treatment of schizophrenia has been carried on in this hospital for the last ten years, and the results go to show that it is by far the most successful form of treatment for schizophrenia. Schizophrenia does not differ from any other form of disease in that a certain proportion of cases that have recovered relapse. The experience of this hospital goes to show that the rate of recovery is much greater in cases treated by insulin than by any other method and that the relapse rate shows no proportionate increase.—I am, etc.,

Dublin.

JOHN DUNNE.

### On Complete Removal of the Prostate

Sir,—Following perusal of Mr. H. S. Souttar's article (June 28, p. 917) it seems to me that many surgeons lacking experience in prostatic surgery might be led to try the procedure he describes, with results which would be far from beneficial, and in fact might be disastrous, to the patient.

The very first paragraph of Mr. Souttar's article contains assumptions regarding the extravesical approach which are not generally accepted. The extravesical approach does not present considerable advantages over the transvesical methods; the post-operative period is not shorter and easier and bleeding is not more readily controlled. Mr. Souttar seems to have no wide experience of the modern operations (Harris, Hey, or Millin) which make possible immediate closure of the bladder. It seems a retrograde step to consider substituting the difficult and probably dangerous technique he describes for these comparatively simple and safe methods, but it might have a place in the eradication of early prostatic carcinoma, and indeed some months ago I heard Mr. Millin describe a technique for this condition somewhat similar to that now described by Mr. Souttar.

It seems strange that Mr. Souttar should be unaware of the correct spelling of Mr. Millin's name; one presumes that he is referring to Mr. Terence Millin.—I am, etc.,

Glasgow.

WALTER W. GALBRAITH.

### In-patient Treatment of the Maladjusted Child

Sir,—In reply to the letters of Drs. W. H. Whiles (June 21, p. 898) and J. A. McCluskie (July 5, p. 29), I would like to say that since the article was written we have now a special children's admission villa in the grounds of the hospital in addition to the annexe already described. This villa, which is entirely self-contained, possesses a pleasant garden and also an area of about 1/6 acre, which is fenced off and in which the children have plenty of scope for outdoor play.

Incidentally, however, with regard to the particular point raised by Dr. McCluskie as to the effect of chronic psychotic females on the children, I can assure him that matters were not at all as he anticipated. In fact, several of these ladies manifested much more tact, forbearance, understanding, and consistent handling of the children than is exhibited by the average parent. The point of course does not arise now that there is no longer any contact between the children and adult patients in the hospital. I must explain to Mr. G. A. Foulds (June 21, p. 898) that the article was written on very general lines and was only meant to give an outline of the work. As regards the child with the intelligence quotient of 170, this point was only included to indicate the fact that some of the children at least can be classed as brilliant. The test, which was form L of the Terman-Merrill Revision, was not carried

out at this hospital, but a few months later a similar test on form M gave the result of 159.

It may be helpful to add that the term "returned home" indicated that the child was fit once more to live a normal life in his own home environment, and when it is realized that 95% of these children were unable to do this despite adequate out-patient treatment, not only in this city but in some of the best-run child guidance clinics in the country, I think it will be appreciated that the "benefit" was not inconsiderable.—I am, etc.,

Portsmouth.

W. LIDDELL MILLIGAN.

### Causalgia of the Face

Sir,—Mr. J. A. W. Bingham (June 7, p. 804) is to be congratulated on his neat demonstration of a possible afferent path for painful sensation in the cervical sympathetic. Most surgeons dealing with the sympathetic nervous system for causalgic states, advanced Raynaud's disease, and particularly erythromelalgia are probably led to much the same opinion, but few have so definitely advanced the matter towards final solution. Mr. C. H. Cullen (July 5, p. 32) might like to consider a recent article by Dr. Threadgill, which in general supports Mr. Bingham's thesis by some interesting animal experiments and supplies the basic references.—I am, etc.,

Dublin.

PATRICK FITZGERALD.

### REFERENCE

Threadgill, F. D. (1947). *Surgery*, 21, 569.

### Health of Young Workers

Sir,—Dr. C. H. Hoskyn (July 5, p. 29) invites further opinions on the subject of health supervision of juveniles in industry, and as I have for some years past undertaken such work as part of my duties as an industrial medical officer I can say with confidence that a close liaison between school health services and industrial health services is of great importance. This point has been emphasized in a recent paper entitled "The Change from School to Industry" (Lloyd Davies, T. A., and Newth, A. A. E., *Public Health*, 1947, 60, 177), and if it is agreed that a knowledge of the conditions and environment under which the young person is to work is essential to enable a satisfactory assessment to be made of his fitness for the occupation which he seeks to enter, then clearly the industrial medical officer is the person to carry out the examination.

Under Section 48 of the Education Act, 1944, a duty is imposed on the local education authority to "provide for the medical inspection at appropriate intervals of pupils in attendance at any school or county college maintained by them," but such supervision has long been carried out by the medical services in progressive firms, and indeed forms one of the most satisfying duties which fall to the lot of the industrial medical officer.

Under Section 69 of the Education Act, 1944, the Minister is empowered to make Regulations about the conduct of medical examinations for the purpose of the Act and provision may be made "requiring that any class of such examinations or inspections shall be conducted by duly qualified medical practitioners having such special qualifications or experience as may be duly prescribed." I would have thought that the special knowledge and experience of the industrial medical officer would have enabled him to play a useful part in this work, perhaps as a part-time officer of the school medical service.—I am, etc.,

Ripley, Derby.

GERALD F. KEATINGE.

Sir,—In the publication *School and Life* (H.M.S.O., 1947) the Central Advisory Council for Education (England) has made certain recommendations on the supervision of health during the early years of employment, and Dr. C. H. Hoskyn (July 5, p. 29) rightly draws attention to the challenge these recommendations make to industrial medicine, the main concepts and developments of which were summarized in your leader "Whither Industrial Medicine?" (June 14, p. 853). While the recommendations of the Central Advisory Council apply particularly to England and Wales, the pattern of legislation to-day is such that, should the responsible Minister accept them, they would be adopted for the country as a whole. Accordingly

they require, at this juncture, examination by all those engaged in the practice of industrial medicine and interested in juvenile health.

Many of the suggestions made in the report are excellent, and industrial medical officers will welcome the proposal for a closer liaison and freer interchange of records and information with the school health service. It is indeed unfortunate, however, that the Central Advisory Council should make such sweeping and novel recommendations on the supervision of juvenile health in industry without examining the many excellent schemes already in operation and without full discussion with the doctors administering such a service. The complete supervision by one doctor from the nursery school age till the age of 18 years is an admirable conception. This should be the joint responsibility of the family doctor and the school health service. The Council propose that the medical officer in the school health service be required to obtain a specialized knowledge of child life to carry out work in school clinics, to be attached to a children's hospital, and to maintain close liaison with the school nurse. If these services are to be efficient, then they will constitute a wide field of study and a whole-time specialty. To widen such a field, by adding to it the supervision of the health of the juvenile in the factory, suggests that the Council do not appreciate the conception of a doctor in industry and fail to realize that he is not only a works doctor but an important member of the personnel organization.

In order to play his full part in such an organization the doctor requires a thorough postgraduate training, with experience in general practice and in hospital. It is preferable that he should hold a higher medical qualification or the diploma in industrial health. He must also have an intimate knowledge of the factory environment, of the various manufacturing processes carried out, of the industrial hazards involved, of the financial inducements and other rewards for the day's work, of the home environment of the employees, and of a multitude of other factors.

It is essential, as in the case of the school child, that the responsibility for the juvenile in industry be a joint one with the family doctor and the industrial medical officer working in close liaison, but because of the latter's experience and position in industry I believe that he is best suited to maintain that close liaison, so essential to the success of any scheme, between the family doctor, the certifying factory surgeon, the school health and education services, the specialist hospital services, and the executives of industry. In the light of those conceptions I suggest that the supervision of juvenile health in industry be entrusted to the medical and welfare services already in existence.—I am, etc.,

Glasgow.

WILLIAM HUNTER.

### History of Arab Medicine

SIR,—I read with interest what Prof. Major Greenwood had to say (March 8, p. 314) about my comments (Feb. 1, p. 202) on the late Dr. Neligan's quotation of Browne's *Arabian Medicine*. Permit me to use the same source, from which I cite the following: P. 26: "... he who judges Arabian Medicine only by the latter [its Latin translations] will inevitably undervalue it and do it a great injustice [Leclerc]." Browne states that during the period of translation the Arabs already possessed a copious anatomical vocabulary (p. 30). This would suggest an advanced stage of medical knowledge; and (p. 112), "... still the question remains whether the Arabs did more than transmit the wisdom of the Greeks, and whether they added much original matter to the scientific concepts of which for some eight centuries they were the chief custodians." This, Browne believes, is not an easy question to answer, and much laborious research is needed ere it can be answered definitely (such research work is being sponsored by the Palestine Arab Medical Association). P. 113: "And it must be said once and for all that no just idea of Arabian Medicine can be derived from the very imperfect Latin renderings of the standard Arabic works;" and p. 115: "On all these grounds, then, even if we rate the originality of Arabian Medicine at the lowest, I venture to think that it well deserves more careful and systemic study." Thus does Browne himself modify the statement requested by Prof. Major Greenwood.

From *The Arab Heritage*, Faris (Princeton University, 1944, p. 243): "It is now generally understood in certain specialized circles of competent historians of medicine that the early patterns of hospitalization and hygiene in Europe received

their energizing impetus from Arab medical science." In *Meet the Arab* the well-known Arabist, my learned friend Dr. Vann Ess, of Iraq, referring to Arab contributions to science says, "A very substantial achievement which has in fact put all of us Occidentals permanently in debt," and "A century of translation, though itself conspicuous for marked achievement, was but a prelude to the original contributions made by the Arabs." Works of many of these Arabs were of such significance, as they, in the words of Van Ess, "By their own efforts contributed in making medicine a science indeed."

The second point raised by Major Greenwood was that I assured him that the Christian church regarded belief in infection as heretical. The passage reads: "such heretical statements in Europe might have brought on the vengeance of the Church and perhaps cost the life of such a heretic." There is nothing new in this statement. Disease being a visitation from God, it would be heretical to attribute it to other mundane causes. The Church maintained, for example, that even the prevention of pain during childbirth was contrary to religion and the express command of the Bible. This conception the staunch Scotsman Simpson in 1847 fought; and his "Answers to the religious objections against anaesthesia in midwifery and surgery" is a masterpiece. Simpson maintains that opposition on theological grounds had been presented against every humane innovation in medicine, such as vaccination. Smallpox, they said, "is a visitation from God, but vaccination is produced by presumptuous and impious man: the former Heaven ordained, the latter a daring and profane violation of our holy religion." And lastly Servetus, a contemporary of Vesalius (16th century), because of his courage to maintain that the blood passes from one side of the heart to the other, through the lungs, as in fact it does: in consequence of this heresy his books were confiscated, and he was himself burned at the stake.—I am, etc.,

Jerusalem

I. B. GEORGE.

### Lectures from Edinburgh

SIR,—In recent years great stress has been rightly placed on the need for closer links between the preclinical and clinical parts of the medical training, and among other things one assumes that these include some reference by the clinical teachers to those physiological findings which have a direct bearing on their subjects. Some questions of interest with regard to this are raised by the letter of Dr. Edwin Bramwell (May 24, p. 741) on the *Edinburgh Postgraduate Lectures in Medicine*, in which Dr. Bramwell reveals that the Edinburgh lectures are published with the aid of a grant from the trustees of the Honyman Gillespie Fund, under which animal experiments may not be referred to.

As it is not altogether clear what is implied by this statement, I would be grateful for some enlightenment on the following points. (1) Is it to be understood that, although the Honyman Gillespie Fund cannot ordinarily be used for reference to animal experiments, special permission has been granted in this case, or was the Honyman Gillespie Fund available for publication of these lectures because they were considered to be free from the offending references? If the former interpretation is correct no further explanations are necessary, and Dr. Bramwell is to be congratulated on overcoming a prejudice so detrimental to progress in medical science. If, however, the second interpretation is the correct one the following further questions arise. (2) Does the present volume contain only those lectures which do not refer to animal experiments, omitting those which do, or are all references to animal experiments in the postgraduate teaching at Edinburgh forbidden? (3) Does this mean that clinical teachers who wish to refer to animal experiments are prevented from taking part in the postgraduate teaching at Edinburgh? (4) Since in fact reference is made to animal experiments in some of the lectures, does this mean that the lecturers are prevented from describing only their own animal experiments? (5) If one of the purposes of the publication of the lectures is to enable practitioners "to keep abreast of the times," why does the Edinburgh School place itself under a censorship which prevents reference to modern physiological progress?—I am, etc.,

Sheffield.

D. H. SMYTH.

## Primary Treatment of Fingertip Injuries by Skin Grafting

SIR.—This is not a new method of treating this type of injury, but it has not received the attention which it deserves. As a rule, when skin loss has occurred and suture cannot be effected, skin flaps are fashioned and a formal amputation, often involving removal of the whole of the distal phalanx, is performed. I have treated a number of such injuries by primary skin grafting within the first eight hours with excellent results. The method is simple and, with a little practice, quite rapid and easily carried out in the casualty department. Normally the fingertip wound has clean edges, a variable quantity of soft tissue being lost. When the edges are ragged, limited excision of the ragged edges and necrotic and heavily soiled tissues is carried out, and bone fragments projecting above the surface level of the wound are trimmed off with bone forceps. Any further operation producing shortening of the digit is avoided.

## TECHNIQUE

Digital block anaesthesia is produced using 2% procaine without adrenaline. Haemostasis is secured and the digit covered with a sterile towel while the graft is cut. The skin of the front of the forearm is cleansed with soap and water, and a suitable area large enough to cover the raw fingertip is infiltrated with 2% procaine containing 1 in 1,000 adrenaline. Using a sharp scalpel and a pair of fine rat-toothed forceps, a full thickness graft is cut exactly to the size required and subcutaneous fat carefully removed. Several small holes are cut in the graft to allow for the escape of blood and serous exudate. The graft is then stitched into position over the fingertip wound, using atraumatic needles threaded with gossamer silk. Strict haemostasis is not essential with this type of graft, since firm pressure is maintained by the sutures and final pressure dressing. A light sprinkling of penicillin in sulphathiazole powder is blown on to the surface of the graft and the site covered with a small square of tulle gras; this in turn is covered with sterile gauze soaked in saline.

It is essential that the graft be kept moist, particularly in the early stages, as it is nourished by the tissue fluids within the first twenty-four hours. Some authorities use a dressing which can be continuously irrigated through small-bore rubber tubes without disturbing the dressings. The pressure dressing employed in my cases consists of a pack of cotton-wool soaked in saline moulded to the fingertip and held in position by a light plaster-of-Paris splint. In the absence of pain or of a raised temperature this dressing is left in place for fourteen days. After this time the graft should have taken firmly and present a healthy pink appearance, although a small surface slough is usually present. The sutures are removed, and further sterile dressings are applied for fourteen days, when as a rule no further dressings are required. The arm wound is dealt with by undercutting the edges and suturing them together. This presents no difficulty in view of the small size of graft usually required.

No hard and fast rule can be laid down for dealing with a damaged nail if present. In general it can be said that where a good part of the nail remains it is best left to grow over the dorsum of the graft. When, however, the whole of the nail has been avulsed and the nail bed lacerated, it is probably better to remove any remaining remnants of nail bed and cover the whole raw area with the graft.

After six to twelve months sensation has returned in good measure and a useful finger, unshortened, is left. The fingertip thickens and forms an appreciable pulp in about six months. I have found that split-skin grafts are not nearly so satisfactory as the full-thickness grafts, because they are difficult to hold in place, and when healed they usually present a thin sensitive scar on the fingertip. The percentage of takes secured is remarkably high—in my cases about 80%, if the injury is dealt with within the first eight hours and gross obvious sepsis is not present.

Should the graft not be satisfactory because of gross soiling, etc., a first-rate dressing will have been applied, and subsequently amputation or other methods of treatment can be carried out in a clean field. As a primary treatment skin grafting is worthy of a high place in dealing with fingertip injuries and could be much more widely used than at present.—I am, etc.,

S. J. KRISTER.

West Drayton, Middlesex.

## REFERENCE

1 Sterling Bunnell (1944). *Surgery of the Hand*. Philadelphia.

## POINTS FROM LETTERS

## Shortage of Nurses

Major R. H. MUMFORD, R.A.M.C. (Nr. Pontefract, Yorks), writes: Without wishing to express an opinion as to the merits of using Service-trained workers to alleviate the present shortage of nurses, I want most emphatically to repudiate some remarks made by "Ex-Q.A.R.N.N.S.R." (June 21, p. 903) regarding V.A.D.s. . . . During the recent war it was my good fortune to see much of V.A.D.s at work, especially during a period of over two years during which I was O.C. of a unit which depended on them for most of the nursing. My memories are not of the clumsy quacks pictured by your correspondent but of cheerful, conscientious, and efficient workers whose efforts consistently gave satisfaction to the patients they nursed and the doctor in charge. . . .

S.B.C.P.O. H. ROSTON writes: I have followed with interest the correspondence in the *Journal* on the "Shortage of Nurses" . . . I am sure that "Surgeon Commander R.N." was referring to the continuous service sick berth staff, who received an intensive course of 11 months' training and then continued to serve in many phases for 12 or 22 years. During the war years it was a necessity to reduce the training period of staff and V.A.D.s, with the unfortunate results quoted by the two nursing sisters, and I am sure that "Surgeon Commander R.N." did not mean that these nursing orderlies be granted State registration without further training. I realize that the Nursing Council will allow Service trained orderlies to take the State examinations when they have completed the necessary training, but unfortunately, as in my own case, a draft prevents the candidate from being at the examination centre at the times fixed by the Nursing Council. After serving 12 or more years most men are married and have family responsibilities, and therefore cannot take up training in civilian life for financial reasons, but surely after 12 years' experience and passing examinations for higher rating they should not be lost to the country during this shortage of nurses because they do not receive full civilian recognition. I am sure that in time the Service examinations will be brought into line with those of the General Nursing Council, but in the meantime what is to happen to men like myself who, after 12 years of nursing experience all over the world, return to civilian life? . . .

Surgeon Commander, R.N., writes: Dr. R. Howell Roberts (June 21, p. 903) has misunderstood me. I expressed a private opinion about the present shortage of civilian nurses, and he need not complicate the issue by dragging in the late Lord Nelson. We are short of nurses in civil life now. There are many experienced nurses in the country who will not come forward under the present conditions but might consider doing so if action were taken on the lines which I suggested (May 24, p. 740). The future training of Service nursing personnel is another matter, complicated by the National Service Act, but might be modified if a proper approach were made by the General Nursing Council to the respective authorities. In fact all long-term nurses in the Services are encouraged to sit for their S.R.N., but attendance for examination at a distance from their places of duty is often impracticable. Ex-Q.A.R.N.N.S.R. (p. 903) will remember that one of her primary duties as an officer of the Royal Naval Nursing Service was to train and supervise the work of those under her, and I am sure that none of the V.A.D.s or S.B.A.s for whom she was responsible would have failed in their duty as did the unfortunate girl whom her sister met in the Army. Recommendation for registration of ex-V.A.D.s would of course devolve upon the respective matrons in-chief, who would be careful not to flood the market with undesirables.

\* \* This correspondence is now closed.—ED., B.M.J.

## Coroners' Inquests

COUNTY CORONER writes: In the preamble to an analysis of a series of cases of sudden death (July 12, p. 51) Dr. Robert Richards compares the private inquiry of the procurator-fiscal in Scotland with the inquest of the English coroner. He finds the former "a procedure possessing certain advantages over the coroner's inquest," but leaves his readers in the dark as to what they are. Perhaps he will enlighten them in a further communication, especially those in this country who practise forensic medicine and deprecate the private inquest no less than the private post-mortem examination.

## Game and Tsetse Fly

Dr. GEORGE PRENTICE (Fort Jameson, N. Rhodesia) writes: It may have escaped your notice that at a meeting of East and Central Africa Fauna Conference held at Nairobi in May it was decided that game should be destroyed in areas affected by the type of tsetse fly which transmits sleeping sickness. . . . Where varieties of tsetse exist that are not yet incriminated, other experiments are to be made. That is taking risks but may have some justification. . . .

## Obituary

ALEXANDER GAVIN MORISON, M.A., M.D., D.P.H.

The sudden death of Dr. Gavin Morison, Medical Officer of Health of Wembley, at the early age of 54 robs the public health service of a skilled leader and the doctors and people of the borough of a true friend.

When he came to Wembley Morison brought wide experience of preventive medicine in Bristol and Bolton, and also of general practice. He had been Port Medical Officer to Bristol, where he got great satisfaction from housing work in slum areas, and he had served in the Navy during the war of 1914-18. Morison came to the rapidly growing borough of Wembley ten years ago, when the old idea of public health as a necessary nuisance was dying; the time was ripe for a leader with exactly his gifts to develop the new ideal. This he did with outstanding success, in spite of the severe handicap of a stroke which occurred almost immediately after he took up office. It is a tribute to his courage and tenacity and to the wise care and companionship of his wife that he worked unremittingly for ten years without ever letting his health interfere with his duties. These were no easy years in a big, expanding borough subjected for more than half that time to the stresses of war. Another man might with less reason have excused himself, but Morison never failed to turn out, day or night, to every bombing incident. The memorial he built was a highly efficient public health department with every general practitioner his ally and friend. Local doctors knew what he was doing and what he wanted them to do. Their problems were made easy and their difficulties swiftly overcome by his skilful organization and by his personal help. Patients never found themselves mere cases. They realized at once that, whatever had to be done to safeguard the public, they remained people whose lives and interests Morison had immediately made his personal concern.

Morison was a gentle man with great tact and patience. Sympathy was inherent in him; he did not need to turn it on for occasions. No matter how foolish a question might be, he never showed anything but the gravest interest, gave the problem most careful thought and the applicant a wise and courteous answer. The gentle hesitancy with which he put forward his views disguised a profound and extensive knowledge of his job.

It is tragic that Morison should have died on the eve of the introduction of the National Health Service, when his special gifts of tact and tolerant guidance will be needed so much. The people of Wembley and their doctors have lost a real friend, and they share in deep sympathy that loss with his widow and daughter.

Mr. JOHN DANIEL HARMER died suddenly at George, South Africa, on June 25, at the age of 69. He graduated M.B., Ch.B. at Edinburgh in 1905, gaining first-class honours in all subjects. In 1903 he had been the most distinguished student of his year in anatomy, winning the gold medal in this subject. He subsequently held house appointments at the Royal Devon and Exeter Hospital and at the Leith Hospital. His outstanding ability was soon recognized by those for whom he worked. Prof. R. J. A. Berry endeavoured to persuade Harmer to continue with his studies in anatomy as a member of his staff, but Harmer was more attracted to surgery, and in 1909 became F.R.C.S.Ed. In the first world war he joined the R.A.M.C., and as a surgeon specialist saw service in France, Mesopotamia, India, and Africa. In the last year of the war he was posted to Rhodesia, and on demobilization he transferred to the Colonial Medical Service in that colony. In Northern Rhodesia he gave of his best for twenty-one years as a surgeon specialist, and was fond of recalling how in his early days there he would travel by horse, mule, or ganger's trolley to see his patients, and then how in his "old age" he started to make use of the aeroplane for his professional visits. He was awarded the O.B.E. in recognition of his outstanding work in Rhodesia. He had been a member of the B.M.A. for forty years and was president of the Northern Rhodesia Branch from 1933 to 1936. Although retired he joined up in the R.A.M.C. in the recent war, but had to resign his commission owing to ill-health. Nothing daunted, he asked to be sent abroad to relieve a medical man

for active service, and was then sent again to South Africa. Undoubtedly his selfless service in the war injured his health and hastened his demise. Harmer never spared himself, and endeared himself to patients and colleagues everywhere he went. It was indeed a privilege to know "J.D."

T. N. P. W.

The sudden death of Dr. MICHAEL JOHN MURRAY on July 5 came as a great shock to all who knew him. Born in Greenock in 1888, he graduated at Glasgow University in 1912, and while there was prominent in student affairs as President of the University Irish Nationalist Club. In the 1914-18 war he served in the R.A.M.C. in Gallipoli and later on the North West Frontier in India. He was twice mentioned in dispatches. On his return from war service he settled in Dundee, where he practised for 26 years until the time of his death. He was happily endowed with a cheerful personality, coupled with a deep sense of sympathy and understanding, which endeared him to his patients; his qualities of mind and heart commanded the respect of all who came in contact with him. The National Health Service, with its many problems, could not but appeal to one so intimately concerned with the interests of his profession and the well-being of the community. A sound debater and capable of forceful comment, he threw himself whole-heartedly into the solution of these problems and took a prominent part in many medico-political discussions during the past few years. His colleagues confirmed him in their regard by electing him Chairman of the Local Medical and Panel Committee and Representative to the Representative Body. He was also a member of the Scottish Subcommittee of the Insurance Acts Committee from 1943 to 1945. His untimely death is deplored by all and robs the community of a colourful personality and the medical profession of a loyal and beloved colleague. In the words of one who knew him well, "he was truly a great man, and his natural capacity for making friends was surpassed only by an even greater capacity for keeping them." We mourn his loss and extend our sympathy to his widow and family of three.

The death of WILLIAM EVERETT, F.R.C.S.Ed., on June 15 was briefly noticed in the *Journal* of July 5. A colleague, "C. J. P.," adds the following appreciation: Winchester loses an outstanding personality whose loss will be felt by all sections of the community. His health had not been good for some years and he had a number of painful illnesses which he had borne with great fortitude. Although he himself was aware of all the possibilities arising from the condition from which he suffered, he faced the future with great courage and his cheerful aspect made the shock of his passing all the greater for those who were not aware of the true state of affairs. A native of Edinburgh, Everett was a senior medical student at its university when war broke out in August, 1914. His patriotism would not allow him to wait to complete his medical qualification, and within a few days of the outbreak of war he volunteered to serve in the ranks of the R.A.M.C. Shortly afterwards he embarked for France and saw service with the British Army until 1916. In that year a shortage of qualified medical men became apparent and he was recalled from the Army to complete his medical studies at Edinburgh. Qualifying in 1917, he joined the Royal Navy as a temporary surgeon-lieutenant and was posted to a Q "mystery" ship in the Mediterranean. After a period of considerable hazard he was transferred to the Naval hospital in Bermuda, where he was in charge of the surgical division and x-ray department. On his way to Bermuda he was delayed in New York, and was "captured" by the Americans to take part in their War Loan Campaign. In this effort his speeches were successful in raising large sums of money for the war. On demobilization he returned to Edinburgh to resume his studies, took the F.R.C.S., and was awarded the University Prize for Pathology. From Edinburgh he moved to Bradford, where he held the post of senior resident at the Bradford Infirmary. He was later appointed resident surgeon at the Barry Accident Hospital, where he remained for four years. After a period in consulting practice in Cardiff he moved to Winchester in 1929. Here he was soon appointed a member of the honorary staff of the Royal Hampshire County Hospital, and he quickly established a reputation as a surgeon. As a diagnostician he showed a careful, balanced judgment, and he readily obtained the complete confidence of his patients. As an operator his profound knowledge of anatomy combined with sensitive and dexterous hands enabled him to undertake the most intricate and delicate operations with success. At the time of his death he was senior honorary surgeon at the County Hospital. This institution always claimed a foremost part in his affections; and anything which he could do to forward the welfare of its inmates or staff was readily done.

William Everett was a man of high ideals and of great moral courage. Allied with his outstanding skill in his profession was his imaginative sympathy for patients under his care—and indeed for everyone who was in trouble. Many in the humbler walks of life have special reasons to be grateful for acts of kindness, happily conceived and quietly performed. He was very fond of children and was particularly successful in gaining their confidence and affection. He was an artist of skill, and had considerable gifts as a lecturer and teacher. As a colleague he was loyal, staunch, and considerate, and was ever ready to respond to appeals for help and advice. Everett was a man of wide culture and a delightful companion. To anyone privileged to enjoy his happy hospitality, it was very apparent how much his home life meant to him and in what affection he held his wife and children. To these, his many friends in all walks of life will extend their warmest sympathy.

## Medico-Legal

### DIVORCE AFTER TEMPORARY INSANITY

[FROM OUR MEDICO-LEGAL CORRESPONDENT]

Under Herbert's Act divorce may be granted where a party to the marriage is incurably of unsound mind and has been continuously under care and treatment for five years immediately before the petition. "Care and treatment" are clearly defined. A person of unsound mind is deemed to be under care and treatment while he is detained in pursuance of any order or inquisition under the Lunacy and Mental Treatment Acts, 1890-1930, or while he is receiving treatment as a voluntary patient, if that treatment follows without any interval a period of detention in pursuance of the kind of order already described, "and not otherwise." The result is that if a patient starts his treatment as a temporary patient under the Mental Treatment Act and then changes to voluntary status he does not come within the Act, and the partner cannot have a divorce for insanity.

This anomaly was shown by a recent case<sup>1</sup> in which a wife, shortly after bearing a child, showed signs of mental disorder and was admitted to a mental hospital as a temporary patient. Six months afterwards, at her own written request, she was admitted at the same hospital as a rate-aided voluntary patient. Ten years afterwards she was still there and quite incurable. The husband petitioned for a divorce, but the judge found himself unable to grant a decree because the period of voluntary treatment followed detention, not in pursuance of any order or inquisition, but under the temporary provisions of the 1930 Act. Before the wife was admitted as a temporary patient the husband had signed a form, as prescribed by the Act, requesting the superintendent to receive his wife as a temporary patient. This application was duly accompanied by the appropriate recommendation of two medical practitioners. Counsel for the husband argued that if a patient may be lawfully detained for six months without his or her consent as a person of unsound mind it must be presumed that the detention was imposed by virtue of some legal order. The Court of Appeal replied that this attractive proposition was based on the assumption that all the safeguards provided by the 1930 Act to ensure that the patient is properly detained are scrupulously complied with. The Master of the Rolls<sup>2</sup> laid down in 1940 the principle which the courts apply in these cases. He said that the safeguards which the legislature has laid down to ensure that detention shall take place only in proper cases are strict, and unless they are strictly observed the detention of an alleged lunatic is illegal. The machinery must be carried out according to the letter of the law. Now the 1930 Act lays down that within a month of the reception of a temporary patient he shall be visited by two members of the visiting committee, and if they think he should continue to be detained they must sign a statement to that effect and leave it with the person in charge; if they think otherwise they must before the end of the second day report their opinion to the Board of Control. The state-

ment or report of the visiting committee is therefore an essential requisite for the lawful detention of the temporary patient.

The judge trying the case at first instance had no evidence before him about what the visiting committee did, and decided the case on the ground that the temporary treatment procedure does not contain either an order or an inquisition. The Court of Appeal had inquiries made and ascertained that the visiting committee had not signed the required statement to the effect that it was proper that the wife should continue to be detained. The letter of the law had not been carried out; the wife was not lawfully detained, and the husband, therefore, through no fault of his own, could not have his divorce. This result points clearly to a need for the revision of Herbert's Act to bring its provisions more into line with common sense.

It is worth noting that if the voluntary treatment follows immediately on a further period of temporary detention, the "care and treatment" provisions of Herbert's Act are satisfied because the temporary detention is prolonged by an "order" even though it has not been initiated by one: *Benson v. Benson* (1941).

## The Services

The President of the U.S.A. has conferred the Legion of Merit degree of Officer, on Lieutenant-Colonel D. A. O. Wilson, R.A.M.C. in recognition of distinguished services in the cause of the Allies.

The Queen of the Netherlands has conferred the following decorations in recognition of distinguished services in the cause of the Allies:

*Knight Officer of the Order of Orange Nassau with Swords.*—Major (Temporary) R. Strang, R.A.M.C.

*Knight of the Order of Orange Nassau with Swords.*—Captains J. N. Blair and F. G. Tucker, R.A.M.C.

Dr. Saw Ba Tin, Medical Officer, Kyaaukkyi, Burma, has been appointed M.B.E. (Civil Division) for services to the Forces during military operations in Burma prior to Sept. 2, 1945.

### R.A.M.C. PRIZE FUNDS: THE CONSULTANTS PRIZE

The consultants to the War Office and the Armies in the Field in the late war have presented a sum of money to the R.A.M.C. in order to found a Consultants Prize, to be competed for at intervals of one to three years. The prize will be awarded for the first time in 1948 and will be to the value of 25 guineas; it is open to serving officers of the R.A.M.C. holding a regular or a short service commission. The first prize will be awarded for an essay of not more than 10,000 words on a professional subject, based on the author's own experiences between 1939 and 1946. It is hoped that these essays will ensure that valuable war experience, which would otherwise be lost, will be recorded for future guidance and possibly for publication. Entries should be sent in through the usual channels so as to reach the honorary secretary, R.A.M.C. Prize Funds Committee, R.A.M. College, Millbank, London, S.W.1, by Aug. 1, 1948.

The Colyer Prize was founded in June, 1926, to commemorate the twenty-five years' service of Sir Frank Colyer as honorary curator of the odontological museum of the Royal Society of Medicine, and the following regulations were approved: That the accumulated income of this fund be used every third year for the purpose of awarding a prize for the best original work in dental science completed during the previous five years by a dental surgeon educated at any duly recognized dental school in Great Britain or Northern Ireland, and who has not been qualified to practise more than five years at the date of the award; that notices be sent to each dental school in Great Britain and Northern Ireland stating the conditions and the date at which the next prize will be offered; that the chief medical and dental journals be asked to give publicity to the announcement of the prize without incurring the fund in the expense of advertisement; that the prize committee shall have power to withhold the prize if they consider there has been no work submitted of sufficient merit to justify the award; that if the prize committee decide to withhold the award they shall be empowered to arrange for a lecture, or lectures, upon some subject related to the odontological museum and may accord the lecturer an honorarium from the prize fund. Applications from candidates, together with a general account of their researches, should be submitted to the Prize Committee of the Society (1, Wimpole Street, London, W.1) not later than Oct. 1, 1947.

<sup>1</sup>*Whitely v. Whitely* (1946) 2 All E.R. 726; (1947) 1 All E.R. 667.  
<sup>2</sup>*Murray v. Murray* (1941) P.T.



## Medical Notes in Parliament

### Vaccination of an Infant

Mr. DRIBERG on July 15 drew attention to a mishap to an infant child of a family at Hatfield Peverel, Essex. At the age of 4 months the child was vaccinated. The vaccine did not take on the first occasion and she was vaccinated three times within seven weeks. The father alleged that on the third occasion the child was vaccinated with a double injection. On the fifth day after this third vaccination the baby was suddenly taken ill and was found to be suffering from what was described as an inflammation of the brain. Some weeks later she was returned to her home blind and not developing in any way. She suffered constantly from fits. Two children's specialists had seen her but said there was no hope of her recovery.

Mr. BEVAN expressed deep sympathy with the parents. No fault whatever attached to the doctors concerned and there was no departure from normal practice. There was no evidence whatever of carelessness or uncleanness. He rebutted the suggestion that there were two insertions at one time. Over seven weeks there were three insertions, the first two unsuccessful and the third successful from the point of view of inoculation. That happened frequently. There could be no imputation against the professional skill of the doctors concerned or against the way in which they carried out their duties. Post-vaccinal encephalitis did occur but was so rare that it amounted to one case in 49,000 inoculations. It would be deplorable if the publicity given to this case frightened parents from having their children vaccinated. It was doubtful whether the baby's condition was due entirely to post-vaccinal encephalitis. There were other possibilities which he did not wish to emphasize. Mr. Bevan pointed out that when the Health Act came into operation, compulsory vaccination would disappear. Relying on the laws of probability it appeared to him that there was some association between the comparative immunity from smallpox enjoyed by the mass of the population and the use of immunization and inoculation.

Replying to Col. Stoddart-Scott, Mr. Bevan said he understood that the serum used had been tested and there was no evidence of any abnormality. In fact there was no evidence at all of any unusual circumstances.

Mr. SOMERVILLE HASTINGS asked if an examination had been made into the health of the parents and also whether the figures given by Mr. Bevan of the number of cases of post-vaccinal encephalitis were of the total vaccinations or of primary vaccinations.

Mr. Bevan said he was informed that encephalitis was extremely rare in primary vaccinations of infants under the age of 1 and also extremely rare in revaccinations of adolescents or adults who had been vaccinated in infancy. It was somewhat less rare in primary vaccination of school-children and adolescents who had not previously been vaccinated. Even in these patients it was uncommon. In the last year for which figures were available this infection occurred at the rate of 1 in 49,000 vaccinations of all classes. There had been no investigation of the parents in this case.

### V.D. in Army

Answering Mr. Wilson Harris on July 15, Mr. BELLENGER said the annual rate of incidence of venereal disease in the British Army in Britain recorded during 1938 was 11.7 per 1,000. In 1946 the annual rate per 1,000 troops in Britain was 32.8, and in B.A.O.R. 158.6. The quarterly rate for the first quarter of 1946 was 5.3 per 1,000 in Britain and 30 per 1,000 in B.A.O.R. This was slightly lower in Britain than for the corresponding quarter of 1946, but approximately the same in B.A.O.R. In 1938 there was probably less recording of cases than in 1946, and modern medical practice, which treated the cases much more quickly than it did in 1938, probably accounted in part for the apparently higher incidence.

### River Pollution

A discussion on river pollution was initiated by Mr. HAROLD DAVIES on July 16. He said that nine-tenths of the water which fell on the surface of England was made useless by river pollution through discharge of untreated domestic sewage into streams and the failure of industrial undertakings to render effluent harmless. Consumption of drinking water was continually increasing. In a few years London would need from 15 to 60 gallons of water per head per day. If the rivers were not polluted water could be drawn from them to serve

the towns. Was the Government aware of the possible effect of effluent reaching the rivers from atomic energy factories?

Mr. MALLALIEU said the Fishery Board Report for the River Lume for 1945 said that into that river a minimum of 60,000 gallons of crude sewage was discharged every mile every 24 hours.

Mr. JOHN EDWARDS, replying for the Ministry of Health, said the Government shared the concern that there should be widespread improvement in the condition of the rivers. There had been a deterioration in the state of the rivers during the recent world war, though not on the same scale as during the first world war. The difficulty did not lie in lack of powers but in the impossibility of providing labour and materials for extensions or improvements of sewage disposal works and the fact that the authorities did not exist to make effective use of the powers in existence. Improvement of existing systems of sewage disposal was most important. With the urgent need for electricity stations and gas plants and for housing, what could be expended on sewage schemes was at present limited. It was unfortunate that too many industrialists were indifferent and often sought refuge in some old privilege rather than face a clear social responsibility to deal with waste products. There was no short-term remedy for river pollution, but the Government was preparing for the time when the country would have materials and labour necessary for the job and authorities powerful enough to enforce the law.

### Bubonic Plague

Mr. CREECH JONES stated on July 16 that in the outbreak of bubonic plague in Palestine up to July 15, 15 cases had been treated, only one of which had been fatal. Heavy and widespread infection among the rat population was reported, but energetic measures had been taken and no new cases had been notified since July 8.

*Medicinal Alkalis.*—A shortage of alkaline powder for medical purposes is due to shortage of bismuth metal. Every effort is being made to obtain increased supplies of bismuth.

*Coroners' Courts.*—Mr. Ede can hold out no prospect at present of amending the law relating to coroners' courts.

*Free Meals.*—Provision of free meals to children attending occupation centres set up under the provisions of the Mental Deficiency Acts will be sympathetically considered when the scheme for the supply of free meals to school-children is in operation.

*Nurses in Forces.*—Sisters and nurses still on duties connected with the Army number 2,531, of whom 1,581 are serving overseas.

*Hospital Beds.*—The number of hospital beds in Scotland, including beds in mental hospitals and in mental deficiency institutions, is approximately 62,600. The corresponding figure for England and Wales is approximately 469,300. These figures do not include beds in convalescent homes, about which full information is not at present available.

*P.O.W. Rations.*—Ration scales are laid down which are applicable to all prisoner-of-war camps in this country. Each camp is inspected approximately every two and a half months by an officer from the War Office.

*Schools for Deaf.*—Under the Handicapped Pupils and School Health Service Regulations, no child may be admitted to a school for the deaf unless an adequately qualified and experienced medical officer approved for the purpose has examined him and found him to be suitable for education in such a school. In all schools for the deaf arrangements must be made for the medical inspection, supervision, and treatment of the pupils.

*Surgical Dressings.*—The production of surgical dressings and gauze was in part interrupted by the fuel crisis but is now adequate to meet essential needs. The Ministry of Supply is inquiring into the difficulties said to be met in obtaining supplies for Scottish hospitals.

*Children's Soap Ration.*—In the present shortage of fat, Mr. Strachey cannot extend the extra soap ration for babies to children up to the age of 2 years.

*Supplies for Germany.*—There are no limitations on the dispatch of vitaminized concentrates and domestic medical supplies from the United Kingdom to Germany other than those applying to dispatch of such goods to foreign countries generally.

*Medical Services in Tobago.*—In reply to a recent question, Mr. Creech Jones said that in Tobago paupers and old age pensioners received free medical treatment. Persons in possession of a poverty certificate from the local administration or from public assistance authorities paid 1s. the receipt for which entitled them to medical treatment for a fortnight.

## Universities and Colleges

### UNIVERSITY OF OXFORD

In a Congregation held on June 26 the following degrees were conferred:

D.M.—J. M. Walker, G. S. Dawes.

### UNIVERSITY OF CAMBRIDGE

Mrs. Amy M. P. Pantin, M.B., B.Chir., has been elected to the Gwyneth Pretty Studentship for three years from March 25.

### UNIVERSITY OF DURHAM

At Congregations held on July 1 and 2 the following medical degrees were conferred:

M.D.—P. B. Crone, W. A. S. Falla, C. Neubauer, Mary D. Taylor, \*J. H. Middlemiss, \*S. G. Siddle, \*P. Szekely.

PH.D. IN MEDICINE.—\*S. Ali.

M.B., B.S.—J. P. Anderson, A. Ashcroft, G. M. Bell, Joan Bride, Sheila M. Cameron, D. J. Cawthorne, Lucy E. Coates, R. Cowley, Jacqueline Elliott, L. H. Field, Peggy Foster, J. B. Fox, J. Glaser, D. L. Golightly, A. C. Griffith, W. P. Haigh, A. Hand, B. Hayes, Catherine V. Jones, A. J. Jones, A. R. Kirby, H. F. Lake, T. K. Lamballe, Elizabeth L. Lee, W. L. Lee, J. L. Lee, L. L. Lee, M. McLeod, Margaret A. Nattrass, A. O. O'Neill, M. Roper, J. Roper, D. Roper, A. A. Reid, M. C. Robson, A. I. Royle, J. N. S. Simpson, Patrick M. Skellern.

\*K. McKay, \*R. I. Parr, \*W. E. Sumner.

\* In absentia.

### UNIVERSITY OF WALES

The following candidates for the degrees of M.B., B.Ch., at the Welsh National School of Medicine have satisfied the examiners at the examinations indicated: *Surgery*, A. J. Dark, H. B. Davies, Margaret E. Davies, Marjorie J. A. Davies, J. A. Emanuel, T. R. Hunt, H. E. Jones, J. G. Leopold (with distinction), Constance A. M. Llewelyn. *Medicine*, D. R. Bowen, Elizabeth B. Butler, J. P. Ciantar, A. C. Coulthard, A. J. Dark, G. C. Davies, Marjorie J. A. Davies, G. S. Foster, C. Havard, C. H. L. Howells, Eluned K. Jones, H. T. Jones, Rosina E. Jones, W. R. King, J. G. Leopold, L. T. Lewis, R. M. Marshall, Margaret I. Morgan, Vivien J. Parker, F. I. Powell, L. T. Rees, S. Solomon, Heather Stockdale, K. P. Williams.

### UNIVERSITY OF DUBLIN

John Kay Jamieson, M.B., C.M., has retired from the Chair of Human Anatomy and Embryology at Trinity College, Dublin.

### ROYAL COLLEGE OF SURGEONS OF ENGLAND

At a quarterly meeting of the Council of the College, held on July 10, Sir Alfred Webb-Johnson, Bt., was re-elected President for the ensuing year and Sir Cecil Wakeley and Mr. L. E. C. Norbury were elected Vice-Presidents.

Invitations to become the first Fellows in Dental Surgery of the College were issued to eighteen dental surgeons, including the following who are also members of the medical profession: Prof. Robert Vivian Bradlaw, M.R.C.S., L.R.C.P., L.D.S., Eric Wilfred Fish, C.B.E., M.D., D.D.Sc., William Kelsey Fry, C.B.E., M.C., M.R.C.S., L.R.C.P., L.D.S., Prof. Humphrey Francis Humphreys, O.B.E., M.C., M.B., Ch.B., M.D.S., Prof. Thomas Talmage Read, F.R.F.P.S., L.D.S., Harry Thomas Roper-Hall, M.B., Ch.B., M.D.S., Prof. Harry Stobie, F.R.C.S., L.D.S., Prof. Frank Clare Wilkinson, M.D., D.D.Sc.

The Council issued invitations to 21 dental surgeons to serve as the first members of the board of the Faculty of Dental Surgery of the College. The design for the gown for Fellows in Dental Surgery was approved.

The following appointments were made for the ensuing year:

*Hunterian Professors*—Mr. A. W. Badenoch, one lecture on congenital obstruction of the bladder neck; Mr. A. D. Beattie, one lecture on the treatment of peptic ulcer by vagotomy; Mr. D. J. Browne, one lecture on hare lip and cleft palate; Mr. M. A. Falconer, one lecture on a study of principles and results of lumbar intervertebral disk surgery; Mr. Hassan Ibrahim, one lecture on bilharziasis and bilharzial cancer of the bladder; Mr. Robert Guy Pulvertaft, one lecture on repair of tendon injuries in the hand; Mr. V. H. Riddell, one lecture on carcinoma of the breast; Mr. F. E. Stock, one lecture on the surgical approach to hypertension; Mr. A. H. C. Visick, one lecture on a study of the failure after gastrectomy; Mr. S. A. Way, one lecture on the anatomy of the lymphatic drainage of the vulva and its influence on the radical operation for carcinoma; Dr. M. C. Wilkinson, one lecture on observations on the pathogenesis and treatment of skeletal tuberculosis; Mr. H. W. Wooley, one lecture on the surgical treatment of malignant disease of the pharynx and oesophagus.

*Arris and Gale Lectures*.—Dr. E. M. Darmady, one lecture on acute uraemia, its aetiology and basis for treatment; Mr. L. Gillis, one lecture on recent advances in the treatment of arm amputations, cineplastic surgery, and arm prostheses; Mr. H. F. Lunn, one lecture on a contribution to the anatomy of hernia.

*Erasmus Wilson Demonstrators*.—Six demonstrations on the pathological contents of the Museum, one by Mr. V. Zachary Cope, one by Mr. R. J. McNeill Love, one by Mr. P. H. Mitchiner, two by Mr. L. W. Proger, and one, on the surgical manifestations of Boeck's sarcoid, by Mr. R. W. Raven.

*Arnott Demonstrators*.—Six demonstrations on the contents of the Museum, three each by Dr. R. J. Last and Mr. H. F. Lunn.

The eighteenth Macloghlin Scholarship was awarded to Alexander Livingston (Epsom College).

A Diploma of Fellowship was granted to Donald Patrick Robertson and a Diploma of Membership to Antony Josef Ruzicka.

Diplomas in Psychological Medicine, in Laryngology and Otolaryngology, and in Industrial Health were granted, jointly with the Royal College of Physicians of London, to the following successful candidates:

DIPLOMA IN PSYCHOLOGICAL MEDICINE.—E. H. Cranswick, J. A. Crawford, P. B. de Maré, J. J. Fleminger, E. H. Hare, A. B. Hegarty, R. F. Hobson, J. G. Howells, W. Ironside, J. Johnston, G. N. Jones, V. L. Kahan, J. Katz, L. G. Kiloh, A. B. Kinier Wilson, C. C. Lack, A. F. McLean, M. Markowe, D. A. R. Pond, K. C. Royes, P. Sainsbury, A. B. Sclaire, S. Tischler, P. M. Turquet, A. H. Williams.

DIPLOMA IN LARYNGOLOGY AND OTOLARYNGOLOGY.—J. Ackerley, J. N. Appleton, L. F. Day, P. F. King, J. A. Langille, J. M. Marquard, Peggy K. L. Orton, C. C. Ring, R. V. Tracy-Forster, K. L. Wilson.

DIPLOMA IN INDUSTRIAL HEALTH.—W. E. Broughton, Caroline J. Brown, A. Butterworth, J. V. Manning, H. B. Melzer, Niaz-ud-Din, Dorothy Williams.

A Diploma in Anaesthetics was granted, jointly with the Royal College of Physicians of London, to N. C. Smiedt.

### SOCIETY OF APOTHECARIES OF LONDON

At a meeting of the Court of Assistants held on June 17 with Dr. C. Thackray Parsons, Master, in the chair, the report of the death, on June 19, of Dr. Cecil Wall, Father of the Court and Archivist to the Society, was received with profound regret.

The following representatives were appointed: Central Midwives Board, Dr. J. P. Hedley; British Postgraduate Medical School Governing Body, Sir Cecil Wakeley; Central Council for District Nursing, Mr. George Wynn-Williams, in succession to Dr. Douglas Kirkwood, resigned; XIth International Congress of Pure and Applied Chemistry, Prof. E. C. Dodds, F.R.S., and Dr. G. Roche Lynch; Commission Internationale Permanente pour la Médecine du Travail, Dr. Thackray Parsons.

The reports of the representatives on the General Medical Council and the Negotiating Committee were received.

The Honorary Freedom of the Society was bestowed upon S. Stanley Hewett, Surgeon-Apothecary to the King.

P. W. Monckton Copeman was bound apprentice to W. S. Copeman for four years.

The Mastery of Midwifery, *honoris causa*, was conferred upon Sir Allen Daley, Sir Eardley Holland, and Sir William Fletcher Shaw.

The report of the death, on May 16, of Sir Frederick Gowland Hopkins, Gold Medallist, was received with great regret.

It was decided that a course of eighteen subscription lectures on modern therapeutics be delivered in the Hall during October and November, 1947.

The Diploma in Industrial Health was granted by examination to A. Bell.

The Diploma of L.M.S.S.A. was granted upon examination to the following candidates: J. A. Archer-Hall, M. G. Allen-Mersh, A. C. Lewis, G. R. Hollings, R. P. K. Sen, R. D. C. Hart, P. Sattin, F. W. P. Clutterbuck, A. R. Ellerker, J. S. Lambe.

### SCOTTISH CONJOINT BOARD

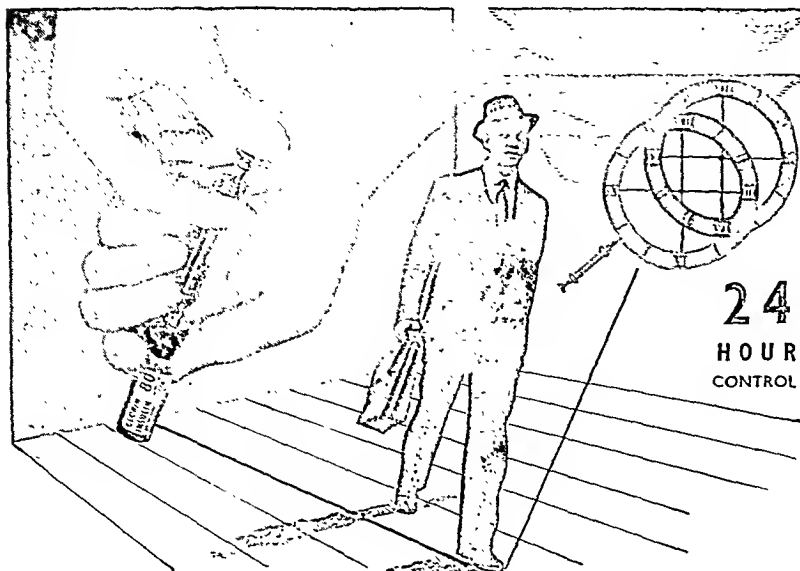
The following candidates, having passed the final examination, were admitted L.R.C.P.Ed., L.R.C.S.Ed., and L.R.F.P.&S.Glas., on July 18: D. K. M. Allison, W. B. Balderston, Mary E. Barton, R. Black, J. F. Chacko, J. T. N. Cole, J. Crow, T. L. C. Dale, W. Davidson, Maureen M. Devine, D. C. Drummond, C. G. Duncan, Sheila M. Forsyth, S. Goldin, S. H. Goodman, D. S. Griffith, G. F. V. Hossack, Matilda Y. D. Hutchison, W. Jack, L. Kramer, A. Laidlaw, D. M. Lyon, K. I. MacLean, H. McNeill, B. MacTaggart, Mary A. Mahoney, A. Millar, D. L. Moody, Janet Q. Morton, M. C. Penny, W. R. Plews, Doreen S. Ryan, Doreen R. C. Scorgi, A. W. R. Thom, N. Weiselberg, Margaret L. Westwater.

### COMBINED HOSPITALS UNIVERSITY ENTRANCE SCHOLARSHIPS

The following awards have been made:

*St. Bartholomew's Hospital Medical College*: Jane Swithinbank, Newnham College, Cambridge (Scholarship).

*Guy's Hospital Medical School*: W. G. Rhys-Jones, St. John College, Oxford (Scholarship); D. J. Müller, Oriel College, Oxford (Exhibition).



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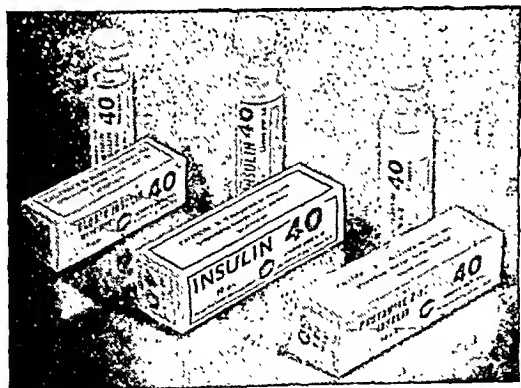
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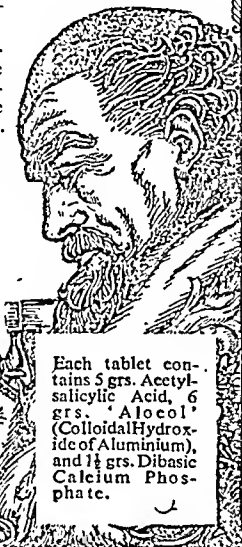
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Ph.192f

No. 27

## INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended July 5.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included), (b) London (administrative county), (c) Scotland, (d) Eire, (e) Northern Ireland.

Figures of Births and Deaths, and of:  
(a) The 126 great towns in England and Wales (London included),  
(b) London (administrative county),  
(c) The 13 principal towns in Eire, (d) The 10 principal towns in Northern Ireland.

A dash—denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1947					1946 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	64	10	20	2	2	37	4	30	2	—
Deaths .. ..	—	—	2	—	—	—	—	1	—	—
Diphtheria .. ..	188	20	37	15	15	290	32	93	31	10
Deaths .. ..	2	1	1	—	—	3	—	2	—	—
Dysentery .. ..	57	3	26	—	—	87	7	48	2	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Encephalitis lethargica, acute .. ..	4	—	1	—	—	1	1	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Erysipelas .. ..	—	—	36	7	2	—	—	29	4	2
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Infective enteritis or diarrhoea under 2 years .. ..	52	4	14	4	1	32	5	6	15	2
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Measles* .. ..	10,269	556	68	186	9	4,524	797	344	54	6
Deaths .. ..	5	—	2	1	—	1	1	2	—	—
Ophthalmia neonatorum .. ..	61	4	11	1	—	79	3	17	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Paratyphoid fever ..	8	1	2(A)	—	—	10	—	5(B)	1(B)	—
Deaths .. ..	—	—	1(B)	—	—	—	—	—	—	—
Pneumonia, influenzal ..	353	26	5	1	1	478	33	12	5	4
Deaths (from influenza) .. ..	5	—	—	—	—	6	—	—	1	—
Pneumonia, primary ..	—	—	159	25	—	—	—	155	23	—
Deaths .. ..	22	—	4	4	—	—	23	—	2	5
Polio-encephalitis, acute ..	9	1	—	—	—	—	—	—	—	—
Deaths .. ..	—	1	—	—	—	—	—	—	—	—
Poliomyelitis, acute ..	79	9	4	4	—	9	—	—	—	1
Deaths .. ..	—	1	—	—	—	—	—	—	—	—
Puerperal fever .. ..	—	—	2	10	—	—	3	23	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Puerperal pyrexia† ..	144	9	10	1	—	144	8	14	2	1
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Relapsing fever .. ..	—	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Scarlet fever .. ..	966	87	126	47	29	997	64	151	30	15
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Smallpox .. ..	3	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Typhoid fever .. ..	15	1	2	—	17	13	2	5	2	1
Deaths .. ..	—	—	—	—	1	1	1	—	—	—
Typhus fever .. ..	—	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Whooping-cough* ..	2,240	287	44	104	9	2,247	158	34	34	19
Deaths .. ..	111	1	1	—	—	8	1	—	—	—
Deaths (0-1 year) ..	333	44	36	29	12	310	53	39	34	10
Infant mortality rate (per 1,000 live births) ..	—	—	—	—	—	—	—	—	—	—
Deaths (excluding still-births) ..	3,694	560	544	184	103	4,102	629	519	196	93
Annual death rate (per 1,000 persons living) ..	—	—	11.3	11.6	—	—	11.4	12.6	—	—
Live births .. ..	9,421	1,558	1,109	508	306	8,452	1,332	1,078	395	254
Annual rate per 1,000 persons living ..	—	—	22.3	32.0	—	—	21.7	25.3	—	—
Stillbirths .. ..	238	31	30	—	—	243	22	33	—	—
Rate per 1,000 total births (including stillborn) ..	—	—	26	—	—	—	—	30	—	—

\* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

## EPIDEMIOLOGICAL NOTES

## Smallpox

No further cases have been reported in England and Wales during the past week up to July 22.

At Willenhall U.D. the patient removed on July 9 was confined to bed from the onset. Contacts are limited to members of the household, all of whom are under surveillance. At Bilston Borough the period of surveillance of contacts has now expired without further cases being detected. The last patients at Barnsley C.B., both removed on July 11, are suffering from discrete rashes modified by vaccination seven and nine days before onset. Contacts are still under surveillance, but the position is not unsatisfactory.

## Poliomyelitis

In the week ending July 12 there were 110 notifications of acute poliomyelitis and 16 of acute polio-encephalitis in England and Wales. These are the highest weekly figures since universal compulsory notification was instituted. Notifications were widely scattered, being received from 82 extra-Metropolitan sanitary districts and 11 Metropolitan boroughs. Outside the administrative County of London multiple cases (of poliomyelitis and/or polio-encephalitis) were recorded in Wareham and Purbeck R.D. 8, Houghton-le-Spring U.D. 2, Spennymoor U.D. 3, Watford R.D. 4, Stock C.B. 2, Brighton C.B. 2, Sutton Coldfield M.B. 3, Hull C.B. 2, Bradford C.B. 4, Dewsbury C.B. 2, Sheffield C.B. 2, Shipley U.D. 2, Spennorth U.D. 2.

The main feature in the epidemiology is the multiplicity of foci, with occasional evidence of concentric spread. The latter is particularly obvious in the South-East and South of London. Twenty-seven cases have been removed from Lewisham to L.C.C. hospitals since July 1. The total admissions of suspected poliomyelitis and polio-encephalitis to L.C.C. hospitals have been 65 during the same period. At present there are 50 cases under treatment in these hospitals.

It appears that the number of cases exhibiting signs and symptoms which are predominantly cerebral is still larger than in any previous experience of the disease in this country. The number of cases notified as polio-encephalitis (16) is higher than any weekly total previously recorded. The question whether these cases are due to the same virus as poliomyelitis or to some other cause is not yet settled, but poliomyelitis is the most probable diagnosis in patients showing meningeal reaction. (Attention is drawn to the memorandum which appears on page 141 of this issue in which the steps being taken to investigate this point are described.)

## Botulism

On June 6 five persons who took lunch at a small teashop in the London area on the previous day noticed abdominal discomfort followed by obstinate constipation. Two of them vomited and all subsequently developed difficulty with vision, and/or speech and swallowing. One man died on the twelfth day; necropsy confirmed that death was due to botulism. Two remained ambulant throughout. It is not improbable that several, perhaps half a dozen, other persons were involved. An annotation at p. 138 of this issue of the *Journal* draws attention to the signs and symptoms of the disease. If suspicious cases are known, the attention of medical officers of health should be drawn to them.

## Food-poisoning

Inquiries into the outbreak of food-poisoning at Lincoln, where salami sausage served at a hotel meal on July 5 caused 34 cases of infection with *Salmonella typhi-murium*, have shown that a member of the hotel staff who handled the sausage gave a history of diarrhoea on July 4-5. His faeces have now been proved positive for *Salmonella typhi-murium*. In most cases the onset was severe and within a few hours; all showed symptoms within 24 hours. The majority became very ill, with vomiting, severe diarrhoea, and high temperature, and some fainted. As reported last week (July 19, p. 117), there was one death.

## Discussion of Table

In England and Wales infectious diseases were more prevalent during the week, the increased notifications including measles 892, whooping-cough 188, acute poliomyelitis 23, scarlet fever 19.

Only small fluctuations occurred in the local returns of scarlet fever and acute pneumonia. The increase in whooping-cough occurred mainly in two counties—London 99 and Lancashire 74. There was in general a greater incidence of measles cases, the largest increases being Glamorganshire 122, and London 117, while opposed to this trend were the decreases



in Gloucestershire 105 and Cambridgeshire 103. The chief feature of the returns for diphtheria was a decreased incidence of 12 in Lancashire.

Only two cases of dysentery were notified in Surrey compared with 28 in the preceding week. An outbreak of typhoid in Suffolk, Thedwastre R.D., was responsible for 9 of the 15 cases notified during the week.

For the fifth consecutive week an increase has been reported in the notifications of acute poliomyelitis; the 79 cases occurred in 24 counties, the largest focus of infection during the week being Leeds C.B. 7.

In Scotland there were increased notifications of scarlet fever 16 and dysentery 12, while decreases were recorded for measles 36, whooping-cough 34, and diphtheria 10. The largest returns for dysentery were Edinburgh 10. The rise in scarlet fever was general in the western area.

In Eire a decrease of 16 was recorded in the notifications of diphtheria, while increases were recorded for measles 44, whooping-cough 31, and scarlet fever 22. Diarrhoea and enteritis, 54 cases, remained at the high level of the preceding week. The rise in measles and whooping-cough was mainly contributed by Dublin C.B. The chief centres of scarlet fever were Limerick C.B. and Galway U.D.

In Northern Ireland a rise occurred in the notifications of diphtheria 10 and typhoid fever 10. Seven of the 15 cases of diphtheria were notified in Belfast C.B. Eleven further cases of typhoid were reported from the outbreak in Belfast C.B., where 7 cases were reported last week.

#### Week Ending July 12

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 918, whooping-cough 2,000, diphtheria 181, measles 9,133, acute pneumonia 332, cerebrospinal fever 67, acute poliomyelitis 110, dysentery 50, smallpox 3, paratyphoid 8, typhoid 12.

## Medical News

### The Berkeley Fellowship

Applications from graduates in medicine of the Middlesex Hospital Medical School are invited for the Berkeley Fellowship. Candidates should be under 35 years of age. The salary is £600 per annum, with certain extra allowances for travelling and research. The Fellowship is tenable normally for one year, but applications for renewal will be considered. Applications should reach the Dean of the Middlesex Hospital Medical School by Sept. 1. A broad outline of the programme of work or proposed itinerary, together with an estimate of cost, should be submitted with the application. The Berkeley Fellowship was founded under the will of the late Sir G. H. A. Comyns Berkeley to provide research and travel facilities to a person elected jointly by the Master and Fellows of Gonville and Caius College, Cambridge, and the Council of the Middlesex Hospital Medical School. Under the terms of the bequest medical centres in any part of the world may be visited with the exception of Oxford or Cambridge.

### Memorial to Sir Hubert Bond

A tablet erected by his widow to the memory of the late Sir Hubert Bond has been erected in the chapel at Long Grove Hospital, Epsom, Surrey, and will be unveiled during evensong on July 27, by Sir Allen Daley. The service begins at 5.30 p.m. An invitation to be present is extended to Sir Hubert's colleagues and friends. A convenient train from London leaves Waterloo at 4.42 p.m. and is due at Epsom at 5.11 p.m. Transport will be provided between Epsom station and Long Grove Hospital.

### British Journal of Cancer

We welcome the appearance of a new quarterly journal under the above title. It is edited by Prof. R. W. Scarff, who is assisted by Dr. F. R. Selbie and a board of advisory editors whose names are familiar to those interested in cancer research. The new journal is published by H. K. Lewis and Co., of 136, Gower Street, London, W.C.1. The annual subscription is two guineas and single copies are priced at 12s. 6d. each. There are twelve articles in the first number, the first of which is a paper entitled "Applications of Recent Advances in Nuclear Physics to Cancer Research" by Dr. J. S. Mitchell, Professor of Radiotherapeutics at Cambridge. An interesting feature of this journal is the printing at the end of brief summaries of the articles under the heading "Survey of Papers." This is a variation of the practice of some journals which print such summaries at the head of each article. *The British Journal of Cancer* is a notable addition to scientific medical periodicals, and the excellent start it has made is a promise of good things to come.

### Honorary C.B.E.

Dr. Philip D. Wilson, surgeon-in-chief, Hospital for Special Surgery, New York, and clinical professor of orthopaedic surgery, College of Physicians and Surgeons, Columbia University, who organized and brought over the American Hospital in Britain in 1940, has been appointed Honorary C.B.E.

### Elected F.R.S.Ed.

The following medical men have been elected to Honorary Fellowship of the Royal Society of Edinburgh: Sir Alexander Fleming, Sir Arthur MacNalty, Prof. Alfred N. Richards (U.S.A.), and Prof. Albert de Szent-Györgyi (Budapest).

### Nine Scottish Nurses

The first nursing qualifications to be bestowed by a Scottish university were received by nine nurses at Edinburgh University Graduation Ceremony on July 16. They are the first holders of the University's Sister Tutors' Certificate. The standards set were agreed upon by a committee of the University and the Royal College of Nursing.

### The Future of Spas

The British Spas Federation announces that every spa is preparing a plan, for submission to Regional Hospital Boards, on how facilities for treatment at the spa, including those at rheumatism hospitals, general hospitals, and other establishments, might be used in a regional scheme for the treatment of rheumatic, orthopaedic, and post-operative conditions.

### Belgian Gratitude to Britain

The Belgian Government and people are giving three weeks' holiday in Belgium in August to 500 British children aged 12 to 14. The Save the Children Fund is organizing the party.

### Visitors from Egypt

Dr. Mohammed Razzak, Principal Medical Officer for Child Welfare at Cairo, and Dr. Ibrahim Yusuf, of the Ministry of Public Health at Cairo, are visiting Britain under the auspices of the British Council. Dr. Razzak attended the bicentenary conference at the Rotunda Hospital in Dublin, from which he graduated in 1933; he will tour child welfare and maternity centres in Britain. Dr. Yusuf is studying the management and equipment of hospitals in this country and also the plans for nationalization.

### Wills

The Rev. Dr. William Osborne Greenwood, F.R.S., of Harrogate, who died on Jan. 8, left £340. Dr. William Gloag Galletly, of Anerley, London, S.E., who died on Feb. 23, left £32,536. Dr. Frederic Samuel Barber, of Upper Norwood, S.E., who died on March 15, left £5,291. Dr. Reginald Mark Moore, of Marnhull, Dorset, formerly Medical Officer of Health for Malmesbury, who died on Jan. 26, left £24,358. Lieut.-Col. Henry James Wyatt, R.A.M.C. (retd.), of Weybridge, Surrey, who died on Feb. 12, left £31,576. He left, among other bequests, the proceeds of sale of certain shares to the N.S.P.C.C. and the Royal Masonic Benevolent Institution. Dr. Charles Mowbray Pearson, of Newbridge, Midlothian, who died on Jan. 23, left personal estate in England and Scotland valued at £78,544. Dr. Henry Canwarden, of Guildford, Surrey, who died on April 20, left £1,422. Dr. Harold Augustus Easton, of Worthing, formerly of Thornton Heath, who died on April 2, left £3,530.

## COMING EVENTS

### Mental Health

An International Congress on Mental Health will be held at Central Hall, Westminster, S.W., from Aug. 12 to 21, 1948, and will consist of three conferences: Aug. 12 to 15, morning sessions, international conference on child psychiatry, under the auspices of the International Committee for Child Psychiatry to discuss "Foundations of Mental Health in Childhood"; Aug. 12 to 15, afternoon sessions, international conference on medical psychotherapy, under the auspices of the International Federation for Medical Psychotherapy, to consider "Guilt"; and Aug. 16 to 21, mornings and afternoons, international conference on mental hygiene, under the auspices of the International Committee for Mental Hygiene with its incorporated and allied bodies, at which "Mental Health and World Citizenship" will be discussed. The chairman of the organizing committee of the congress is Dr. J. R. Rees, C.B.E., F.R.C.P., and full particulars can be obtained from the Organizer, International Congress on Mental Health, 39, Queen Anne Street, London, W.1.

### Population

The U.N. Population Commission will meet at Lake Success, N.Y., on Aug. 18.

**Prostitution**

The International Abolitionist Federation are holding a congress at Brussels on Sept. 6-9 on "Present-day Aspects of the Regulation of Prostitution." Subjects to be discussed include regulation by public authorities, compulsory treatment of venereal diseases, the administrative internment of persons said to be asocial, and the part played by men in prostitution. Those in Britain willing to take part in these discussions should register before Aug. 1 with Miss Hardwick, Association for Moral and Social Hygiene, Livingstone House, Broadway, London, S.W.1 (charge 6s.).

**W.H.O.**

The International Commission of the World Health Organization will meet for its fourth session on Aug. 30.

**Industrial Design**

The Scottish Committee of the Council of Industrial Design will hold an exhibition of industrial design in the Royal Scottish Museum, Edinburgh, in August and September, opening on Aug. 25. A special feature of the exhibition will be a section arranged by the Department of Health for Scotland, and there will be exhibits from Scottish firms manufacturing scientific instruments.

**Blood**

The second International Haematology and Rh Conference will probably be held in 1948.

**SOCIETIES AND LECTURES**

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.—Thursday, July 31, 6.15 p.m. Hunterian Lecture by Prof. H. W. Rodgers: Late Result of Gunshot Wound of Abdomen.

**ROYAL SOCIETY OF MEDICINE**

Section of *Orthopaedics*.—Tuesday, July 29, 8.30 p.m. Paper (illustrated by a film) by Dr. H. H. Kessler (Newark, New Jersey): *Cineplastic Amputations*. Members of the Sections of Physical Medicine and Surgery are specially invited to attend.

**POSTGRADUATE DIARY**

INSTITUTE OF LARYNGOLOGY AND OTOTOLOGY, 330, Gray's Inn Road, W.C.—Wednesday, July 30, 4.30 p.m. Mr. V. E. Negus: The Larynx.

**APPOINTMENTS**

The Secretary of State for Scotland has appointed Mr. H. W. Guthrie, K.C., to be chairman of the Scottish Nurses Salaries Committee in succession to Mr. John Wheatley, K.C.

Dr. Marcus M'Calley has been appointed radiological consultant for the English Southern Counties.

Dr. Ernest H. Capel, of Birmingham, has been appointed Chief Medical Officer of the National Coal Board.

Dr. Capel, who is 40, received his medical training at the Middlesex Hospital, proceeding M.D. in 1933. He is a member of the Advisory Medical Committee of the Industrial Welfare Society, and until recently was Secretary of the Birmingham Group of the Association of Industrial Medical Officers.

BOWEN, RONALD A., M.B., D.A., Assistant Administrator of Anaesthetics, St. Bartholomew's Hospital, London, E.C.

GRETTON-WATSON, B. G., M.B., B.Chir., D.P.H., Deputy Medical Officer of Health and Deputy School Medical Officer, County Borough of Dudley.

**BIRTHS, MARRIAGES, AND DEATHS**

The charge for an insertion under this head is 10s. 6d. for 18 words or less. Extra words 3s. 6d. for each six or less. Payment should be forwarded with the notice, authenticated by the name and permanent address of the sender, and should reach the Advertisement Manager not later than first post Monday morning.

**BIRTH**

REED.—On June 27, 1947, at Oaklands Nursing Home, St. Leonards-on-Sea, to Susan, wife of Dr. B. C. M. Reed, a son.

**MARRIAGE**

LUSH-GEE.—At Hutton, Essex, on July 12, Dr. Brandon Lush to Dr. Margaret Gee.

**DEATHS**

KERRY.—On June 25, at the Radcliffe Infirmary, Theo R. F. Kerby, M.R.C.S., L.R.C.P., D.M.R.E., aged 52, dear husband of Mary Kerby, Redesdale, Brackley.

MORISON.—On July 16, suddenly, at 28, Forty Lane, Wembley, Alexander Gavin Morison, M.A., M.D., D.P.H., Medical Officer of Health, Wembley, aged 54.

WOODRUFF.—On July 14, 1947, suddenly at Telwerth, Surbiton, David Winthrop Woodruff, L.R.C.P., L.R.C.S., aged 62.

**Any Questions?**

*Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.*

**Bleached Bread with Added Chalk**

**Q.**—Is the substance used for bleaching bread, and the excessive amount of chalk in it, prejudicial to health?

**A.**—Sir Edward Mellanby has recently claimed (*B.M.J.*, 1946, 2, 885) that the treatment of flour with nitrogen trichloride (the agene process) produces toxic compounds which cause canine distemper. The connexion with canine distemper has been disputed. Sir Edward gives a disturbing list of substances used as bleachers and "improvers." Even if the bleaching processes are harmless, this pointless monkeying with important foods seems most reprehensible.

The addition of chalk to flour is an entirely different matter. Chalk is an inert substance. The amount added is not excessive. The total amount of calcium supplied per day by the flour of a normal consumer is not more than 220 mg., which is about one-third of the average day's intake of calcium and equal to the amount in one-third of a pint of milk. There is no evidence that intakes of calcium salt of the order of 1 g. or more are harmful.

**Solar Plexus Knockout**

**Q.**—What is the physiology of the knockout blow in the "solar plexus," with its temporary respiratory paralysis and the feeling of never being able to breathe again?

**A.**—The effects of a blow in the "solar plexus" are usually ascribed to afferent impulses set up in the visceral nerves by the blow. These reflexly cause inhibition of respiration, a slowing or stoppage of the heart, and a fall in blood pressure. In Goltz's classical experiment inhibition of the frog heart is caused by tapping the intestines.

**Escape of Semen**

**Q.**—What is the cause of the semen escaping from the vagina after normal intercourse?

**A.**—It is normal for a considerable proportion of the semen to escape from the vagina after coitus, but this tendency is exaggerated if the introitus is stretched and gaping as a result of childbearing and particularly if prolapse is present. A change in position immediately after coitus, especially standing and walking, also favours the escape of semen. Although many women have the idea that effluvium seminalis is the cause of sterility, it rarely, if ever, is important.

**Actinomycosis**

**Q.**—Are human beings who drink the milk from a cow suffering from the condition known as "lumpy jaw" in danger of contracting actinomycosis? Are sulphonamides of use in treatment in humans and in animals?

**A.**—Actinomycosis is a local disease and the organism is not present in the milk of diseased cows, so there is no danger of infection from drinking the milk. Sulphonamides certainly help to cure human actinomycosis, but mainly by combating secondary septic infections. Presumably the same would hold good in the case of animals. Some have found that sulphonamides seem to assist the action of penicillin, which, of course, is itself a powerful remedy for actinomycosis.

**Excretion of Citrate after Transfusion**

**Q.**—How is the 2% solution of disodium citrate in transfused blood excreted, and how is it estimated in the urine?

**A.**—The greater part of the citrate in transfused blood is converted into sodium bicarbonate: 30 to 40% is excreted in the urine as citrate. Methods for estimating citric acid are given by Pucher, Sherman, and Vickery (*J. biol. Chem.*, 1936, 113, 235) and by Krebs and Eggleston (*Biochem. J.*, 1944, 38, 426).

**Penicillin for Congenital Syphilis**

**Q.**—Is penicillin of value in the treatment of congenital syphilis? If so, what dose would you advise for a child of 4?

**A.**—Yes, penicillin is probably the most effective single therapeutic agent for congenital syphilis, but it would be wise to supplement it with arsenic and bismuth unless there is any contraindication; the total dose should be 100,000 units per kilogram of body weight. Penicillin may be in aqueous solution or in an oily base; in the former case injections should be given in equally divided doses every three hours over a period of about twelve days; in the latter once or twice daily is often enough.

**Judicial Hanging**

**Q.**—What is the length of the drop in a judicial hanging?

**A.**—On an average, six feet (1.8 metres), varying inversely with the weight of the body. The knot is placed at the angle of the jaw, and the object is to jerk the head sideways, fracture or dislocate the vertebral column, and rupture the spinal cord. This happens almost invariably, the dislocation usually occurring between the second and third cervical vertebrae. Although some other structures may be damaged, the strain is not nearly enough to divide the muscles and ligaments completely.

**Injection Treatment of Arthritis**

**Q.**—What are the most recent types of treatment by injection for arthritis other than (1) injecting the patient's own blood after exposure to ultra-violet rays, and (2) injecting lactic acid into the affected joints?

**A.**—The most recent methods of treatment by injection in arthritis, other than those mentioned, are (a) by sodium bismuth tartrate, which is inferior in its results to gold but may be useful where gold is not tolerated, and (b) the intravenous injection of organic salts of copper, which has been tried in France and for which good results have been claimed. Acid potassium phosphate has been used on the same lines as lactic acid but appears to have been supplanted by the latter.

**Leprosy Bacilli**

**Q.**—Can you tell me how leprosy bacilli react to heat, to antiseptics, and to sunshine? There seem to be no facts to go on except the probable similarity to tubercle bacilli.

**A.**—As is inferred in the question, there are no exact data on this subject, because leprosy bacilli cannot be cultivated; ordinary methods of determining susceptibility to heat, light, and disinfectants are therefore impracticable. Among the various *Mycobacteria* which can readily be cultivated there are no great differences in these properties, and it is reasonable to assume that leprosy bacilli react in very much the same way as tubercle bacilli.

**Methyl Testosterone for Hypogonadism**

**Q.**—Is methyl testosterone of value in the treatment of male hypogonadism? If so, for how long should it be given and in what dosage? What are the main toxic effects?

**A.**—Methyl testosterone is of value in hypogonadism and the dosage is usually one 5-mg. tablet by mouth three daily. It is most logically given in cases of primary hypogonadism, such as eunuchoidism or following traumatic castration. It is also of value in hypogonadism secondary to a pituitary deficiency—for example, Fröhlich's syndrome or infantilism—but initial treatment in these pituitary cases should be with gonadotrophic hormone, which, however, may require supplementing with testosterone or methyl testosterone. Although the latter substances stimulate the penis they have no stimulating effect on the gonads. Their general metabolic effect—for example, nitrogen retention and muscular development—is important, as also is their psychological effect. Treatment must be continued for some months and sometimes indefinitely as it is substitution therapy. There are no real toxic effects, but the psychological effects may be excessive in children or adolescents. In people with normal gonads large enough doses will cause involution and disorganization of the testicles.

**NOTES AND COMMENTS**

**Chronic Nasal Blush.**—Dr. A. F. WALSH (Collic, Western Australia) writes: In the hope that I may be able to help the patient whose doctor's query appeared under "Any Questions?" (May 24, p. 749) I would like to tell him of my own experience. Having been a sufferer myself I fully appreciate the embarrassment and humiliation of the patient. It seems as if the entire company is looking at one's nose—as indeed they do from time to time. The erythema of the nose is most marked when the mind is most active—i.e., when sweating hardest before exams, when hardest pressed in busy practice, or worrying over business affairs. In my case there was no complaint of indigestion, but I am convinced that an occult gastritis was present, and so I can now always control the attacks by adhering to a "maintenance ulcer type of diet" with plenty of milk, eggs, cream, butter, and fatty meat, etc., and also with the help of alkaline powder when the flush is threatening.

And now I would like to ask a question myself. Three months ago I enucleated a prostate from a patient aged 60 who was the complete picture of prostatic obstruction. Three weeks after the operation there was no passage of urine per urethram, so under G.A. I passed a large sound into the bladder. It required a good deal of force to pass the sound. Since then he has suffered from incontinence of urine for the last two months. He now wears a permanent rubber urinal, which is a great nuisance. I wrote to our leading urologist in W.A. asking his advice *re* a penile clamp. His reply was that he had never had to use one and had never seen a case of post-operative incontinence except in tabetic cases. I should add that the prostate was a small fibrous one and very difficult of enucleation. I would deeply appreciate your advice in this distressing matter.

**Chronic Bronchitis.**—Dr. TREVOR H. HOWELL (Purley, Surrey) writes: Under the heading "Any Questions?" (July 12, p. 81) I feel that your correspondent might expect more help on the problem of bronchitic asthma. In the elderly this is often a serious problem. It throws much strain on the heart and circulation, thus tending to shorten life. In certain cases the symptom of bronchial spasm seems to be a precursor of left heart failure with pulmonary oedema. As your correspondent says, ephedrine often loses its effect in advanced cases, so that an alternative is needed. My own experience has evolved three other methods of relief. As antispasmodics, "aminophylline" or "benadryl" are superior to ephedrine. For injection, "hyperdure" adrenaline can give relaxation for several hours, which is especially useful at night. Finally a course of diathermy to the chest—say twelve applications, starting at ten minutes and then gradually working up to half an hour—sometimes acts when everything else has failed.

**Fissured Lip.**—Dr. STANLEY ROBERTSON (Musselburgh) writes: Having had occasion to treat several such cases, perhaps my treatment may be of interest. I find most of these patients were edentulous, with the "bite" too close. This results in a deep sulcus at the angles of the mouth leading to retained moisture and fissures. The cause must be removed by "raising" the bite. For the local treatment I find "albuic dental cerate" an excellent preparation. This is water-soluble sulphacetamide in a neutral cerate base, and the preparation is supplied by all dental depots. A mere trace of the ointment on the sore leads to comfort and healing provided the real cause is removed. In passing may I suggest that no denture is free of sepsis?

**Pediculosis Capitis.**—Dr. MICHAEL C. PLATTEN (Birmingham) writes: The details of the patient with pediculosis capitis who did not respond to repeated applications of medicated kerosene ("Any Questions?" July 12, p. 82) suggest that the diagnosis is at fault. I have quite frequently seen pityriasis capitis confused with pediculosis capitis, and it may be that that is the case here.

**Hair Turning White Overnight.**—Mr. R. J. McNEILL LOVE (London, W.1) writes: Following a narrow escape from a flying bomb, the hair of a patient of mine actually turned white in the night, as witnessed by me. What is the physiological or pathological explanation? I can get no satisfactory answer from my dermatological friends.

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Attilology, Westcent, London*. ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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MEMBERS' SUBSCRIPTIONS should be sent to the SECRETARY of the Association. TELEPHONE: EUSTON 2111. TELEGRAMS: *Medisecra, Westcent, London*. B.M.A. SCOTTISH OFFICE: 7, Drumsheugh Gardens, Edinburgh.

# SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY JULY 26 1947

## MEDICAL ORGANIZATION IN DENMARK

### EDUCATION

#### I. The Study of Medicine

BY

ERIK CHRISTENSEN, PER LOUS, and  
GERDA SEIDELIN WEGENER  
*Copenhagen*

The study of medicine in Denmark is conducted at the State-owned Universities of Copenhagen (dating from 1537) and Aarhus (from 1926). Every year some 325 students begin their studies, while 30-40% fail for some reason or other to complete the course. The official curriculum takes seven years, but the average time is slightly above eight years, so that most candidates have reached the age of 26 before they qualify.

#### University Curriculum

The student enters the university at the age of 18. During the first two terms—i.e., for one year—he attends lectures and practical classes in inorganic and organic chemistry and in physics, at the end of which he takes his first professional examination. This preparatory examination roughly corresponds to the British first M.B. During this first year the student must also go through a course in philosophy, including psychology, ending with an examination. The course of study for the second M.B. extends over four terms (two years) and comprises human anatomy (including histology and embryology), physiology, and biochemistry. There are lectures and oral examinations as well as practical courses in dissection and microscopical anatomy, and laboratory courses in physiology and biochemistry. As material for dissection is scarce, much of the instruction rests upon museum preparations. Excellent modern institutes and spacious auditoria are available for this technical work. British textbooks of anatomy, such as Cunningham's and Gray's, are in use. The second M.B. is much feared on account of the wide range of factual and detailed knowledge required, especially in anatomy. Though private coaching is common, 40-50% fail at the first attempt (the candidate is allowed two). Plans for the introduction of theoretical papers on much the same lines as in Britain are under consideration.

Clinical work normally lasts eight terms (four years). The student serves three months as junior surgical dresser, two months as junior medical ward clerk, one month as junior at the post-mortem room; three months as senior surgical dresser, three months as senior medical ward clerk, and one month as junior ward clerk at a psychiatric department. The junior part of the course must immediately follow the second M.B. and the student is directed to particular hospitals by the medical faculty; time and choice of hospital departments for the senior part are left to the student's preference (which is often for provincial hospitals). Two months must be spent in out-patient departments. During the clinical training period the student attends preliminary courses given by hospital assistants, as well as a practical laboratory course in bacteriology, and lectures in genetics and hereditary diseases.

The official university hospital of Copenhagen is the State-owned Rigshospital, containing departments for all the special-

ties necessary in medical education. The Rigshospital, dating from 1910, is inadequate and old-fashioned, and plans for its modernization are under consideration. At Aarhus University the new municipal hospital serves as university clinic, though a few specialties are not represented; as yet only the first five years of medical study can be undertaken here, after which the students complete their course in Copenhagen.

#### Extraordinary Clinical Professorships

In order to utilize the clinical material of other hospitals and to make clinical education more effective, the chiefs of certain hospital departments outside the university hospitals in Copenhagen and Aarhus are appointed extraordinary professors. In Copenhagen, where this system has been adopted for several years, there are at present four extraordinary professorships in each of the subjects of clinical medicine and surgery, and one in each of the subjects of paediatrics, dermatology, ophthalmology, and otolaryngology. Here the students get extra clinical courses in small teams. This increase in the number of teachers has become very necessary because the university professors and assistants are comparatively few. In the theoretical subjects a professor with two or three assistants has to teach three or four hundred students at a time.

Theoretical and clinical lectures and demonstrations are attended during the whole clinical part of the study. These are not obligatory, since the characteristic feature of Danish medical study is that it is considered as a free study rather than a school task. So-called "clinics," where a student examines one of the in-patients and reads his case report to the professor and class for subsequent discussion, constitute the principal means of clinical teaching.

The second term comprises a class in clinical medicine and in paediatrics; the third, lectures in neurology and in psychiatry, a clinical course in skin and venereal diseases, concluded by an examination (either passed or not, no marks being given), and a class in clinical surgery; the fourth term, lectures in radiology, clinical courses in ophthalmology and in oto-rhino-laryngology (with examination as above), and a clinical course in fevers. The fifth and sixth terms comprise lectures and practical courses in pathology, bacteriology, pharmacology, and hygiene. Then follow oral examinations (third M.B.) in the subjects mentioned, and a six-hour paper in hygiene. The seventh and eighth terms are devoted to the final clinical study, including lectures in obstetrics, gynaecology, and forensic medicine. Practical courses in pelvic examination and contraception, together with one week's "living-in" at the University Maternity Clinic, are obligatory, but there is no service corresponding to the British "obstetric dresser." Practical operative exercises on cadavers, which played a considerable part in the past, have been cancelled owing to lack of material.

The final examination (second part of third M.B.) comprises oral examinations in theoretical and clinical medicine and surgery, clinical examination in paediatrics, oral examination in obstetrics and gynaecology and in forensic medicine, together with six-hour papers in medicine and surgery. The successful student then receives the degree of "candidatus medicinae et chirurgiae" (M.B., B.S.). To ensure further hospital training, six months in a surgical ward as a junior house-surgeon, and five months in a medical ward as junior house-physician, together with one month's duty at a maternity hospital, have been made compulsory. In this comparatively

## Annual Report of B.M.A. Council—Financial Statement

## Balance Sheet, December 31, 1946

1945 £	LIABILITIES			1946			1945 £	ASSETS			1946		
	£	s.	d.	£	s.	d.		£	s.	d.	£	s.	d.
	<b>Creditors for:</b>							<b>Leasehold Premises (at cost less amounts written off):—</b>					
	Subscriptions paid in advance	2,503	2	6				Tavistock Square and Upper Woburn Place—					
	Advertisements ditto	1,006	6	10				Balance at Dec. 31, 1945..	242,043	5	2		
	Publishing ditto	5,683	7	0				Less amount written off for depreciation	3,000	0	0		
	Contributions to Journal ..	191	1	6							239,043	5	
	Capitation Grants ..	32	11	0									
	Production of Journal, Establishment expenses, etc. ..	15,197	19	0									
	Library—Prepaid cards in hands of borrowers ..	104	11	2									
	Suspense Account ..	108	12	7									
22,340					24,827	11	8						
	<b>Sinking Fund for redemption of Leasehold Premises:—</b>							<b>Extension of Premises:—</b>					
	Balance at December 31, 1945 ..	43,022	7	11				Total sum expended to December 31, 1946, less amounts written off ..	125,842	9	2		
	Add Transfer from Income and Expenditure Account	3,488	0	8				Less amount written off for depreciation	5,000	0	0		
43,022					46,510	14	7				120,842	9	
	<b>Reserve to meet loss on transfer of Colonial Subscriptions:—</b>							<b>Premises held by Fen Charter (at cost less amounts written off):</b>					
	Balance at December 31, 1945 ..	2,152	4	0				Nos. 6 and 7, Drumsheugh Gardens, Edinburgh, and Contents ..	3,020	0	0		
	Add Transfer from Income and Expenditure Account	2,000	0	0				Less amount written off for depreciation	300	0	0		
		4,152	4	0							2,720	0	
2,152					2,140	13	4						
46,892	<b>Building Reserve</b>							<b>Investments:—</b>					
	General Contingency Reserve:—				46,892	17	11	<b>(a) Representing Reserves</b>					
	Balance at December 31, 1945 ..	100,000	0	0				£48,500 3% Savings Bonds 1960-70 (at cost) ..	48,500	0	0		
	Add Transfer from Income and Expenditure Account	20,000	0	0				£47,500 3% Savings Bonds 1965-75 (at cost) ..	47,500	0	0		
100,000					120,000	0	0	£2,000 3% Defence Bonds (Post Office issue at cost) ..	2,000	0	0		
25,000	<b>Regional Development Reserve</b>							£30,000 2½% Savings Bonds, 1964-67 (at cost) ..	30,000	0	0		
7,100	Loans secured by Investment as per contra ..				25,000	0	0	£10,000 2½% National War Bonds 1964-68 (at cost) ..	10,000	0	0		
					7,100	0	0	<b>(b) Representing reserve against Loans as per contra</b>					
	<b>Surplus Account:—</b>							£7,100 3% Savings Bonds 1960-70 (at cost) ..	7,100	0	0		
	Balance at December 31, 1945	337,224	1	0				(Market value of investments at December 31, 1946, £167,100)			145,100	0	
	Balance of Reserve for War Damage Insurance transferred ..	509	14	6				<b>(c) Shares in Subsidiary Co.</b>					
	Add Balance transferred from Income and Expenditure Account for year ended December 31, 1946 ..	3,749	12	2				598 Shares of £10 each fully paid in Scholastic, Clerical, and Medical Association, Ltd. (at cost) ..			6,083	10	
337,224					341,483	7	8	<b>Sinking Fund Insurance Policies:</b>					
								Balance at December 31, 1945 ..	43,022	7	11		
								Add Premiums paid during 1946	3,488	6	8		
											40,510	14	
								<b>Library:—</b>					
								Balance at December 31, 1945 ..	925	13	11		
								Add Purchase and Binding of Books during 1946 (less sale of second-hand books)	530	11	11		
									1,456	5	10		
								Less amount written off for depreciation ..	500	0	0		
											925	5	
								<b>Furniture and Office Equipment:—</b>					
								Balance at December 31, 1945 ..	3,313	9	2		
								Add Purchases during 1946 (less sales) ..	2,641	11	1		
									5,955	0	3		
								Less amount written off for depreciation at 15% ..	893	5	0		
											5,061	15	
								<b>Stocks:—</b>					
								Paper for Journal ..	3,232	14	0		
								Journal Wrappers ..	65	0	4		
								Paper for Medical Abstracts ..	323	5	8		
								Sundry Publications ..	59	13	9		
											3,680	14	
								<b>Sundry Debtors for:—</b>					
								Advertisements ..	20,195	10	3		
								Less Reserve for Bad and Doubtful Debts ..	2,500	0	0		
									17,695	16	3		
								Publishing ..	3,331	18	10		
								Rates, Rents, etc. ..	6,080	7	7		
								Subscriptions in arrear ..	4,901	10	3		
								Central Medical War Committee Expenses ..	7,000	0	0		
											38,959	12	
								<b>Cash in Hand:—</b>					
								General Account, including Scottish Office ..			4,990	18	
											£613,955	5	2

Notes.—(i) The Association has undertaken to guarantee £100,000 to a special fund which has been established for the furtherance of the interests of the medical profession in connexion with the National Health Service Act.

(ii) The accounts of the subsidiary company, the Scholastic, Clerical, and Medical Association, are separately kept and audited. The dividends received have been brought into account under Interest on Investments; the remainder of the profits of that Company have been carried forward in its own accounts. In respect of the year ended March 31, 1946, the remuneration payable by the above-named Association to those of its Directors who were also Members of the Council of the British Medical Association amounted to £536 11s. 10d.



## Expenditure and Income Account for the Year ending Dec. 31, 1946

EXPENDITURE	1945	1946
£ s. d.	£ s. d.	£ s. d.
Central Meeting Expenses .. ..	8,500 3 10	12,403 3 11
Association General Expenses ..	11,400 0 5	15,593 17 8
Capital Grants and Direct Expenditure on Local Organization .. ..	15,650 5 4	17,455 4 8
Library Expenses .. ..	2,416 16 5	3,203 18 9
Central Staff Expenses .. ..	29,008 12 6	38,931 9 7
Premises Expenses .. ..	21,830 16 3	25,120 10 11
Printing, Stationery, and Postages Expenses .. ..	6,408 10 6	11,455 8 1
Medical Abstracts and Quarterly Journal Subscriptions written off for Deaths and Arrears .. ..	2,735 7 4	3,770 9 9
Bad Debts and Allowances written off ..	89 2 3	181 9 1
Clerk of Works and Architects' Fees ..	175 0 0	303 14 0
	£98,426 5 10	£133,570 12 0
Less Grant towards Cost of Central Medical War Committee .. ..	7,000 0 0	7,000 0 0
Transfer from Journal Account .. ..	15,204 14 1	12,557 12 10
	£76,221 9 9	£113,712 19 2
Depreciation written off:—		
Leasehold Premises, Tavistock Square, W.C.1 ..	3,000 0 0	3,000 0 0
North and South Wing Extensions .. ..	5,000 0 0	5,000 0 0
Scottish House, Edinburgh ..	300 0 0	300 0 0

	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Library .. ..	500 0 0		500 0 0	
Furniture and Fittings ..	584 14 6		893 5 0	
	9,384 14 6		9,693 5 0	
Less Proportion Chargeable to Journal Account ..	300 0 0		203 0 0	
		9,084 14 6		9,393 5 0
Reserve Funds:—				
Sinking Fund for Redemption of Leasehold Premises .. ..	3,488 6 8		3,488 6 8	
Reserve for Loss on Exchange on Dominion Currency .. ..	2,000 0 0		2,000 0 0	
General Contingency Reserve ..	45,000 0 0		20,000 0 0	
Balance transferred to Balance Sheet ..	7,937 14 5		3,749 12 2	
	£140,572 5 4		£152,344 3 0	

INCOME	1945	1946
£ s. d.	£ s. d.	£ s. d.
Subscriptions for year .. ..	113,653 14 8	123,356 13 2
.. .. previous year .. ..	2,022 16 3	1,227 5 9
.. .. former years previously written off .. ..	252 5 4	300 12 0
Rents .. ..	20,117 19 1	20,743 12 9
Interest on Investments .. ..	3,612 2 3	6,445 5 9
Transfer from Quarterly Journals Account ..	1,037 3 11	
Sundries .. ..	26 2 10	140 13 7
	£140,752 5 4	£152,344 3 0

JOHN W. BONE,  
Treasurer.H. GUY DAIN,  
Chairman of Council.CHARLES HILL,  
Secretary.

## AUDITORS' REPORT TO MEMBERS OF THE ASSOCIATION

Having examined the Balance Sheet, dated December 31, 1946, and Accounts with the Books and Vouchers of the Association except as regards the Scottish Committee Accounts, which have been audited by Messrs. Kennedy, Smillie & Co., and having received all the information and explanations we have required, we report that the Balance Sheet is, in our opinion, properly drawn up so as to exhibit a true and correct view of the state of the affairs of the Association according to the best of our information and the explanations given to us and as shown by the Books of the Association.

We have inspected the Leases of the New Buildings, the proposals for Building Leases on sites of 13, 14, 15, 16, and 17, Tavistock Square and 18, Burton Street, and the Disposition in favour of the Association of the premises 6 and 7, Drumsheugh Gardens, Edinburgh, and have verified the investments of the Association on General Account, on account of the Trust Funds and of the Office Staff Superannuation Fund.

We further report that we have examined the Accounts with the Books and Vouchers, of the above Medical Funds administered by the Association and found them correct.

PRICE, WATERHOUSE & Co., 5, Frederick's Place, Old Jewry, E.C.2,  
Chartered Accountants.

July 10, 1947.

## SCOTTISH REGIONAL HOSPITAL BOARDS

## CHAIRMEN

The Secretary of State for Scotland has announced that the Chairmen of the Scottish Regional Hospital Boards are as follows: Northern Region, Mr. Donald Macpherson; North-eastern Region, Mrs. May Baird; Eastern Region, Mr. William Hughes; South-eastern Region, Dr. J. R. Greenlees, D.S.O.; Western Region, Prof. E. P. Cathcart, C.B.E.

## Correspondence

## "Doctor" Sign on Cars

SIR.—Several of your correspondents have suggested that some sort of distinguishing badge or notice should be prominently displayed on every medical practitioner's car to enable the passing doctor to be easily recognizable in case of emergency. However, no doctor remains permanently glued to the seat of his car, may I suggest that he bear the insignia of his profession on his person?—some sort of uniform, the details of which could vary in order to denote his specialty; and after the National Health Act has come into force "Bevan Boy" could be neatly inscribed on the lapel, preferably in luminous letters so that he could be easily recognizable after dark.—am, etc.,

A. F. ROBERTS.

## Superannuation

SIR.—Under the Draft Regulations recently published by I.M. Stationery Office the financial position of the older general practitioners does not appear to be very happy. For

example, a G.P. who happens to be over 65 on the appointed day and retires on his 70th birthday will have under five years' employment in the new Medical Service, and consequently he will not be entitled to a retiring allowance or a pension.

Is it not possible to permit this body of workers to opt to make payments which will allow a non-contributing period to reckon for pension as if it had been contributing service? This is to be permitted to members of the Federated Superannuation System for Universities and others. For example, a G.P. or other medical practitioner who joined the new Service at 65 and later found he was unable to continue until he was 75 might be given the opportunity to opt to pay a sum equal to what he would have paid if he had been able to continue for the full ten years of further active practice. This will entitle him to a quarter of his average remuneration for his last three years of practically contributing service as pension. In short this means "pay or work."

St. Helens, Lancs.

D. CAMPBELL.

## National Health Service

SIR.—Charles V, a King of France in the fourteenth century, paid the feudal lords for defending their own castles. "for," he said, "he that lets himself be paid ends by letting himself be commanded." This is just as true now as then.

If any medical men are so short-sighted as to permit payment on a salaried basis there is no question but that it will mean eventually Civil Service administration of a bureaucratic nature, and such administration will most certainly take steps to see that no medical man is allowed to draw in public money an annual amount equal to the salary of the highest civilian official of the department. That would be intolerable to a governing body. Time is drifting on, no doubt diplomatically, so that before any agreement or otherwise can be arrived at a State service will be launched as an accomplished fact.—I am, etc.,

St. Mary, Cornwall

B. H. SHAW.

## H.M. Forces Appointments

### ROYAL NAVY

Surgeon Commander V. F. Walsh to be Surgeon Captain.  
Temporary Surgeon Lieutenants N. M. Panton and J. K. Irving, R.N.V.R., have been transferred to the Royal Navy.

### ROYAL NAVAL VOLUNTEER RESERVE

Surgeon Commander G. F. Abererombie to be Surgeon Captain.  
Surgeon Lieutenant-Commander E. G. Brewis to be Surgeon Commander.

### ARMY

Colonel (Temporary Major-General) S. Arnott, C.B.E., D.S.O., late R.A.M.C., has relinquished the temporary rank of Major-General.

Colonel C. H. K. Smith, O.B.E., M.C., late R.A.M.C., having attained the age for retirement, has been retained on the Active List supernumerary.

Lieutenant-Colonel (local Brigadier) A. G. Harsant, O.B.E., from R.A.M.C., to be Colonel.

### ROYAL ARMY MEDICAL CORPS

Lieutenant-Colonel G. W. Will, O.B.E., has reverted to retired pay on ceasing to be employed and has been granted the honorary rank of Colonel. (Substituted for the notification in a *Supplement* to the *London Gazette* dated May 13.)

Lieutenant-Colonel T. Stanton has retired on retired pay and has been granted the honorary rank of Colonel.

Lieutenant-Colonel W. I. FitzG. Powell, having attained the age for retirement, is retained on the Active List supernumerary.

Majors T. J. Moloney and A. P. Trimble to be Lieutenant-Colonels.

Major L. C. Card has retired receiving a gratuity.  
*Specialist Short Service Commissions.*—War Substantive Captain A. O. McClay, from R.A.M.C., Emergency Commission, to be Captain. Lieutenant L. Mackie to be Captain. Lieutenant D. P. A. L. Scott, from Emergency Commission, to be Lieutenant.  
*Short Service Commissions.*—War Substantive Major D. H. Niblett, from I.M.S., I.A.M.C., Emergency Commission, to be Captain. Captains J. O. S. Anderson and P. C. Barry, from Emergency Commissions, to be Captains. Lieutenants W. G. L. Allan, W. Brodie, J. Carswell, D. A. Chadwick, I. W. Clark, D. S. Cranston, T. Dungavel, J. M. Hughes, J. Maclean, F. R. D. Minett, M. Redfern, H. Benson, N. C. Rees, I. Lamond, D. R. Patchett, and H. F. McElligott, from R.A.M.C., Emergency Commissions, to be Lieutenants.

### TERRITORIAL ARMY

#### ROYAL ARMY MEDICAL CORPS

War Substantive Captain J. A. Dudgeon, M.C., to be Captain.

### LAND FORCES: EMERGENCY COMMISSIONS

#### ROYAL ARMY MEDICAL CORPS

War Substantive Major B. G. Thompson has relinquished his commission and has been granted the honorary rank of Lieutenant-Colonel.

War Substantive Captains H. J. Hamburger and G. D. Rankin have relinquished their commissions and have been granted the honorary rank of Major.

War Substantive Captains E. G. H. Koenigsfeld, A. G. Kulkarni, E. K. Malone, A. A. Brockie, and D. M. Clement have relinquished their commissions and have been granted the honorary rank of Captain.

War Substantive Captains G. C. Hildrey and B. Messer have relinquished their commissions on account of disability and have been granted the honorary rank of Captain.

Lieutenant J. G. Roberts to be Lieutenant.  
To be Lieutenants: E. Anderson, H. C. Anton, B. Bernard, R. A. Chand, J. Cowie, L. Cudkowiec, W. R. Denny, J. H. Diggle, R. Earl, J. J. Flood, A. Folkson, J. M. Forbes, J. C. Foster, J. S. Gardiner, I. R. Haire, B. H. Hogben, D. H. Isaac, A. B. Jamieson, J. M. Livingston, D. O. Lloyd, E. Lyons, J. Millar, K. P. Milne, I. A. H. Munro, K. S. Murray, N. L. Paros, C. I. Phillips, J. M. Posada, B. F. Richards, J. F. S. Robertson, H. K. Rose, A. K. D. Rutherford, J. L. Ryan, R. A. Setchell, S. G. Siddle, N. H. Silverton, R. H. Shephard, D. S. Smith, J. Starkie, H. Stern, J. P. Stuart, D. W. Taylor, O. M. P. Tobias, S. Vakil, R. P. Vass, J. R. Wardley, R. A. L. Wenger, A. A. Weyman, J. White, G. Adam, C. W. Bowen, J. A. H. Brown, S. Cope, D. R. Cairns, R. D. Calcott, P. F. Daly, A. M. Davies, J. Dillon, S. C. Harper, P. J. D. Heaf, B. P. Hill, R. E. Jenkins, R. H. N. Lake, R. W. Lawrie, P. A. R. Lornie, A. C. Milne, J. L. Middlemiss, H. M. Park, D. A. Petrie, J. H. Raphael, J. L. Roden, J. A. Reynolds, M. L. Sacks, R. E. N. Tattersall, F. W. Thomas, M. J. Whelan.

### WOMEN'S FORCES

#### EMPLOYED WITH THE R.A.M.C.

War Substantive Captain E. Gilbertson has relinquished her commission on account of disability and has been granted the honorary rank of Captain.

War Substantive Captains E. Moffett, K. Krainer, and S. Donahue have relinquished their commissions and have been granted the honorary rank of Captain.

Lieutenant (Mrs.) Augustus G. Harrison to be Lieutenant.

*Specialist Short Service Emergency Commission.*—Frances J. Pounds to be Lieutenant.

To be Lieutenants: Nora M. Dwyer, Mary T. Keyes, Mavis H. Swift, Eileen M. K. Irwin, Mary A. C. MacHugh, Sheila M. Dineen, Alice Faulkner, Elizabeth M. Hargreaves, Edith Winternitz, Mary Staunton, Bridget B. Noone, Elsie M. Terry, and Bridget Cregan.

### INDIAN MEDICAL SERVICE

Major-General W. R. Stewart, C.B., C.I.E., hns retired.  
Colonel J. W. Vanreen, O.B.E., has retired and has been granted the honorary rank of Brigadier.

Colonels R. Lee, R. N. Khosla, O.B.E., and J. L. D. Yule have retired.

Lieutenant-Colonels J. W. F. Albuquerque, O.B.E., and A. V. Lopes to be Colonels.

Lieutenant-Colonel M. M. Cruickshank, C.I.E., has retired and has been granted the honorary rank of Colonel.

Lieutenant-Colonels Hari Das, P. M. Antia, R. A. Wartens, and G. V. Ram Mohan have retired.

Majors W. F. Cooper, A. N. Duggal, A. K. M. Khan, S. S. Bhatnagar, B. Chandhuri, O.B.E., H. L. Batra, A. V. O'Brien, L. Dass, S. M. K. Mallick, T. C. Puri, C. Mani, S. T. Davies, H. W. Farrell, O.B.E., B. D. Khurand, and R. R. Bakhshi to be Lieutenant-Colonels.

Major W. B. Roantree has relinquished his commission and has been granted the honorary rank of Lieutenant-Colonel.

Major C. F. J. Cropper, O.B.E., has retired and has been granted the honorary rank of Lieutenant-Colonel.

Captain J. Aitken has retired on account of ill-health and has been granted the honorary rank of Major.

Captain A. R. Woodforde has retired, receiving a gratuity, and has been granted the honorary rank of Major.

Captains A. D. Iliff, G. F. J. Thomas, J. H. Cater, R. D. Ewing, O. Walker, G. B. Jackson, C.B.E., C. W. Greene, W. L. Fennell, O.B.E., T. A. Cunningham, D. S. Piper, J. W. Lusk, M. D. Black, I. D. Sutherland, R. Passmore, G. J. H. Maud, T. P. Binns, and D. R. Hanbury to be Majors.

## Association Notices

### Sir Charles Hastings Clinical Prize

The Sir Charles Hastings Clinical Prize, which consists of a certificate and a money award of fifty guineas, is again open for competition. The following are the regulations governing the award:

(1) The prize is established by the Council of the British Medical Association for the promotion of systematic observation, research, and record in general practice; it includes a money award of the value of fifty guineas.

(2) Any member of the Association who is engaged in general practice is eligible to compete for the prize.

(3) The work submitted must include personal observations and experiences collected by the candidate in general practice, and a high order of excellence will be required. If no essay entered is of sufficient merit no award will be made. It is to be noted that candidates in their entries should confine their attention to their own observations in practice rather than to comments on previously published work on the subject, though reference to current literature should not therefore be omitted when it bears directly on results, their interpretations, and their conclusions.

(4) Essays, or whatever form the candidate desires his work to take, must be sent to the British Medical Association House, Tavistock Square, London, W.C.1, not later than Dec. 31, 1947. The prize will be awarded at the Annual General Meeting of the Association to be held in 1948.

(5) No study or essay that has been published in the medical Press or elsewhere will be considered eligible for the prize, and a contribution offered in one year cannot be accepted in any subsequent year unless it includes evidence of further work. A prize-winner in any year is not eligible for a second award of the prize.

(6) If any question arises in reference to the eligibility of the candidate or the admissibility of his or her essay, the decision of the Council on any such point shall be final.

(7) Each essay must be typewritten or printed, must be distinguished by a motto, and must be accompanied by a sealed envelope marked with the same motto and enclosing the candidate's name and address.

(8) The writer of the essay to whom the prize is awarded may, on the initiative of the Science Committee, be requested to prepare a paper on the subject for publication in the *British Medical Journal* or for presentation to the appropriate section of the Annual Meeting of the Association.

(9) Inquiries relative to the prize should be addressed to the Secretary.

### Branch and Division Meetings to be Held

WESTMINSTER AND HOLBORN DIVISION.—At City Hall, Charing Cross Road, W.C., Thursday, July 31, 8 p.m. Agenda: Consideration of Reports from Representatives to A.R.M.

# BRITISH MEDICAL JOURNAL

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## LIVER FUNCTION TESTS IN THE DIAGNOSIS OF JAUNDICE

A REVIEW OF 200 CASES

BY

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It is now generally agreed that no one liver function test will give a satisfactory picture of the activities of an organ which has so many metabolic tasks to perform, and the present tendency, particularly in the United States, is to use a battery of tests in every case of suspected liver dysfunction. Thus Watson (1944) advocates eleven tests for jaundiced and seven for non-jaundiced patients; other workers have used similar combinations (Mateer *et al.*, 1942; Neeffe and Reinhold, 1946).

In this country few hospital laboratories have had the technical assistance required to follow these suggestions on any worth-while scale, and this has led to a rather conservative devotion to older tests such as the van den Bergh reaction, which has only a limited value in the differential diagnosis of jaundice. Thus while recent quantitative modifications of this test are certainly useful in distinguishing between retention and regurgitation jaundice (Watson, 1946; Gray, 1947), the older claims to distinguish toxic from obstructive jaundice by this means have been abandoned by experienced clinicians and pathologists. A recent report by Sherlock (1946) indicates that similar objections apply to the serum protein and cholesterol estimations and to the intravenous galactose tolerance and hippuric acid tests. Unfortunately this latter distinction—obstruction versus hepatitis—is a much more frequent diagnostic problem in jaundiced patients.

The present communication is concerned with two types of test—the serum alkaline phosphatase estimation and certain flocculation tests—which have been the subject of previous reports (MacLagan, 1944a, 1944b, 1944c, 1945). Although somewhat empirical in nature these tests have the advantage of technical simplicity and of being applicable to a single blood specimen. The combination has proved of particular value in distinguishing obstructive from non-obstructive jaundice, no doubt because the phosphatase shows a maximum deviation from normal in obstructive jaundice while the flocculation tests show maximum abnormality in hepatitis. It is hoped that they will be found useful by those who have lost faith in the older tests and have not been able to adopt the "battery" method of approach. While no combination of tests will give a definite diagnostic answer in every case of jaundice, the methods described here appear to be reliable in a high proportion of cases with a reasonably small expenditure of labour and materials.

### Material

This consists of 200 consecutive jaundiced patients (serum bilirubin concentration over 2 mg. per 100 ml.) seen per-

sonally during the last four years in whom the cause of the jaundice was satisfactorily established by methods independent of the tests themselves, to the satisfaction of the clinician in charge of the case. Table I gives a detailed

TABLE I.—200 Cases of Jaundice

Diagnosis	Obstructive	Acute Hepatitis	Chronic Hepatitis	Haemolytic
No. of cases .. ..	56	118	15	11
Basis for diagnosis:				
Clinical .. ..	9	108	8	11
Operative .. ..	25	3	3	—
Necropsy .. ..	22	7	4	—
Age in years:				
Average .. ..	56.7	33.2	39.7	45
Range .. ..	24-76	17-71	10-58	22-64
Duration of jaundice (weeks):				
Average .. ..	6.5	1.4	53	29.7
Range .. ..	1-72	0.2-8	5-250	1-100
Serum bilirubin mg. per 100 ml.:				
Average .. ..	9.7	6.8	3.8	2.9
Range .. ..	2-24	2-25	2-8.3	2-8.1

analysis of the cases, on which the following comments may be made. The obstructive cases show, as would be expected, a higher average age and serum bilirubin than the other groups, and their average duration of jaundice (6.5 weeks) was intermediate between acute hepatitis on the one hand (1.4 weeks) and chronic hepatitis on the other (53 weeks). The obstruction was due to neoplasm in 37 cases, to gallstones in 17, and to lymphadenoma in 2. Diagnosis was by operation or necropsy in 47 of these 56 cases. The 118 cases of acute hepatitis were made up as follows: infective hepatitis (95), post-arsphenamine jaundice (13), jaundice with peritonitis (3), homologous serum jaundice (2), trinitrotoluene jaundice (2), glandular fever (1), leptospiral jaundice (1), eclampsia (1). There were six fatal cases of acute hepatic necrosis in the infective hepatitis group, and the patient with eclampsia also died. Chronic hepatitis cases were mainly of multilobular cirrhosis, but included five cases of chronic jaundice following acute hepatitis and one of Banti's syndrome. The haemolytic jaundice was classified as acholuric in four cases, post-transfusion in three, and of unknown aetiology in four.

### Methods

1. *Serum Alkaline Phosphatase* (King and Armstrong, 1934).—Normal limits, 3-13 units. This method was latterly modified to use 0.2 ml. portions of serum, and the results were read on the King-Gallenkamp photo-electric colorimeter, but the original barbitone buffer was retained throughout.

2. *Serum Colloidal Gold Reaction*.—The buffer methods of MacLagan (1944a; 1946b). These two methods have been

shown to give the same results, but the later one employs an easier method of preparing the gold sol.

3. *Thymol Turbidity Test*.—The original method (MacLagan, 1944b) was used throughout except for a slight change in the turbidity standards noted below. This technique has now been used satisfactorily by a number of workers (Watson *et al.*, 1945; Cohn and Lidman, 1946; Havens and Marck, 1946; Maizels, 1946; Klatskin and Rappaport, 1947; Mawson, 1947), but as others have reported certain difficulties or modifications the following additional technical notes may be of interest.

(a) The pH of the thymol buffer was originally given as 7.8, but Volwiler (1946) found it to be 7.67 and adjusted it to 7.8 by the addition of more sodium barbitone, which would also have the undesirable effect of raising the ionic strength. Mateer *et al.* (1947), on the other hand, agreed with pH 7.8, but found their reagent too insensitive and adjusted the pH to 7.55. Some of these differences may well be due to difficulties inherent in the standardization of pH measurements, such as temperature effects and choice of check solutions. The value of pH 7.8 was obtained with the glass electrode (Marconi) at 20° C. using M/20 potassium hydrogen phthalate as a standard of reference with a value of 4.0, and is in fair agreement with the pK value of diethyl barbituric acid, given by Britton (1942) as 7.92. It should, however, be emphasized that the buffer was designed to have a salt-acid ratio of 2:3 rather than a pH of exactly 7.8. It is of course quite possible to increase the sensitivity of the reagent by lowering the pH, but data previously presented (MacLagan, 1944b) indicate that this would probably have the effect of diminishing the specificity of the reaction. In any case it would seem to be inadvisable to make any alterations in the buffer purely on the basis of the pH measurements, which are in general hardly accurate enough for this purpose unless very special precautions are taken. It is probably more important to check the purity of the reagents, as the possibility exists that certain brands of sodium barbitone may contain an excess of alkali and therefore yield an incorrect buffer. Thus 0.416 g. of the sodium barbitone should require exactly 20 ml. of 0.1 N hydrochloric acid for titration to methyl orange, and the barbitone should melt at  $190 \pm 1^\circ \text{C}$ . (uncorrected). A rough check on the final pH with phenol red is a useful safeguard. Finally, an undue proportion of negative results such as those of Mateer *et al.* (1947) would obviously suggest the need for investigation, and as a rough guide the positives in a series of cases of epidemic infective hepatitis should amount to at least 90%. In the present work no readjustment of the buffer has been found necessary.

(b) Various photometric methods of measuring the turbidity have been published (Shank and Hoagland, 1946; Ley, Lewis, and Davidson, 1946), in which the measurements are standardized against barium sulphate suspensions. I have had difficulty in getting reproducible results with methods of this type, and in the present series visual comparison was adhered to throughout. The standards have, however, recently been made up from diluted normal serum of known protein content treated with three volumes of 3% sulphosalicylic acid. These appear to be as stable as the formazine standards and are simpler to renew and control. A similar recommendation to return to the simpler visual comparison was made by several speakers at the Conference on Liver Injury, New York, 1946.

(c) The normal limits, originally given as 0 to 4 units, have been criticized, and Neeffe (1946) and Mateer *et al.* (1947) both consider values above 2 units as abnormal. This question seems to depend upon the choice of normal controls, and there is no doubt that completely healthy persons do give lower figures than those I obtained on "non-hepatic" hospital patients. Values between 2 and 4 units are relatively frequent in disease apparently unconnected with the liver, and it was in an effort to avoid these "false positive" results that the limits of 0 to 4 were suggested. However, if the test is being used for screening purposes on apparently healthy persons, the limits of 0 to 2 would no doubt be more appropriate. These considerations would not affect the arguments used in the present paper, in which an identical diagnostic significance has been accorded to negative and weakly positive flocculation tests.

4. *Thymol Flocculation Test*.—This is performed as an adjunct to the thymol turbidity test by allowing the tube to stand overnight and recording flocculation, as recommended by Neeffe (1946) and MacLagan (1947). Some difficulty was experienced in grading the amount of flocculation consistently, and eventually the following procedure was adopted. If flocculation was complete the amount was related to the turbidity reading with the following convention:

Turbidity units	0-4	5-7	8-10	Over 10
Flocculation (if complete)	1+	2+	3+	4+

Any case showing incomplete flocculation was recorded as 1+, and absence of flocculation as 0 or negative.

## Results

The results are shown in Figs. 1, 2, and 3. It will be seen that there is a clear general tendency for the obstruction cases to have high phosphatase values and negative flocculation reactions (top left-hand corner), while cases

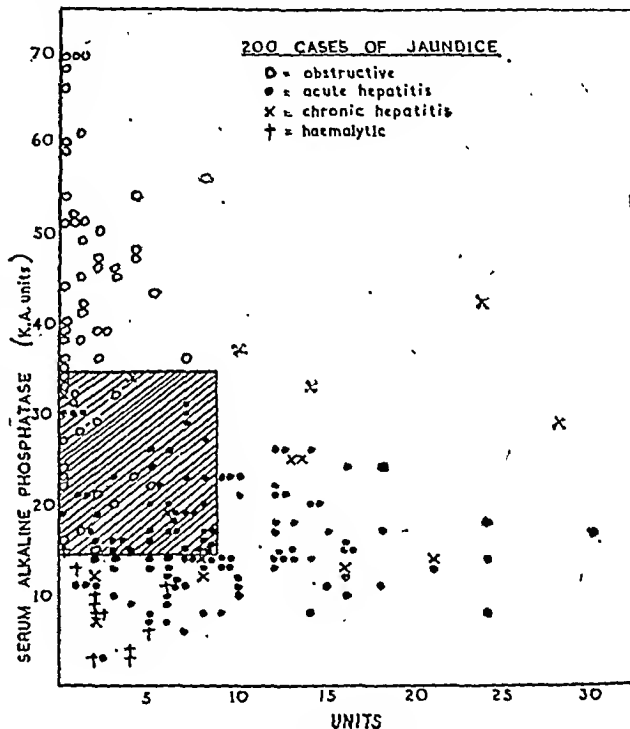


FIG. 1.—Thymol turbidity test.

of hepatitis usually have positive flocculation reactions and normal or moderately raised phosphatase figures (bottom right-hand corner). The cases of haemolytic jaundice tend towards the bottom left-hand corners—that is, they have low phosphatase values with normal or weakly positive flocculation reactions. An intermediate zone contains cases of all types.

In interpreting the results it is of the greatest importance to distinguish between those of diagnostic value (unshaded in charts) and those which are equivocal and not of diagnostic value (shaded in charts). In this respect the following conclusions apply to all the 200 cases without exception:

1. All cases with phosphatase levels above 42 units were obstructive (26 cases). All with phosphatase levels below 15 units were non-obstructive (67 cases); it should be noted that all the 11 cases of haemolytic jaundice are included in this group.
2. All cases with strongly positive flocculation reactions were non-obstructive. These include: 92 cases with 2+, 3, or 4+ thymol flocculation; 60 cases with 4 or 5+ gold reactions; and 55 cases with thymol turbidity over 8 units.

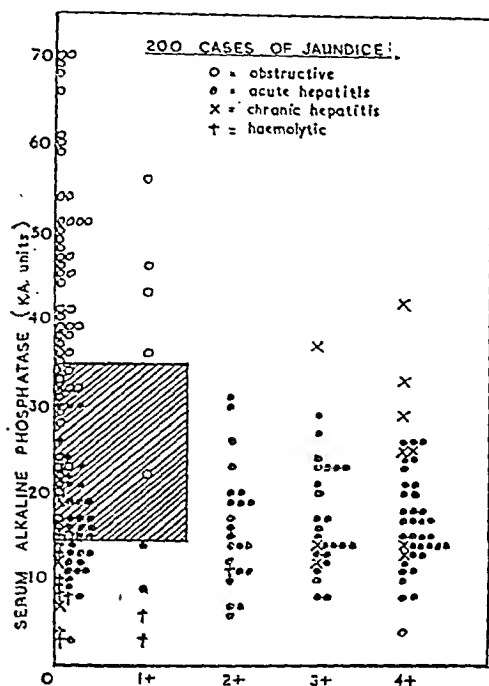


FIG. 2.—Thymol flocculation test.

3. All cases with negative or weakly positive flocculation reactions and, in addition, phosphatase levels above about 35 units were obstructive. These include: 38 cases with thymol flocculation 0 or 1+ and phosphatase above 35 units; 37 cases with thymol turbidity below 9 units and phosphatase above 35 units; and 34 cases with gold less than 4+ and phosphatase over 37 units.

4. All other combinations of results (shaded in charts) can occur in both types of jaundice and should therefore be regarded as equivocal except in so far as a raised phosphatase value is against a purely haemolytic type of jaundice. Nevertheless in cases where they approach the limits of these areas they can obviously be allowed a relative importance in diagnosis. For example, a jaundiced patient with negative flocculation reactions and a phosphatase of 33 units *might* have

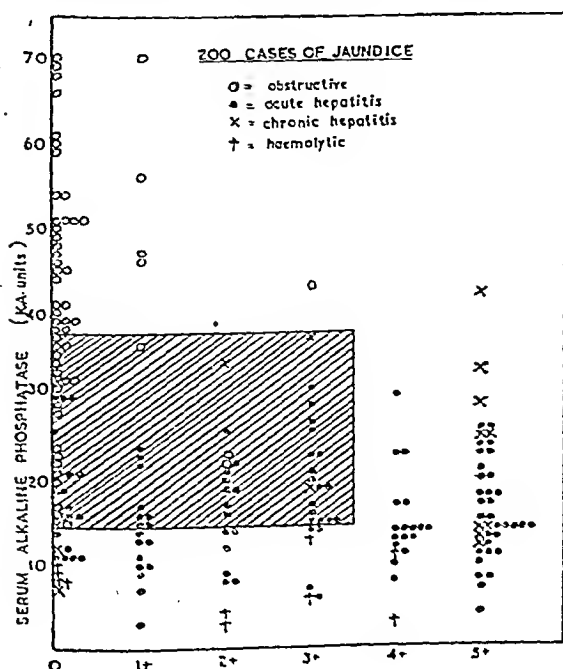


FIG. 3.—Serum colloidal gold reaction.

hepatitis, but is much more likely to have biliary obstruction. Similarly, one with weakly positive flocculation reactions and a phosphatase of 18 units *might* have obstruction but is much more likely to have hepatitis.

The alkaline phosphatase results are in close agreement with those of Sherlock (1946), although expressed in a different form. Sherlock gives 30 units as a rough dividing-line between obstructive and non-obstructive cases, and this would also apply to the present series; such a statement, however, fails to express the equivocal nature of results in the region of 15–35 units, which may occur either in hepatitis or in biliary obstruction, and cannot therefore have decisive diagnostic value. The greater frequency of high phosphatase values in chronic as opposed to acute hepatitis is a finding which is well shown in the charts, and has been referred to elsewhere (MacLagan, 1944c).

The relative merits of the various tests are further illustrated in Table II, which shows the proportions of cases falling in the shaded and unshaded areas in Figs. 1, 2, and 3. It will be seen from this table that a combination of the

TABLE II.—Analysis of Results in 200 Cases of Jaundice

Test	No. Diagnosed	No. Equivocal
Phosphatase	93 (46.5%)	107
Thymol flocculation (T.F.)	92 (46%)	108
Colloidal gold (C.G.)	60 (30%)	140
Thymol turbidity (T.T.)	55 (27.5%)	145
Phosphatase and T.F.	158 (79%)	42
Phosphatase and T.T.	136 (68%)	64
Phosphatase and C.G.	131 (65.5%)	69

All cases in shaded area of Figs. 1, 2 and 3 have been counted as equivocal in this table.

thymol flocculation and phosphatase tests gives the best results, with definite diagnostic information in 79% of cases. The other two flocculation tests in conjunction with phosphatase give a somewhat lower proportion of successful results (68% for thymol turbidity and 65.5% for gold). As opposed to this the best results with any *one* test are 46.5% for the phosphatase and 46% for the thymol flocculation test, so that the advantage of combining the two types of test is evident.

The clinical application of the tests is further illustrated by the following two case reports.

### Case Reports

**Case 1: Hepatitis Simulating Biliary Obstruction.**—A man aged 66 had been jaundiced for two weeks. This had been preceded by anorexia for some weeks following an attack of abdominal pain and vomiting ascribed to food-poisoning, and there had also been a patch of bronchopneumonia during this period with pyrexia to 103° F. (39.4° C.), which had been successfully treated with sulphamezathine. Abdominal pain had then reappeared followed by jaundice with dark urine and pale stools. There had been considerable loss of weight. On examination the liver was enlarged and tender. Cholecystography showed poor concentration of dye. The general picture was thought to be suggestive of malignant disease. The chemical findings were as follows: serum bilirubin, 8.7 mg. per 100 ml.; serum alkaline phosphatase, 17 units; thymol turbidity, 12 units; thymol flocculation, 4+; colloidal gold, 3+. These were strongly in favour of hepatitis, and the patient made a good recovery with medical treatment and has had no recurrence of symptoms.

**Case 2: Biliary Obstruction Simulating Cirrhosis.**—A woman of 43 had been jaundiced almost continuously, with some waxing and waning, for the past 18 months. The illness started with pyrexia and pain in the right shoulder-blade; the urine had been dark and the stools pale throughout. One year previously laparotomy had been performed at another hospital, but no obstruction to the biliary tract had been found. Cholecystectomy had been done and the common bile duct dilated. No improvement in symptoms had followed this operation, and



a diagnosis of hepatic cirrhosis had been made at that time. Clinical examination showed fairly deep jaundice in a well-preserved woman. The liver was enlarged and hard, and there was also clubbing of the fingers and toes. There was no x-ray evidence of calculi. The chemical findings were as follows: serum bilirubin, 10.8 mg. per 100 ml.; serum alkaline phosphatase, 36 units; thymol turbidity, 7 units; thymol flocculation, 1+; serum colloidal gold, 1+; galactose index, 135 (normal, 0-160). These results were strongly suggestive of obstructive jaundice, and a second operation disclosed the presence of a gallstone firmly imbedded in the bile ducts in the region of the head of the pancreas.

### Discussion

In a recent article Ivy and Roth (1943) pose the question "Why do a liver function test?" and discuss the value of a variety of tests, not however including the thymol and gold tests. One reason for doing liver function tests is to distinguish obstructive from non-obstructive jaundice. While admitting the limitations stressed by these writers, it would appear from the results given above that for this special purpose the combination of the serum alkaline phosphatase estimation with the thymol or the colloidal gold test may be expected to provide a reliable answer in a high proportion of cases, the actual percentage varying from 65.5 to 79 according to the particular flocculation test used. The actual diagnostic value of these procedures is in practice rather greater than these figures would suggest, for two reasons. First, there is the inclusion of 13 cases of post-arsphenamine jaundice in the acute hepatitis group. These cases have a particular tendency to exhibit negative flocculation reactions (Maclagan, 1944a, 1944b, 1944c), and are in general easily eliminated on clinical grounds; if they are removed from the series the results, particularly with the thymol flocculation test, would be appreciably better. Secondly, although the cases in the shaded areas of Figs. 1, 2, and 3 have been recorded as failures in Table II, in many cases where the results approach the limits of these areas they were of some diagnostic help, as explained above. Nevertheless, it is true that certain combinations of results can occur in any type of jaundice, and there is probably no test or combination of tests which will give a diagnostic answer in every case.

As regards choice of test, thymol flocculation seems to be the best of the three flocculation tests tried. It is, however, known to be rather often negative in post-arsphenamine and homologous serum jaundice (Maclagan, 1947), and it is therefore desirable to retain the thymol turbidity test. The amount of flocculation can then be recorded more accurately as indicated above. The colloidal gold test has no advantage over the other two in the diagnosis of jaundice, but I retained it because of its greater sensitivity in conditions such as rheumatoid arthritis, malaria, and infective endocarditis (Carter and Maclagan, 1946). It is technically convenient to perform these tests together as they require the same small volume of serum (0.05 ml.).

Although all these tests are still partly empirical in character, it has recently been shown that the underlying chemical change in the case of the flocculation tests is probably a relative excess of gamma globulin in the serum (Gray and Barron, 1943; Kabat *et al.*, 1943; Maclagan and Bunn, 1947a, 1947b). Thus electrophoretically separated serum gamma globulin acts as a precipitating agent, and an absolute increase in this fraction has been demonstrated in hepatitis. Similarly normal serum albumin acts as an inhibitor, and this fraction is often reduced in hepatitis; moreover, hepatitis albumin is less effective as an inhibitor than normal albumin. The rise of the serum alkaline phosphatase in liver disease is, however, incompletely understood, having been ascribed to the phosphatase

content of the bile (Armstrong *et al.*, 1934) and to secondary interference with bone metabolism (Roberts, 1933). It seems more likely to me that this rise represents a positive secretory response of the liver cell to a variety of chemical or bacterial insults, of which biliary obstruction is the most powerful. It is somewhat remarkable that the liver cell damaged by biliary obstruction should fail so uniformly to produce those protein changes associated with positive flocculation tests, but such appears to be the case.

It is not of course suggested that the diagnostic criteria given above will hold generally without any exceptions and in interpreting the results the possible presence of complicating diseases such as heart failure and rheumatoid arthritis should be borne in mind, as these conditions may produce positive flocculation reactions even in the absence of jaundice. However, the fact that no exception has occurred in these 200 cases is an encouraging feature. It is also obvious that the tests described will not elucidate every problem in hepatic pathology, and for special purposes other tests will also be required—for example, the serum protein estimation for prognosis (Higgins *et al.*, 1944) and recent modifications of the pigmentary tests for the diagnosis of non-icteric and pre-icteric hepatitis and haemolytic jaundice (Watson *et al.*, 1944; Pollock, 1945; Watson, 1946; Maclagan, 1946a; Neefe and Reinhold, 1946; Gray, 1947). Such tests are, however, of very limited value for distinguishing obstructive from non-obstructive jaundice which is the special problem considered here, and for which the suggested combination of phosphatase and flocculation tests appears to represent an advance on previous chemical methods of approach.

### Summary

The results obtained in 200 cases of jaundice with the serum alkaline phosphatase, thymol turbidity, thymol flocculation, and serum colloidal gold tests are analysed in relation to the diagnostic value.

The combination of phosphatase with one flocculation test will distinguish obstructive from non-obstructive jaundice in from 65 to 79% of cases. The thymol flocculation test, slightly the best of the three flocculation tests tried.

Diagnostic criteria are given for the various tests. Strongly positive flocculation reactions or phosphatase levels below 15 King-Armstrong units suggest non-obstructive jaundice; negative or weakly positive flocculation reactions with phosphatase levels above 35 units suggest biliary obstruction, and phosphatase levels above 42 units are also in favour of obstruction.

I am much indebted to the medical staffs of Westminster Hospital, Ashford County Hospital, Middlesex, and of E.M.S. Sector 7 for access to their patients and records; to Prof. R. J. V. Pulvertaft, Dr. Alan Morgan, and Dr. A. G. Signy for necropsy reports; and to Drs. J. Amor and J. Marshall for certain sera. Part of the expenses of the work was defrayed by a grant from Westminster Hospital.

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## RELATIVE ORAL TOXICITY OF SOME THERAPEUTIC IRON PREPARATIONS

BY

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Forbes (1947) and Thomson (1947) have recently described serious consequences in young children, including three deaths, following the unauthorized taking of ferrous sulphate tablets in excessive numbers. These and certain cases previously reported to us raised the general question of the toxicity of iron compounds when large doses were consumed orally, and also of the additional effect, if any, of the small amount of copper and manganese sulphates which were present in the tablets.

Examination of the literature failed to reveal earlier reports of ill effects from orally administered iron compounds, except for occasional references to slight alimentary disturbances. Further, and more surprisingly in view of the widespread use of iron compounds for the treatment of iron deficiency or "nutritional" anaemia, we have been unable to find any account of pharmacological investigations into the action of iron given by mouth, although its effects by injection have received some attention and it is accepted that serious ill effects may follow its absorption into the blood stream.

It therefore seemed desirable to test experimentally on several species of laboratory animal the effects of orally administering very large doses of some of the more commonly used iron preparations. For this purpose we chose ferrous sulphate, with and without the presence of the "trace" metals copper and manganese; ferrous carbonate in the form of Blaud's pills; ferrous gluconate, because of the claims made for it by Reznikoff and Goebel (1937); ferric chloride, so as to include at least one preparation of ionizable ferric iron; and iron and ammonium citrate, widely used in compounded medicines, though nowadays largely replaced by ferrous sulphate for simple oral iron therapy—shown by many workers from Davidson (1933) onwards to be much more effective in haemopoiesis than the non-ionized "scale salts," when compared on an equivalent iron basis. Rabbits and guinea-pigs were used for studying the pathology and histology of any disturbances observed, and mice for the estimation of median lethal doses (LD50) with reasonable accuracy.

As a practical problem in human therapeutics we were really concerned with establishing the "therapeutic index" of ionizable iron—that is, the ratio of its median toxic dose to its median therapeutic dose. Here we encountered two difficulties, the one general and the other particular. First, it is ordinarily impossible to establish such an index for the action of a drug on the human organism, simply because data, unfortunately, are not as a rule available for the median toxic human dose. The pharmacologist therefore normally has recourse to establishing the therapeutic index of a drug on at least one species of laboratory animal, and preferably on more than one. If the value of this index is of roughly the same order for two or more species of laboratory animals it is reasonable to assume that the same value will apply to man; in general, experience bears out this assumption. However, even this line of approach was not available to us, for there is no species of animal—with the possible exception of the rat made anaemic on a milk diet—for which we have information about the median therapeutic dose of iron compounds.

We were consequently forced back on to the unsatisfactory step of relating toxic doses to the body weight of the animal used and arguing on the same basis for man. The objections to this line of reasoning, however, appear much less strong for iron compounds than they might for other drugs, for it will be seen that toxic effects—and, in particular, fatal results—were produced only by doses so immensely out of proportion to the animal's normal intake of iron as to make highly unlikely the ingestion of dangerous amounts by human subjects. The facts established by our experiments nevertheless make it clearly desirable to render access of infants and small children to iron preparations as difficult as possible. Such precautions would normally be taken with many of the common drugs to be found in the ordinary household—for example, quinine salts and acetylsalicylic acid—without in any way detracting from their value and importance in therapeutics.

### Toxicity

The results obtained with the three species of animals used are summarized in the accompanying table. The

Table showing the Median Lethal Toxic Doses of Iron Compounds by the Oral Route

Compound	Iron in Preparation, Calculated as Fe	Dose per kg. of Body Weight					
		Rabbits		Guinea-pigs		Mice	
		Actual	Cal. as Fe	Actual	Cal. as Fe	Actual	Cal. as Fe
Ferrous sulphate crystals	20	3.0	0.6	1.5	0.3	2.5	0.9
Ferrous sulphate prep. with copper and manganese	24	3.0	0.72	1.25	0.3	4.1	1.0
Ferrous gluconate	16.6	3.5	0.58	2.1	0.35	6.6	1.1
Ferrous carbonate pills	12.5	17.8	2.22	16.0	2.0	31.0	3.8
Ferric chloride	32.5	1.2	0.4	0.6	0.2	1.5	0.5
Ferric and ammonium citrate	20	2.8	0.56	1.75	0.35	5.0	1.0

figures from tests on rabbits and guinea-pigs, owing to the relatively small numbers of such animals that can be used in toxicity tests, must be regarded as first approximations: the figures from the tests on mice have a greater accuracy, except those for iron and ammonium citrate, because with this product a great individual variation was found among the animals. Slopes of the regression curves, and the errors of estimating the LD50, which were of the order usually found in tests of this kind, were obtained by the graphical method of de Beer (1945).

It will be seen: (1) That the presence of small amounts of copper and manganese sulphates made no difference to

the toxicity of the iron or ferrous sulphate. (2) That the iron in ferrous sulphate, ferrous gluconate, and—curiously enough—iron and ammonium citrate had the same toxicity, though it must be repeated that the figure for the last compound is subject to a very large error. (3) That the iron in Blaud's pills has apparently only about one-quarter the toxicity of the other forms. It is, of course, well known that the iron in Blaud's pills has also much less therapeutic effect, and these two facts are undoubtedly due, at least in part, to the same basic phenomenon—the relative insolubility of their ferrous carbonate in gastric and intestinal contents. (4) That ferric iron appears to be up to twice as toxic as ferrous iron. We have no explanation for this finding, especially if, as is generally held, ferric iron is reduced in the stomach to the ferrous state. It must, however, be remembered that ferric chloride is a much more acidic substance than ferrous sulphate (or gluconate). The introduction of large quantities into the stomach must involve a considerable increase in gastric acidity, which in turn may hasten alimentary absorption of the iron—possibly an advantage with therapeutic doses but certainly not with toxic ones.

The observation with Blaud's pills suggested that sodium carbonate or bicarbonate might be useful as an antidote to toxic oral doses of iron compounds. Four rabbits were therefore given known toxic doses of ferrous sulphate (3 g. per kg. of body weight) and two of them then received the same amount of sodium carbonate. One of these two lived for two days, while the other survived completely; the two that did not receive sodium carbonate died overnight. This experiment was repeated twice, with similar results—a fact which points to the conclusion that sodium carbonate treatment might, if given soon enough, help to reduce the toxic effects of excessive iron doses by mouth.

### Pathology and Histology

#### Rabbits

The rabbits used were of both sexes and weighed between 2 and 3 kg. They were fasted overnight and were then given by stomach tube doses of the iron compounds, graded and proportionate to their body weights. Two animals were used for each dose and at least ten animals for each substance. If the rabbits survived, daily samples of urine were collected for three days. Haematological examinations included differential and total counts of red and white cells and estimates of haemoglobin levels. Necropsies with examination of all major organs followed as quickly as possible after death. Sections were cut of parts of the stomach, intestine, liver, and kidneys, and were stained for iron as well as with haematoxylin and eosin.

Within a few minutes of receiving a toxic dose of iron the rabbits became prostrated. They lay on their stomachs with limbs extended, their respiratory rate increased, micturition often occurred, and reflex movement of the hind legs was considerably retarded. Coma followed, with shallow breathing and gradual disappearance of reflex movements. The animal either died two to six hours after receiving the dose (according to its size), sometimes following convulsions, or recovered.

The rabbits receiving Blaud's pills had a profuse diarrhoea. This fact, with the freedom of all other animals from this symptom, has, we believe, a very simple explanation. The pills are made by reacting ferrous sulphate with sodium carbonate, so that the ferrous carbonate formed must be accompanied by an equivalent amount of sodium sulphate. There seems no reason why a large dose of Glauber's salts should have an effect on rabbits differing from that on man. Moreover, the laxative effect of the associated sodium sulphate must have hastened the alimen-

tary passage of these large doses of ferrous carbonate: this would tend further to reduce its toxic effects.

At necropsy the stomachs usually showed congested areas with shedding of mucosa, especially at the greater curvature. The amount of damage was to a large extent determined by the size of dose: the smaller toxic doses caused only very slight damage to the stomach wall. Bleeding into the stomach was the exception rather than the rule, but it was seen after the larger doses of both ferrous sulphate and ferric chloride and in one animal that had received ferrous gluconate. The small intestines generally showed much hyperaemia in their upper regions, but here also haemorrhages were seen only after very large doses. Surviving animals showed no evidence of kidney damage, the urine being invariably devoid of abnormal constituents. There were no departures from normal blood counts. Recovery of surviving animals was usually rapid.

Changes in the histology of stomach, liver, and kidney in rabbits killed by the iron compounds were very small, and appeared insufficient to account for the death of the animals. In the stomach there was only slight necrosis of the superficial layer of the villi and deposits of iron on the mucous membrane (occasionally also in the endothelium of the smaller blood vessels). There were deposits of iron in the bile ducts, but only slight hydropic changes in the liver. In rabbits surviving and killed three days after dosing we observed small foci of fatty degeneration, and necrosis was present in the peripheral parts of the lobuli, with deposits of iron, mainly in the Küpffer cells. The other surviving animals appeared to be completely restored to normal health and activity after a few days.

#### Guinea-pigs

The animals used, of either sex, weighed between 200 and 300 g. Their distribution over the different dosage groups was made so far as possible to equalize the average weights of the groups. Each dose was given to at least three animals, and at least ten guinea-pigs were used for each substance tested. The animals were fasted overnight and given the appropriate dose of iron compound by dropping it into the mouth and then tickling the fauces. Necropsies, dissections, and histological work were carried out as on the rabbits.

In general the immediate consequences of excessive iron administration by mouth were the same in guinea-pigs as in rabbits. At necropsy, however, there was evidence of severer damage to the stomach; macroscopically the findings with the larger doses resembled those described by Forbes. After doses of 1.5 g. per kg. of body weight of ferrous sulphate or ferric chloride the stomach contained both fresh and changed blood; necrosis, shedding of mucosa, and areas of haemorrhage were obvious to the naked eye. Severe irritation of the stomach wall followed the ingestion of 3 g. of ferrous gluconate per kg. of body weight: in one animal the stomach was full of blood-stained material. Changes were less severe after dosing with iron and ammonium citrate or Blaud's pills, but at the larger dose levels either preparation caused well-marked irritation of gastric mucosa with occasional petechial haemorrhages.

Histological changes, as in rabbits, were slight and insufficient in themselves to account for the deaths. There was but superficial damage to the gastric villi, with deposit of iron on the mucous membrane, which also showed some areas of capillary bleeding. In a very few instances there were some fatty changes in the liver.

Necropsies were not made on mice, which were used solely to obtain a reasonably accurate estimate of the median lethal doses.

### Discussion

From the experiments described there can be no doubt that in very large doses certain soluble iron salts, whether ferrous or ferric, whether of organic or inorganic acids, and whether normally ionizable or complexes of the "scale salt" type, are toxic to at least three species of laboratory animals. It is reasonable, and probably a wise precaution, by extrapolation to accept as proved that all similar iron compounds can, in excessively large doses, kill mammals of any species, including man. It must, however, be emphasized that toxic doses really are excessive. The amount of ferrous sulphate necessary to kill on the average one out of two 10-stone (63.5-kg.) men, if man's susceptibility on a body-weight basis is assumed to be the same as that of the rabbit, would represent at least several hundred tablets of 3 gr. (0.2 g.) of exsiccated ferrous sulphate, each containing 1 gr. (65 mg.) of iron. Obviously the number may be considerably smaller for infants and young children, being reckoned in tens rather than hundreds.

The similarity in behaviour of various iron preparations suggests that after solution in the stomach they are all reduced to the ferrous state and that ferrous iron when present in very large amounts, whether wholly ionized or not, is alone responsible for the damage. Ferrous sulphate should be completely ionized at high concentrations, and ferrous gluconate probably hardly ionized at all even at low concentrations, yet they show indistinguishable toxicities in very high doses. It may be remarked, in passing, that none of the ionizable iron compounds exists as such in the stomach after therapeutic doses: apart from un-ionized hydrochloric acid in the gastric contents, there will then be present in solution the chloride, sulphate, and other anions, the hydrogen, iron, and other cations, and the various un-ionized soluble constituents. Forbes's contrasting of ferrous sulphate with ferrous chloride in solution therefore seems to be misleading even when the sulphate has been ingested at much above the therapeutic level.

The post-mortem and histological examinations have furnished no positive information about the *modus operandi* of iron at orally toxic levels. A decision between shock due to tissue damage—which at worst was not very great and appeared rapidly reversible in the milder cases—and systemic effects following passage of excess iron into the blood stream cannot be made on the basis of our experiments. They were, in any event, carried out with an immediately practical object—to find and record at what doses therapeutic iron preparations could exert toxic effects on experimental animals. The results of these experiments are reassuring. They show, at any rate in so far as the experimental animals react similarly to man, that the gap between curative and harmful doses of iron compounds is very large—and obviously still larger between preventive and fatal doses. Indeed, I doubt if there are many medicinal substances with so large a "therapeutic index." The upper dose of ferrous sulphate, according to the *British Pharmacopoeia*, is 0.3 g., which would be contained in five tablets of the product causing fatalities that led to this investigation. In few circumstances is it likely that an adult would be recommended to take more than 12 such tablets a day, and the results suggest the harmlessness of anything less than several hundred tablets taken all at one time and on an empty stomach. It is, however, desirable that physicians and pharmacists should warn parents and adults generally that iron preparations should be kept out of reach of the very young.

In the experiments described above I have received the technical assistance of Mr. G. A. Romer in the preparation of sections and slides, and much useful advice from Dr. J. Ungar, to both of whom I wish to extend my thanks.

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## AN EXPERIMENT IN REHABILITATION

BY

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During the recent war, with its urgent demands for manpower, the attention of the medical services was sharply focused on to an aspect of clinical treatment that had under less pressing conditions been of relatively secondary importance. The economic aspect of medical or surgical treatment assumed an importance equal to that previously held by the somewhat ambiguous criterion of a "good clinical result." This is none the less true of to-day. The essence of the problem facing the clinician from the first day of treatment onward can best be expressed in the form of the question: How may this man be returned to his accustomed way of life and employment with a minimum loss of time and skill? The answer to that question embodies the full significance of the term "Rehabilitation," which must include the repair of the injury as well as the restoration of functional efficiency.

In industry to-day there are several examples of the successful handling of the problem of rehabilitation of the injured workman by a close liaison between medical and industrial authorities, the responsibility of treatment being shared equally between the two. Such schemes are at the present time too elaborate and costly to be undertaken by the smaller concerns. In this paper we have briefly described an experimental rehabilitation scheme carried out during wartime. We have attempted to underline the principles of treatment and to show how such a scheme may be applied to the industrial injuries of peacetime, with the minimum of special equipment, under existing factory conditions.

### The Scheme

During 1945 and 1946, thanks to the co-operation of a near-by aircraft factory, a number of long-term Service and ex-Service cases drawn from the orthopaedic, plastic, and peripheral nerve injury units of Hill End Hospital were sent to work in the factory in chosen occupations. The choice of Service men, the majority complete strangers to factory life, was governed partly by the preponderance of Service casualties and partly by the special problem that they offered. As already stated, they were mainly "long-term" cases requiring a series of reconstructive operations or a long course of physiotherapy. It was thought that this experiment might have the double advantage of providing selected remedial exercises and, at the same time, a much-needed change of surroundings.

Sixty-nine patients took part in the scheme, spending an average of 63.9 hours at work over a period of seven weeks. Attendance at the factory was on four afternoons a week from 1.30 to 4.30; the mornings being left free for attention in the physiotherapy department. It was considered of the utmost importance that the scheme should be an adjunct to regular physiotherapy rather than, in any way, a substitute for it (see below).

Clinical control of the scheme lay in weekly factory "rounds" by the surgeon in charge of the case, the works medical officer, and the hospital rehabilitation officer, when the methods employed were discussed and criticized. The jobs, all of which came under the heading of unskilled work, were chosen from a large variety of industrial operations in accordance with the requirements of the disability. Some examples of these jobs are: bench assembly work, light assembly work in a warm electroplating "shop," drilling (using bench drill and single-spindle drill), hacksawing, Lister truck driving, preparation of fuselages, press operating, spray painting, and dismantling wrecked aircraft.

Many production operations, including those mentioned, demand movements which in certain conditions are of remedial value: the movements are for the most part both *repetitive* and *controlled*—two factors which count for a great deal in this connexion. Furthermore, by *simple* adaptation many of the jobs can be altered to suit the strength or range of the operator. Thus by varying the effective length of the operating lever the power required to work a drill may be stepped up or down. Again, by simple alteration of the *height* of the operating handle of a machine a gradual increase in range of, for example, the shoulder-joint can be encouraged.

This series of 69 cases included 53 of upper-limb injury, 46 (87%) of these resulting from gunshot wounds. The upper-limb injuries were various, and included a large number of disabilities which, from the point of view of rehabilitation, offered three main problems that could be summarized broadly under the clinical headings of joint stiffness, loss of muscle power, and muscle contractures. There were in this series no cases in which joint stiffness was present alone. In 26 cases (49.1%) it occurred in association with loss of muscle power, and in 10 (18.9%) it was present in association with both muscle contractures and loss of muscle power. Loss of muscle power was present alone in 11 cases (20.7%), was associated with muscle contractures in 6 (11.3%), and was associated with both joint stiffness and muscle contractures in 10 (18.9%). In no case was muscle contracture the only pathology.

#### (1) Joint Stiffness

Functional inactivity with resulting venous and lymphatic stasis is the most frequent factor in the production of post-traumatic joint stiffness (Watson-Jones, 1943). Prolonged inactivity results in irreversible changes occurring in capsular and ligamentous tissues, with the formation of intracapsular adhesions. Attempts to increase the range of movement by *passive forcing* of such joints often result in further damage to the soft tissues, with further limitation of movement. Bearing these precepts in mind, the problem of overcoming joint stiffness was approached mainly from the point of view of *active mobilization*.

One man had severe limitation of the elbow-, wrist-, and finger-joints as a result of seven months' immobilization and disuse of the right upper limb on an abduction frame for the treatment of a gunshot wound of the shoulder region which involved the brachial plexus. The patient was first put to work on light assembly in the electroplating shop, where the temperature is maintained at between 80° and 90° F. (26.6° and 32.2° C.). He was later transferred to hacksawing, an occupation requiring great muscular effort and involving all the joints of the

upper limb, including the shoulder-joint. The hacksaw was modified by padding the handle to allow him to grip it firm within the range of his metacarpo-phalangeal joint movement (Fig. 1). This produced a pronounced improvement of mus-

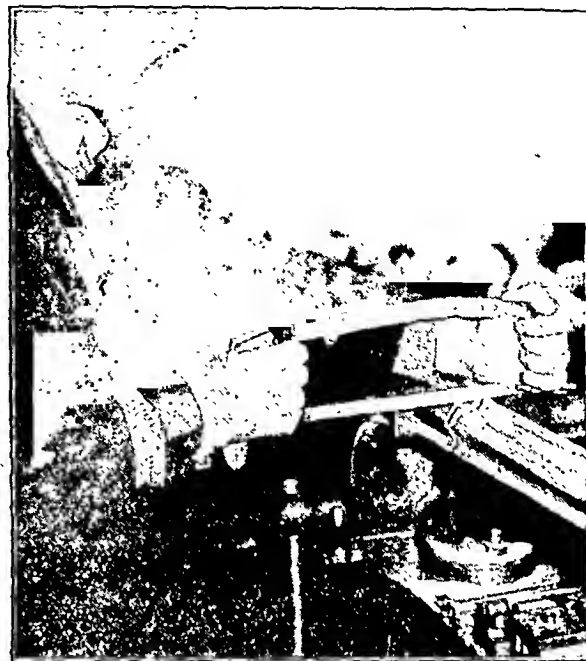


FIG. 1.—Patient using hacksaw with padded grip.

power associated with a greatly increased range of joint movement throughout the limb. As the metacarpo-phalangeal joint flexion improved, the padding of the handle was reduced.

The beneficial effect of prolonged active and resistive movements in a warm atmosphere was most marked.

A man whose fingers were almost immobile as a result of a gunshot wound of the hand responded notably to an occupation designed to give him active movements in a warm atmosphere. He drove a Lister truck on light haulage jobs within the factory precincts; the frequent stops and starts necessitated almost continual use of the clutch handle, which he operated with his injured hand, and which was situated in the stream of hot air from the motor.

Where the joint stiffness was not so severe less specific and controlled operations were applied. Among those which proved valuable was one in the salvage department where a spanner was the main instrument and a high degree of mobility of the hand was necessary.

#### (2) Loss of Muscle Power

Restoration of muscle power in cases uncomplicated by joint stiffness, flexion contractures, or nerve lesions offers few problems in treatment if a graduated scale of exercise was provided. When complicated by stiffness of joints, improvement of muscle power is no less important. "A stiff joint with powerful muscles is less disabling than a mobile joint with powerless muscles" (Watson-Jones, 1944). It was found that industrial operations designed primarily to increase joint movement might fail in this, but, as a result of increased muscle power, improve the efficiency of joint movement within its limited range. Where loss of muscle power resulted from denervation atrophy more carefully graduated control of work done was required. Muscles show a return of voluntary power after recovery from a lower motor neurone lesion very extremely rapidly, and it is advantageous to encourage the use of splints where possible. It must, however, be borne in mind that splinting in peripheral nerve injuries is designed to compensate, far as is possible, for the paralysis and to encourage active



ovement rather than to restrict movement. In a recover-  
g radial or post-interosseous nerve lesion a "cock-up"  
oint not only releases the re-innervated wrist extensors  
om the effect of gravity but puts the antagonists at a  
sadvantage. The active contraction of the extensors of  
wrist is in no way interfered with by his manœuvre.

#### ) Muscle Contractures

A large proportion of patients treated in this scheme were  
ffering from peripheral nerve injuries. The frequent  
currence in median and ulnar nerve lesions of fibrous  
uscle contractures affecting flexor muscles of the fore-  
m presented a special problem. Whether the fibrous  
ntracture resulted from a true ischaemic lesion, a de-  
ervation atrophy, or a simple muscle destruction, the  
inical picture varied only in degree. The principle  
lopted in treatment of these contractures was a gradual  
ssive stretching of the muscle, using the wrist as the  
lcrum, the fingers being maintained in extension  
roughout.

A patient who sustained a gunshot wound of the upper arm  
using an axonotmesis (Seddon, 1942) of the median and  
nar nerves had a severe flexion contracture of the fingers of  
ghteen months' duration. When he started work on sand-  
papering aircraft fuselages his degree of contracture allowed  
m to work only on the upper surface of the fuselage (Fig. 2).  
e was encouraged to work down the curved surface of the  
selage, thus gradually and necessarily extending his wrist



FIG. 2

FIG. 3

FIG. 2.—Patient sandpapering fuselage on its upper aspect. The wrist cannot be extended further without compensatory clawing of fingers. FIG. 3.—Showing wrist extension achieved after three months' treatment.

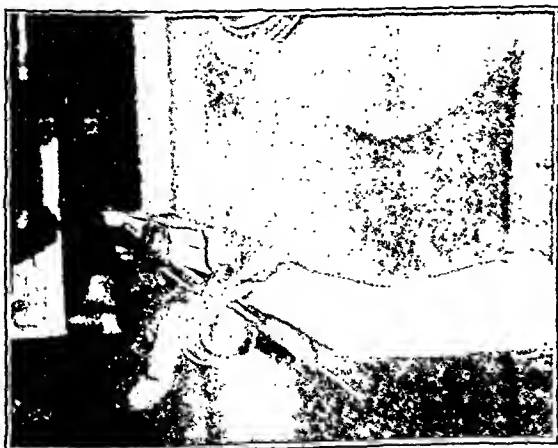


FIG. 4.—The hand in position on the adapted fly-press.

while maintaining the fingers in extension until, as shown in Fig. 3, the contracture was sufficiently overcome to permit him to sandpaper the side of the fuselage with his wrist in dorsiflexion. The result was achieved in 131 hours, covering a period of three months.

Another method employed to give a similar effect is shown in Fig. 4, which illustrates a fly-press with a modification plate attached to the handle. Forward pressure with the flat of the hand is required to operate the press, thus forcibly extending the wrist, the fingers being maintained in extension against the plate by a leather cuff. Over-extension at the metacarpo-phalangeal joints is prevented by means of a padded fulcrum placed behind the metacarpal heads.

Another patient gained 45 degrees of wrist extension with no further compensatory clawing in 117 hours during a period of three and a half months. In both cases corrective splinting was used, and daily physiotherapy was given over the whole period. When seen one year later neither case showed a recurrence of the contracture.

#### Comment

At first sight it would seem that the experiment described above can have little application to an industrial rehabilitation scheme. The patients were not factory workers and the injuries were in the main not those usually associated with industrial accidents. However, as we have already stated, most upper-limb injuries, whatever their origin, may ultimately present one or more of the triad of joint stiffness, loss of muscle power, and muscle contracture. Such differences that occur are mainly in degree. It is certainly true to say that the injuries dealt with in this experiment were more extensive and of longer standing than those commonly met with in industry. In the acute injuries of industry the problem confronting the surgeon is more likely to be prophylactic than remedial. That is to say, he will more often be concerned with the prevention of onset than with the treatment of the established triad.

We have already laid stress on the importance of the continuation of physiotherapy throughout the period of industrial rehabilitation, and provision was made that this side of clinical treatment was not interfered with. There are certain aspects of remedial treatment that can be carried out only in a properly equipped physiotherapy department and for which industrial rehabilitation can offer no substitute. For example, no amount of active movement of a limb will prevent ultimate fibrous-tissue replacement occurring in a denervated muscle which requires daily galvanism if rapid progressive atrophy is to be minimized (Bowden, 1945; Jackson and Seddon, 1945). There is evidence, however, that passive movement of the denervated muscle is beneficial in preventing the onset of muscle contractures.

In regard to mobilization of stiff joints, much can be done in the physiotherapy department, where the skilled application of heat in the form of wax baths or ray treatment, combined with careful active and passive movements, is in the early stages of greater value than any of the industrial methods. On the other hand, a variety of industrial operations offer unrivalled opportunities for encouraging active mobilization of stiff joints through the improvement of muscle power transmitted over them.

The modern occupational therapy department offers ample opportunity for improvement of muscle power, but in relation to an industrial accident service it has the obvious disadvantage of keeping the workman away from his work rather than getting him back to it. However, the occupational therapy department, with its varieties of hand looms, bicycle fretsaws, printing presses, etc., need not be very far removed from the concept of a hospital workshop equipped with a variety of simple industrial machines that might well

form as it were the "nursery slopes" from which the injured workman graduates to his own factory.

Although the inferences of this paper have been drawn from experience of "long-term" cases, much has been learnt about the possible application of such results to the treatment of acute injuries. Apart from the prophylactic aspect—the prevention of adhesions and loss of muscle tone—recently injured joints and muscles appear to respond rapidly to the controlled industrial methods of rehabilitation of this type. Furthermore, when the injury is of industrial origin the early return of the absentee to full-time or part-time selected work not only prevents a loss of skill and a lowering of morale that so often follows in the wake of prolonged unemployment but also tends to reduce the exaggerated importance attached by the workman to the accident.

### Summary

This paper presents an experiment in the rehabilitation of injured Service men using existing conditions in industry.

The principles of treatment are discussed and illustrated.

From the inferences made the application of such a scheme to a peacetime industrial accident service is discussed.

We are indebted to Dr. W. J. T. Kimber, medical superintendent, Hill End E.M.S. Hospital, for help and advice on the organization of the scheme; to all sections of the De Havilland Aircraft Co., Ltd., for their willing co-operation; and to Mr. S. L. Higgs and Mr. Rainsford Mowlem for permission to publish the cases.

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## ACQUIRED SYPHILIS IN CHILDREN

BY

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To the great increase in early syphilis during the war years may be attributed the emergence of cases of acquired syphilis in children. Six cases are here recorded in order to focus attention on the possibility that the disease is transmitted through close contact with actively infectious individuals, either adults or children, and by contact with infected articles, and on the possibility of such transmission occurring even in families where there are no known cases of syphilis. For example, several children have been brought for examination because they had picked up and inflated condoms found in the parks, and one of the cases reported may have been infected in this way. Poor environmental conditions, carelessness, and lack of attention to hygienic precautions are not invariably present as contributory factors, as infections through contacts have occurred in professional homes. The early recognition of these cases is of such vital importance, both to the child and to those in close contact, that acquired syphilis as a possible diagnosis should be considered in any case in which there is a rash accompanied by headache, sore throat, and adenitis, and where the rash does not conform to the commoner skin conditions or to one of the other exanthemata. The frequency of the commoner symptoms and signs of secondary syphilis in this group of cases is shown in Table II.

Unfortunately, in no case so far has syphilis been suspected while still in the primary stage, although a primary sore on the tonsil was detected in two of the secondary cases now reported. If a chancre appears on the lip, characteristically as a solitary indurated erosion with accompanying unilateral indolent rubbery enlargement of the neighbouring lymphatic glands, it should not be missed, and yet experience shows that suspicion is often not aroused until the secondary stage is reached. All the cases in the present series had had symptoms for three or four weeks before arriving at the clinic.

In the past five years six cases have been examined and treated. Tables I and II give the chief points noted. In

TABLE I

Case No.	Date Seen	Age (yrs.)	Sex	<i>T. pallidum</i> Demonstrated	Site*	Source of Infection
1	4/1/45	3½	M.	+	Anus	Mother
2	17/6/41	6	M.	—	—	Parents
3	14/8/45	7	F.	+	Labia	Indian servant
4	4/5/46	7	F.	+	Vulva	Found condom in park always sucks things she picks up
5	26/6/46	8½	F.	—	—	Parents
6	26/7/46	16	F.	+	Anus	Nephew with acute congenital syphilis

\* Area from which serum (for demonstration of *T. pallidum*) was obtained.

TABLE II

Case No.	Malaise	Headache	Sore Throat	Pains in Limbs	Rash	Alopecia	Sore in Mouth	Adenitis	Condylomata Lata
1	+	—	—	—	—	—	+	+	+
2	+	+	+	—	+	—	—	+	—
3	+	—	+	—	+	—	—	+	—
4	+	—	+++	—	+	++	+	+	+
5	+	—	+++	+	+	—	—	+	—
6	—	—	+++	—	+	—	—	++	+

each case the Wassermann and Kahn tests of blood taken at the patient's first appearance were strongly positive, and the cerebrospinal fluid, taken in all except one case within the first fortnight, gave entirely negative findings in respect of cell count, globulin estimation, Wassermann reaction, and gold-sol test.

### Diagnosis

A detailed history of the illness should be obtained, noting particularly the time incidence of the various symptoms. As a rule malaise and anorexia are early symptoms, then follows the rash and sore throat with adenitis, the condylomata in the genital or anal regions being late in appearance. Should, however, the primary sore be on the mouth or tonsils, the first symptoms will be referred to this area, and in that case the associated glandular enlargement is very noticeable and is usually commented upon.

The family history should be obtained in full, with particular reference to whether the parents have ever had treatment for syphilis. An inquiry should be made as to who sleeps with the child and looks after him; whether he keeps his own towels and washing things; whether he uses outside lavatories; and whether he has been staying away from home recently. A thorough examination should then be carried out from head to foot, noting especially the condition of the hair and scalp, mouth, skin, glands, and genitals. Serum should be taken from moist lesions, after ascertaining whether antiseptics or ointments have recently been applied, and blood taken for Wassermann and Kahn tests.

**Differential Diagnosis.**—All the other infectious diseases associated with rashes must first be eliminated, particularly rubella, which was diagnosed originally in Case 2. The throat infection may also be suspected—diphtheria, Vincent's angina, and streptococcal tonsillitis with a streptococcal rash all being possibilities. In children the rash of

secondary syphilis may easily be mistaken for scabies with impetigo, pityriasis rosea, or toxic rashes in general. Case 4, with numerous early condylomata lata on the vulva, was at first thought to be a case of herpes genitalis. Glandular fever and subacute rheumatic fever should be taken into account when the particular features of adenitis and muscle and joint pains are prominent. It must be remembered, too, that more than one condition may be present at the same time—for example, scabies and a syphilitic rash. If, however, all the signs and symptoms, together with the family history, are taken into account, it is usually easy to make a probable diagnosis, and this can be confirmed at once if *Treponema pallidum* is demonstrated, or in a few days by means of a blood test. It is essential that the parents and all close contacts be examined and blood-tested immediately, and it is advisable to make monthly tests for three months after the last contact for those who have been caring for or sleeping with the child. This maxim is illustrated by the unusual story of Case 6.

### Case History

A girl aged 16 was referred from the ear, nose, and throat department on July 26, 1946, with the diagnosis of primary sore of the tonsil, already confirmed by a strongly positive Wassermann reaction. She still showed typical ulceration of the right tonsil, with marked localized adenitis, but she also showed a generalized rash and adenitis and condylomata around the anus, in the serum from which *T. pallidum* was easily demonstrated. Her family—father, mother, and a sister aged 30 who slept with her—were all examined and tested and found to be negative, and it was a mystery how she had been infected, as she denied any other contact.

On Sept. 13—that is, seven weeks later—a little boy aged 20 months was brought to the department, again diagnosed before admission, this time at the Royal Hospital for Sick Children. In appearance he presented a large square head with bossing of frontal bones, a poor bridge to his nose, and sores on the tongue and lower lip, noticed since August. *T. pallidum* was demonstrated, and blood tests gave Wassermann +++, Kahn +++. He was a nephew of the above patient, and she often visited his home and was very fond of him. It was revealed that his father had had primary syphilis in 1938 while in India. He had been fully treated, and had been observed for two years, with negative tests. There had, however, been either a recurrence or a second infection following a further exposure in 1941, for his blood tests were found to give Wassermann ++, Kahn +, although he had no signs or symptoms. The mother of the boy—an intelligent, co-operative, and clean-living woman—had been previously married, with four children by the first marriage and two by the second. The youngest child was the patient, the older one was conceived before his father went to India and was healthy. The mother had had no signs or symptoms of syphilis at any time and appeared perfectly healthy on examination, but her blood tests gave Wassermann +, Kahn +, and after a provocative injection of neoarsphenamine, Wassermann +++ and Kahn +++. The last member of this unfortunate family to appear was the 22-year-old stepsister of the boy. She reported on Nov. 9 with a history of having noticed swollen glands on the right side of her neck four weeks before, followed a week later by a sore throat and headache, and a rash six days before reporting. *T. pallidum* was demonstrated in serum taken from sores in the mouth, and from moist papules at the anus, and blood tests gave Wassermann +++, Kahn +++. She also was devoted to her small stepbrother and often kissed him. There had been no other possible contact.

### Comment

This sad story emphasizes the necessity for examination of all close contacts as well as the parents in cases of both acute congenital and acquired syphilis in children.

Mention must be made of the treatment adopted in these cases. Although no routine dosage has yet been decided

upon, every case was given parenteral penicillin in hospital in three-hourly doses, day and night, the total dose varying from 1,600,000 to 5,000,000 units per course. Case 3 received 1,600,000 units alone, and for a whole year has shown monthly negative blood tests, with maintained good health. All the other cases have received, in addition to the penicillin, at least one unit course of intramuscular arsenic and bismuth injections. Observation must be maintained for at least two years, with repetition of the cerebrospinal fluid tests before discharge.

We wish to express our gratitude to Dr. Batchelor for his help and encouragement in the preparation of this paper, and to Dr. Clark, the medical officer of health, for permission to publish the cases.

## FACTORS INFLUENCING THE FUTURE PROVISION OF DAY NURSERIES

### LONG-TERM POLICY

*A statement by the Day Nurseries Committee of the Medical Women's Federation adopted by the Council of the Federation.*

It should be the ultimate aim of a policy directed towards well-being in childhood that every mother should have the knowledge, means, time, and accommodation to bring up her own children in health and happiness within the family circle in their earliest years. It is recognized that after about the age of 3 years children benefit from contacts beyond the family circle, especially if the family is small or widely spaced. The provision of nursery schools (already part of the national policy) will increasingly meet this need where a mother is unable to arrange for it herself.

The full achievement of the aim of healthy happy family life in childhood is at present prevented by certain social disorders and conditions, and is likely to be so prevented for many years, probably even indefinitely. Among these social conditions may be mentioned: (a) inadequate housing and overcrowding; (b) circumstances which force the mother to be the sole or main bread-winner of the family (e.g., unmarried mothers, deserted or separated wives, widows, wives with incapacitated or unemployable husbands, etc.); and (c) difficult or bad home circumstances (e.g., illness or incapacity of the mother, poor parentcraft—from the physical or psychological aspect—poverty, drunkenness, etc.).

Day nurseries do not provide the social remedy for these conditions. They do, however, provide a means of alleviating the effects on young children. Other means are available also—as, for instance, home helps, carefully supervised daily minding, and direct financial assistance. Such methods, by retaining a more natural environment for the child, may well be preferable so far as they can be made available. But so long as these social disorders persist to any considerable extent, day nurseries, along with other methods, will be required on a scale commensurate with the extent and seriousness of these conditions in different localities, bearing in mind that for older children nursery schools will also play a part.

The provision of day nurseries should not be allowed to interfere with the radical measures necessary to abate, and not merely alleviate, these social evils—for example, better housing, adequate allowances, and more widespread teaching of parentcraft. As and when social conditions improve, so should health and happiness within the family circle become attainable for greater numbers of children and the need for day nurseries diminish.

For the social disorder of poor parentcraft day nurseries can provide a limited remedy as well as a means of alleviation. The children's life in a day nursery can be an object

## FUTURE PROVISION OF DAY NURSERIES

lesson in child care, and in addition the nursery students are potential mothers. The number of actual or potential mothers who can be reached is extremely small relative to the total parent population. (Even in wartime less than 2½% of the children under 5 years old were in day nurseries.) The need to teach parentcraft is almost universal, and day nurseries absorb too much of the resources of personnel and money to make it practicable to attempt to use them on a scale sufficient to meet this need. It can be more completely met by other educational methods. Nevertheless, the concurrent effect in the teaching of parentcraft is valuable even though it may not be the primary purpose.

**Short-term Policy**

Two circumstances should be considered in relation to the immediate provision of day nurseries: (1) the present widespread prevalence of inadequate housing and overcrowding, and (2) the continuing demand for women in industry. The first of these, though it will also condition long-term policy, is of such seriousness at the present time as to merit special consideration in the continuance of nurseries on a short-term basis. To alleviate the effects of overcrowded and unhealthy housing day nurseries will be needed for a few years on a wider scale than should be necessary subsequently, when the true remedy of better housing becomes more widely available.

The continuing demand for women in industry during the present period of economic reconstruction and the "export drive" brings in considerations of national welfare only indirectly related to child welfare. At the height of wartime provision of day nurseries about 71,000 women were directly released to industry. Intermittent exclusion of children from the nurseries reduced the effective employment of the mothers by about 25%. A further 25% was offset by direct employment of women in running the nurseries. Thus, without taking into account the very considerable volume of labour indirectly employed in the maintenance of nurseries, the gain to industry cannot have been more than the equivalent of about 35,000 women. It must in fact have been very much less, and there may well have been a deficit. When it is remembered that nearly 4½ million men and women have now been released from the Forces, it will be realized that there can be no case for continuing to encourage the employment of mothers of young children, except possibly in certain industries depending mainly on female labour. Where such localized needs exist and are regarded as of importance in national welfare, they can probably best be met by the provision of nurseries in association with the industry concerned. Legislation should be introduced to bring such nurseries under the statutory supervision of the health authority. At present, nurseries that are privately maintained, whether by individuals or commercial firms, cannot be required to conform to any standards in such matters as staffing, premises, and equipment.

**Further Considerations**

In considering the place of day nurseries in the social services for mothers and children, whether on a long- or a short-term basis, certain further considerations merit attention—namely: (a) the provision of part-time occasional nursery care; (b) the need for mothers to be relieved of some part of the constant pressure of family cares; (c) the demand of some mothers to be enabled to work for their own satisfaction, apart from economic or national needs; and (d) the effect of day-nursery life on the health and well-being of young children.

**(a) The Provision of Part-time Occasional Nursery Care**

In the alleviation of some social disorders obviously only whole-time nurseries can help—for example, where the

mother must be the bread-winner or when she is temporarily incapacitated; probably, also, in the worst instances of housing or home circumstances. The effects of many of the social conditions previously mentioned could, however, be considerably alleviated by arrangements for the part-time care of children, say for a few hours at a time or two or three days a week. Such arrangements can be made in association with an existing organization, an instance, a health or welfare centre or a community centre. The simpler set-up and the use of an existing organization allows of a greater number of children being cared for relative to the resources employed—a point worth consideration when many children are living under crowded factory conditions, and when resources, particularly personnel, are limited.

**(b) The Need to Relieve Pressure on Mothers**

Arrangements for the occasional care of children will particularly meet the well-recognized need of almost all mothers of young children for some relief from the remitting pressure of family and household cares. Occasional relief does not conflict with the ultimate aim that every mother should be enabled to bring up her children within the family circle, but rather would tend towards it. A mother can be at her best if she has the time and opportunity to preserve her personality as an individual citizen, and also time for companionship with her husband. Nursery schools will help, but where there are no nursery part-time nursery care is needed also. Time for companionship between husband and wife strengthens the family circle. Daytime care of children will not meet this need. The encouragement of group arrangements for evening "sitters-in" or "good-neighbour" nurseries would help many mothers who cannot make their own individual arrangements to free themselves for at least occasional companionship with their husbands in the evenings. Mention should be made of the fact that family circumstances often arise when even whole-time day-nursery care cannot solve the difficulties—and still less, of course, part-time care. There is a most urgent need for provision of short-term residential nurseries to meet domestic crises in families where there are babies and young children, particularly when adequate care cannot be given in the evening and at night. Although residential nurseries are outside the scope of this memorandum, the question is related to the family care of children, and attention is drawn to the acute need for more adequate means of meeting difficulties of sudden domestic crises.

**(c) The Right of Mothers to Work**

A number of mothers who have no pressing need to undertake work outside the home nevertheless wish to do so for the sake of interest, companionship, or income, if they can make arrangements for the care of their children. The relatively well-to-do mother has been able to satisfy this wish at her own cost by employing a children nurse or governess. The cost and the lack of available personnel and accommodation make such an arrangement generally impracticable. The cost of caring for a child in a day nursery, though substantial, is considerably less, and should be remembered, however, that day-nursery care takes children out of the family circle. The question is further complicated by the present demand for women in industry. In a long-term policy, apart from national need, should the community as a whole provide nursery places and shoulder all or any of the cost to enable a mother to young children to work because she wishes to do so? On the other hand, should any woman be denied the opportunity, available to others, of arranging her life in accordance with her own wishes? There is the question, too,

possible loss to the community, one way or another, if a woman who is trained or skilled in certain work has to choose between that work and motherhood. For those women (and the number is probably not great) for whom a conflict exists between the claims and interests of motherhood and other work there is probably no completely satisfactory solution. A reasonable solution would seem to be that opportunity to work should be made available through nursery places, but that in such cases the mother, and not the community, should bear at least a substantial proportion of the cost, which the additional income would enable her to do without hardship.

#### d) Effect of Day-nursery Life on the Health and Well-being of Young Children

The aim stated at the outset, that every mother should be enabled to bring up her own children within the family circle in their earliest years, is based on the conception of the family as the natural biological unit of human society. It is also strongly supported by knowledge of the benefits in childhood of family life at its best, and of the disadvantages of community life at too early an age.

It is generally recognized that the rate of development of the human infant is such that it is not until some time between the ages of 2 and 3 years that he is ready for more than occasional contacts beyond the family circle. Before that time he is physically and emotionally dependent on his mother, and needs the security of home and family life. It is unnatural and biologically unsound to separate a child from his mother and his home for long periods until he has at least begun to develop his independence. Some infants may be able to adapt themselves fairly readily to surroundings that are essentially unnatural, but others will suffer psychological trauma. It is well known that it is the children between about 9 months and 2½ years who present the greatest difficulties to the staff of a nursery. Prior to that age the difficulties are not so obvious because the child for long periods is unaware of his surroundings and appears to require little beyond attention to his physical needs in the intervals between sleep. Even at this age the lack of true mothering and of breast-feeding is a real deprivation to the emotional life of the child, the results of which may be difficult to foretell. Looked at purely from the psychological angle, group care of young children away from their homes is surely desirable only if the home is such that fear and insecurity replace the normal trust and security of family life—and this is, in earliest childhood, comparatively uncommon even in homes that from other aspects may well be regarded as unsatisfactory.

On the physical aspect of health and well-being a good deal of evidence has accumulated recently which is tending to modify the belief, widely held during the war, that in general children could hardly fail to respond well to nursery life, with its obvious advantages of good food, rest, fresh air, and supervision. The report of an investigation by the Medical Women's Federation (1946), based on the findings of seventy-three independent medical observers scattered all over the country, showed that there was a much higher incidence of respiratory infection among children of all ages in wartime day nurseries than among children living at home and attending welfare centres, and that although there was an improvement in weight and physique of the older children in the nurseries, no such improvement was manifest in the children under 2 years of age. Moreover, the investigation showed that the higher incidence of respiratory infection was not accounted for by significant differences between "home" children and nursery children at the start of their nursery life.

A report based on the records of nursery children and welfare-centre children in Oxford (Allen-Williams, 1945)

showed similar findings; it also showed that infection tended to occur at an earlier age in nursery children.

A study of children in nurseries in Leyton (Menzies, 1946) revealed a high incidence of infection and unsatisfactory progress, especially in children under 2 years of age.

The report of a further investigation on behalf of the Medical Women's Federation (McLaughlin, 1947) records the findings in the examination, during a period of twelve months, of 557 day-nursery children and 641 children living at home, and shows that evidence of respiratory infection was two to eight times more common among the nursery children, that the higher incidence was manifest at all ages, and that the nursery children developed respiratory tract infection at an earlier age than did the "home" children. The results also showed that although the older children in the nurseries were heavier than "home" children in the same age group, this was not so in the age groups under 2 years. A finding of particular importance in this investigation related to measles, which was four times more frequent among the presumed susceptibles in the nursery group than in the home group. Moreover, the excess incidence in the presumed susceptibles was especially marked in the children under 18 months old (33.6% in the nursery group and 5% in those living at home)—an observation of great significance in view of the higher fatality rate of measles among younger children.

This accumulating evidence cannot be ignored. It has been suggested that even though infections in day nurseries are common, nevertheless the risk of serious ill-health is lessened, because day-nursery care leads to improved general physique and better resistance. There is at present no published evidence to support such a hypothesis. In fact, as has been stated, evidence shows that there is no improvement in general physique in the younger children, who are the ones most endangered by infection. It may be that the improvement in weight of older children gives grounds for expectation of improved resistance to serious ill-health, but at present proof is lacking. The children actually in a nursery are not a reliable criterion. Anything more than a mild manifestation of ill-health leads to exclusion of the child, and he may or may not return to the nursery. Those who are seen in a nursery are not the ones who have "stayed the course." Menzies (1946) reports that in the Leyton nurseries the records over a period of 3½ years showed that only 16% of the children who were admitted stayed in the nurseries until school age—and this at a time when there was every encouragement to mothers to leave their children in nurseries.

These considerations and evidence of the effect of group care on the emotional and physical health and well-being of young children have been reviewed at some length because it is realized that they conflict with a view that has been widely held—that day-nursery care is intrinsically a sound health service for children. There can be no doubt that for the younger children this is not so. For the older children there is still the increased danger of infection, but this may be somewhat counterbalanced by improved general physique and by the greater opportunity for mental development at any age when the child is ready for it, especially for those who might not otherwise have comparable opportunities.

The observations and investigations to which reference has been made relate to children in day nurseries, but there can be little doubt that they would apply to any congregation of young children, since group care inevitably increases the risk of the spread of infection. Nursery schools or nursery classes attached to primary schools (both of which cater for children of from 2 to 5 years) are being increasingly provided, and they may tend to be regarded primarily



from the educational standpoint. Due weight must, however, be given to the health considerations outlined above, and it is necessary to emphasize the need for continuous and skilled supervision of health and hygiene for children in nursery schools and classes no less than in day nurseries.

### Conclusion

To sum up, day nurseries are needed principally as a means of alleviating the effects of grave social disorders which make it impossible for many children to have anything approaching a healthy or happy home life. But it should be clearly realized that group care—on its intrinsic merits, and social considerations apart—is not a sound health measure for young children, particularly those under 2 or 3 years old.

It is the realization of this fact and the recognition of the home and family as the natural healthy social background for a young child that warrant the aim already stated—that every mother should be enabled to bring up her own children in health and happiness within the family circle in their early years. The social disorders that stand in the way of achieving this aim should be directly attacked, and the provision of day nurseries should be regarded mainly as an interim measure of alleviation until the attack is successful and home life in early childhood can be widely developed at its best.

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## A POSSIBLE MODE OF ACTION OF PENICILLIN

BY

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Among the many theories suggested to explain the mechanism of drug action the concept that drugs act by metabolic interference has gained much prominence. The antibacterial action of penicillin *in vitro* and *in vivo* appears to be primarily bacteriostatic, inhibiting the growth of the infecting organisms by preventing cell division and multiplication. This is probably achieved by interfering with some metabolic function in the early stages of bacterial development or by acting as an ineffective substitute for some essential metabolite which may have the nature of an enzyme or a vitamin, or even that of certain active groupings in the cell such as the SH group, the  $\text{NH}_2$  group, or a COOH group. Glucose utilization for energy production and cell synthesis is an inevitable metabolic reaction, and substances like nucleic acid, thiamine, riboflavine, nicotinic acid, tryptophan, uracil, etc., besides being essential growth factors in the case of typical parasites like *Staphylococcus aureus*, are also parts of the prosthetic groups of oxidation enzymes involved in cellular respiration. In order to elucidate the physiological characteristics of the antibacterial action of penicillin the influence of some of the above substances was studied, and the results obtained with nucleic acid, which is a major constituent of the bacterial cells, are recorded in this note. It may be added that Mellwain (1941) has demonstrated nucleic acid antagonism to the antibacterial action of the acridine derivatives, and Krampitz and Werkman (1946) suggest

that penicillin may interfere with the metabolism of nucleic acids or nucleotides in the case of *Staph. aureus*.

Twenty-four-hour broth cultures of *Staph. aureus* were used in one loopful in duplicated sterile culture tubes containing a total volume of 10 ml., including nutrient broth and the test substance added in requisite amounts. The tubes were observed after twenty-four hours' incubation at 37° C. and the turbidity in the tubes due to bacterial growth was measured.

TABLE I.—Showing the Influence of Penicillin and Nucleic Acid on the Growth of *Staph. aureus*

Penicillin Alone (Units per ml.)	Growth in Broth	Nucleic Acid Alone	Growth in Broth	Penicillin (Units per ml.) and Nucleic Acid	Growth in Broth	Control in Broth
0.3	—	1/2000	+++	0.3 } 1/2000 0.2 } 0.1 }	+	+++
0.2	—	1/5000	+++	0.3 } 1/5000 0.2 } 0.1 }	+	+++
0.1	+	1/10,000	+++	0.3 } 1/10,000 0.2 } 0.1 }	+	+++
0.05	+	1/20,000	+++	0.3 } 1/20,000 0.2 } 0.1 }	+	+++

Table I shows the remarkable fact that nucleic acid has no particular growth-promoting influence on the organism but is strongly antagonistic to the bacteriostatic action of penicillin. In the presence of added nucleic acid the penicillin either did not inactivate or side-track the cell nucleic acid or, even if it did, the organisms could still thrive on the external source of nucleic acid, thus nullifying the bacteriostatic effect of the drug. That penicillin bacteriostasis of *Staph. aureus* is reversible in the presence of added nucleic acid is clear from Table II.

TABLE II.—Showing the Reversibility of Penicillin Bacteriostasis of *Staph. aureus* by Added Nucleic Acid

Penicillin (Units per ml.)	Nucleic Acid added to Broth after 3 Hours	Nucleic Acid added to Broth after 6 Hours	Penicillin Control	Nucleic Acid Control	Control in Broth
0.1	1/1000 ++ 1/2500 ++ 1/5000 ++	1/1000 ++ 1/2500 ++ 1/5000 ++	+	+++ +++ +++	+++
0.2	1/1000 ++ 1/2500 ++ 1/5000 ++	1/1000 ++ 1/2500 ++ 1/5000 ++	—	+++ +++ +++	+++
0.3	1/1000 ++ 1/2500 ++ 1/5000 ++	1/1000 ++ 1/2500 ++ 1/5000 ++	—	+++ +++ +++	+++

+++ indicates very good growth. ++ indicates fairly good growth. + indicates scanty growth. — indicates no growth.

Organisms that were exposed to penicillin and became non-viable could actually be rendered viable by subsequent exposure to nucleic acid. It is interesting to note that a strain of *Streptococcus viridans* and a strain of *Bacillus subtilis* gave exactly similar results.

Nucleic acid thus appears to be of paramount importance for the growth and multiplication of organisms like *Staph. aureus*, *Str. viridans*, *B. subtilis*, etc. Penicillin probably acts by interfering in some way with one or more phases in the metabolism of the organisms which involve nucleic acid function. Probably penicillin forms inactive complexes with nucleic acids which aid in the utilization of the energy material essential to the nutrition of the parasite and when the inhibition is rendered reversible by nucleic acid addition the latter, besides making good the cellular needs, also helps to lower the effective concentration of penicillin, thus restoring the cells to a condition in which growth is again possible. Metabolic interference by penicillin in phases where nucleic acids play an important part

in cellular processes appears to be the prime factor in penicillin bacteriostasis. These studies are being pursued further.

We gratefully acknowledge our indebtedness to Prof. V. Subrahmanyam and Major K. P. Menon for their kind interest and helpful criticisms, and to the Council of Scientific and Industrial Research, under whose auspices this work is being carried out.

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## Medical Memoranda

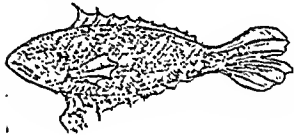
### A "Fishing" Story

Strange cases come our way from time to time in surgical practice, but I think that the following case is worthy of record.

#### CASE REPORT

A Malay villager was admitted to the Malacca General Hospital on Feb. 27, 1947, in a very distressed state, with laryngeal obstruction. There was a marked stridor and retraction of the intercostal spaces. He was throwing himself about on the stretcher and was very difficult to examine, and of course quite unable to give any history. This, however, was freely and willingly given by about six of his relations simultaneously. It appeared that an hour previously the man had been drawing in his net in a rice field. Holding up the edge of his net, he peered over to inspect his catch, whereupon a fish leaped out of the water into his mouth and disappeared down his throat. All efforts on the part of friends and relations to dislodge the fish proving fruitless, it was decided to bring him to hospital.

On examination the tail of a fish could be clearly seen over the base of the tongue. This was grasped in sponge-holding forceps; but traction only resulted in the tail coming off, making matters worse than ever. The body almost filled the pharynx. Palpation revealed the fact that the long spiked dorsal fin of the fish was extended and firmly imbedded in the posterior pharyngeal wall, which was fast swelling up, and the patient was becoming cyanosed. He was taken to the theatre, his struggles being controlled by 5 ml. of thiopentone intravenously, and a low tracheotomy was performed. Breathing through the tube having been established, it was found that his jaws were firmly closed and could not be opened. He was therefore deeply anaesthetized by open chloroform over the tracheotomy tube, and the mouth opened. By forcing an index finger down alongside the fish the finger-nail could just reach the gill. Then by a process of "bipolar version," one finger inside and one outside the pharynx, the fish was "turned" from "breach" to "vertex" and successfully delivered. There was severe laceration of the posterior pharyngeal wall, which was swabbed with flavine and left to granulate. The tracheotomy tube was removed on the second day and recovery was uneventful.



The fish, which measured 13 cm. in length and 8 cm. at the greatest circumference, is known in Malaya as ikan betok. It frequently leaves the water, and is credited with being able to climb a tree. The Malay villagers affirm that when one is fishing for ikan betok one should "not laugh but keep one's mouth shut." The accompanying photograph shows its approximate shape.

I am indebted to the Director of Medical Services, Malayan Union, for permission to publish this case.

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### A Case of Bilateral Syme's Amputation

The following case is published as a surgical curiosity rather than a recommendation for the revival of an obsolescent operation. It was of interest to me because, although I had never seen Syme's amputation performed and could not obtain advice as to the form of surgical boot necessary for the stump. I was able to get a man walking on two stumps with crude boots made by a local shoemaker.

#### CASE REPORT

An African adult male was brought into Tanga Hospital on Sept. 28, 1945, with a history of his foot having been bitten by a wild cat. He had been living for many years in a leprosy settlement maintained by the Universities Mission to Central Africa. On examination his general condition was good and he had a cheerful disposition, remarkable in a destitute person afflicted with a crippling disease. The left foot had been bitten through, leaving the metatarsals projecting from a mass of gangrenous muscle. The right foot was in the slow process of destruction by necrosis and ulceration often associated with leprosy. The fingers of both hands were stunted and deformed as a result of a similar process in the past. The wound was dressed daily with eusol and soon became clean. The metatarsals separated as sequestra, and a smooth granulating area covered the proximal half of the foot. On Nov. 21 a Thiersch graft was applied to this area and took well. It was hoped at first that it would be possible to get him walking on this stump, but the skin was too thin and soon ulcerated over bony points in contact with the ground. Moreover, the other foot was painful, and even with the aid of crutches weight-bearing was almost impossible.

On Feb. 1, 1946, I performed Syme's amputation of the right foot, as the sinuses showed little signs of healing. The head of the third metatarsal on dissection was found to be lying as a sequestrum in a cavity of brown pus. The wound healed by first intention and the patient was highly pleased with the result. The stump seemed so much more satisfactory than the skin-grafted left foot, complete with calcaneus and mid-tarsal bones, and I decided that a second Syme's amputation was indicated. On May 27 the left foot was amputated. Less skin was available to make a good flap, and part of the graft had to be incorporated in the line of incision. The stump healed after slight sepsis, but was not quite so satisfactory as the first.

Throughout his period in hospital he was encouraged to exercise his legs, and he had no contractures of knees or hips. He took part in our daily ward gymnastics to the strains of "Colonel Bogey" and "Blaze Away" played on the hospital gramophone. It was not until August, 1946, that a physiotherapist was sent to Tanga and systematic skilled attention became available. On Aug. 15 the patient first stood on his bare stumps and took a few steps with assistance in the ward. Meanwhile the problem of suitable boots had been under consideration, and at last I persuaded an Indian shoemaker to attempt something which finally looked like a pair of elephant hoofs (see photographs). These boots were fitted on Sept. 2.



FIG. 1

FIG. 2

FIG. 1.—After amputation, showing also the improved "boots."

FIG. 2.—The patient ready for walking.

For the first time for 13 years, one of which was spent in hospital, the patient walked unaided for a short distance. This was increased daily under the supervision of the physiotherapist. Unfortunately, in a few days the left stump became chafed by the rough leather inside the boot and threatened to ulcerate where the scar was close to the bone edges. The physiotherapist knitted him footless socks, and cotton-wool padding was inserted to protect the stump. He was then able to walk for about a quarter of an hour without fatigue, though he was unable to stand alone.

Shortly afterwards I was transferred from Tanga to a distant part of the country and have not seen him since. I last heard that he was progressing slowly and that it was difficult to persuade him to stay in hospital. What his ultimate fate will be it is impossible to foretell, but I think the immediate result is as satisfactory as could be expected. Where conditions of life are primitive there is still a place for primitive methods in surgery.

I wish to thank Miss Q. C. Brown, physiotherapist, for her assistance and the Director of Medical Services, Tanganyika, for permission to publish this case.

L. H. CANE, M.B., B.Ch.,  
Medical Officer, Tanganyika Territory.

## Reviews

### POPULATION POLICY OF AUSTRALIA

*Women and Children First! An Outline of a Population Policy for Australia.* By Victor H. Wallace, M.D., F.R.C.S. (Pp. 350, 15s.) London: Geoffrey Cumberlege (Oxford University Press).

In a novel the scene and period of which were South-eastern Europe and post-war (the first German war) the author remarked that the number of banks in a city seemed to vary inversely as its prosperity. The number of books, papers, committees, and royal commissions considering the problem of population rises steadily as the birth rate declines. Dr. Wallace inevitably says many things which have been said before and accepts some postulates which can be challenged. It may be economically true that the population of Australia could be increased from its present 7.4 millions to 30 millions without harm to the standard of living; it is certainly true that this result cannot be achieved at the present rate of natural increase, and probably true that immigration is a very poor substitute for natural increase. But, as Sir David Rivett remarks in the "Foreword," it is not certain that the average individual of the 30 millions would be happier than the average in the present 7.4 millions. That, however, is another story.

Dr. Wallace sets out to explain how it might be practicable to reach a population of 30 millions. The special interest of his book is that he approaches the problems from the standpoint of an experienced medical practitioner. His contributions to new knowledge are (a) a study of the motives leading patients to seek his advice on contraceptive methods; (b) an informed criticism, from the medical point of view, of measures proposed, or which might be proposed, to stimulate growth of population. Dr. Wallace had kept records of his patients; he circularized some he had seen in recent years and personally questioned. When he had received 530 replies he closed the statistical inquiry. Dr. Wallace is not, and does not claim to be, a statistician. On the data provided in his book no statistician could judge whether Dr. Wallace's patients were a random sample of women desiring to limit their families, or even whether the patients who answered his questions were a random sample of Dr. Wallace's patients. Certainly some of the answers quoted (for instance No. 8 on p. 49) indicate a power of literary expression above the English average. But there is such a thing as common sense; we have no doubt that the author has more than an average share of that not very common quality and accept his sample, or selection, as instructive.

The first thing that strikes a cockney medical reader is that what these Australian women write about is what he hears every day from patients or friends: the difficulty of obtaining suitable accommodation, the aversion of landlords and of neighbours in flats to children, the impossibility of securing domestic help, the wearisomeness of shopping. At first youthful memories of books about bushrangers, billies, and gold-digging make this seem very odd; but if the reader is a statistician, or even a user of Whitaker's *Almanack*, he notes that of the 7.4 millions in Australia 3.6 millions live in the six State capitals (2.5 millions in the two cities of Sydney and Melbourne) and realizes that Dr. Wallace's patients have much the same problems to solve as Greater Londoners. Dr. Wallace's statistical analysis is not minute, but simple reading of his extracts from replies confirms the opinion of most medical men in this country that selfish love of pleasure is *not*, as some self-satisfied moralists preach, the prime factor of a declining birth rate.

And the remedies? Dr. Wallace's views on the medical care of pregnant women and on the organization of maternity clinics and community centres would be endorsed by most British doctors. When he turns to the general economic and social problems what he says is always sensible, but medical readers may possibly feel that neither he nor they are expert judges. He makes it *quite* clear that in Australia—as of course in Great Britain—State Socialism (practised by all political parties) has not gone far in reducing the heavy financial burden upon the parents of large families who wish their children to enjoy at least as much of the intellectual and material pleasures of life as they themselves had. He reckons (to take only one item)

that the average cost of having a baby is approximately £64. To this the State contributes £16. There is some irony in the reflection that, if his analysis is right, the only State which does make a very substantial contribution to the cost of bearing and rearing children is Soviet Russia. Soviet Russia, it may be added, also encourages child-bearing and rearing by the award of "Honours," and Dr. Wallace thinks this psychologically sound. There is in Soviet Russia an Order of the Glory of Motherhood with three classes to be awarded to mothers who have reared 9, 8, or 7 children respectively. If rumour speaks truly, "Honours" are sometimes awarded in this country for less obviously valuable services, but one may doubt whether the Order of the British Empire could be so allocated as to encourage the birth rate. However this may be, Dr. Wallace has written a book which any doctor could read with advantage. Even those sections concerned with purely Australian problems are valuable to an English reader, for they teach him something about a great Dominion which he ought to know and probably does not.

MAJOR GREENWOOD.

### TEXTBOOK OF HAEMATOLOGY

*Principles of Hematology.* By Russell L. Haden, M.D. Third edition, thoroughly revised. With 106 illustrative cases, and 167 illustrations, including 173 original photomicrographs and 95 original charts and drawings. (Pp. 366; illustrated. 25s.) London: Henry Kimpton. 1947.

We welcome a third edition of this book, for it is more suitable for the student than any of the other current textbooks of haematology. The author's approach is physiological and quantitative, and he teaches the student to think of the patient as a whole and not merely of blood pictures. The text is simple and the diagrams, which Dr. Haden has tried and perfected by long years of lecturing, are ingenious and instructive. He includes some very good photomicrographs and some striking examples of a method of representing red cells in bas-relief. Dr. Haden first describes the normal haemopoietic system and the standard methods of blood examination. He gives a good account of the normal haemoglobin value and the meaning of "100% haemoglobin." In the next part of the book he discusses the mechanisms underlying the various blood disorders and describes the common forms of the latter. The final section consists of illustrative case histories. The principal new material in this edition is an account of the methods and results of sternal puncture.

The author seems to have omitted to revise several points. It is no longer believed that the pyloric glands in man secrete Castle's intrinsic factor: it is now thought to come from the fundus. Most haematologists would deny that the megaloblast is a normal stage of erythropoiesis in extrauterine life, and most would estimate the life of the red cell to be 100 rather than 25 to 30 days. Myelosis is a synonym for myeloid leukaemia, and in describing the production of agranulocytosis by amidopyrine it would therefore be better to speak of toxic myelopathy than of toxic myelosis. It is bad luck that this edition was prepared before the recent work was done on folic acid and the chemotherapy of leukaemia, for the new remedies allow a more truly physiological interpretation of treatment than has hitherto been possible.

L. J. WITTS.

### THE CORONER

*Sir John Jervis' on the Office and Duties of Coroners.* By W. B. Purchase, M.C., M.B., D.P.H., Barrister-at-Law. Eighth edition. (Pp. 350, 30s.) London: Sweet and Maxwell.

Sir John Jervis brought out the first edition of this famous textbook in 1829. The last edition, published in 1927, was edited by the late Mr. F. Danford Thomas. Since then, in spite of much public discussion and a departmental committee, there has been no alteration in the law except for the temporary provision dispensing with coroners' inquests on air-raid deaths. Nevertheless, Dr. Bentley Purchase's eighth edition of this book is welcome, for he has had many years' experience both as a London coroner and as honorary secretary of the Coroners' Society of England and Wales.

The last three editions were written as an extended commentary on the wording of the relevant statutes—a form common in legal textbooks. Dr. Purchase has departed from that style,

with its unnecessary complication and repetition, and has arranged his material in narrative form, divided according to the various aspects of the subject. His first chapter, on the classification and appointment of coroners, reveals a surprising variety. All the High Court Judges are coroners *ex officio*, though none of them has ever been known to hold an inquest. There are still a number of franchise coroners, appointed by various corporations, lordships, universities, and other communities with this traditional right. The King's Coroner and Attorney holds an interesting historical sinecure; the Coroner of the King's Household has jurisdiction within the palaces. Apart from these, most coroners are, of course, appointed by local authorities under statute. Dr. Purchase deals fully with qualifications and disqualifications, jurisdiction, and duties, including the curious duty of inquiring into the circumstances of treasure trove. In his chapter on the report of deaths to the coroner he follows the traditional rule that every person about the deceased has a duty (unless the duty is imposed upon some particular person) to give notice to the coroner, his officer, or an officer of police. He admits that there is no sanction for the enforcement of this duty, but does not comment on the interesting opinion given by Sir Roland (then Mr.) Burrows, K.C., at the end of 1943 and discussed in the *Journal* (April 8, 1944, p. 498) denying that such a duty exists in law. He states that the medical practitioner has a social or moral obligation, which has become a well-founded custom, to report deaths to the coroner in suitable cases apart from his duty, which Dr. Purchase holds to be absolute, to issue a certificate if he has attended the deceased during his last illness, even though he cannot state the cause of death. In cases where the practitioner knows or suspects that the death is connected with a crime, Dr. Purchase quotes with approval Mr. Justice Avery's well-known charge to the Birmingham Grand Jury at the December Assizes in 1914, declaring that a practitioner with such knowledge should communicate with the police. That particular case was one of alleged criminal abortion, and medical and legal opinion on the judge's ruling has continued to be sharply divided until the present day. In his section on death under an anaesthetic he is impartial and does not support those coroners who would press anaesthetists and hospital authorities for notice and information which they are not strictly obliged by law to give. The book abounds with clear and accurate information and omits no point of substance. Half the volume consists of an appendix containing statutes, regulations, circulars, and forms, as well as a note on the emergency provisions in force during the war.

D. H. KITCHIN.

### THE BRUNNER GLANDS

*The Duodenal Glands of Brunner in Man, Their Distribution and Quantity.* By Erik Landboe-Christensen. Translated from Danish by Hans Andersen, M.D. (Pp. 267; illustrated, 20s.) Copenhagen: Einar Munksgaard, London: Geoffrey Cumberlege (Oxford University Press). 1944.

Studies on the cells of the gastro-intestinal tract by precise quantitative methods are few in number. Exact knowledge of their function, variation in number and distribution, and modifications in disease is still relatively scanty. The author of this monograph set himself to answer one question: What is the distribution and glandular density of the Brunner glands in a representative section of the population? We may say that he has succeeded in answering it. His technique was a modification of that used by Malfoe and Hellman for the quantitative estimation of the lymphatic follicles in the intestine. He has thus accurately mapped out the distribution and glandular density in 53 patients, none of whom had duodenal scarring or ulceration. His results show the relative constancy of the distribution and a range of variation not appreciably altered in old age. The findings should form a valuable basis for future work on the exact physiological functions of these glands and their variation in disease.

W. T. COOKE.

Messrs. William Heinemann (Medical Books), Ltd., 99, Great Russell Street, London, W.C.1, inform us that they are the agents in this country for *Clinical Methods of Neuro-Ophthalmologic Examination*, by Alfred Kestenbaum, which was reviewed in the *Journal* of July 12 (p. 58). The English price of the book is 25s.

### BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

*The Chemical Activities of Bacteria.* By E. F. Gale, B.A., Ph.D. (Pp. 199. 8s. 6d.) London: University Tutorial Press. 1947. An elementary introduction for students of biochemistry and bacteriology.

*Vital Statistics and Public Health Work in the Tropics.* By P. Granville Edge, O.B.E., D.Sc. 2nd ed. (Pp. 265. 15s.) London: Baillière, Tindall and Cox. 1947.

Discusses the application of statistics under conditions peculiar to the Tropics.

*Office Immunology Including Allergy.* Edited by M. B. Sulzberger and R. L. Baer. (Pp. 420. 36s.) London: H. K. Lewis. 1947.

A survey of allergy and immunology for the general practitioner.

*A Way of Life for the Handicapped Child.* By Eirene Collis, M.C.S.P., M.A.O.T. (Pp. 183. 10s. 6d.) London: Faber and Faber. 1947.

The author describes her methods of treating cerebral palsy.

*Aids to Practical Nursing.* By Marjorie Houghton, S.R.N., S.C.M., D.N. 5th ed. (Pp. 364. 5s.) London: Baillière, Tindall and Cox. 1947.

An introduction to nursing for the student nurse; with illustrations.

*Unwanted Child.* By Eustace Chessier, L.R.C.P.&S.Ed. (Pp. 152. 12s. 6d.) London: Rich and Cowan. 1947.

An account of the psychology and family background of unwanted children.

*Diagnostic Examination of the Eye.* By Conrad Berens, M.D., F.A.C.S., and Joshua Zuckerman, M.D., C.M., F.A.C.S. (Pp. 711. £4 10s.) London: J. B. Lippincott Company. 1946.

Describes a step-by-step procedure for examining the eye; with many illustrations, some in colour.

*Surgical Treatment of the Soft Tissues.* Edited by F. W. Baneroff, M.D., F.A.C.S., and G. H. Humphreys, M.D., Sc.D., F.A.C.S. (Pp. 520. £4 10s.) London: J. P. Lippincott Company. 1946.

Includes surgery of the subcutaneous tissues, hernias, blood vessels, and the treatment of burns.

*1946 Year Book of Endocrinology, Metabolism, and Nutrition.* Edited by W. O. Thompson, M.D., and Tom D. Spies, M.D. (Pp. 573. 21s.) London: H. K. Lewis. 1947.

Includes recent reports on thiouracil, radio-active iodine, and substances related to desoxycorticosterone.

*The Essentials of Materia Medica, Pharmacology, and Therapeutics.* By R. H. Micks, M.D.(Dubl.), F.R.C.P.I. 4th ed. (Pp. 399. 18s.) London: J. and A. Churchill. 1947.

This edition includes new material on anaesthetics and narcotics, tubocurarine, the antibiotics, benadryl, folic acid, and paludrine.

*Recent Advances in Endocrinology.* By A. I. Cameron, C.M.G., M.A., D.Sc.(Edin.), F.R.I.C., F.R.S.C. 6th ed. (Pp. 443. 21s.) London: J. and A. Churchill. 1947.

Includes an account of a case of Addison's disease successfully treated, and considers thiouracil and synthetic iodo-proteins.

*Handbook of Diagnosis and Treatment of Venereal Diseases.* By A. E. W. McLachlan, M.B., Ch.B., D.P.H., F.R.S.Ed. 3rd ed. (Pp. 375. 15s.) Edinburgh: E. and S. Livingstone. 1947.

Revisions include the discussion of penicillin therapy and its limitations, as well as oil-wax vehicles.

*The American Sanatorium Association.* By Lewis J. Moorman, M.D. (Pp. 72. No price.) New York: National Tuberculosis Association. 1947.

A brief historical sketch of the Association, with photographs.

*Textbook of Pathology.* By E. T. Bell, M.D. 6th ed. (Pp. 910. 50s.) London: Henry Kimpton. 1946.

This edition includes fuller discussion of vitamin deficiencies and tropical diseases.

## BRITISH MEDICAL JOURNAL

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## PLANNING AND WORLD POPULATION

Mr. Churchill may have wished to make our flesh creep when he suggested that starvation might lie ahead of us, but his observation was a useful reminder that for a long time now the people of Britain have been unable to feed themselves from home-grown produce.

When in 1798 Malthus<sup>1</sup> first propounded his theory that the increase of population would outstrip the food supply, Western Europe was just embarking on the industrial revolution. For the next hundred years manufactured goods produced by large-scale industry were sold to an underpopulated world possessed of enormous agricultural potentialities which could be exploited to provide cheap food for the ever-increasing number of European factory workers. Thus in the light of nineteenth-century economics Malthus was a false prophet. To-day his theory commands more respect.

When in 1940 the British Parliament passed the Colonial Development Act the more backward dependencies of the Empire were at last able to obtain money for schemes which were calculated to raise the standard of living of millions of people by giving them better housing, better water supplies, and improved medical facilities. By the provision of these amenities, among other things, the high infant mortality will be materially affected. The newer insecticides and paludrine will reduce deaths among young children from malaria; penicillin and the sulphonamides will prevent the deaths of young adults from pneumonia, while the same drugs will materially reduce the incidence of syphilis and gonorrhoea, those potent causes of abortion and sterility. Thus merely by chemotherapy alone, even if unsupported by universal education and intensive economic development, a considerable increase should occur in the population of the Tropics. When chemotherapy is backed by the various ameliorative schemes which Colonial Governments have now so eagerly put forward the increase in population may well be as great as that seen in England and Wales, where the population increased from 8,892,536 in 1801 to approximately 40,000,000 in 1931. Similarly, the population of India rose by 83,000,000 between 1921 and 1941, the total now being about 400,000,000; this increase occurred despite some 1,000,000 deaths a year from malaria alone. The highest recorded growth per annum was between 1931 and 1941, when it was 1.2%. An annual increase of 1% per annum means, it may be noted, that the population doubles itself in about 70 years, while if the increase is 1.5% per annum the population doubles in about 46

years. The views in regard to the effects of this phenomenal increase in the population of India so ably put forward by Sir John Megaw<sup>2</sup> in this *Journal* have been fully corroborated by the recent comprehensive *Report of the Indian Health Survey and Development Committee*<sup>3</sup> under the Chairmanship of Sir Joseph Bhose. Though they "recognize that the advance of science, careful planning and the concentrated effort on the part of the community to develop the country's resources may make possible the support of a largely increased population on even a better standard of living than that which exists at present," they realize that "such measures can constitute only a temporary expedient, because a limit to economic productivity will be reached sooner or later, and uncontrolled growth of population must outstrip the productive capacity of the country."

A similar high rate of increase is probable in many parts of Africa. The Social and Economic Council of the Union of South Africa in their second Report<sup>4</sup> stated that for the period 1943-55 they have used as an estimate for planning purposes an increase in the African population of 2.3% per annum. Even though from a census taken in 1946 the actual increase for the decade appears to be only 1.58% per annum, this rate is greater than any hitherto recorded all-India figure. In the case of East Africa Paterson,<sup>5</sup> after careful consideration of all the relevant facts from Kenya, Uganda, and Tanganyika, comes to the conclusion that the rate of increase is now, or will soon be, about 1.5% per annum and that it is not improbable that within a few years the rate may be nearly 2% per annum, in which case the native population will double itself in 35 years' time.

If in these various countries of Asia and Africa this huge increase in population has occurred in the past with comparatively little help from medical science, what may be expected in the next decade, now that medicine has been armed with far more powerful weapons for reducing the death rate? There are four checks on the growth of population: war, epidemic disease, famine, and voluntary control of the birth rate. War with its atomic bombs and rockets will, unless it is prevented, take its toll largely from the highly industrialized urban populations of Europe and America; epidemic disease can with modern medicine and sanitation be localized and controlled. Famine and voluntary restriction of births are the two remaining factors. Anyone who has travelled extensively in India and in Africa must have seen how closely in many areas population is already pressing hard on the means of subsistence. The fertility of the soil is already becoming exhausted because of the absence of fallow, while the thin layer of fertile soil, deprived of its vegetation by the cow and the even more ubiquitous goat, is being washed away by tropical rains. Even if, as the Governor of Kenya<sup>6</sup> suggests, there is a radical reorganization of present systems of land use and agrarian methods, an

<sup>1</sup> Malthus, T. R., *An Essay on the Principle of Population as It Affects the Future Improvement of Society, with Remarks on the Speculations of Mr. Godwin, M. Condorcet, and other Writers*, 1798, London.

<sup>2</sup> Megaw, Sir John, *British Medical Journal*, 1946, 1, 343.  
<sup>3</sup> India, *Report of the Health Survey and Development Committee*, 1946, 4 vols. Delhi.

<sup>4</sup> Social and Economic Council of the Union of South Africa, *Report on Social Security, the Social Services and the National Income*, 1945, Pretoria.

<sup>5</sup> Paterson, A. R., *E. Afr. med. J.*, 1947, 24, 81.

<sup>6</sup> Mitchell, Sir Philip, Despatch No. 44 of April 17 from H.E. the Governor of Kenya to the Secretary of State for the Colonies on *General Aspects of the Agrarian Situation in Kenya*, 1946, Nairobi.



ignorant man with a hoe, his wife, and his children are a totally inadequate foundation for an enlightened state of society, a high standard of living, and elaborate social services. Much less is such a family a secure foundation for the production of goods which can pay for the import of food from the few agricultural countries still possessed of an exportable surplus. There remains the hope that in tropical countries a rise in the standard of living may result in a fall in the birth rate such as is now occurring in Western Europe and America. Even if such a fall did begin at once it would rapidly result in the Tropics also in a great increase in the number of old and non-productive people who would have to be supported by the agricultural work of their children. It is doubtful, however, whether either in Asia or in Africa the birth rate will fall within a reasonable period in the face of prohibitive religious beliefs which form a fundamental part of the indigenous cultural pattern. Yet unless the birth rate falls in relation to the death rate and the population problem is solved much talk about colonial development and welfare is, to use an American expression, "whistling in the wind."

## RECENT AMERICAN WORK ON POLIOMYELITIS

The present high prevalence of poliomyelitis in this country lends special interest to reports of recent work in the U.S.A. Workers in Baltimore,<sup>1</sup> using the Lansing mouse-adapted strain in rhesus monkeys, have shown that after intracerebral inoculation the virus can be found in the spinal cord on the day before paralysis at the time when histological lesions are first demonstrable. The concentration of virus is maximal within the next day or two and then falls rapidly. The concentration varies with the stage of the disease rather than with the extent of paralysis. Another Baltimore paper<sup>2</sup> shows that in vaccinated monkeys with high serum antibodies there is no antibody in the cerebrospinal fluid, the anterior horn cells, or in the visual cortex. In monkeys with paralysis resulting from intracerebral inoculation the converse is observed: antibodies are present in the anterior horn cells and the medulla where the virus has multiplied, and not in the visual cortex or, except sometimes in small amounts, in cerebrospinal fluid or serum. The antibodies appear eleven to sixteen days after paralysis and persist or even increase for four or five months at least. These antibodies in susceptible parts of the central nervous system seem to be responsible for immunity, and immunity to paralysis in man may be due to their presence after invasion of the central nervous system without paralysis. Prophylactic inoculations should, however, aim at producing high serum antibody levels, as these have been proved<sup>3</sup> to protect monkeys against intracerebral inoculations. Unfortunately the development of an effective vaccine for use in man is not yet in sight, because it would be dangerous to use the necessary large amounts of live virus and because human strains differ immunologically

from one another and from the Lansing and monkey-adapted strains. This aspect is dealt with in studies at Yale<sup>4</sup> of subclinical poliomyelitis in chimpanzees in which immunity was produced to a homologous but not to a heterologous strain.

From Yale also there is an account<sup>5</sup> of poliomyelitis in Japan. Large epidemics had not been noted there till 1939, and the disease was thought to be uncommon. Yet the presence of a high endemic level was shown by an average annual mortality from 1923 to 1943 of 7.6 per 100,000, which is not much lower than the figure of 8.9 for the same period in the U.S.A. The presence of virus was also shown by a high incidence of paralysis in American troops in Japan. The age incidence in Japan is highest in the 0-5 age group, as it was when large epidemics of poliomyelitis first occurred in Sweden, the U.S.A., and Australia. A marked increase in the proportion of cases in the 5-15 age group has occurred in cities in these countries since 1930. The change is well shown by figures<sup>6</sup> for successive epidemics in New Haven, Connecticut. It was noted that in each epidemic the highest attack rates were in wards on the perimeter of the city and in nearby towns. No one ward was consistently attacked more severely than others, though rates were higher in wards adjacent to those heavily attacked in previous epidemics.

In a review<sup>7</sup> of the work on these and other problems in the epidemiology of poliomyelitis Sabin, who has been prominent in isolating virus from faeces, declares that spread occurs from faeces and not from the pharynx. In consequence he advises the use only of those control measures which will prevent transmission of the virus from contaminated faeces. He adds that control measures are not likely to check an epidemic though they may prevent the infection of a few persons who might otherwise be paralysed. However, other investigators<sup>8</sup> in the U.S.A. have stressed the importance of spread from the pharynx, and a valuable discussion<sup>10</sup> of the probable mode of spread led to the conclusions that nothing in the epidemiology of the disease is incompatible with spread from the pharynx and that spread may occur both from pharynx and faeces.

## INTERPRETATION OF CHEST X RAYS

Many methods of investigation depend on personal judgments which often reveal a lack of consistency in classification between different observers and in one observer's consecutive grading of the same group. The clinical assessment of nutrition in children is a well-known example of this difficulty. Variations in judgment have also been shown in haematological and other studies. A team<sup>11</sup> working for the Veterans Association in America has recently demonstrated similar discrepancies in the assessment of x-ray films of the chest. In an attempt to determine the relative effectiveness of various techniques, 1,256 men had films taken by four different methods: "a 35 mm. photofluorogram, a 4 by 10 in. (10 by 25 cm.)

<sup>1</sup> Radian, D., and Cumberland, M. C., *Amer. J. Hyg.*, 1947, 45, 226.

<sup>2</sup> Paul, J. R., *ibid.*, 1947, 45, 340.

<sup>3</sup> Morgan, I. M., *ibid.*, 1947, 45, 379.

<sup>4</sup> Radian, D., and Cumberland, M. C., *Amer. J. Hyg.*, 1947, 45, 226.

<sup>5</sup> Paul, J. R., *ibid.*, 1947, 45, 340.

<sup>6</sup> Wessner, H. A., *J. Biol. Med.*, 1947, 19, 331.

<sup>7</sup> Sabin, A. B., *J. Amer. Med. Ass.*, 1947, 134, 747.

<sup>8</sup> Casey, A. E., and Fishbein, W. L., *ibid.*, 1947, 133, 1141.

<sup>9</sup> Smith, M. L., *et al.*, *ibid.*, 1945, 129, 1150.

<sup>10</sup> Murray, K. F., *Journal-Lancet*, 1944, 64, 216.

<sup>11</sup> Birken, C. C., *et al.*, *J. Amer. Med. Ass.*, 1947, 133, 359.

stereo-photosluorogram, a roentgenogram on a 14 by 17 in. (35 by 42.5 cm.) paper negative, and a conventional 14 by 17 in. celluloid film." In each case the films were taken within a few minutes of each other. They were then assessed by five experts who before the investigation had collaborated in an attempt to reach some uniformity of nomenclature.

Comparison of the interpretations of the films by the five radiologists showed varying inconsistencies. The number of the full-size celluloid films found positive for tuberculosis varied from 59 to 100; altogether 131 films were described as positive. All five agreed that the film was positive in only 27 cases. Four were in agreement on 17 films, three on 23, and in 47 cases only one observer described the film as positive. Further individual comparisons showed that from one-third to one-half of the films described as positive by one reader were negative according to the others. The radiologist with the smallest group of 59 positives had 31, 29, 37, and 14% of his positive films described as negative by the other four. The proportion of another reader's 100 positives labelled negative by the other experts varied from 42 to 50%.

The failure of the same individual to be consistent in his judgment was even more astonishing than the variation between different radiologists. All the films were assessed for a second time at a later date by the same five readers. The proportion of first positives regarded as negative on second reading by the same expert varied from 7 to 41%, and the proportion of the second positive readings which had been called negative on a first reading ranged from 6 to 19%. The radiologist who had 59 positives originally found an additional 23 on his second assessment, but missed 4 of his own first positives.

As might be expected from the variations shown by the individuals, a comparison of the four techniques gave large differences for the same reader. The one with 59 positives on the large celluloid film called 27, 30, and 24% of these positives negative when using the other three techniques. It seemed that each of the four methods had the same degree of efficiency, since at the second assessment all five readers missed almost the same number of cases in each of the four types of film. When a majority opinion was taken there was still a considerable discrepancy. Of the full-size celluloid films 61 were positive in the opinion of three or more readers but 10, 11, and 10% of the same cases were described as negative by three or more readers when the other three types of film were used. An attempt was then made to compare the relative efficiency of the four techniques by means of a total score. Since each person in the inquiry had four films assessed by five radiologists there were 20 verdicts for each individual. Of the 1,256 cases 994 had 20 negatives; 101 had only one positive; reading out of the 20; 21 cases had all 20 readings combined and 62 had an assessment from all techniques combined of 11 or more positives. In this last group the total number of positives recorded for each of the four methods were 259, 259, 259, and 250, out of a possible 310 (5×62) by any one technique. This analysis suggested that all four techniques were equally likely to pick out the cases requiring further study. The small-film techniques both gave a larger proportion of over-reading. Thus out of 101 cases with only one positive 46 were read on the 35 mm., 32 on the 4 by 10 in., 13 on the paper negative, and 10 on the 14 by 17 in. celluloid film. A similar order of technique was shown by the other small positive values.

This analysis showed that the various techniques were probably equally efficient. On the full-size celluloid film some useful supplementary detail appeared in a small number of cases. The differences between interpretations

and techniques were due to a large extent to the failure of a radiologist to be consistent. Since mass radiography is being used increasingly often, these discrepancies need serious consideration if efficient screening of early cases of tuberculosis is to be attained. It seems essential that more than one radiologist should examine the films and that any case which one expert describes as positive or suggestive should be referred for further investigation.

## RELIEF OF ANURIA

Many therapeutic claims based on single case records fail to withstand close analysis, either because essential data are lacking or because a multiplicity of therapeutic measures were used simultaneously. This applies particularly to measures undertaken to relieve anuria. The latter error was understandable when anuria was a desperate condition. The clinician knew that if the diagnosis had been made late he had at most three more days before a fatal outcome was to be expected. Life was too short and uncertain for art to be long. Diuretics like lactate, bicarbonate, caffeine, digitalis, sodium sulphate, and salyrgan were combined with procedures such as decapsulation, splanchnic block, or high spinal anaesthesia, often all in one unfortunate patient.

Recent advances have made it possible to view the onset of anuria more calmly. Both the artificial kidney devised by Kolff<sup>1</sup> of Kampen, in Holland, and the peritoneal lavage used by Fine<sup>2</sup> and his colleagues at Harvard allow us to prolong life by dialysing out of the circulating blood those substances responsible for uraemia. Neither of these methods, so far as we know, improves kidney function, although that is a possibility; they merely allow a longer period for natural or artificial restoration of renal function. As a rule, five hours on the artificial kidney will give a respite of two days. Peritoneal lavage is a slower procedure which, although technically easier, has more formidable complications, as has been pointed out by Fine himself.<sup>3</sup> The usefulness of both procedures has been confirmed in this country and it should now be possible to attack the fundamental problem of the anuria itself. Perhaps the most important fact we already know about anuria is that it has many and different causes and that many cases remain completely unexplained. Labels such as "reflex anuria" or "renal anoxia" are of little value. Even in anuria due to a single cause, such as mismatched transfusion, some patients will die and others will recover without, with, or despite treatment. Advocates of a particular line of therapy will always find reasons for other people's failures: this measure was applied too early or too late, too vigorously or too gently, for too short a time, or without the right sort of adjuvant treatment. Only rarely are exact criteria used. One such rarity is the record by Talbot and his colleagues<sup>4</sup> of a unilateral decapsulation in a case of mismatched transfusion. The effects of this measure were observed by ureteric sampling and intravenous urography.

Criteria by which to judge the efficacy of these measures are comparatively easy to lay down when a proceeding can be carried out on one of a pair of kidneys—e.g., decapsulation, sympathectomy, or splanchnic block. They are far more difficult to establish for procedures affecting both kidneys—diuretics, spinal anaesthesia, or bilateral decapsulation. Reliance must then be placed on a close temporal relationship between the procedure and the diuresis, if any.

<sup>1</sup> *De kunstmatige Nier*, 1946 (abbrev. English version: *Artificial Kidney*).  
Kampen (Holland), J. H. Kok, N.V.  
<sup>2</sup> *J. Amer. med. Ass.*, 1946, 130, 703.  
<sup>3</sup> *Lancet*, 1947, 1, 120.  
<sup>4</sup> *New Engl. J. Med.*, 1942, 226, 228.

This involves a careful measurement of the rate of flow of the urine before and after, hourly or even half-hourly. Unless there is an immediate response, the chance that any later diuresis is due to coincidence alone becomes much greater. If failures were published, or even remembered, it seems probable that only a very small proportion of cases would ever be shown to "respond" to these measures. It would be interesting to know what this fraction is, and even more interesting to know how many of such cases recover without treatment. It seems improbable, however, that therapeutic scepticism will ever be sufficiently widespread to make this latter category large enough to treat statistically.

### TOXIC EFFECTS OF MERCURIAL DIURETICS

The use of "salyrgan" as a diuretic is now widespread, and, the patent rights having expired, it has been included in the *British Pharmacopoeia* under the name of mersalyl. The official name indicates that it is a compound of mercury, and in view of the fact that mercury can be toxic it is surprising that mersalyl has maintained, in the main, so consistently good a reputation. The well-known German authority Volhard,<sup>1</sup> reviewing mercurial diuretics, said that for the treatment of the chronically failing heart the use of salyrgan, usually combined with strophanthin, had become indispensable; giving it weekly for many months he had never seen undesirable effects and had usually obtained entirely satisfactory results. Many similar statements have been made on its freedom from danger.

That an inherently toxic substance will eventually be found to cause toxic effects is, however, a reliable rule, and recently Oppikofer and Fehrenbach<sup>2</sup> published a paper on ulcerative mercurial stomatitis and necrosis of the jaw resulting from the use of the mercurial diuretics (salyrgan, "esidrone"). Esidrone was introduced by Ciba in 1938. The usual dose of esidrone, 2 ml., contains 44 mg. of mercury as compared with 76 mg. in 2 ml. of salyrgan. The signs of poisoning recorded by these authors are typical effects of mercury. They were observed in six patients: in five stomatitis with ulceration; in three necrosis of either the upper or the lower jaw or both; in two mercurial angina with ulceration; and in two mercurial dermatitis. In one patient salyrgan was to blame, in a second salyrgan and esidrone together, and in four patients esidrone. The doses were not excessive. The worst case was that of a man of 61, suffering from cardiac oedema, who was treated with about 20 injections of salyrgan over several months. He developed severe dermatitis and stomatitis, with necrosis of the upper jaw. When the salyrgan was stopped the dermatitis and stomatitis cleared up, but a serious jaw defect remained. Six months later the mercurial stomatitis flared up again, this time in the lower jaw, and he bled from the lingual artery.

The Swiss authors of this paper evidently know nothing of BAL (dimercaptopropanol) which was introduced by Peters, Stocken, and Thompson<sup>3</sup> during the war as an antidote to arsenical poisoning, and which has been shown<sup>4</sup> to be equally effective in mercurial poisoning. BAL is not yet generally available, though it has been supplied to V.D. clinics on application to the Medical Research Council. It will soon be in commercial production. BAL combines with mercury in the body and the combination is rapidly excreted. A patient receiving mersalyl will show, as the earliest sign of poisoning, excessive salivation. When

this occurs mersalyl should be withheld and BAL given by intramuscular injection. It is interesting to note that even the acute forms of mercury poisoning can be arrested by BAL. Long and Farah<sup>5</sup> have shown that the sudden failure of the heart which occasionally occurs when mersalyl is given intravenously can be overcome by the intravenous injection of BAL, but recovery of course occurs only when BAL is given without delay. Acute heart failure from mersalyl very rarely occurs if it is given by intramuscular injection. Since the diuretic effect is intended to be of several hours' duration at least, this route is the more rational.

### BLOOD GRAVITY AND HAEMOGLOBIN

The need for the control of intravenous infusion in war injuries led the United States Navy Research Unit at the Rockefeller Institute to develop the copper sulphate method for measuring the specific gravities of blood and plasma.<sup>6</sup> A drop of blood in a copper sulphate solution becomes encased in copper proteinate—and so remains discrete, and sinks or swims according to whether its specific gravity is greater or less than that of the solution. If drops of blood are let fall into a series of copper sulphate solutions of known gravity the drops will neither rise nor fall in the solution which has the same gravity as the blood. The specific gravity of plasma or serum is affected only by variations in the protein content, and the total plasma or serum proteins can be estimated as accurately by the copper sulphate specific gravity technique as by any other routine method. The gravity of whole blood depends on the plasma protein level and the number and specific gravity of the erythrocytes. If we assume a constant value for the erythrocyte gravity we can calculate, from the whole blood and plasma gravities, the ratio of red-cell volume to plasma volume—the ratio more laboriously but more accurately measured by the haematocrit. If we further assume a normal mean corpuscular haemoglobin concentration then we can calculate the haemoglobin level.

Since it is doubtful whether these calculations offer any substantial advantage over a simple haemoglobin determination in the treatment of shock and burns, the copper sulphate method has established itself principally as an accurate technique for the estimation of the total plasma proteins. There are occasions, however, when use can be made of the fairly close correlation between the whole blood gravity and the haemoglobin level. If we assume normal values for the plasma proteins, the erythrocyte gravity, and the mean corpuscular haemoglobin concentration, then the haemoglobin level can be calculated directly from the whole blood gravity, with an error of about  $\pm 10\%$ . This is too great an error for individual haemoglobin estimations, but if we wish simply to pick out the anaemic members of a large group then the ease and rapidity of the method outweigh its inaccuracy.

The New York Blood Donor Centre used this method to "screen" prospective donors.<sup>7</sup> A drop of blood from the finger was allowed to fall into a copper sulphate solution of gravity 1.052; if the blood sank the donor was accepted; if it floated he or she was assumed to be anaemic, with a haemoglobin level under 12.3 g. Only 4% of donors were wrongly classified by this method. Hynes and Lehmann<sup>8</sup> made a similar application of the method. They showed that the blood gravity and haemoglobin were related more

<sup>1</sup> Bergmann, G. von, and Staehelin, R., *Handbuch der Inneren Medizin*, 6, 361, Berlin, 1931.

<sup>2</sup> *Schweiz. med. Wschr.*, 1946, 76, 953.

<sup>3</sup> *Nature*, 1945, 155, 616.

<sup>4</sup> *J. Pharmacol.*, 1946, 57, Suppl. 55.

<sup>5</sup> *Schweiz. med. Wschr.*, 1946, 76, 220.

<sup>6</sup> Phillips, R. A., Van Slyke, D. D., Dale, V. P., Emerson, K., Hamilton, P. B., and Archibald, R. M., *Copper Sulphate Method for Measuring Specific Gravities of Whole Blood and Plasma*, (British Med. J. Foundation, New York, 1945.)

<sup>7</sup> *J. Lab. Clin. Med.*, 1946, 31, 40.

<sup>8</sup> *J. Physiol.*, 1946, 104, 335.

accurately by an empirical curve than by the original linear calculation; only 3% of 270 men were wrongly classified as above or below a haemoglobin level of 11 g.

In practice, if further investigation of anaemic subjects is intended, it is wise to choose a copper sulphate solution corresponding to a haemoglobin level 1 g. above the chosen limit of anaemia. Then practically no anaemic individuals will be missed, though there will be a corresponding increase in normal subjects classified as anaemic.

## TRAINING CLINICAL PATHOLOGISTS

What are the functions of a clinical pathologist? When this topic was debated in our correspondence columns a year ago attention was chiefly paid to diagnostic laboratory procedures, but, as the Association of Clinical Pathologists points out in a recent report, a function of increasing importance is "the control of treatments of various disorders whose progress can most accurately be assessed by laboratory methods." It emphasizes that a clinical pathologist should have a sound clinical training, including higher qualifications in medicine, as well as a wide experience of laboratory technique. The Hospital Surveys carried out for the Ministry of Health recognized the essential part that this specialty must play in a national hospital service, and there was, as Dyke<sup>1</sup> said commenting on them, "general agreement that satisfactory results cannot be attained by mere isolated examination and report on specimens, but only by direct consultation between practitioner and pathologist."

The Association of Clinical Pathologists appointed a committee in January of this year to consider the training and definition of consultants and specialists in clinical pathology. Its members were E. N. Allott (chairman), S. C. Dyke, R. W. Fairbrother, J. G. Greenfield, and W. H. McMenemey. The committee recommends that the five years after qualification should be devoted to gaining further clinical experience (one year), working in a university department (one year), and working in a department of clinical pathology (two years). In the remaining year the student should extend his experience as he wishes. The object of working in a university department is to train the student in scientific method and to introduce him to an atmosphere where research is being vigorously pursued; the committee suggests that students should be encouraged to take a diploma in bacteriology or in clinical pathology. While working in a department of clinical pathology in a large hospital or a group laboratory the student should receive training in all branches of pathology—a study that should include haematology, bacteriology, chemistry, and morbid anatomy. In this connexion the committee recommends that a special committee be set up to approve those laboratories suitable for this training. Those students who have obtained a first- or second-class science degree—for example, in physiology or chemistry—or a doctorate of philosophy should be eligible for recognition as specialists four instead of five years after registration.

The committee recognizes that these criteria cannot necessarily be applied to existing clinical pathologists or to some of those in training. It advocates, therefore, that at present recognized specialists should have been registered for a minimum of five years and have had at least four years' laboratory experience. They should also hold a higher medical or scientific qualification, or have contributed to the advance of medical or scientific knowledge. In accordance with a decision of the Royal College of Physicians the committee does not think that a register of

specialists in clinical pathology should be compiled. Discussing the financial support that these years of training necessitate and whose lack often debars poorer students from undertaking them, the committee quotes the recommendation of the Royal College of Physicians Committee on Neurology that suitable candidates for the special should be supported by scholarships, Government grant or otherwise.

## CARE OF THE AGED

The Nuffield Foundation is an outstanding example of the modern form of charity whereby help is made available at the point where it is most needed, instead of being frittered away in small sums that keep the wolf from the door only to fail when he jumps through the window. Even our most rigorous planners acknowledge that voluntary aid is desirable, and will remain so, if life is to be not merely sustained but made worth living. The Foundation's latest venture is to sponsor, in association with the Lord Mayor of London's National Air Raid Distress Fund, a National Corporation for the Care of Old People, under the chairmanship of Sir George Wilkinson, Bart., and to provide in the early years with the sum of £500,000. The office will be at 9, Mecklenburgh Square, London, W.C.1. Sir William Goodenough, speaking at the inauguration of the Corporation on July 28, explained that its primary function is to co-ordinate the many agencies that already exist for the benefit of old people. It will not assist individuals but will make grants or loans for schemes for old people welfare, maintain an advisory service, establish and demand desirable standards for organizations applying to it for aid, and undertake research. Moreover, by offering grants or loans, it will take the initiative in areas where welfare for the old is lacking. The Corporation will be a complementary partner of the National Old People's Welfare Committee.

As the Rowntree Report<sup>1</sup> pointed out, the old more often suffer from loneliness than from dire poverty. The Nuffield Foundation has taken account of this in its 1947 Report and emphasizes that the community must not become stratified into large groups: provision for the old, in the interests of both old and young, must "be so planned that it is integrated into the life of younger sections of the community so as not only to enliven the surroundings of the older generations but also to enable the young to contribute in awareness and in activity to the welfare of the old. It would nevertheless be regrettable if widespread public arrangements for their welfare should diminish the sense of family responsibility to look after elderly relatives. The Report recognizes that many more suitable dwellings should be built for the old rather than experiments carried out on types of housing, of which enough have already been done. Discussing the dwellings themselves, the B.M.A. Committee on the Care and Treatment of the Elderly and Infirm<sup>2</sup> stressed that houses for the elderly should be decorative, situated where the residents have previously lived so that they may keep in touch with the friends, near churches and shops and places of entertainment—not "machines for living in," to use a phrase popularized by Le Corbusier, but homes. The Ministry of Health, too, has impressed on local authorities this aspect of housing the old. Voluntary aid is perhaps essential to provide this distinction, and the Corporation is well fitted to the task.

<sup>1</sup> *Old People*. Report of a Survey Committee on the Problems of Ageing and the Care of Old People, under the chairmanship of B. Seeborn Rowntree. Geoffrey Cumberlege, London, 1947.

<sup>2</sup> The Nuffield Foundation: Report of the Trustees for the year ended March 31, 1947. The University Press, Oxford, 1947.

<sup>3</sup> *British Medical Journal* (Supplement), 1947, 1, 133.

## SURGERY IN TWO WARS\*

BY

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Before comparing the surgical procedures, or the success which attended them, in the two wars of 1914-18 and 1939-45 it is necessary to consider the social conditions under which the troops existed and the differences in the types of warfare during the two periods. In 1914-18 the men lived in underground shelters, ill-ventilated, ill-heated, and, during the winter, frequently with cold and stinking mud up to the knees or above. The hygiene necessitated by this static war, and the hasty and inadequate burial of the dead, often in the walls of the dugouts themselves, led to insanitary conditions, horrible odours, and infestation with rats and vermin, which rendered life disgusting and almost untenable. Can it be wondered at that after being wounded men had no desire to return to these conditions? Little attention was paid to proper cooking and serving of rations. As a result the men's physical condition and resistance to infection was very poor.

In the 1939 war, once the period of waiting in France was ended by the German break-through, troops were continually on the move. This necessitated physical fitness and mental alertness and provided changes of scene and locality, which permitted of adequate hygiene. The thorough graduated training which the troops underwent at home before proceeding overseas acclimatized them to active service conditions. Such men were desirous and capable of an early return to the fighting front. Moreover, from the early days of the war attention was paid to the type of ration issued and its cooking.

## Mobile Surgical Teams

It was difficult to deal promptly with surgical procedures in this very mobile warfare and the medical services took some time to devise a scheme whereby surgery would be available to the wounded within a few hours of injury. This was ultimately met by the formation of mobile surgical teams.

At first the over-enthusiastic, both medical and combatant, pushed isolated teams too far forward, forgetting that a mobile battle swayed to and fro over ten or fifteen miles, and that a solitary team was incapable of carrying on indefinitely and unable in the front line to retain its casualties after operation for that ten-day period so essential for full recovery. Later, therefore, mobile surgical teams were held at some distance from the battle area in groups of two or three to provide continuous service throughout the twenty-four hours. To ensure retention of patients for ten days and their adequate nursing (so much more efficient in the hands of women than of men) these teams were usually located at an advanced surgical centre with a casualty clearing station. Here such valuable adjuncts as female nursing, x rays, and blood transfusion were available.

As a general rule it may be said that specialists should not be advanced further forward than the C.C.S. with its advanced surgical centre, and that in the main they are better held at the base hospitals, casualties being dealt with in the field by general surgeons on certain well-defined principles agreed with the specialists. Possible exceptions to this rule are orthopaedic and thoracic units, which can under certain conditions be situated advantageously at the advanced surgical centres in the C.C.S. Here too is the best position for the blood transfusion, pathological, and x-ray units.

\* Abridgement of a lecture delivered before the Royal Faculty of Physicians and Surgeons, Glasgow, on Jan. 29, 1947.

## Blood Transfusion

One of the great advances of this war is the institution of blood transfusion—given forward and almost as a routine, though in the mud and blood of the average regimental aid post in battle it is dangerous and has been known to produce fatal septicaemia. As a general rule all blood lost should be replaced quantity for quantity and an extra pint (568 ml.) or even two pints administered subsequently; but in cases of shock where no haemorrhage has occurred blood must be given slowly and cautiously, not more than forty drops to the minute in rate. Seldom more than two pints (1.1 litre) in total quantity is necessary before the patient's pulse becomes perceptible within the limits of normality, indicating that transfusion should be stopped. Should this period be missed, a rising pulse rate and rapidly increasing respirations may lead to the erroneous administration of blood and plasma—often fatal in its results. The patient dies of pulmonary oedema or uraemia following blockage of the renal vessels with disintegrating and unexcreted red cells.

## Chemotherapy

When the war started we had the sulphonamides, and full use was made of them. As a general rule it may be stated that their administration orally in doses of 1 g. 4-hourly for the first 24 or 48 hours and subsequently 0.5 g. 4-hourly until the infection is controlled, as shown by a fall in temperature and pulse, is far more beneficial than their local application to the infected wound. In staphylococcal infections they have little or no effect, and if their administration is not followed by a fall in temperature and pulse rate by the end of 48 hours they should be discontinued, for they are intensely toxic, especially to certain individuals.

About 1943 we were fortunate in obtaining penicillin. Applied locally, and provided it could reach all parts of the infected surface, it was adequate in clearing up local infection, and if applied to the recent wound was a satisfactory prophylactic if early and adequate surgery were combined with its use. Given systemically it proved of great value in combating general and local infection, and its results were almost miraculous against gas gangrene.

## Surgery

The principles of war surgery remained essentially the same in both wars, though the lessons of the former had been largely forgotten in the interval. The damaging power of the missiles used in this war was much greater than those in 1914-18, though their concentration was much less. Severe lacerated wounds with considerable disruption of the surrounding tissues were commoner and more severe in the recent war.

The principle of operation within 6-10 hours, excision of a thin margin of skin and all damaged and infected muscle tissue until red contractile muscle with spurting vessels was encountered, held equally good in each war whether chemotherapy was applied or not. Chemotherapy is but an adjunct to early and efficient excision of every wound.

Primary suture and delayed primary suture—i.e., suture within the first three days after wound toilet—have been carried out on a large number of cases in all theatres of war (1939-45), and combined with routine chemotherapy, especially systemic penicillin, have resulted in successful healing in 80% of the cases in flesh wounds and 73% in lacerated wounds associated with fractures. Secondary suture, carried out under similar conditions, has had success in approximately 75% of cases in both classes of wound. These results are greatly in advance of those achieved by similar procedures in the 1914-18 war or the early stages of this war when chemotherapy was not available.

The mortality from multiple wounds, which occurred more often in this war than in the last, is considerably higher than in wounds involving one viscus alone (58.3% against 39.7%). Chemotherapy will in some cases permit a perforating wound of the abdomen or chest or head to be dealt with and a limb wound to be left for toilet until the following day, when the patient's condition has improved, but in many cases this is not possible because the multiple wounds involve head, thorax, and abdomen and all need urgent treatment.



Burns have been more common and more extensive in the recent war. It is difficult to obtain any figures of the mortality resulting from extensive superficial burns, since many died before reaching medical aid or, after first-aid treatment, before getting back to base hospital. Burns units subsidiary to the plastic units were of great value in the treatment of those burns which reached them, for an experienced team treats this sort of injury better than casual nursing can do.

### Abdominal Wounds

In perforating wounds of the abdomen it is seldom that one viscus alone is damaged. Usually there are multiple wounds of the small intestine, often wounds of the larger intestine and the bladder, and perforation and disruption of one or more solid viscera, while abdomino-thoracic wounds are not uncommon, constituting about 12% of the total wounds involving the abdomen and thorax. In the 1914-18 war a perforating abdominal wound carried an overall mortality of 70-75%, and approximately 50% of those operated on recovered; in the 1939-45 war a similar wound carried an overall mortality of 50%, with a recovery rate of 30-35%. This better prognosis was partly due to the possibility of earlier surgery—owing largely, I think, to the lesser number of wounds occurring in battle to the proportion of surgeons employed in their treatment.

Suture of perforations is performed preferably unless the small bowel or its mesentery is greatly disrupted, when excision and anastomosis are carried out. In the case of large-intestine wounds, however, the 1939-45 war in its latter part saw a great advance in the routine exteriorization of the colon and the performance of colostomy in wounds of the rectum. This led to a considerable diminution in the mortality from these wounds. In the light of further experience it appears that exteriorization of the caecum and ascending colon is not only unnecessary but makes an additional risk for the patient as against those cases where such wounds are treated, like those of the small intestine, by primary suture. Furthermore the closure of the colostomy or restoration of the exteriorized bowel to the abdominal cavity is not entirely free either of immediate or of remote mortality.

Chemotherapy has improved the prognosis; but the introduction of sulphonamide powders into the peritoneum is fraught with the considerable danger of subsequent adhesions and intestinal obstruction and is not a practice to be indulged in with impunity.

The treatment of bladder wounds is by primary suture or, where other viscera are involved, by suprapubic cystostomy. The kidney is not infrequently damaged and usually needs excision. Splenectomy is generally required for wounds of the spleen. If severe, wounds of the liver cause a rapid death, and if slight seldom call for drastic surgical intervention. At all costs plugging, with a risk of subsequent infection, must be avoided. Abdomino-thoracic wounds constitute about 12% of wounds of the abdomen. As a general rule it is better to deal first with the thoracic lesion, suturing the wound of the lung and of the diaphragm, and then to tackle the abdominal damage.

### Thoracic Wounds

It has been the practice in both wars to treat an uncomplicated haemothorax by aspiration alone. The complication of infection, frequently with fatal results, has occurred in both wars. Whereas in the 1914-18 war infection occurred in some 54% of cases of haemothorax treated conservatively, in the early part of the 1939-45 war infection occurred in 33%, with a death rate of 6%. With chemotherapy the infection rate has dropped to 6%, with a death rate of only 1%. Of all thoracic wounds approximately 10% were complicated by abdominal injuries. The death rate in these cases was considerably higher than in those of uncomplicated thoracic wounds (approx. 50%). In all wounds causing an open haemothorax early closure of the gap is essential; in the front line this can be achieved quite efficiently by a large dressing tightly applied. Such cases should not be treated by operation in front of the advanced surgical centre.

### Comparison of Mortality

It is difficult to make an accurate comparison of mortality from wounds in the two wars, but the results of the average

percentage mortality of the various wounds of abdomen thorax are epitomized in the following table.

Percentage Mortality of Wounds in the Two Wars

1914-18	Organ	1939-45
51%	Perforating wounds of abdomen	39.7-47%
50-55%	Small intestine	32-40% { Suture 20% Resection 58%
50-73%	Large intestine (colon)	36-40%
49%	Rectum	25-70%
61%	Stomach	29-38%
30%	Bladder	5-20%
29%	Liver	18%
26-6%	Kidney	5-45%
53%	Spleen	13%
65-85%	Abdomino-thoracic	27-60%
54%	Thoracic	5.7%

### Fractures

In severe lacerating wounds involving bones the primary of the surgeon is the treatment of the wound with meticulous excision of all damaged muscle tissue. The reposition of bone fragments in good anatomical position is of second consideration to this, which prevents the danger of gas gangrene and other infections. Routine administration of anti-gangrene serum, chemotherapy, and fixation of the wound plaster-of-Paris in extension are essential. Over-distraction of the fragments, a practice to which there has been an inclination in this war, just as much as the increased violence of disruption accounts for the marked delay in union seen so often. W main vessels are injured and nerves divided, and more especially if joints are laid open and muscle grossly crushed, it is a saving operation to perform immediate amputation, and, tourniquet has been applied, without its previous removal of the damaged limb.

### Wounds of Nervous Tissue

The results obtained in treating injuries to peripheral nerves are much the same as those in the 1914-18 war. Primary suture without tension or torsion gives the best results, and this is more often possible with adequate chemotherapy. Nerve grafting and other operations to try to restore gaps are of value, and where a gap cannot be bridged by mobilization of the nerve it is better, if possible, to remove a section of the nerve in order to shorten the limb and permit suture. Secondary suture gives less satisfactory results than primary suture, is still the practice of many surgeons. Where this is carried out it is essential to remove the neuroma which has formed at the ends of the divided nerve before suture is performed. The period of recovery is long—for instance, up to five years for high sciatic lesion and two to three years for lesions of nerves in the axilla or upper arm.

Head injuries should be dealt with by a surgeon special in brain surgery, and it is better to transfer such cases after a routine toilet of the superficial wound. Wounds of spinal cord are always disappointing in their results, but surgery to relieve pressure on the spinal cord often brings an unexpected recovery of function. In all cases where paraparesis and retention of urine are present the routine and early performance of suprapubic cystostomy has been proved essential.

### Gas Gangrene and Tetanus

The prophylactic use of anti-gas-gangrene serum and chemotherapy has done much to diminish the incidence and extent of gas gangrene, but without adequate and early surgical removal of all damaged muscle tissue as a routine in the treatment of wounds these aids to the prevention of gas gangrene are useless and dangerous. Tetanus has been relatively seldom seen in the recent war, which may be due partly to the more modern warfare and absence of gross fouling of the soil; but one must think that the routine injection of tetanus toxoid has much to do with the diminution of this scourge.

In this attempt to contrast the surgery of the two wars, difficult and, as I shall doubtless find, contentious attention I am indebted to many colleagues for their assistance in obtaining the figures, and especially to Brigadiers Buxton, H. Edw and Fettes.

## FRENCH RAILWAY (NORTHERN REGION) X-RAY TRAIN

BY

PIERRE LE GÔ, M.D.

*Chief Medical Officer of the Northern Region of the French National Railway Company*

In 1932 two railway coaches, one fitted with radioscopic and diographic apparatus and the other as living quarters, were put into service on the Northern Region of the French Railways for use in the prevention of disease among members of the staff and their families. Railway rolling stock was chosen for this purpose, as offering reasonable comfort at a minimum operational cost.

In 1933 a "waiting-room" coach was added, and the three coaches were in constant use until the exodus of 1940. After short interval the service was resumed in September, 1940, and continued until April 21, 1944, when the train was badly damaged during an Allied air raid on the sidings of La Chapelle, in Paris. Until new coaches could be provided the medical examination of staff and families, which in these circumstances then obtaining had become more essential than ever, was carried on by means of a portable radioscopic unit lent by the French Health Ministry and conveyed by road. A new train has recently been completed at the French railway workshops of Le Landy, just outside Paris. It is made up of two sections: (1) a radiological coach, a coach fitted up

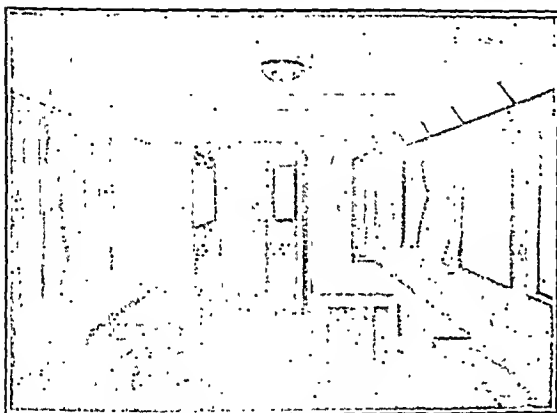


FIG. 1.—The waiting-room.

living-quarters, and a coach fitted up as a waiting-room; and (2) a radiological coach which can function independently. The radiological coach included in the first section comprises a small waiting-room with accommodation for twelve persons, two dressing cubicles which communicate on one side with the waiting-room and on the other with the doctor's consulting-room (equipped with a couch for examination purposes), a radiological room fitted with radioscopic and radiographic apparatus, a laboratory for developing x-ray photographs, and finally an attendant's compartment with a collapsible bunk. The living coach provides quarters for the doctors and nurses, and includes a kitchen, a dining compartment accommodating 6 persons, 2 bedrooms for the doctors and 2 for the nurses, and 3 dressing-rooms with lavatory. The waiting-room coach has seating accommodation for 54. The interior fittings are very simple, and include hinged benches with collapsible backs which can be turned up against the sides of the coach to facilitate cleaning, two lavatories, and an alcove containing boiler for central heating. It may be mentioned that special fluorescent lighting has been fitted into this coach.

The Medical Service plans to use this coach also for meetings, to give lectures on welfare, etc., to the families of the staff, and to serve teas to the children. For this purpose alternate benches can be replaced by tables.

### Equipment of the Train

*Section 1.*—The system of heating is the same for each coach, with a self-contained unit feeding the radiators, the

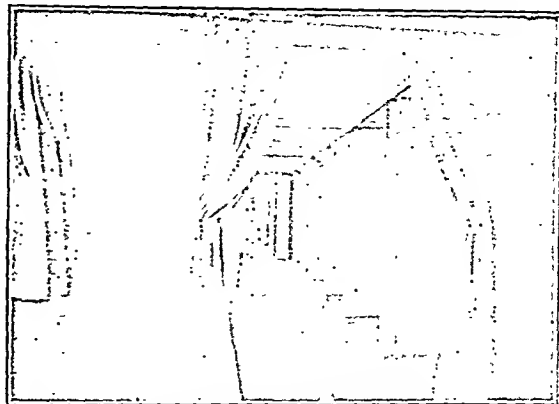


FIG. 2.—The dressing cubicles.

size and number of which have been fixed to give the requisite temperature for each room, according to its use. Current for electric lighting can be obtained in each coach alternatively from a self-contained 24-volt unit or from a 110-volt main supply when the coaches are stationary. Otherwise the equipment follows standard practice, although it may be mentioned that red, blue, and white concealed lighting has also been installed. The radiographic apparatus is supplied with current obtained from a hook-up with the 110-volt main supply circuit. The apparatus, with which examinations can be made in both vertical and horizontal positions, is the one which was in use until 1944, and is of an old but reliable design. It has, however, been improved upon, and appropriate precautions have been taken to protect the doctor and assistants against the danger of high-tension current. Special precautions have also been taken in order to avoid the risk of damage to the radiological apparatus while the train is in motion.

*Section 2.*—This section consists of one coach, which can function independently or simultaneously with the first. It is equipped so that examinations can be effected with considerable rapidity. It comprises a waiting-room (Fig. 1), 14 dressing cubicles arranged in two groups of seven on each side of a central corridor (Fig. 2), a consulting-room for the doctor (Fig. 3) equipped with a desk and a couch for more thorough examinations, and a radioscopic room from which the nurse can communicate with the doctor by telephone. In this way the doctor can transmit his diagnosis to the nurse, who can in turn give to the doctor the case-history of the patient from the health-card.

The medical staff are protected against the action of rays by a leaden screen fitted between the apparatus and the nurses' office (Fig. 4). The radioscopic apparatus, which is very up-to-date, has been designed for systematic mass examination, and includes: (1) A vertical radioscope, fitted with a leaden partition screen to protect the operator against direct radiation. This machine is of particular interest inasmuch as the patient can be examined in the light and can move about freely, the

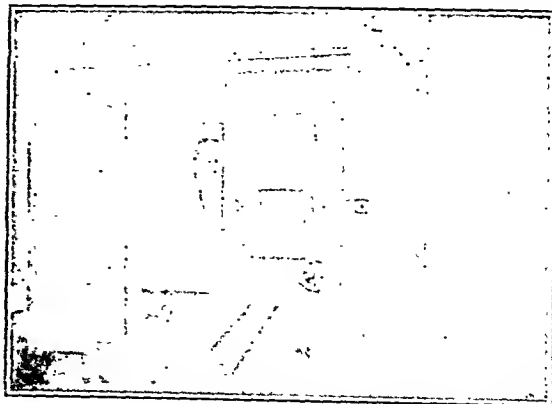


FIG. 3.—Doctor's consulting-room, showing x-ray screen.

operator alone being in darkness. This is a very desirable feature, as it considerably reduces the time taken for each examination. (2) An x-ray generator specially adapted for this type of examination and giving a very clear and detailed picture. It is designed for use off the main supply or from the rotary convertor. Its capacity is such that examinations can be carried on for hours at a stretch. (3) Finally, there is a switch-gear control for the generator. The whole of the electrical equipment can be worked off the main supply or a generator.

#### Its Value in Preventive Work

By means of this radiological train it is possible to carry out examinations of both the railway staff and their families, particularly with a view to the prevention of tuberculosis. By travelling from station to station the benefit of these examinations is extended to employees living in small localities where there is no qualified lung specialist. In this way it completes the work being done continuously in the eight tuberculosis centres of the Northern Region of the French Railways by means of existing installations. As 600 people a day can be dealt with in this train it will be possible to examine every member of the staff of the Northern Region of the French Railways and their families at least once a year.

Useful and profitable as this work is, the Medical Service has decided that the prevention of tuberculosis should not be its sole object. It is intended to carry out on each subject a thorough and complete annual examination covering the whole

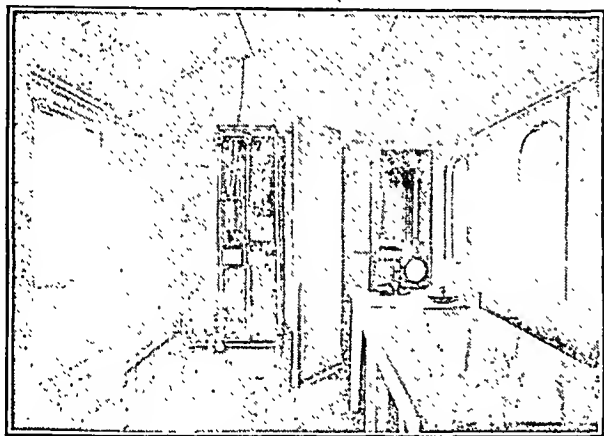


FIG. 4.—Nurses' office, showing examinees' side of x-ray screen.

body. To this end it is planning the addition of a further coach to the radiological train, completely equipped for a rapid examination of the different organs of the body. Thanks to the facilities offered by this new coach, the person examined will undergo measuring, weighing, blood-pressure test, analysis of urine, examination of the heart, and reflexes of the eyes and ears, as well as a blood test and cardio-pulmonary radioscopy. The results of these examinations will be recorded on case-history cards, which can be mechanically sorted and classified.

#### COLONIAL MEDICAL RESEARCH STUDENTSHIPS

In the *Journal* of June 21 (p. 897) we announced the institution by the Secretary of State for the Colonies of ten research studentships for graduates in medicine and cognate sciences. We have received an amendment from the Colonial Office to the second sentence of the announcement, which stated the allowance to be made to holders of the studentships, as follows: A graduate awarded a studentship will be eligible for a maintenance allowance assessed according to personal circumstances. The maximum rates of allowance which may be paid are: £260 per annum at the Universities of Oxford and Cambridge; £250 per annum at the University of London; and £220 per annum at other universities in the United Kingdom. The allowance will be free of income tax. A studentship will normally be awarded for a period of two years, subject to satisfactory report at the end of the first year's work from the supervisor, who will be nominated by the Colonial Medical Research Committee.

#### WORLD FEDERATION OF PATHOLOGISTS

The European Association of Clinical Pathologists, under the Presidency of Dr. S. C. Dyke, met at Cambridge on June 27 and reconstituted itself as a World Federation of Societies devoted to Clinical Pathology. The Federation defines its aims as (1) to develop clinical pathology—the application of pathology and allied sciences to medicine; (2) to have regard to the scientific and professional status of those engaged in its study and practice; and (3) to foster international amity. A committee was appointed to call a meeting of delegates from as many interested associations as possible in Paris next November, during the meeting of the French Société de Biologie Clinique, in order to formulate a constitution and elect officers. Dr. Dyke was appointed chairman of the committee, Drs. W. H. McMenemey and J. Ungar joint secretaries, and Dr. R. Cruickshank (London), Prof. Raoul Kourilski (Paris), and Dr. F. Piek (Prague) advisory members.

The Federation hopes to gain a world-wide membership, and invites societies devoted to clinical pathology to communicate with the secretaries—either Dr. W. H. McMenemey, the Pathological Department, The Royal Infirmary, Worcester, or Dr. J. Ungar, Glaxo Laboratories, Greenford, Middlesex. The Czechoslovak Association of Clinical Pathologists, the French Société de Biologie Clinique, and the Association of Clinical Pathologists of Great Britain have already signified that they wish to join the Federation. Medical practitioners or university graduates practising clinical pathology who are members of the constituent bodies will thereby become members of the Federation. Membership is also available to those who are eligible but do not belong to a constituent body. The Federation proposes to hold a conference at least once in every three years at the same time and place as the summer meeting of one of its constituent bodies. It hopes that the first will be in the summer of 1948.

#### THE MEDICAL PROTECTION SOCIETY

The London and Counties Medical Protection Society, at an extraordinary general meeting on July 16, agreed to simplify its title by omitting the prefix "London and Counties." Sir Ernest Rock Carling, who took the chair at the annual meeting which followed, said that the Society had had a very successful year. New members joining in 1946 numbered 1,894, bringing the total membership to over 22,000. The work of the Society had also increased. Applications for advice and assistance were received during the year in 1,410 cases. The Society had had to meet heavy legal expenses, and it had been again brought home to it that even the most expert and careful doctor sustained misfortunes or committed errors which might result in heavy damages. Moreover, the general costs of litigation tended to increase.

The Society was constantly hampered in its work by the failure of practitioners to keep records. He commented on what seemed to be the tendency of judges to attribute the blame for the effects of a disease or injury to the unfortunate doctor who had had the case in his care—not merely the portion of blame which might be put at his door owing to some lack of skill or error in treatment but the blame for the entire disability—and this was often reflected in the costs. Perhaps the most important activity of the year was the part taken by the representatives of the Society in making representations to the Ministry of Health concerning the Bill now being promoted by the General Medical Council for the reform of its constitution and procedure.

The treasurer, Mr. W. M. Mollison, submitted the accounts, which were in a thoroughly healthy condition, the investment amounting at cost to over £100,000. Sir Ernest Rock Carling was re-elected president, and to fill vacancies among the vice-presidents caused by certain retirements Dr. Thomas Beaton, Mr. F. A. Juler, and Dr. G. M. Stoker were elected. The new members elected to the Council were Dr. Annis Gillie and Dr. F. H. Stevenson.

The offices of the *American Journal of Ophthalmology* have been moved from Cincinnati to 700, North Michigan Avenue, Chicago, 11, Illinois.

## PURE AND APPLIED CHEMISTRY

## ELEVENTH INTERNATIONAL CONGRESS

The proceedings of the Eleventh International Congress of Pure and Applied Chemistry, held in London from July 17 to 24, covered a wide variety of topics of medical interest. Joint meetings between sections primarily concerned with human beings, animals, and plants proved of special value. Sir Henry Dale's congress lecture on "The Part of Chemistry in the New Therapeutics" was published in our last issue (Aug. 2, p. 161). The report which follows excludes also discussions on bacterial chemotherapy, the principal points from which were summarized last week in a leading article (p. 179), and the reported discovery of a lactation vitamin which was the subject of an annotation (p. 181).

## Intermediary Metabolism

A discussion on intermediary metabolism held by the Section of Biochemistry provided further evidence of the large part which radio-isotopes may be expected to play in future investigations of this type. Prof. G. von Hevesy's laboratory in Copenhagen was the first to introduce this method for the purpose of directly measuring the replacement rate of phosphorus in the teeth of the rat. He has now used the same radio-element ( $P^{32}$ ) to study the phosphorus metabolism of the blood, while with radio-nitrogen ( $N^{15}$ ) he has determined the average lifetime of human red corpuscles as about 4 months and that in the case of the hen as 30 days. This work appeared as an interesting supplement to that carried out in the United States with the two radio-irons on blood storage and transfusion, and Prof. Hevesy presented a reasoned analysis of the research uses of these four radio-isotopes. Radio-iron, he pointed out, necessarily involved the metabolic complication of a donor, and it had been shown also that the iron released in haemolysis was largely used in the formation of new cells. With radio-phosphorus, on the other hand, corpuscles could be "labelled" *in vitro* and re-injected into the original subject. In this way it had been shown that there was a high interchange rate both of inorganic phosphorus as between serum and red cells, and of inorganic and organic phosphorus within the cells. For the purpose of cell life measurements in the case of the hen, use has been made of the fact that the desoxyribose nucleic acid of the red cells remains unchanged during the lifetime of the cells. It has been shown that all red cells in the hen have about the same lifetime. The corresponding human measurement, yielding the 4 months' lifetime already quoted, was based on the administration of glycine labelled with radio-phosphorus.

Dr. G. E. Francis and Dr. A. Wormald, of St. Bartholomew's Hospital Medical College, have already published a series of investigations on the interaction of mustard gas and proteins as shown by radio-sulphur ( $S^{35}$ ). They have now extended the same method to immunological reactions. By injecting hens with radio-phosphorus, they obtained from their eggs a naturally produced but radio-actively labelled antigen, radio-vitellin. They were thus able to determine the amount of antigen in various vitellin-anti-vitellin preparations. Other investigations have been made with artificially phosphorylated proteins labelled with  $P^{32}$ , and with an antigen containing radio-sulphur. The latter radio-isotope has also been used by Dr. L. Young and Dr. S. D. Simpson, of Toronto, to show the distribution within the organism of sulphur from British anti-lewisite (BAL).

Prof. V. du Vigneaud, Cornell University Medical College, who earlier in the Congress had described the first isolation of pure synthetic penicillin, has used labelling of a different type. Largely as a by-product of wartime work on the separation, on the basis of mass, of the two principal isotopes of uranium, various normal and stable elements are now available in which partial separation of isotopes of different masses has been effected. Their use in research is dependent on accurate density measurements. With sulphur enriched in  $S^{34}$  (normal atomic weight 32.07) and carbon enriched in  $C^{13}$  (normal atomic weight 12.00), Prof. du Vigneaud studied hair formation in young de-haired rats. Methionine was synthesized in which the sulphur and two known carbon atoms were thus labelled. He found that 80% of the sulphur in the cystine of the rats' new

coat was derived from dietary methionine, but that no significant proportion of the carbon came from the labelled atoms of this element. This suggested the formation of cysthionine as an intermediate.

## Blood Factors and Immunology

Dr. W. T. J. Morgan, of the Lister Institute, during a discussion held by the Medical Section on "Macromolecules of Biological Interest," described a technique which he has developed for the separation of the human specific blood factors (A, B, and O) from ovarian cyst fluid. In fluid from ovarian cysts the group substance was often present in considerable amounts and in water-soluble form. It was a mucoid and could usually be isolated by treating the diluted cyst fluid with trichloroacetic acid at 0° C. The active material, largely free from contaminating protein, remained in solution and could be recovered by dialysis, concentration, and freeze-drying. After extraction with phenol further purification could be undertaken, and the way was thus opened for the further study of these blood-group-specific mucoids.

During the same discussion Prof. M. Stacey, of the University of Birmingham, referred to the bridge which is being established between immunology on the one hand and chemical research on the large and complex polysaccharides produced by bacteria on the other. The most important work of recent years, he stated, was that of Heidelberger and his associates who, by injection with specific pneumococcal polysaccharides, had successfully immunized human patients against several of the common types of pneumococcal infection (e.g., Types I, II, III, V, VII, and VIII). U.S. Army field trials had shown the great potential value of the method; and Avery, by laboratory methods, had transformed one type of pneumococcal polysaccharide into another. In the *Salmonella* group also it had been shown that such complex polysaccharides were the essential immunizing antigens of the cell. On the more strictly chemical side a number of bacterial polysaccharides had been built up from sucrose and glucose-laevophosphate by enzyme reactions carried out in the laboratory. These studies were elucidating the mechanisms by which these "giant molecules" were formed. Finally, the combination of the normal methods of carbohydrate chemistry and chromatographic methods of separation was bringing to light chemical structures which were new to carbohydrate chemistry. Examples were the specific carbohydrates of *M. tuberculosis*.

## Antigens and Antibodies

Prof. Linus Pauling, of California, approached the problem of biological specificity from the point of view of the physical "fit" believed to be necessary between the antibody and substances with which it interacted. He claimed that by the substitution of single atoms in a complex synthetic chemical used as an antigen it was possible to estimate numerically the closeness of fit necessary. A bromine atom could be replaced by a metal atom of the same size, and antibodies elicited by the bromine-substituted chemical would still be effective against the metal-substituted material. But if a smaller atom such as magnesium was inserted in the same position there would be less complete precipitation because the "hat," represented by the antibody, was now too big for the magnesium-substituted chemical. Also if the smaller atom was inserted into the antigen the antibodies thus elicited showed no reaction whatever with the substituted chemical containing the larger atom—for the "head" was now too big to fit inside the "hat." From such experiments he estimated that the degree of fit needed for full interaction was of the order of 1½ Angström units. For comparison, the difference in atomic spacing between the actual structure of penicillin and that originally suggested is about 1 Angström unit, the wavelengths of visible radiation being measured in thousands of Angström units. Finally, Prof. Pauling suggested that genes might owe their specific power to the same phenomenon of "complementarity."

Prof. J. D. Bernal, Birkbeck College, reviewed progress in protein chemistry. The similarity of the x-ray pattern of all proteins hitherto examined, he stated, indicated a common internal structure down to amino-acid level. Recent work suggested that this was also the case in the giant protein molecules of the plant viruses which Wyckoff had individually photographed by the electron microscope.

### Chemotherapy

Work on the chemotherapy of protozoal infections was discussed by the Medical Section alone and also in joint session with the zoologists. Prof. J. A. Shannon, of New York, who was unable to be present, contributed a summary of wartime research on antimalarials in the United States. An illuminating point which he made was that the continued vigour with which the search for further antimalarials of the atebirin class had been prosecuted had been largely conditioned by the fear, fortunately unfulfilled, that prolonged administration of atebirin might lead to unexpected toxic effects which might have necessitated its withdrawal. Dr. F. H. S. Curd and others of the I.C.I. team which discovered paludrine illustrated from this example the extent to which the search for biologically active substances could be shortened, even in the present state of knowledge, by the imaginative employment of pharmacological and chemical arguments.

In the joint session with the zoologists Dr. L. P. Walls, of the Wellcome Chemical Research Laboratory, described the results of tests in Bechuanaland and the Gold Coast against bovine trypanosomiasis with dimidium bromide ("1533") and phenidium chloride ("897"). Both are members of a group of substances which were first prepared as antibacterials by Prof. C. H. Browning, of Glasgow. A protracted prophylactic action has been obtained, but care is necessary in treatment to avoid toxic reactions. Mr. H. J. Barber, of the research staff of May and Baker, reviewed amidine chemotherapy, which he pointed out had been somewhat overshadowed by penicillin and the antimalarials. Its field of usefulness was, however, being gradually extended, and current work was establishing the value of 4:4'-diamidinodiphenoxypentane in the prophylaxis of human (African) sleeping sickness.

Dr. W. Bradley, British Drug Houses, discussed the effects of various types of substitution on the muscle-relaxing drugs of the glycerol series, research on which had been stimulated by recent applications in medicine and surgery. In the aryl ester series, maximum activity was reached with the introduction of simple groups, more complex substitution again reducing the activity. The nature of the substituted group, whether alkyl, alkoxyl, or halogen, was less important, although both basic and acidic groups abolished the activity. The results as a whole suggested that both the size and the shape of the molecule affected the muscle-relaxing property.

### Nutrition

Discussions on nutrition ranged widely. One on the effects of dietary restriction in man, introduced by Sir Jack Drummond, brought together information from the Far East, France, and Brussels, as well as the results of the Minnesota experiment in rehabilitation. Other contributions described the effect of wartime shortages on livestock.

Dr. D. A. Smith, of the London School of Hygiene Nutrition Unit, quoted the records of the Hong Kong civilian internment camp to show that, even with a severe deficiency of calories, there was a tendency to establish equilibrium at a lower metabolic level. After a year on 1,850 calories a day, weight loss had ceased at about 25% below normal. Numerous subjective phenomena were experienced, and psychological changes were attributed rather to general under-nourishment than to specific vitamin deficiencies. Results during the starvation period of the Minnesota experiment, described by Prof. A. Keys, Director of the University Laboratory of Physiological Hygiene, were in close agreement with the Hong Kong figures, except that balance at the lower level was attained more quickly; 32 young adult males, who had required 3,000 calories for balance during three months of normal feeding, were balanced at about 1,700 calories, at 76% of normal weight, after six months. Three months of restricted refeeding followed, and finally 10 months of unlimited diet. Changes in body water and fat obscured "active tissue" recovery, if evaluated from gross weight alone. In general, functional recovery paralleled the recovery of active tissue, and under the most favourable conditions full rehabilitation required from 6 to 12 months. Supplementary vitamins and proteins were found to be not important. At intakes of less than 3,000 calories recovery was "very slow," and above 4,000

the added weight was mostly fat. Dr. J. Trémolières, of the National Institute of Hygiene, Paris, compared the average deficits in height and weight shown by boys and girls during the period 1944-5 in a number of French cities. Deficits in height were most noticeable in boys, and in weight in girls. They appeared after the age of 9, and increased quickly to maximum at 14. They were reduced by about 50% between November, 1944, and November, 1945, as the food situation became better. The Belgian experiment was of short duration. It showed that ten days of special feeding was enough to bring about a marked increase in strength of grip in a group of factory workers.

Reports on livestock in wartime came from Sweden and Great Britain. Dr. S. Nordfeldt, of the Royal Agricultural College, Uppsala, stated that the use of a special wood pulp fodder, which between 2 and 3 kg. could be given daily to cows, had enabled milk deliveries to be maintained without restriction all times. Dr. S. J. Rowland, of the National Institute for Research in Dairying, Reading, attributed an acute late-winter decrease in solids other than fat from 1941 onwards, and persisting to the present time in the milk from British cattle, to reduced supplies of imported concentrates. This was, however, superimposed on a steady decline in the quality of British milk over the last fifteen to twenty years, both in fat and "solids-in-fat." He thought this was due to excessive concentration of breeding for yield, without reference to composition or to balance in which different breeds were represented. The quality of Norwegian milk was stated by Dr. G. Aas, of Oslo, to have improved from 1927 to 1940, and then declined to about former level. Dr. James Stewart, of the Morcudun Institute, Edinburgh, made the point that the known effects of local trace element deficiencies on livestock provided a strong argument against "non-scientific opinion" which sought to prevent use of artificial fertilizers on health grounds. Other examples came from plant nutrition.

Prof. A. N. Worden, of Aberystwyth, threw out the further suggestion to the medical profession that the results of studies on lambs and calves, showing the significance of colostrum relation to antibody production and nutritional status, suggested that "it would be well worth while to re-investigate by modern methods the role of breast milk, including colostrum, in disease resistance in the human child."

In a discussion held by the organic chemists on vitamins, I. D. A. van Dorp, of N.V. Organon, Oss, Holland, argued for a comparison of chemical structure and physiological action of different vitamin A derivatives that the functions of visual control, growth, and oxygen transport should be regarded separately. Dr. L. J. Harris, of the Dunn Nutritional Laboratory, Cambridge, gave a critical survey of methods of vitamin estimation.

### MEDICAL ARTISTS

The exhibition of oil paintings and water colours arranged by the Medical Art Society at the house of the Royal Society of Medicine suggests that members of the medical profession will find their recreation in painting like to get as far away as possible from the professional scene in their choice of subject. Of the 150 frames only one encloses a medical subject—an operation performed in a hospital ship, the work of former Surgeon Lieut.-Commander E. Puddy. Nearly all the rest are landscapes or still life. Portraiture is almost absent, though an exception is "House Physician," a splendid example of an African doctor, by Elliott Blake, who also shows a lunatic "Dunkirk." But the quiet English countryside is the recurring theme. Even Sir Philip Manson-Bahr takes us no further than the Tropics than the woods and fields of Surrey. Harold Gillies finds his inspiration in Norway and Iceland. Dr. John Parkinson favours the Channel harbours. Mr. Norman Patterson concentrates on flowers and glassware. Dr. T. Somervell, the climber of Everest, turns to mountain scenery. Here and there is an example of the grotesque, such as the explosion of the atom bomb in the garden of Eden, but most pleasant straightforward transcriptions which must have given their producers keen pleasure, and some of that pleasure they transmit to others.



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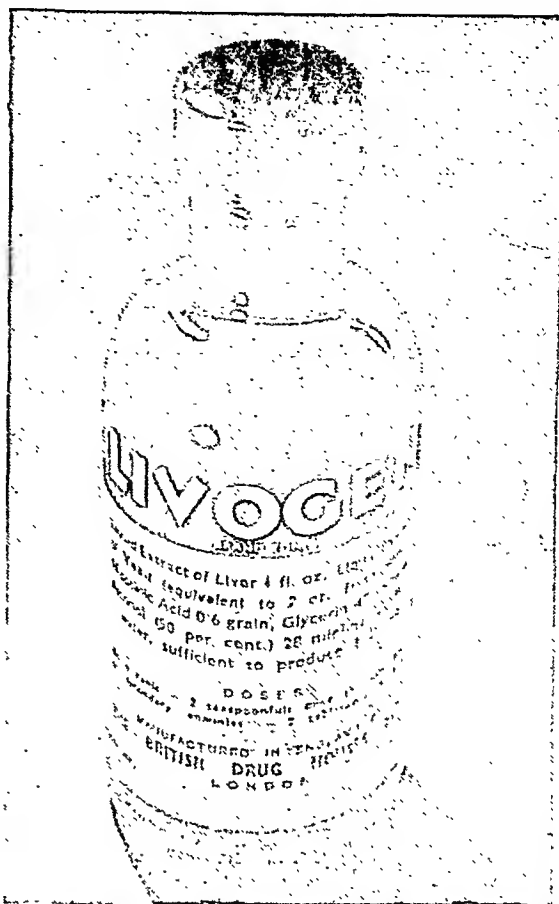
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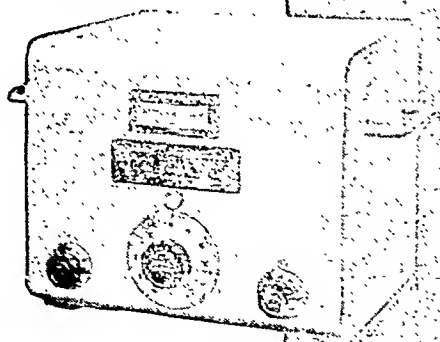
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## PROGRESS

and the

### B<sub>2</sub> VITAMINS

Views on the singleness of vitamin B have had to undergo considerable revision since the early days of the discovery of vitamins. The original recognition of a single water soluble B vitamin, and further division into vitamins B<sub>1</sub> and B<sub>2</sub>, has been followed by the identification of many other constituents which are now known to form part of the vitamin B<sub>2</sub> complex.

As further progress is still to be expected it is often considered preferable to administer a natural source of the B<sub>2</sub> vitamins, such as Marmite, where all factors appear to be present in balanced proportions—those already isolated as well as those which still remain to be differentiated.

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## NATIONAL (WAR) FORMULARY

The third edition of the *Formulary* will be published shortly. We list below the medicaments that have been added to or deleted from it. In addition a number of minor alterations have been made in the composition of certain mixtures, the naming of drugs, and dosage.

## Additions

## General Section

*Applicatio D.D.T.*—

D.D.T. of commerce	..	..	..	17½ gr.
Emulsifying yxax	..	..	..	17½ gr.
Solvent naphtha (90/160)	..	..	..	145 min.
Oil of citronella	..	..	..	5 min.
Water to	..	..	..	2 fl. oz.

*Auristillac Penicillini*.—An aqueous solution containing 0.05% chlorocresol and, unless otherwise directed, 2,500 units of penicillin (calcium salt) per ml.

*Capsula Pluravit*.—Contains vitamin A, ascorbic acid, and vitamin D.

*Cremor Penicillini B.P.*—Contains, unless otherwise directed, 500 units of penicillin (calcium or sodium salt) per ml.

*Cremor Zinci N.W.F.*—

Zinc oxide	..	..	..	150 gr.
Wool fat	..	..	..	40 gr.
Oleic acid	..	..	..	5 gr.
Arachis oil	..	..	..	150 gr.
Solution of calcium hydroxide	..	..	..	135 gr.

*Cremor Zinci et Ichthammalis N.W.F.*—Zinc cream N.W.F. containing 5% w./w. of ichthammol.

*Elixir Cascarac Sagradae B.P.**Elixir Sennae B.P.C.*

*Emulsio Paraffini Liquidi et Magnesiac*.—Formula as for emulsio paraffini liquidi alkalina B.P.C.

*Gargarisma Phenolis B.P.C.*—Contains 5% glycerin of phenol.

*Gargarisma Potassii Chloratis*.—

Potassium chlorate	..	..	..	80 gr.
Water to	..	..	..	8 fl. oz.

*Guttae Cocinae et Homatropinae*.—An aqueous solution of cocaine hydrochloride 2% and homatropine hydrobromide 1% containing 0.05% of chlorocresol.

*Guttae Penicillini*.—An aqueous solution containing 0.05% chlorocresol and, unless otherwise directed, 2,500 units of penicillin (calcium salt) per ml.

*Guttae Sulphacetamidii Fortes*.—An aqueous solution containing 30% soluble sulphacetamide and 2% boric acid. For use in the presence of infection.

*Guttae Sulphacetamidii Mites*.—An aqueous solution containing 10% soluble sulphacetamide and 2% boric acid. For prophylactic use.

*Injectio Penicillini N.W.F.*—An aqueous solution containing, unless otherwise directed, 50,000 units of penicillin (calcium salt) or penicillin (sodium salt) per ml.

*Injectio Penicillini Oleosa N.W.F.*—A suspension of penicillin (calcium salt) in a 4.5% solution of beeswax in either arachis oil or ethyl oleate, containing, unless otherwise directed, 125,000 units per ml.

*Mistura Gentianae Acida*.—

Dilute hydrochloric acid	..	..	..	10 min.
Concentrated compound infusion of gentian	..	..	..	30 min.
Chloroform water to	..	..	..	1/2 fl. oz.

*Mistura Gentianae Acida cum Nucis Vomicae*.—

Tincture of nux vomica	..	..	..	10 min.
Dilute hydrochloric acid	..	..	..	10 min.
Concentrated compound infusion of gentian	..	..	..	30 min.
Chloroform water to	..	..	..	1/2 fl. oz.

*Mistura Gentianae Alkalina*.—

Sodium bicarbonate	..	..	..	10 gr.
Concentrated compound infusion of gentian	..	..	..	30 min.
Chloroform water to	..	..	..	1/2 fl. oz.

*Mistura Gentianae cum Rhea*.—

Sodium bicarbonate	..	..	..	10 gr.
Concentrated infusion of rhubarb B.P.C.	..	..	..	15 min.
Concentrated compound infusion of gentian	..	..	..	15 min.
Peppermint water to	..	..	..	1/2 fl. oz.

*Naristillae Penicillini*.—An aqueous solution containing 0.05% chlorocresol and, unless otherwise directed, 2,500 units of penicillin (calcium salt) per ml.

*Nebula Adrenalinae et Atrapinae Campasita*.—

Atropine methylnitrate B.P.C.	..	..	..	1/2 gr.
Papaverine hydrochloride B.P.C.	..	..	..	3½ gr.
Adrenaline	..	..	..	2 gr.

Chlorbutol	..	..	..	2 gr.
Dilute hydrochloric acid	..	..	..	5 min.
Sodium metabisulphite	..	..	..	1/2 gr.
Distilled water, recently boiled and cooled to	..	..	..	1 fl. oz.

*Nebula Penicillini*.—An aqueous solution containing 0.05% chlorocresol and, unless otherwise directed, 50,000 units of penicillin (calcium salt) per ml.

*Oculentum Penicillini B.P.*

*Pihula Violae Crystallinae*.—Enteric-coated pills containing 1/6 gr., 1/4 gr., 1/2 gr., or 1 gr. of crystal violet.

*Pulvis Penicillini et Sulphathiazali*.—A sterile powder containing, unless otherwise directed, 5,000 units of penicillin (calcium salt) per g.

*Salvella Penicillini N.W.F.*—Contains either 10,000 units or 12,500 units of penicillin (calcium salt).

*Suppositorium Bismuthi Subgallatis B.P.C.*—Contains 5 gr. of bismuth subgallate.

*Tabella Acidi Acetylsalicylici Campasita B.P.C.**Tabella Butabarbitali (0.1 g.)**Tabella Dienaestralis (0.1, 0.3, 1, and 5 mg.)*

*Tabella Ferri Phosphatis cum Quinina et Strychnina B.P.C.* (equivalent to 30 and 60 min. of syrup).

*Tabella Ferri Sulphatis Campasita*.—Sugar-coated tablets, each containing:

Exsiccated ferrous sulphate	..	..	..	3 gr.
Manganese sulphate	..	..	..	1/25 gr.
Copper sulphate	..	..	..	1/25 gr.

*Tabella Hexaestralis B.P.C. (0.5, 1, and 5 mg.)**Tabella Nicotinamidi B.P. (50 mg.)**Tabella Paludrinae (0.1 g.)**Tabella Phenacetini et Caffeinae B.P.C.**Tabella Phcniodali (0.5 g.)**Tabella Stilboestrolis B.P. (0.5 and 1 mg.)**Tabella Succinylsulphathiazoli (0.5 g.)**Tabella Sulphadiazinae B.P.**Tabella Sulphadimethylpyrimidinae (0.5 g.)**Tabella Sulphaganidinae B.P.**Trachisci Penicillini B.P.*

*Unguentum Calaminae B.P.C. (Unguentum Calaminae N.W.F., 1943, has been renamed Unguentum Calaminae Aquasum B.P.C.)*.—Contains 16.7% of calamine in a base of yellow soft paraffin.

*Unguentum Penicillini B.P.*

## Infants' Section

*Cremor Zinci et Olei Ricini N.W.F.*—

White beeswax	..	..	..	50 gr.
Wool fat	..	..	..	50 gr.
Liquid paraffin	..	..	..	104 gr.
Zinc oxide	..	..	..	36 gr.
Castor oil	..	..	..	240 gr.

*Mistura Gentianae Acida pro**Infantibus**Mistura Gentianae Alkalina**pro Infantibus**Mistura Gentianae cum Rhea**pro Infantibus**Mistura Potassii Bromidi pro Infantibus*.—

Potassium bromide	..	..	..	4 gr.
Syrup	..	..	..	15 min.
Chloroform water to	..	..	..	60 min.

*Pulvis Aluminis et Zinci N.W.F.*—A sterile powder containing potash alum 20%, purified talc 40%, and zinc oxide 40%. Sufficient powder for one application to be packed in stout paper or "cellophane" envelopes, as for pulvis sulphanilamidi.

## Deletions

## General Section

<i>Emuls. Anis. et Menth. Pip.</i>	<i>Mist. Ferri Arsen.</i>
<i>Emuls. Ol. Vitamin. B.P.</i>	<i>Mist. Ferri Perchlor.</i>
<i>Glycer. Proflavin.</i>	<i>Mist. Ferri Salicyl.</i>
<i>Gutt. Cocain. Oleos.</i>	<i>Mist. Hydrarg. Perchlor.</i>
<i>Lot. Trinitrophenol. B.P.C.</i>	<i>Mist. Quass. c. Rhea.</i>
<i>Mist. Arsen.</i>	<i>Pulv. Iodophthal. Co.</i>
<i>Mist. Calc. Lact.</i>	<i>Ung. Hydrarg. Animon. Aquas.</i>
<i>Mist. Ergot.</i>	<i>B.P.</i>

## Infants' Section

<i>Crem. Zinc.</i> (replaced by cremor zinci et olei ricini).	
<i>Emuls. Ol. Vitamin. B.P.</i>	
<i>Ext. Malt. c. Ol. Vitamin. B.P.</i>	
<i>Mist. Quass. Acid. pro Infant.</i>	Replaced by corresponding mixtures containing gentian.
" " Alk.	
" " c. Rhea	
" " c. Rhea	
<i>Pulv. Santonin. Ca.</i>	
<i>Tab. Santanin. Co.</i>	

## Correspondence

### Poliomyelitis

SIR,—In your leading article on poliomyelitis (July 26, p. 135) you do not mention swimming and diving in sewage-polluted rivers as a cause of infection. When will the people of this country understand that if they will turn sewage into our rivers and then bathe in them they must expect trouble. Again and again we see cases of infantile paralysis appearing in farms and villages on the banks of polluted rivers. The virus is present in faeces and then passes through sewage into rivers. Young people bathe in sewage-polluted rivers, and we wonder why they get infantile paralysis.—I am, etc.,

New Barnet, Herts.

J. E. ELAM.

SIR,—I would like to draw public attention to the danger of labelling bins "Pig Food." Take off the lid the day before the refuse is collected and you find bones, meat, fat, paper, rotten cabbage mixed up with bits of carpet, sardine tins, newspaper, and a living mass (often several inches deep) of maggots, the last item keeping us well supplied with flies. I suggest that the spread of infantile paralysis may be thus caused, an outbreak of the disease in a hill station in India being coincident with stable manure being thrown on the open ground instead of being conveyed to the destructor.—I am, etc.,

London.

K. O. VAUGHAN.

SIR,—The official memorandum dealing with precautions against acute poliomyelitis (*Journal*, July 26, p. 141) is not very helpful and in places a little ludicrous. For instance, in a disease which is as likely as not air-borne and principally attacks children under five, we read that gargles and nasal sprays have been disappointing.

Would not it have been better to say that the nostrils of the immature should be periodically swabbed out, and that the same can be effectively done by the adult, when washing the face, with the wet fingers, thus avoiding the paraphernalia of a nasal douche, which will certainly not be persisted in more than a few times?—I am, etc.,

London, S.W. 5.

PERCY TATCHELL.

### Oxygen Poisoning in Man

SIR,—May I venture to doubt Sir Leonard Hill's theory (June 21, p. 900) that oxygen convulsions and nitrogen and argon narcosis are both due to carbon dioxide accumulation? Subjectively and objectively the symptoms of the two conditions are utterly different. I have never experienced or observed confusion or euphoria before an oxygen convulsion. Confusion is universal and euphoria common in nitrogen narcosis. Carbon dioxide enhances both oxygen and nitrogen poisoning. The obvious explanation of this fact is that it causes cerebral vasodilatation, and thus facilitates the absorption of other gases by the brain. I hope shortly to publish data which may help to clear this question up.

With regard to the questions of priority raised in his letter, the Official Secrets Act makes a full discussion illegal. No one can doubt the fundamental part played by Sir Robert Davis, but so long as publication is restricted it is impossible to assign credit objectively, and controversy can lead nowhere.—I am, etc.,

University College, London, W.C. 1

J. B. S. HALDANE.

### Tuberculosis in a D.P. Camp in Austria

SIR,—With reference to Dr. F. J. W. Miller's paper on tuberculosis among small children in Newcastle (July 19, p. 91), I wonder if some observations on children in an Unrra-operated D.P. camp in Austria would be of interest. This camp had a shifting mixed Polish and Ukrainian population varying from 1,600 to 2,100. The consequent frequent changes of barracks made tracing of contacts extremely difficult. Indeed, usually no contact with known adult cases could be discovered. No ill child (with the exception of one, whose father's illness

was discovered only through the child) had an infected parent, and none of our infected parents had sick children, but two open cases had positively reacting children with very old calcifications.

I spent one year in this camp. During this time 9 open and 7 closed adult cases were removed to a sanatorium after great moral struggles or left the camp, and 3 closed cases remained in the camp. Shortly after my arrival a number of children over 5 years old were sent to a sanatorium in Italy and did not return, and 5 infected children in a family of 6 remained. These are not included in the following remarks. In this year 10 children under 3 and 3 under 5 years were found to have active primary tuberculosis (I exclude figures for older children), 3 as a result of Evans patch-testing, which was carried out last December in all camps as a preliminary to mass radiography, unfortunately delayed by various difficulties until June.

240 children under 10 were examined, and suspicious cases further examined by the Pirquet test. 46 were positive and were x-rayed immediately and, if not active, again in three months. One child aged 18 months was negative in December but in April was found to have a large infiltration and to react positively. Of the 46, 2 or 3 showed nothing abnormal, 22 showed active or subsiding disease and the rest one or more calcifications. About 12% of adults were x-rayed at some time, and about 50% of these showed calcification of unknown aetiology.

The 13 young children mostly appeared very ill at first, with pallor, sweating, loss of weight, and cough. About half had marked physical signs in the lungs. After a few months all except the baby referred to above, who unfortunately developed whooping-cough, were steadily improving in every way. None of these children had any special treatment other than extra milk and butter, as the mother were very reluctant to allow them to go into hospital and did not enforce rest or early bed or distasteful medicines—or indeed anything the children didn't want. The camp was appallingly crowded, the rooms usually stuffy and either too hot or too cold, but at least was usually managed to give every tuberculous family a room to themselves. Iron and vitamin preparations were taken rather irregularly owing to the mothers' standard of education and difficulty at first in getting iron. Cod-liver oil was not available.

Regular supervision and examination was also very difficult to enforce and indeed only brought about by withholding milk until the mother brought the child, when one would remark to the mother "You evidently consider baby quite healthy, so why should he have extra milk?"

I was surprised at the good results in spite of this laissez-faire attitude. In fact, tuberculosis at all ages was taken rather lightly. The elder patients demanded dog fat to eat and rub on their chests as a sovereign remedy (there was a high mortality among dogs at or time, I believe), and sanatorium treatment was regarded always with great disfavour owing to the separation from family and the discipline required. So long as they got some extra food they didn't see why they should bother or be bothered.

I would be very interested to see pre-war tuberculosis death figures for Poland, as such relatively rapid recovery among children so ill appears unusual to me. Was their degree of illness due entirely to their previous poor nourishment, and the recovery when nutrition was improved a sign of their natural high immunity? All our new cases with the exception of the baby were discovered in the second half of 1946, when food for the whole camp was poor, while from November, 1944 the children's diet was supplemented by International Red Cross parcels.

Similar conditions were found in other camps. Full report will no doubt be published by the Unrra tuberculosis specialists.—I am, etc.,

AGNES C. CLARK.

Northwood, Middlesex.

Late Medical Officer, U.N.R.R.A.

### Meningitis after Spinal Anaesthesia

SIR.—Dr. C. A. Vuylsteke (*B.M.J.*, Feb. 1, p. 179) reported four cases of pseudomonas meningitis following spinal anaesthesia. Three of these, caused by the melanogenic variety of *Ps. pyocyanea* were fatal; one, caused by true *Ps. pyocyanea*, recovered after sulphathiazole treatment. Patients had been operated upon by three different surgeons at two surgical clinics whose nursing personnel belonged to the same school. During this period there had five other cases of meningitis. Careful examination of the cerebrospinal fluid did not reveal the slightest trace of any pathogenic agent. Four patients were cured, one died. Every experienced surgeon will agree that the occurrence of pyocyanic infections in surgical wards means very defective aseptic technique. The author holds the lack of sterilization of the brushes used by the surgeons to scrub their hands responsible

for the meningeal contamination. Since then the brushes have always been sterilized and no further cases of meningitis have been reported.

True infection of the cerebrospinal fluid following spinal anaesthesia may very rarely be attributed to pyohaemia or to ulcerations of the skin; the contamination through anaesthetic solution ampoules also seemed to be very rare, since the phials are not immersed in spirit but dry-stocked and cautiously opened. In my opinion the causes of the cerebrospinal fluid infection in the recorded cases are quite evident. I believe that the sources of contamination are the hands of the surgeons and the instruments.

Prevention means clean hands or gloves and sterilized instruments. Bacteriological sterility of infected syringes and needles can only be secured through two techniques: either warm-air oven (Poupinel) one hour at 150° C. (302° F.), or steam ten minutes at 120° C. (248° F.). Syringes of Record type do not resist these sterilization techniques, and all-glass syringes ("pyrex") are especially useful. We used spinal anaesthesia for 35 years in more than 50,000 cases, and so far no fatal meningitis has been observed in our services. In conclusion, meningitis following spinal anaesthesia can be easily avoided by aseptic measures. Boiling of infected syringes is not sufficient to warrant sterility. Syringes of Record type may be the cause of the C.S.F. contamination.—I am, etc.,

J. SEBRECHTS,  
Professor of Surgery

Bruges.

### Arsenical Dermatitis Treated with BAL

SIR,—I was surprised to read the article by Dr. J. Lawrence Reeve (July 26, p. 132) on the successful treatment of two cases of arsenical dermatitis with BAL. To the best of my knowledge this drug is still on the secret list. More surprising, however, than this premature disclosure is the author's conclusion. After describing the progress of two cases, Dr. Reeve concludes that "BAL may well be the answer to the syphilologist's prayer, for, instead of cases of arsenical dermatitis being in hospital for weeks at a time, they may now be treated as out-patients."

I venture to predict that those venereologists who, through the co-operation of the Medical Research Council, have been able to obtain small supplies of this drug over the past two years or more, and whose experience in its use for cases of arsenical dermatitis extends to many more than two cases, will not subscribe to the author's view as expressed in his conclusion. On the contrary, I feel sure they will continue to regard arsenical dermatitis as a very serious complication to treatment and will, in all but the mildest cases, endeavour to admit their patients to hospital. At the same time they will give thanks to the discoverers of BAL for having provided them at last with a drug whose efficacy cannot be doubted in the treatment of this serious condition and which needs no extravagant or premature claims for its recommendation.—I am, etc.,

Truro, Cornwall.

A. E. TINKLER.

### Primary Treatment of Fingertip Injuries by Skin Grafting

SIR,—I have read with great interest Dr. S. J. Krister's note (July 26, p. 152) on this subject. It is most regrettable that though this method is now part of standard theoretical teaching and is mentioned in most textbooks it is still not used often enough, with consequent daily loss of useful finger-lengths. For the past three years I have routinely used primary plastic procedures in all recent injuries involving loss of skin including well over a hundred fingertips. May I therefore be permitted to make a few comments on Mr. Krister's admirable description?

In industrial accidents—the most common source of finger injuries—clean-edged wounds as are usually caused by slicing machines are relatively uncommon. Crushing with or without avulsion or blunt tearing are the types of trauma most frequently encountered. These make special preparation of a graft bed necessary, but grafting is called for just as much as in the simpler and therefore easier injuries.

Though apparently aware of its importance Mr. Krister has not stressed sufficiently the necessity of excising all devitalized or grossly contaminated tissue. Failure to do so will lead inevitably to sepsis and constitutes the most common source of graft failure. Satisfactory excision of an irregular wound is best carried out in a blood-

less field, and for this purpose I found most efficient a rubber band tourniquet applied near the base of the finger after a ring block. The tourniquet also guarantees absolute haemostasis until the application of the compression dressing, thus avoiding the graft's being lifted up by a small collection of blood or the necessity of applying a ligature beneath the graft—two other causes of failure.

I have found full-thickness grafts quite satisfactory but prefer thick pinch grafts—i.e., those including the full thickness of the dermis in their centre. Using these, perforating the graft is unnecessary, but when the diameter of the defect exceeds 1/2 in. (1.25 cm.) I use two or three grafts applied side by side. With this modification suturing of the graft is usually unnecessary provided a compression dressing is used. As the grafts are harder the percentage of success is nearer 100% than 80%, and the final appearance is equally good.

Except in the presence of a fracture of the remaining bone 14 days is too long a period to keep on the primary dressing. Owing to the necessary thickness of the latter the graft becomes softened and soggy. Change of the dressing is therefore indicated on the eighth or ninth day, even sooner in children. At this time the graft will be found to have already firmly taken and usually requires protective covering for only one further week, thus cutting down the patient's period of incapacity.—I am, etc.,

London, W 1

P. P. H. SCHMIDT.

### Surgical Aspects of Amoebiasis

SIR,—It is unfortunate that Mr. P. Theron's article (July 26, p. 123) on the "Surgical Aspects of Amoebiasis" gives further publicity to the technique of air replacement of liver abscess. This practice, although productive of interesting x-ray pictures, cannot be of benefit to the patient, and the presence of air in the cavity may delay healing. Should repeated aspiration be considered necessary the clinical state of the patient is a reliable guide to its frequency.

If penicillin and sulphadiazine are administered to patients who fail to respond to emetine alone, aspiration, with its attendant hazards, can usually be avoided. Even when the inflammatory process has reached the thoracic or abdominal wall the response to this combined therapy is frequently satisfactory, and with earlier diagnosis aspiration and drainage should rarely prove necessary.—I am, etc.,

Leeds.

R. N. TATTERSALL.

### Calculation of the Colour Index

SIR,—Dr. Arthur Jordan and Dr. Herbert Levy (July 26, p. 149) would have been wise to have studied my letter more carefully before proceeding to criticize the contents. My intention was to protest against the rather ignorant viewpoint, unfortunately so prevalent at the moment, that the colour index has had its day and should be replaced by the blunderbuss use of the haematocrit—a procedure which to most people with any experience of large-scale haematology is obviously impracticable even if it were desirable. The haematocrit has its uses, but it should be reserved for cases where a primary screening by experts carrying out routine blood counts, together with a consideration of clinical findings, has shown it to be indicated. Furthermore, I was fully aware of the various investigations of human error in calculating haemoglobin, and the figures quoted by Dr. Jordan merely confirm that 80% of trained observers are likely to produce normal values of colour index within the range of 0.90 to 1.05. The personal errors of the remaining 20% would be uncovered by the ancillary investigations which were maintained. The errors of the cell count are not relevant to this discussion as they affect the mean cell volume and colour index equally. A further point is that the haematocrit is subject to mixing errors and variations of centrifuge speed—a serious disability in these days of current cuts.

I would point out to Dr. Levy that a mean cell volume determination is not likely to give much more help in the diagnosis of pernicious anaemia than an accurately calculated colour index. In any case no pathologist of repute would be prepared to concur in a diagnosis of this disease without first examining the bone marrow and gastric contents. Inaccurate diagnosis of pernicious anaemia is unfortunately not uncommon and was referred to in a previous communication (Nov. 24,



1945, p. 741). The only remedy lies in the adoption of the procedures described in my previous letters. The value of the colour index in evaluating response to treatment lies in microcytic rather than macrocytic anaemias. It is a pity that Dr. Levy has attempted to introduce a pathologists-versus-clinicians atmosphere into the discussion; any interest shown by clinicians in these matters is welcome. There would also seem to be no justification for Dr. Jordan's introduction of the name of the late Sir Frederick Gowland Hopkins.—I am, etc.,

Liverpool.

W. K. TAYLOR.

\*\*This correspondence is now closed.—ED., *B.M.J.*

### Spinal Pumping

SIR,—Following the annotation on "Spinal Pumping" (July 12, p. 62), Mr. J. S. Horn has pointed out (July 26, p. 147) how important it is "for Speransky's basic experiments to be checked on the widest possible scale so that his conclusions may either be rejected or further developed." With this statement we heartily agree. During the last year we have reinvestigated in our department one of the early fields covered by Speransky and his collaborators, namely, the connexions between the spinal subarachnoid space and the lymphatic system. We have been able to substantiate the main findings of the Russian school to the effect that widespread connexions do exist between this space and the paravertebral lymph nodes, particularly those in the aortico-lumbar and sacral regions; and this has been done with a technique which, we believe, departs even less from physiological conditions than does that employed by Speransky.

Our results were presented in a paper read before the Edinburgh meeting of the Anatomical Society of Great Britain and Ireland in June, and will be published *in extenso* elsewhere. Encouraged by these findings we have entered upon a reinvestigation of other basic problems raised by Speransky's provocative work.—We are, etc.,

Department of Anatomy,  
University of Bristol.

E. J. FIELD.  
J. B. BRIERLEY.

### Causalgia of the Face

SIR,—I feel I must disagree with Mr. C. H. Cullen's comments (July 5, p. 32) on my paper on "Causalgia of the Face." I could have replied to his letter sooner if it were not that owing to absence from home for a few weeks I have only just seen the number of the *Journal* in which it appeared.

Mr. Cullen states that "novocain" block of efferent sympathetic fibres below the superior cervical sympathetic ganglion would produce a temporary paralysis of these fibres in their peripheral course and so prevent their being stimulated by pressure on the superior cervical ganglion. But it is known that efferent fibres peripheral to a block remain capable of conducting impulses when directly stimulated. Even when the block is not merely a temporary one but a complete anatomical section, they remain capable of conducting impulses until such time as the fibres, cut off from their cells of origin, undergo some degree of degeneration. Lovatt Evans, in *Principles of Human Physiology*, and Samson Wright, in *Applied Physiology*, agree that nerve fibres distal to a point of section can conduct impulses for a period of three days following section; and in any case it is probable that many sympathetic fibres to the face have their cell station in the superior cervical sympathetic ganglion and so would not degenerate after section of the sympathetic chain below the ganglion. It can be seen, then, that a central "novocain" block could not have prevented sympathetic impulses being transmitted to the periphery when the ganglion was stimulated and could not have prevented facial pain being felt if this pain was in fact produced by efferent sympathetic impulses and if pain impulses were then conveyed centrally by some other pathway.

I might perhaps mention here that a number of other observations, which it is hoped will be published shortly, that I made when investigating this subject from an entirely different direction point to the same conclusion.—I am, etc.,

Belfast.

J. A. W. BINGHAM.

### The B.M.A. and World Organizations.

SIR.—It is with misgivings that one reads the approbation with which Sir Hugh Lett (July 26, p. 121) couples the name of the B.M.A. with those of the World Health Organization, the World Medical Association, and Unesco. Are his remarks endorsed by the B.M.A. executive?

A "world" organization necessarily premises a central authority, in other words, a monopoly of administrative power and the advocates of "world" organization are always discreetly silent upon the two crucial points of this matter—i.e. (1) how can a central monopoly of administrative power be anything other than a dictatorship, and (2) who is it proposed shall do the dictating?

Does not the B.M.A. pride itself upon being a democratic institution, and, if so, how does it propose to remain so while subordinating its authority to a dictatorship?—I am, etc.,

St. Germans, Cornwall.

W. H. SPOOR.

### Delay to Army Overseas

SIR,—From time to time the War Office issue addenda advertising civilian medical appointments. The closing date for applications for the majority of these appointments is past by the time these addenda reach medical officers in the Middle East. For example:

Addendum No.	Date of Issue from War Office	Closing Date for Application	Date of Receipt at District H.Q.
5	Not known	Not stated	May 5
6	Feb. 18, 1947	Appt. No. (i) June 30 " " (ii) May 1 " " (iii) March 8 " " March 31	May 5 May 17
7	Feb. 25, 1947	Appt. No. (i) April 12 " " (ii) May 24 " " (iii) March 29 " " (iv) March 29	May 5 May 17
9	March 25, 1947	" " May 19 " " June 11	May 14 June 26
11	April 17, 1947	Appt. No. (i) Nov. 30 " " (ii) June 7	July 3
13	May 6, 1947	Not stated	June 21
14	May 13, 1947		
15	May 27, 1947		

I know that representations have been made through normal Army channels with no satisfactory result. The delay in transmission does not appear to be within the Middle East theatre. As this matter operates unfavourably towards medical officers stationed in the Middle East I ask you to publish this in the hope that the War Office may regain some interest in the doctor in uniform.—I am, etc.,

TONO-BUNGAY.

### Standard of Nursing Education in the U.K.

SIR,—With reference to the Registrar of the General Nursing Council's letter (July 26, p. 149), self-disparagement is one of the British traditions and privileges, but one hopes that the General Nursing Council will not indulge excessively on this occasion. It is possible that the number of lectures given to nurses in this country is less than the number given to nurses in Canada. I do not know, neither do I know the type of lecture given in Canada. I can only say that during the war I met and served with British nurses, both of the Army and R.A.F., was nursed by nurses of the Royal Navy and in the E.M.S., and worked also with Canadian nurses and American nurses. My experience did not lead me to believe that the finished product of Britain in the form of a nurse was other than of at least equal standard to the finished product of a nurse from any other country. I will admit that Canadian and American nurses, and in particular the latter, knew a great deal about medicine, and particularly about medical psychology, but I did not think that their knowledge of nursing the sick was any better than that of our nurses.

One knows perfectly well that a medical student when he qualifies has a lot of technical book knowledge but no practical experience. It may be that a similar situation exists in regard to nursing in Canada, but the important thing for nurses is that they should have not so much a theoretical knowledge as a practical knowledge of how to nurse a patient in bed.

and it is most important that their training should be as much in the practice of nursing as in the theory of nursing. Recently correspondents have urged that less time should be given to theory in the syllabus of the General Nursing Council and more to the practical side of nursing, and it is the finished product that matters and not the standard of theoretical training.—I am, etc.,

The London and Counties  
Medical Protection Society,  
London, W.C.2.

RICHARD W. DURAND.

### State Medical Service in New Zealand

SIR.—Sir Ernest Graham-Little's report (May 3, p. 611) on Mr. A. E. Porritt's letter reminds me of the good old days in India. Distinguished visitors came out in the cold weather and returned before the advent of the monsoon with a dispassionate review of the Indian administration, and usually with a complete solution of the Indian problem. I was in the Health Department before, during, and after the inception of the scheme, but merely as an interested observer. Since my release from the N.Z. Medical Corps I have worked in it as a general practitioner.

The scheme has one serious defect. The medical gentleman who was present at the birth of the Bill was not a specialist. He did not make any provision for specialists. The ablest of our profession are devoid of any share in the medical benefits, and the public are deprived of their services. Mr. Porritt is looking at the scheme through specialist spectacles.

The scheme was launched when most of the young and active practitioners were out of the country with the Armed Forces. A number of others were employed in military duties in New Zealand. There was a serious shortage to deal with the increase of work natural to the new scheme. Some of the practitioners have returned, some are with Unrra, and there are an abnormal number in the United Kingdom on post-graduate courses. When things return to normal most of the defects complained of will disappear.

(a) I agree with Mr. Porritt that the public have an improved service. They seek advice early. There is no economic advantage in going first to the chemists, the herbalist, or the chiropractor.

(b) In most places arrangements have been made for a practitioner service for urgent cases any time during the day or night and over the week-end. The Order of St. John have been most helpful in this direction.

(c) The fact that the scheme is a fee-for-service one (Heaven protect me from a salaried service!) and that the patient has choice of doctor tends to keep the standard of medical practice high. The indifferent doctor will soon be drawing unemployment benefit. There are no inducements for a doctor to attempt work he cannot do, and every inducement to send difficult cases to a consultant or to hospital. Many hospitals are open to practitioners wishing to take up special work, and the B.M.A. have organized three-monthly refresher courses. It takes anything up to six weeks to arrange appointments with a consultant. They cannot be doing so badly.

(d) If you exclude those immigrants that have not got as far as ethics in their study of English, you will find the standard of ethics in New Zealand as high as ever.

(e) A number of newly qualified medical men are attracted by the financial lute of private practice. There remain, however, the desirable type who are prepared to sacrifice the present for the nobler future.

(f) New Zealand, if not the best-governed Dominion, is the most governed.

When we regard other walks of life, we enjoy comparative freedom.—I am, etc.,

Whangarei,  
New Zealand.

F. W. W. DAWSON.

SIR.—Dr. A. D. G. Blanc (July 26, p. 146) ascribes adverse criticisms of the New Zealand medical services (which started nearly 10 years ago) to "stalwarts of organized medicine in America and Great Britain." He would seem to have missed my letter (June 14, p. 865) in which I referred in some detail to my criticisms made by Mr. Douglas Robb, a member of the New Zealand Medical Council and a distinguished consulting surgeon. Dr. Blanc ignores the fact that both Mr. Porritt and Mr. Robb, the critics cited by me, are themselves New Zealanders. Mr. Robb's exposition, which was much the more detailed and

factual, took the form of a small book which was too long for me to summarize in my short letter, but which was ably analysed in the leading article in the *Lancet* of July 5, and reviewed in the *Journal* of July 12 (p. 57).

Mr. Robb insisted strongly on the extravagant expense of the service, the cost of which, out of all proportion to its benefits, must surely be met by the individual citizen in the form of rates and taxes, and Dr. Blanc's description of the service as "free" requires the same modification that must be made of the similar claim for the proposed Service in this country. Mr. Robb describes in detail the present health chaos in New Zealand and lists no fewer than five competing schemes which the service has now developed; Dr. Blanc mentions only one. Mr. Robb makes the significant observation that the cost of the pharmaceutical benefits exceeds the cost of all the other benefits put together, a state of affairs which would seem to suggest that the "bottle of medicine" fetish is rampant in New Zealand and has not been diminished by "universally" provided medical attendance.

A layman's description of the position in New Zealand resulting from the general imposition of the five-day forty-hour week gives a similar picture of general dislocation and discomfort caused by the practical cessation of all activities, as well as of medical, after business hours. I enclose a reprint of this article.—I am, etc.,

House of Commons.

E. GRAHAM-LITTLE.

### History of Arab Medicine

SIR.—In the *Journal* of Feb. 1 (p. 202) Mr. I. B. George assured your readers that a "statement" by the late Dr. A. R. Neligan was "as misleading as it is incorrect, and reveals little familiarity with the history of medicine. . . ." He also assured them that, in the 14th century, the Church regarded belief in infection as heretical. I pointed out (March 8, p. 314) that the "statement" which displeased Mr. George was a brief summary of a passage in Prof. E. G. Browne's *Arabian Medicine* and noted that the Pope's own surgeon stated explicitly that the plague of 1348-9 was contagious, while, long before, a bishop of the Catholic Church had written on contagion. The tentative diagnosis I made was that Mr. George knew a good deal less than Dr. Neligan about the history of medicine. This diagnosis Mr. George has kindly confirmed (July 26, p. 151).

It is true that his first sentence suggests a graver fault than ignorance (if he really knew when he wrote that Dr. Neligan was quoting from a famous Oriental scholar, it would have been disingenuous to abuse Dr. Neligan), but I think this may be due to the syntactical difficulties of English and that the disease is simple ignorance, which a closer study of Prof. Browne's lectures should cure. Mr. George has not, I think, grasped the reason why Prof. Browne advocated further study of the writings in Arabic. It was not a hope of discovering some buried treasure of marketable value, "seeing that the whole system is based on a rudimentary Anatomy, an obsolete Physiology, and a fantastic Pathology"—a remark equally applicable to Galen's writings—but something intellectually nobler: in fact a desire to trace the spiritual kinship of men of all nations and ages of the world who faced honestly the problems of medicine. Take as an illustration the doctrine of temperaments or complexions. To us the old physiology and pathology, the elementary qualities, the hot and the cold, the moist and the dry, are just nonsense in the literal sense of the word: but Galen and Avicenna were dealing with a real problem. To modern psychologists and physicians the classification and diagnosis of human types is as important as it was to our predecessors.

Did Avicenna come nearer to the truth, or what we hold to be the truth, than Galen? Does the Arabian literature preserve elements of further-eastern thought? These are some of the questions Prof. Browne thought worth answering. For such research, he tells us, a scholarly knowledge of Greek, Latin, Syriac, Arabic, and Persian, abundant leisure, voracious and omnivorous reading are essential. Perhaps, one of these days, Mr. George may qualify himself to undertake it.—I am, etc.,

London.

MAJOR GREENWOOD.

SIR.—All matters connected with Miguel Serveto are subject to error—perhaps because of the violent religious controversies in which he was involved; so that your correspondent Mr. I. B. George (July 26, p. 151) can be excused if he writes that Servetus was burned at the stake for propounding the pulmonary circulation. Serveto was condemned in Geneva on Oct. 26, 1553, to be "brulez tout vifz" because of his Arianism, though no law existed in Geneva penalizing heresy with death. The passage in his book, *Christianismi Restitutio* (1553), alluding to the pulmonary circulation was first noticed by the surgeon Charles Bernard (1650–1711) and then published in 1694 by William Wootton (1666–1726).

Serveto's execution is a blot on the name of his principal accuser, John Calvin (1509–64). Three copies of *Christianismi* escaped judicial fire—one each in Paris, Vienna, and Edinburgh. The latter, probably, is the torn copy Calvin employed to denounce Serveto to the Roman Catholic Inquisitor through Arnays in Lyons.—I am, etc.,

Little Shelford, Cambridgeshire.

H. P. BAYON.

SIR.—I was amazed at the contents of a letter in the *Journal* of July 26 (p. 151) signed I. B. George. I shall not trespass on your space to prove how inconsequential are his allusions concerning the attitude of the "Church" towards anatomy, surgery, and anaesthetics. The idea that hospitalization and hygiene were initiated in Europe through Arab influence is of course perfectly absurd. The implication that Servetus was burned by the "Church" for heresy demands, however, unqualified contradiction. We do not know when he discovered the circulation in the lungs, which he described so clearly in the volume on the renewal of Christianity, for which he was burned at Geneva by Calvin.—I am, etc.,

Farnham Common, Bucks.

T. GERALD GARRY.

### Rotunda Bicentenary Medical Exhibition

SIR.—We read with astonishment in the *Journal* of July 19 what purports to be a report of the medical exhibition held in conjunction with the International Obstetrical and Gynaecological Congress of the Rotunda Hospital at the Mansion House, Dublin, during the week July 7–12.

The Executive Committee of the Irish Medical Exhibitors Association—a voluntary organization of medical representatives formed for the purpose of holding medical exhibitions without profit or reward—has had an emergency meeting in connexion with your report, and while it welcomes fair and instructive criticism it strongly protests against the facetious manner in which your correspondent has described the exhibition. Already dozens of letters have reached our association from doctors and exhibitors expressing indignation. We feel that you should take immediate steps to rectify this display of bad taste, and give this letter the same publicity as you have given the misstatements of facts. We invite your editorial comment.

The Exhibition consisted of 44 ethical exhibitors from the Commonwealth, U.S.A., and the Continent—each approved by the Medical Committee of the Congress. They with many of the doctors who visited our Exhibition are very surprised at the manner in which the Exhibition was reported in your *Journal*.—I am, etc.,

Dublin.

W. JONES,  
Hon. Secretary,  
Irish Medical Exhibitors Association.

SIR.—Referring to your report of the Irish Medical Exhibition in the *Journal* of July 19 (p. 106). As one of the least of the 150 members of 44 manufacturing firms I should like to record my personal protest at the derogatory reference to "bright young spellbinders." This may have been intended as a facetious remark, but it is unkind, untrue, and uncalled for. Bright possibly, young most certainly not. The great majority of the gentlemen in attendance were well over the fifty-year mark. Every one was a specialist in his own branch of work.

It would be invidious to mention names, much as I should like to do so, but it is worth noting that among these men were many who held very high qualifications in medicine, physics, and chemistry, and who were highly skilled technicians. In some cases these men have carried out most valuable work in research in biochemistry and other fields of science. To mention only a

few, there were present those who had done great work before and during the war on penicillin, sulpha drugs, paludrine, anaesthetics and anaesthesia apparatus, and x-ray equipment and technique. Among them were the principals of important firms who had flown over to put themselves at the service of the medical profession. It might amaze your correspondent, who so lightly dubbed these people bright young spellbinders, to know the great work they have done and the repute in which they are held. That is why it was untrue.

It was unkind because in every case these men had attended at very great expense and at great inconvenience and interference with their work so as to give freely and cheerfully their experience and knowledge to the members of the medical profession who might desire to avail themselves of it. If it were not that the "tools for the job" had been produced by these men, and men such as they, the success of medical treatment would not be of the high order which it has attained to-day. But the words "despite their accents" gives the clue to the reason underlying the offensive remark. Forty-three out of the 44 firms exhibiting were English, or at least British, firms, and the forty-fourth was exhibiting British and Continental manufactures. Very evidently this was enough for your correspondent to wish to belittle the whole affair and the men who had dared to invade Eire. Surely in these enlightened days science should be international and should know no boundaries, and such childish and bigoted nationalism should be abandoned and credit given to men of good will who give themselves freely to the service of others.—I am, etc.,

D. T. DICKINSON,  
The London Hospital Liguire Department.

\*\*We regret that in the brief account of the Rotunda Bicentenary Meeting (*B.M.J.*, July 19, p. 106) some observations made by our correspondent have been taken amiss by those responsible for the medical exhibition, and that exhibitors should interpret his colourful comment on their enthusiasm as being derogatory.—Ed., *B.M.J.*

### POINTS FROM LETTERS

#### Tobacco

DR. LENNOX JOHNSTON (Wallasey) writes: For 20 years Dr. A. G. Pannet has smoked, he alleges (June 28, p. 950), "purely for enjoyment," and I do not doubt that he speaks what he believes to be the truth: but no addict of a powerful drug like tobacco ever, in my opinion, administers his drug *purely* for enjoyment. He is also motivated by a desire, or rather craving, compulsive in character in the strongly addicted, to keep at bay feelings of deprivation. Dr. Pannet certainly need take no account of the therapeutic effects of tobacco, but he would do well to take thought of its toxic effects. No; smoking is not a vice: it is a drug addiction, a disease. My final exclamation (it was not a statement) referred to published figures giving our purchases of tobacco during the first six months of the American loan, but I did not state (as Dr. Pannet alleges), "One-third of the American loan is being spent on tobacco" (italics mine).

#### General Knowledge and General Practice

DR. REGINALD LAWRENCE (Wakefield) writes: On page 134 of the *Journal* of July 26 there is a review of a book under the heading "Traumatic Injury." My immediate resort to "Liddell and Scott" for the word "trauma" made me wonder whether this type of injury should be placed in the category of the "gastric stomach" (that unfulfilling joy of the consulting room) and the "cardiac heart." Will someone tell me when an injury is not traumatic?

#### Gonococcal Complement Fixation Test in India

LIEUT.-COL. S. D. S. GREVAL, I.M.S. (Calcutta), writes: In the last paragraph of his letter (March 8, p. 309) Capt. K. W. G. Heathfield states: "It is one of the many annoying features about medicine in India that many special investigations are not available, including the gonococcal complement fixation test. . . ." Complement fixation test for gonorrhoea has been undertaken in the laboratory of the Imperial Serologist, School of Tropical Medicine, Calcutta, for nearly two years. The details of the technique appeared in the *Indian Medical Gazette*, 1945, 80, 551.

#### Two Names Alike

DR. BRUCE WILLIAMSON (London, W.1) writes: I shall be very glad if you will insert a few lines dissociating myself entirely from the views expressed by my namesake from San Marino, California. I find myself being taxed by colleagues disagreeing with the opinion expressed in the original letter published in the *Journal* of June 22 (p. 950).

# Obituary

## HUBERT ARMSTRONG, M.D.

Dr. Hubert Armstrong died on June 23 at the age of 75. He was a student in the Liverpool School of Medicine, Victoria University, and obtained the M.D. in 1900 and the Liverpool M.D. in 1904. He early showed an interest in paediatrics and joined the staff of the Royal Liverpool Children's Hospital, where for many years he was one of the honorary physicians. His sound knowledge, wide experience, and his keenness made him a valuable colleague.

In the first world war he served in the R.A.M.C. with the rank of captain and was on the staff of the 1st Western General, later joining the 57th General Hospital, which was sent to France. In the earlier years of his professional life, in addition to his work at the Children's Hospital, he found time to practise as an anaesthetist. For many years he was medical officer to the Liverpool Orphanage and to the Bluecoat School, where his help was greatly appreciated.

Dr. Armstrong always took a keen interest in the British Medical Association and had been a member since 1896. In 1924-5 he was chairman of the Liverpool Division. Temperamentally he was of a rather shy and reserved disposition. He enjoyed walking, and all his friends will remember his long loping stride with his head well forward. His two main interests outside his profession and his family were photography and philately. He was particularly interested in the stamps of France, of which he had a unique collection. For the last two years of his life he was a sick man and accepted his fate with fortitude. He leaves a widow and three daughters.

Dr. JAMES EDWIN WILSON died suddenly in London on July 9. He was medical officer of health at Mansfield from 1922 to 1943. An Ulsterman, he received his medical education in Ireland, where he qualified in 1904 at the Queen's University, Belfast, subsequently taking his M.D. in 1909. During his early career he held appointments at Birmingham City Infirmary and the Northern Fever Hospital, London. Later he was in private practice in London for three years. In 1911 he entered the public health service as assistant medical officer to Lindsey County Council. After serving in France and Italy with the R.A.M.C. during the first world war, he returned to the Lindsey post for a time, and then became assistant M.O.H. at Grimsby before moving to Mansfield in 1922. He had been a member of the British Medical Association since 1904 and was honorary secretary of the old North Lincoln Division in 1922.

A. H. W. writes: It was with a feeling of great personal loss that I heard of the sudden death of Dr. J. E. Wilson. For over twenty years I was associated with him while he was M.O.H. for Mansfield. His genial bonhomie and cheerfulness made him a well-liked and popular figure in the town, where he was held in high esteem. He retired in 1943 and moved to London, where he carried out part-time duties with the Ministry of Pensions and London County Council, but he never lost touch with Mansfield. "Peter," as he was known to his friends, was a man with a strong personality, frank and outspoken. He was a firm friend, a pleasant companion, and a charming host. As a result of examining many thousands of school-children he came to the conclusion that much ill-health was due to the defective breathing, and in 1939 he published an article in the *Medical Officer* on "How to Breathe Correctly," which caused widespread interest. His passing leaves a gap among his friends which will be hard to fill, and our sympathies are extended to his wife, son, and daughter in their bereavement.

Dr. HELEN BAKER died at the Royal Free Hospital on July 8 at the early age of 39. She received her medical education there and qualified in 1932, obtaining the M.R.C.S., L.R.C.P. and the London M.B., B.S. She held several house appointments, including one at the Queen's Hospital for Children and another at Bristol Royal Infirmary, before proceeding to specialize in psychiatry. She took the London M.D. in 1938 and the D.P.M. in 1941. During and after the war years she held a post at Sutton Emergency Hospital, and although the care of her young son and daughter prevented her from doing full-time work she maintained a strong enthusiasm for, and an intense interest in, her medical work. She was hoping to resume a full-time career later. Her untimely death is a great loss to her patients and to her husband, Mr. John Peterson, and family. Dr. Baker had proved herself a natural psychia-

trist by not only showing herself to be sympathetic and enthusiastic but also by her balanced view towards this difficult specialty. She was interested not only in child guidance and the problems of psychotherapy but also in social problems generally and nursery schools in particular. She was very popular, was universally liked by her colleagues and patients, and will be sadly missed by all who knew her.

Dr. J. A. P. SHAW died on June 26 at the age of 51. He was educated at Cambridge and St. Thomas's Hospital, and qualified M.R.C.S., L.R.C.P. in 1920. He was junior ophthalmic house-surgeon, and assistant medical officer to the department of Special Diseases at St. Thomas's Hospital; he was also clinical assistant in the Children's and in the Skin Departments. He was later in charge of the Department of Special Diseases at the King Edward VII Hospital at Windsor, where he was in practice. He had been a member of the British Medical Association for 25 years.

Dr. BEAUMONT HARRY COMERFORD, who died in London on July 15, was one of the older practitioners in the West End. The youngest son of Lieut.-Col. Comerford, he was educated at Sherborne School, where he gained distinction as an athlete, winning the mile, half-mile, and steeplechase and being captain both of cricket and football for two consecutive years. He was a student of St. George's Hospital, qualifying M.R.C.S., L.R.C.P. in 1887. He obtained the Durham M.D. and the D.P.H. in 1904. He was successively senior house-surgeon, house-physician, and obstetric assistant at St. George's, and was later resident medical officer at the Chelsea Hospital for Women and for ten years clinical assistant at the Victoria Hospital for Children. Dr. Comerford was also honorary medical officer for the National Children's Adoption Society. He conducted a considerable practice for over twenty-five years in Chester Square and subsequently, until his retirement in 1939, in Ashley Gardens. By his steady common sense, shrewd judgment, and great experience he won the trust, confidence, and affection of his many patients and colleagues. During the 1914-18 war he returned to St. George's as surgeon to the out-patient department and worked there for four years without a break, in recognition of which he was appointed an honorary governor of the hospital. He married in 1905 Elizabeth Frances Shaw Woodgate, elder daughter of the late Rev. R. S. Woodgate, of Pembury Hall, Kent, and he leaves a widow and one son.

Mr. ROBERT NOEL MARTIN died after a motor accident on July 25. Mr. Martin, who was only 34, was educated at Campbell College and Queen's University, Belfast. He qualified in 1937 and was appointed house-surgeon to the orthopaedic and fracture department of the Norfolk and Norwich Hospital. He was then on the E.M.S. staff for a while before serving with the Royal Navy. He was demobilized with the rank of surgeon-commander and obtained the F.R.C.S. in 1945. When the accident occurred Dr. Martin was returning from a holiday in Antrim before leaving for Chatham, where he held an orthopaedic appointment.

## The Services

### ROYAL NAVAL MEDICAL SERVICE

Applications are invited to fill vacancies for medical officers in the Royal Navy. Candidates below the age of 28 years are preferred. They must be registered under the Medical Acts and be medically fit for service at sea and in any part of the world. No examination in professional subjects will be held, but candidates will be required to attend for interview by a selection board.

Selected candidates will be entered initially for a period of four years' Short Service. Officers who leave the Service at the end of their Short Service will be eligible for a gratuity of £600, tax free. At the end of their Short Service permanent commissions will be given at Admiralty discretion to selected officers who wish to make the Naval Medical Service their permanent career. For officers on the permanent list opportunities are available for postgraduate study to specialize, to take higher examinations, and to obtain further qualifications.

Copies of the regulations for entry and conditions of service, including rates of pay, allowances, and retired pay (also details concerning counting civil hospital time), and forms of application may be obtained from the Medical Director-General of the Navy, Admiralty, London, S.W.1, and from the deans of all medical schools.

The Efficiency Decoration of the Territorial Army has been conferred upon Lieutenant-Colonel (Honorary Colonel) J. P. Raban and Major H. Weir, R.A.M.C.

## Medical Notes in Parliament

### NATIONAL HEALTH SERVICE SUPERANNUATION REGULATIONS

Mr. JOHN EDWARDS, for the Minister of Health, moved on July 24 that the House approve the Draft National Health Service (Superannuation) Regulations, 1947, proposed to be made by the Minister of Health under subsection (1) of Section 67 of the National Health Service Act, 1946. Mr. Edwards said that these regulations had been fully discussed with all the representative associations concerned and he was not aware of any opposition to them. They provided a superannuation scheme on an insurance basis which would cover all employees of regional boards, executive councils, and other bodies set up under the Act, and also the practitioners providing general medical and dental services. The scheme was a contributory one based on remuneration with payment of 6% for the employee and of 8% for the employer except in the case of manual workers. The employer's contribution would be paid by the Exchequer. The benefits were substantially similar to those of the Civil Service, and provision relating to contributions was similar to that in the local government service. Benefit was based on the final average remuneration except for the practitioner, in whose case the basis was  $1\frac{1}{2}\%$  of remuneration throughout service. The pension provisions took into account the new National Insurance pension. Apart from that, there was a lump sum retiring allowance, a death gratuity for death during service, and the right to a pension for incapacity. There was also provision for an injury allowance and for a widow's pension.

Provision had also been made for interchangeability with other Government services. This would be complete between the Health Service, the Civil Service, local government, and the teaching service. Arrangements were made for transfer into and from the federated superannuation scheme for nurses and the federated superannuation scheme for Universities, as also for other interchanges. The interchange arrangements would help to secure wider experience among the staffs. The new scheme would cover a large number of persons coming from local government service and would take in a considerable number from voluntary hospitals who at the moment were subject to a variety of schemes and arrangements ranging down through moral expectations to nothing at all. Those who were now subject to the federated schemes could continue on the same conditions or could come into the new schemes and do what they liked with their policies. Those subject to other arrangements would be allowed to carry on with these if they could show that otherwise there would be undue hardship. In assessing this hardship the Ministry would have regard to any change of remuneration on the transfer. Cases in dispute would be referred to the tribunals which would be set up to deal with compensation under Section 68 of the Act. Where a voluntary hospital officer with at least ten years' hospital service who in the past had only expectations without any rights came into the new scheme, the value of the expectations in relation to past service would be assessed, and, subject to Treasury approval, a supplementary payment would be made on retirement in addition to what he earned in the new scheme.

In dealing with these provisions the Ministry intended to take a sympathetic and general attitude. It was also provided that all previous hospital service would count for qualifying purposes in the new scheme. Although this service would not count in the calculation of benefit a hospital officer might immediately become eligible for benefits some of which had minimum amounts, as, for example, the death gratuity, which had a minimum of one year's salary. The scheme would be complicated for some years by the transfer problem. It was proposed to set up a new division in the Ministry of Health to deal with this. He believed the scheme would give the staff of the new service a feeling of security.

#### Some Criticisms

Mr. RICHARD LAW doubted whether he had ever seen a Parliamentary document so complicated and so difficult to read. Some simpler guide to the regulations should be published for the benefit of the members of the new Health Service. The Conservative Opposition did not propose to divide against the regulations but had some criticism to offer and hoped that Ministers would remember so far as the National Health Service was concerned that the Act was not yet in operation and that some elements in the proposed Health Service had not yet decided whether they would come in.

On interchangeability, Mr. Law said his impression was that there was no provision for interchangeability between medical

officers of local authorities and the universities. Regulation 38 (m) dealt with the position of a practitioner, whether doctor or dentist, who had a contract with an ordinary life insurance society and was allowed under these regulations to opt out of the superannuation proposals. The health authorities would pay that practitioner, to help him to meet his premiums, the share they would have paid under the proposals. Mr. Law understood that this provision would only apply if the practitioner opted into the service on the appointed day. He said that introduced an element almost of blackmail. A manual worker might enter the service at the age of 18 and was covered from that date, and all his service from the age of 18 counted towards his pension. But the medical practitioner might not qualify until he was 23, 24, or 25. The age of qualification tended to get later. The medical practitioner was at a disadvantage because he lost anything up to five, six, or seven years by being unable to enter the service at an earlier age. Mr. Law asked what was the position of the practitioner who entered the service at, say, the age of 56. The retiring age was 65, and from 56 to 65 there were nine years, but the practitioner did not begin to qualify unless he had ten years' service. This was a real injustice and should be corrected. It might be argued that compensation for the loss of his practice should suffice for a man of 56 who entered the new service. That argument was not sound. The practitioner who was compensated for his practice in terms of money as it was to-day might find when he retired that that money was worth considerably less than it was at present.

#### Explanation and Interpretation

Dr. HADEN GUEST said the proposal had in fact been explained in the medical and technical Press and he congratulated the Press on a fine job on this very difficult subject. He hoped the Minister could assure him that interchangeability in a case such as the Industrial Health Scheme would be kept open to enable different sectors of medical work to be brought in on an equal footing. He hoped that any necessary changes could be introduced in the future to maintain the principle of interchangeability when the Health Service became a complete medical service in every respect.

Col. STODDART-SCOTT asked in what sort of cases the Minister intended to dispense with the contribution. In Regulation 9 the benefits could be passed from an insured person to his spouse and his dependants, but this regulation referred only to males. Could a female pass on the benefit to her spouse? Regulation 20 said that where someone under the age of 60 years had been ill and received a pension and was then found able to take employment that person could be sent to any part of the country to find employment where the Minister or the employing authority might think fit. That brought in direction of labour. He hoped there was no intention to have direction of male or female officers of the Ministry of Health. Regulation 24 permitted the Minister to pay contributions under any federated superannuation scheme if the policy was taken out before March 18, 1946. What happened to officer appointed after that date? Were they to lose one or two years of superannuation benefit? In Regulation 25 a reference was made to certain classes of voluntary hospital officers who "had reasonable expectations." Would the Minister precisely interpret what was meant by "reasonable expectations"? Regulation 26, if generously applied, could be a great benefit to those who transferred from the voluntary hospitals scheme to the State scheme but might have difficulty in establishing claim for superannuation. He asked whether twenty years' service in the voluntary hospitals before the appointed day would be considered as an "exceptional reason" for the benefits going to these people. On Regulation 38 (m) he pointed out that before the age of 25 a doctor or a dentist might have taken out a life insurance. Why was it necessary for the life insurance policy to be one taken out before the Appointed Day if it was to be assisted from the Ministry? He asked whether the husband of a woman doctor who was in receipt of a pension would receive a pension when she died. Where the husband and wife were both doctors and the husband died did his wife, although probably drawing a retiring pension, get a widow's pension? If both had made contributions to the superannuation scheme he saw no reason why they should not receive two pensions. It was easy for the Minister of Health to coerce voluntary hospitals, but when it came to dealing with the personnel of health services he had to show that he was interested in every aspect of their welfare.

Dr. MORGAN said that under the Asylum Officers Act a officer could retire at the age of 55 with pension. Now if retiring age was to be 65, and Dr. Morgan wanted to make sure that the officer if made to serve up to 65 would receive a pension additional to the one he would have received at 55. He wanted to make sure that if for health reasons a man was



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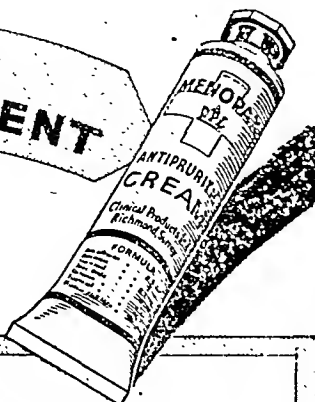
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compelled to retire prematurely his superannuation would be given after a proper hearing and a proper trial and exchange of medical evidence and testimony. He wanted to make sure that superannuation on medical grounds was not left as in the Post Office, where a person might be prematurely retired without having his case stated properly.

Sir HUGH LUCAS-TOOTH said quite a substantial proportion of the contributions paid by women would go to men to provide benefit for their wives in due course. If an officer were disabled doing his duty he would be entitled to a pension as of right under Regulation 5 and also eligible to a pension at the discretion of the Minister under Regulation 7. These two provisions could not be reconciled as they stood.

Dr. MORGAN said one regulation dealt with accidents and diseases in industry which came under the Industrial Diseases Act, and the other regulation dealt with a person disabled from any ordinary illness.

Mr. LINSTED congratulated the Minister in getting some 60 organizations in the medical profession to agree on this draft. That must be a record. He raised the interpretation of the word "service" for the purpose of Regulation 13. He said that doctors, radiographers, physiotherapists, and speech therapists would want to come into the public service at a late stage in their lives. These persons had little hospital service to count for superannuation. Would it be possible to extend hospital service to cover at least some of these older practitioners?

#### Concession to B.M.A.

Replying to the debate, Mr. J. EDWARDS said attention had been drawn to a gap in the provisions regarding interchangeability between the staff of local authorities and others. The Government was advised that it should not deal with the subject in these regulations, but it recognized the gap and intended, in agreement with the local authorities, to put the matter right at the first opportunity. With respect to the restriction of claims in regard to insurance policies it would be difficult to allow a different option in this from the options permitted in other cases where the Appointed Day was the operative date. The Government could not prolong indefinitely into the future the right of people to ask for these options. It had not been intended originally to have any option at all. The option was put in because the representatives of the British Medical Association asked for it.

In regard to the proposal that years should be added for the practitioner's training it was impossible for the Government to single out doctors for preferential treatment. The scheme could deal only with actual service. Doctors would enter when they were qualified at the age of 23 or 24 and could complete the full 40 years before they retired at 65, thus earning the full pension. Another point raised concerned the elderly practitioner. At the moment such a practitioner had no pension in prospect but relied on the value of his practice for support when he retired. He would not be worse off under these arrangements and would earn something in the Government's scheme, but the Government could not give special benefits because the practitioner had come in late in life. To discriminate in favour of this group would lead to difficulties in other fields. The argument that compensation based on the money values of to-day might be inadequate when the practitioner retired was common to all pension schemes, and adjustment might be necessary when there was substantial change in the value of money.

He assured Dr. Haden Guest that if at any stage the Government found the scheme was restricted in regard to interchangeability it would not hesitate to alter it. In reply to Col. Stoddart-Scott Mr. Edwards said that the allocation of pension provisions in Regulation 9 applied equally to the woman doctor. In Regulation 20 there was no intention of putting words which would give power of direction later. He agreed that the words used were a little harsh and that it might have been better to say that the Minister would not withhold a pension without offering a man a job. If a man found a job for himself later and there was any difference of opinion between the Minister and the man the Regulations provided for an appeal to a referee appointed by the Minister of Labour. The Minister wished to ensure that he was able to request people who were able to do work to do so and not to permit them to draw a pension when they were fit to work. Regulation 24 referred to March, 1946, because that was the date of the introduction of the Bill and therefore the date on which the Minister's intentions could be assumed to be known. On the other hand the same Regulation later contained a specific provision for those who entered after March, 1946, to be permitted to come in and for the Minister's discretion to be used as though the date were before March, 1946. In all normal cases that discretion would be exercised.

#### "Reasonable Expectation"

On Regulation 25, entitled "Definition of Reasonable Expectation," he did not think it desirable to define this precisely. The Ministry would go to endless pains to deal fairly with persons. Regulation 26 was not intended to deal with the person who had worked for a period of his service in a hospital. It was solely intended for the super-specialist, a man resembling the person who late in life was taken into the Civil Service at top level. It was not intended to cover people who had hospital service. With the funds at disposal the widows' pensions were the best the Government could do. It had not been able to make special arrangements under which a higher premium could be paid to secure a higher pension for a widow. This was the first time that Parliament had a national scheme with widows' pensions in it. He was sorry to say there was no pension for the widower. The woman doctor did not lose any more than the bachelor. Where a widow's pension was available it was carved out of the retiring allowance, and where there was no such pension the retiring allowance was higher in consequence. Where a man and wife were in the scheme the wife was not eligible for a widow's pension in addition to her own pension rights but got her full sum in pension.

Answering points raised by Dr. Morgan, Mr. Edwards said the Government did not intend to prevent interchangeability in the ease of a genuine technical mistake. The mental worker could go at 55 or could stay to 65. He hoped that procedures would be laid down to cover this type of case when the new negotiating machinery was established.

The Government knew that it could not foresee everything, and if experience disclosed a need for modification it would certainly modify. The scheme was not the last word but was easily the most flexible scheme there ever had been in this country and one which was to the advantage of people in the service.

The House then agreed to the Motion to approve the Draft National Health Service (Superannuation) Regulations, 1947, under Subsection (1) of Section 67 of the National Health Service Act, 1946.

## Universities and Colleges

### ROYAL COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS

At a meeting of the Council of the College, held on July 26, Mr. W. Gilliat was re-elected President of the College. The following officers were also re-elected: *Vice-Presidents*, Sir William Fletcher Shaw and Mr. James M. Wyatt; *Honorary Treasurer*, Mr. Arthur A. Gemmell; *Honorary Librarian*, Mr. F. W. Roques; *Honorary Curator to the Museum*, Mr. Aleck W. Bourne. Mr. H. G. E. Arthure was elected Honorary Secretary.

The following candidates were elected to the Membership of the College: S. J. Aptekar, H. B. Bagshaw, G. H. Bancroft-Livingston, S. Bender, Isabella R. Bishop, J. T. S. Brown, Gwendoline E. Cockrem, J. McD. Corston, G. A. Craig, K. J. R. Cuthbert, R. W. Denziger, B. C. Dastur, Josephine A. Davidson, N. E. C. de la Hunt, W. P. G. Dickson, I. A. Donaldson, Sara M. Field-Richards, T. B. FitzGerald, J. B. Fleming, I. T. Fraser, A. M. Giles, A. McM. Graham, E. F. B. Hamilton, Lois B. Hurter, D. W. James, Eileen I. Jamieson, R. J. McC. Jamieson, D. H. Lees, M. Lipsitz, G. I. Louissson, W. Love, Joan E. W. Mackie, C. J. MacKinlay, J. T. Mair, P. Malkani, W. G. Mills, P. R. Mitchell, Mary L. Neville, E. R. Ormerod, H. G. Page, S. S. Parlee, Nancy Perry, E. E. Philipp, J. G. Pritchard, E. E. Rawlings, Elizabeth M. Rose, Dorothy M. Sator, D. A. Fletcher Shaw, D. J. N. Smith, J. Walker, Ada S. Wong.

### ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH

At a quarterly meeting of the College, held on July 15, with the President, Dr. D. M. Lyon, in the chair, Drs. Joseph Bryant (Carlisle), T. Elliot Elliot (Leicester), J. D. Allan (Bothwell), T. F. Rodger (Glasgow), and R. W. Craig, O.B.E. (Edinburgh), were introduced and took their seats as Fellows of the College. Drs. John Craig (Aberdeen), J. McG. Rogan (Glasgow), J. M. Macfie (Edinburgh), J. C. R. Greig (Kirkcaldy), A. W. Wright (Edinburgh), Neil Mac-michael (Edinburgh), Charles Cameron (Edinburgh), and J. A. L. Gilbert (Edinburgh) were elected Fellows of the College.

Prof. R. W. B. Ellis (Edinburgh) and Drs. Simon Btsh (Tel Aviv), J. P. J. Paton (Thornhill), V. H. Wilson (London), A. J. Tinker (Johannesburg), L. F. E. Lewis (Trinidad), P. L. E. Wood (London), J. H. Goonewardene (Colombo), S. J. Fleishman (Johannesburg), A. A. Williams (Middlesbrough), A. W. B. Edmunds (Edinburgh), L. G. Woods (East London), J. C. Williams (Pretoria), A. A. Guild (Airdrie), N. R. Stewart, jun. (British Columbia), D. C. Haig (Edinburgh), R. F. Robertson (Perth), and S. H. B. Blaikie (London) were elected Members of the College.

No. 29

## INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended July 19.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included), (b) London (administrative county), (c) Scotland, (d) Eire, (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London), (b) London (administrative county), (c) The 16 principal towns in Scotland, (d) The 13 principal towns in Eire, (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1947					1946 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	60	1	21	2	—	49	9	19	—	1
Deaths .. ..	—	—	—	—	—	1	—	—	—	—
Diphtheria .. ..	202	21	27	16	5	247	23	67	25	20
Deaths .. ..	1	—	—	—	—	1	—	1	—	—
Dysentery .. ..	56	3	12	—	—	60	4	28	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Encephalitis lethargica, acute .. ..	3	—	1	—	—	1	—	2	2	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Erysipelas .. ..	—	—	26	5	2	—	—	37	8	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Infective enteritis or diarrhoea under 2 years .. ..	60	5	21	32	3	36	2	13	54	1
Deaths .. ..	—	—	—	9	—	—	—	—	17	—
Measles* .. ..	8,400	455	50	222	8	3,783	492	201	70	1
Deaths .. ..	7	—	—	1	—	3	—	—	—	—
Ophthalmia neonatorum .. ..	75	6	11	—	—	66	5	29	—	1
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Paratyphoid fever .. ..	12	2	1(B)	1(B)	—	20	—	1(B)	1(B)	1(B)
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Pneumonia, Influenzal .. ..	306	19	2	—	3	380	22	2	1	3
Deaths (from influenza)† .. ..	3	—	1	—	—	2	—	—	1	—
Pneumonia, primary .. ..	—	—	102	11	—	—	—	140	19	—
Deaths .. ..	—	22	—	3	5	—	14	—	4	6
Polio-encephalitis, acute .. ..	16	2	—	—	—	1	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Polio-myelitis, acute .. ..	177	19	19	—	3	10	—	2	—	—
Deaths .. ..	—	2	—	—	—	—	—	—	—	—
Puerperal fever .. ..	—	5	9	—	—	—	3	31	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Septic pyrexia‡ .. ..	136	6	10	—	—	133	12	21	1	2
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Relapsing fever .. ..	1	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Scarlet fever .. ..	1,036	73	94	31	29	936	79	104	29	15
Deaths .. ..	1	—	—	—	—	—	—	—	—	—
Smallpox .. ..	1	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Typhoid fever .. ..	10	—	—	5	4	6	—	6	4	2
Deaths .. ..	—	—	—	1	—	—	—	—	—	—
Typhus fever .. ..	—	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Whooping-cough* .. ..	1,931	217	40	53	4	2,474	167	25	46	24
Deaths .. ..	7	3	1	3	—	4	1	—	1	1
Deaths (0-1 year) .. ..	359	42	70	24	8	299	36	64	34	13
Infant mortality rate (per 1,000 live births) .. ..	—	—	—	—	—	—	—	—	—	—
Deaths (excluding still-births) .. ..	4,149	681	581	148	111	3,856	571	540	162	136
Annual death rate (per 1,000 persons living) .. ..	—	—	12.1	9.3	—	—	—	11.9	10.4	—
Live births .. ..	9,687	1574	1097	396	275	8,921	1356	1158	396	321
Annual rate per 1,000 persons living .. ..	—	—	22.1	25.0	—	—	—	23.3	25.4	—
Stillbirths .. ..	216	15	26	—	—	241	31	44	—	—
Rate per 1,000 total births (including stillborn) .. ..	—	—	23	—	—	—	—	37	—	—

\* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

## EPIDEMIOLOGICAL NOTES

## Poliomyelitis

The two maps here reproduced give some indication of the geographical distribution of cases in the present epidemic and in the outbreak in 1938. The first map shows the distribution by counties of 423 cases notified during the four weeks ending July 19, 1947. The other map shows the distribution over a period of six weeks at a comparable phase in the outbreak of

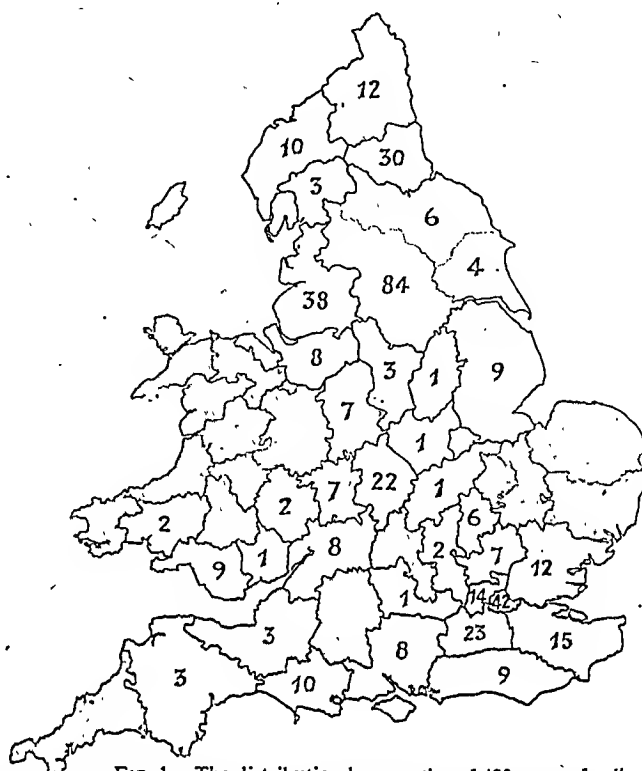


FIG. 1.—The distribution by counties of 423 cases of poliomyelitis notified during the four weeks ending July 19, 1947. The stippled sections of the map show the areas where no cases have been reported over this period.

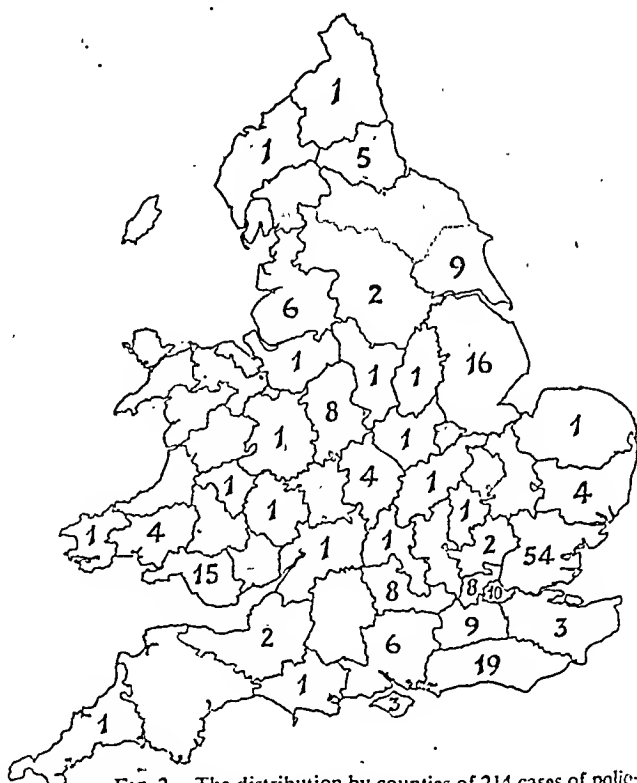


FIG. 2.—The distribution by counties of 214 cases of poliomyelitis notified during the six weeks ending Aug. 13, 1938. The stippled sections of the map show the areas where no cases had been reported over this period.

1938. It will be recalled that this year there were 31 notifications in the week ending June 14. Prevalence has been unusually low since 1938, and in general notifications have not risen above 30 a week, nor has a significant rise appeared until the end of July. It was therefore thought that it would be useful to compare the distribution for the four weeks ending July 19 this year with the six weeks ending August 13, 1938.

The notifications of poliomyelitis for the week ending July 26 in England and Wales numbered 302, against 177 in the previous week. The gradient in the curve of incidence has become somewhat steeper, and there is nothing to suggest that the peak has been reached. On the contrary, the number of new outbreaks brought to the notice of the Ministry of Health during the past week suggests that a further commensurate rise is to be expected.

Earlier reports had suggested a disproportionate incidence of cases with marked meningeal irritation at onset, but now the more usual and milder clinical types in which paralysis appears without striking prodromal symptoms are being found more frequently, and the steep gradient in the week ending July 26 may be an expression of late diagnosis and delayed notification.

Counties in which notifications reached double figures during that week were: London 51, Durham 20, Essex 13, Lancaster 17, Middlesex 17, Surrey 15, Warwick 20, Yorkshire West Riding 52.

Removals to infectious disease hospitals in the London area have shown a slight fall. The figures for the seven days to July 28 were 70, as against 61 for the seven days to August 4. The incidence in Lewisham, the metropolitan borough so far most affected, appears to be abating.

Although cases are widely scattered over England and Wales, the incidence is by no means evenly spread, and large tracts of the country are not yet involved. The need for prompt diagnosis and notification of first cases in these areas will be apparent. At this stage, when the disease is in the first or second generation in a locality, particular attention must be paid to close contacts, more especially if they develop a minor indisposition insufficient to restrict their movements. At the onset of an outbreak the virus is in all probability confined to the patient and his more intimate companions. Although there is uncertainty concerning the direct mechanism whereby the infection is distributed, it has of recent years become increasingly evident that spread is usually from person to person following fairly close contact with a previous case of abortive or paralytic disease during a relatively short period of infectivity commencing a few days before there is any sign of illness. During the period when infectivity appears to be at its height the virus is present in the oropharyngeal secretions. It may also be present in the bowel at the same time, but the most effective source of infection is probably the mouths of patients during the pre-paralytic phase or of persons with a subclinical attack.

The Belgian Ministry of Health is concerned about the present epidemic in this country, and has therefore cancelled a recent scheme for giving hospitality in Belgium to British children. The Save the Children Fund had made all arrangements to send 500 children for a three-weeks holiday as the guests of the Belgian people. These and similar arrangements made by other bodies have, unfortunately, had to be cancelled.

#### Polio-encephalitis

Notifications of cases of polio-encephalitis for the week ending July 26 reached 34. The figures for other weeks in July had been 9, 16, and 16, compared with a median value of one or two only during corresponding weeks in 1938-46. When significant changes in polio-encephalitis notifications began to appear it was suggested in some quarters that there might be a prevalence of an infection of the central nervous system other than poliomyelitis, but it is now certain that the bulk of notifications of polio-encephalitis relate to infections with the virus of poliomyelitis. In past years the ratio between cases of poliomyelitis and of polio-encephalitis has not varied considerably but was usually about 6 to 9:1. This year's experience is not remarkably different.

#### Paratyphoid B Outbreak

On July 19 a medical practitioner consulted the St. Albans Health Department about 6 people taken ill in a row of country cottages—Lea Valley Cottages, Wheathampstead. Investigation showed that 4 of the 6 were suffering from paratyphoid B. There had been a vague onset with headache, both frontal and occipital, stiffness of the neck, backache, and continued pyrexia. Gastro-intestinal symptoms were vague or absent. Of the 4 cases, 3 gave histories of onset about July 12, while in the remaining case the onset had been between July 1 and 4.

It was decided to undertake blood and faeces examinations of all persons living in the row of twelve cottages, as there had been a great deal of contact between families. In all, examinations were made of 69 residents and of one girl living at a distance who had been in close contact with the first patient. By July 28 a further 15 people were removed, 13 with a positive diagnosis bacteriologically and 2 with blood titres of a significant level. None of these cases admitted any symptoms before removal to hospital, but by July 30 3 of them had developed frontal headache, pyrexia up to 103° F. (39.4° C.), and mild crops of "rose spots." On July 28 one of the original patients, a woman of 48 who had been apparently making normal progress, had a sudden heart attack and died.

Water supplies (chlorinated main piped water), milk supplies (heat-treated), and foodstuffs including ice-cream have been fully tested and have shown no abnormal features. This, coupled with the grouping of the cases—6 in the first household, and 4, 5, 2, 1, 1—rather suggested that the mode of spread had been by contact with the first household. There is evidence that this family gave milk on many occasions to the two other households most affected. Visits have also been proved to the household with 2 cases, while in the two households with single cases the infection may be explained by contact of a less obvious nature, possibly by flies, which were heavily infesting most of the houses.

Further routine testing of contacts remaining at home continues. In all infected houses this consists of a Widal test and bacteriological examination of faeces and urine; in the non-infected houses the Widal test is omitted. Full co-operation has been given by the Public Health Laboratory at Luton, and the Central Laboratory now reports the organism to be of phage type 1.

#### Diphtheria Immunization Campaign

The Ministry of Health has recently taken the first steps in organizing a campaign for the late summer and early autumn which is intended to increase the proportion of infants under one year immunized against diphtheria to 75%. Suggestions for posters, leaflets, and other free publicity material are being circulated to all local authorities, together with some information about the progress of the campaign since its inauguration in 1941. In that year there were 50,797 cases recorded, with 2,641 deaths. In 1946 the corresponding figures were 18,284, with 472 deaths. Last year nearly half a million children under five years of age were immunized by local authorities, bringing the total number of children immunized since the campaign began to more than 6,600,000. It is hoped this year to immunize 590,000 babies before their first birthday, and it is suggested that "diphtheria could be eliminated as an epidemic disease if, in each year, three out of every four babies were protected before reaching their first birthday."

#### Scarlet Fever and Measles in Scotland

In the House of Commons on July 22 Mr. Westwood issued the following vital statistics for Scotland:

##### Scarlet Fever

Year	Number of Notifications	Number of Deaths
1935 .. ..	22,670	199
1936 .. ..	18,320	172
1937 .. ..	20,493	123
1938 .. ..	19,605	98
1939 .. ..	12,023	47
1940 .. ..	8,353	35
1941 .. ..	8,760	26
1942 .. ..	13,792	24
1943 .. ..	14,722	22
1944 .. ..	12,057	18
1945 .. ..	11,654	15
1946 .. ..	9,774	5

##### Measles

Year	Number of Notifications	Number of Deaths (All Scotland)
1935 .. ..	7,891	141
1936 .. ..	30,981	610
1937 .. ..	7,543	119
1938 .. ..	26,383	549
1939 .. ..	3,516	15
1940 .. ..	26,125	262
1941 .. ..	4,467	103
1942 .. ..	17,585	144
1943 .. ..	13,601	58
1944 .. ..	13,900	46
1945 .. ..	12,714	89
1946 .. ..	17,503	85



## Discussion of Table

In *England and Wales* an increase was recorded in the incidence of scarlet fever 118, acute poliomyelitis 67, and diphtheria 21, while a decrease was reported for measles 733 and acute pneumonia 26.

A small increase in the notifications of scarlet fever was general throughout the country; the largest rise was 29 in Essex. The chief features of the returns for diphtheria were an increase in Lancashire, Liverpool C.B., of 14 and a rise of 13 in Yorkshire West Riding contributed by the county boroughs. The largest variations in the returns of whooping-cough were a decrease of 50 in London and an increase of 42 in Warwickshire. A fall in the incidence of measles was fairly general; the largest declines were Yorkshire West Riding 261 and Gloucestershire 131, while the chief exceptions to the general trend were rises in Warwickshire 106, Lincolnshire 60, and Kent 53. Of the 10 cases of typhoid 4 were notified in Suffolk, Thedwastre R.D., where 9 cases occurred a fortnight earlier.

In *Scotland* decreases were recorded in the notifications of acute primary pneumonia 21, scarlet fever 20, and diphtheria 13, while the only rise of any size was poliomyelitis 12. The largest returns of poliomyelitis were Glasgow 6, Ayr County 4, Aberdeen 3. Diphtheria reached a record low level, and only 27 cases were notified.

In *Eire* the notifications of measles rose by 50 and a decrease of 20 was recorded in cases of diarrhoea and enteritis. The rise in measles was mainly contributed by Dublin C.B., where the number of cases increased from 107 to 152.

In *Northern Ireland* a small decline was recorded in the incidence of most infectious diseases.

## Quarterly Returns for England and Wales

The birth rate during the March quarter was 22.8 per 1,000, the largest birth rate for any first quarter since 1920. The infant mortality was 55 per 1,000 live births and was 11 below the average rate for the first quarters of the ten preceding years. The death rate for diarrhoea and enteritis among children under 2 was 6.0 per 1,000 live births, compared with 5.5, 3.9, 3.3, and 4.5 in the four preceding quarters. The general death rate was 17.2 and was 2.5 above the rate for the first quarter of 1946 and 2.4 above the average of the five March quarters of 1941-5.

A new feature of the returns is the inclusion of the sample inquiry into the prevalence of sickness during October, November, and December, 1946. The most important causes of sickness were: ill-defined symptoms; nervous complaints; rheumatism, all forms; colds and influenza. Of the sickness reported 94% did not cause any incapacity. The data are printed in tabular form without discussion. Caution is necessary in attempting to obtain anything more than a general impression from these figures. The sample is too small to be taken confidently as representative of the general population; 24-3 thousand people were interviewed in different localities each month.

Majority of the complaints were self-diagnosed, and the recording of them depends upon the memory of the person interviewed—the information is for the three months preceding the interview. Whether any significance can be attached to the economic grouping is a matter of speculation.

## Week Ending July 26

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 987, whooping-cough 1,924, diphtheria 174, measles 7,644, acute pneumonia 311, cerebrospinal fever 31, acute poliomyelitis 302, acute poliomyelitis 34, dysentery 61, paratyphoid 18, typhoid 8.

The Minister of Health announces that the Government will assist financially physiotherapists who wish to take a whole-time course of training as teachers of massage and medical gymnastics and/or electrotherapy. A special training course will be held in London from Dec. 1, 1947, to March 31, 1948, with one week's break at Christmas. Trainees living away from home will be eligible for a maintenance allowance of not more than 50s. a week; those living at home are entitled to not more than 26s. At the end of this 4-months course the trainee will be required to work as a pupil teacher at a school of physiotherapy approved by the Chartered Society of Physiotherapy. The candidate will then prepare for the examination held in May, 1949, and after a further period of 12 months as a pupil teacher may sit for the alternative certificate in May, 1950. Physiotherapists who wish to apply for assistance under this scheme should approach a school of physiotherapy approved by the Chartered Society.

## Medical News

## Epsom College

In the absence of Lord Leverhulme, who was abroad, Dr. Harold Spitta, the newly elected chairman of the Council, presided at the 94th annual general meeting of the Governors of Epsom College held on July 4. In moving the adoption of the Council's report, Dr. Spitta paid tribute to the merits of his predecessor, the late Mr. D. C. Bartley—member of the Council for 23 years and chairman since 1938—and stated that by his sudden death in May the Council had lost a great chairman and the College a great friend whose charm and dignity were admired by all who knew him. The Governors had also been deprived by death of the valued assistance of Dr. Arnold Lyndon, who had served the College as a member of the Council and of various committees for 20 years, during which time he seldom missed a meeting until his last serious illness in the autumn of 1946. Notwithstanding the many difficulties encountered during the past year the chairman said the progress of the school could be considered as satisfactory, and had warm praise for the head master and the bursar for so successfully overcoming the problems caused by the fuel crisis. Referring to the valuable assistance rendered by many helpers, Dr. Spitta mentioned the Governors' special indebtedness to Dr. Henry Robinson, not only for his personal contributions, but for the great part he played in raising funds and to the medical journals for their willingness at all times to draw attention to the work of the Royal Medical Foundation.

## Excerpta Medica

Of the fifteen new abstracting journals which the Dutch Excerpta Medica, Ltd., propose to issue in English two have now appeared in print, Section XII dealing with ophthalmology and Section XII with dermatology and venereology. Section XII is planned to have one yearly volume of approximately 600 pages; Section XIII, o approximately 1,000 pages. The Editors, and especially Prof Woerdeman, are to be congratulated on proceeding with such an ambitious scheme. In the first volume of each section it is intended to include abstracts of papers which appeared as long ago as 1944, 1942, or, in some cases, 1940. This is to bridge in some degree the gap which still exists in many countries where the medical literature of the war years is difficult to obtain. For the general physician *Excerpta Medica* will be found to be somewhat expensive. The smaller volumes of 600 pages a year are to cost £3 15s. *Abstracts of World Medicine* on the other hand, with approximately 1,400 pages a year, costs £3 3s. Other sections of *Excerpta Medica* are to cost £5 5s. or £6 4s. per annum. Section II Physiology, Biochemistry and Pharmacology, will run to two volumes a year and will cost £11 3s. annually, while Sections V and VI, dealing respectively with pathology and bacteriology, and internal medicine, are to cost £9 6s. for the two annual volumes. The cost of all the fifteen sections will be approximately £85 a year. *Excerpta Medica* should adequately replace the German *Zentralblätter*, which ceased publication during the war, and provide a service for specialists and for large and wealthy medical libraries.

## Blood

Two special numbers of the journal entitled *Blood*, edited by Dr. William Dameshek and published by Grune and Stratton, 381 Fourth Avenue, New York 16, N.Y., are being issued. The first on "Morphologic Haematology," published in July, contains nineteen articles (210 pages). The price is \$3.75. The second special number, devoted to "The Rh Factor in the Clinic and the Laboratory," will be published in November at the price of \$3.25.

## Birmingham Surgical Unit

The Austin Motor Company has presented the Birmingham Accident Hospital with a specially equipped vehicle fitted as an operating theatre to serve as a mobile surgical unit, staffed by a surgeon, anaesthetist, and nurse. The vehicle will be housed and maintained by the Birmingham Hospitals Contributory Association which will also provide the drivers. The unit comes into operation on Aug. 11 (telephone: MIDland 7041).

## Honorary Surgeon Dentist to the King

R. C. S. Dow, L.R.C.P.&S.Ed., H.D.D., has been appointed Honorary Surgeon Dentist to the King in Scotland, in succession to L. C. Broughton-Head, M.B., Ch.B., L.D.S., who has resigned.

## Wills

Dr. William Thomson Munro, formerly medical superintendent of Glenomond Sanatorium, Kinross, who died on March 11, left £21,250. Dr. Eric John Staddon, of Ipswich, Suffolk, who died on Jan. 22, left £33,160. Dr. William Archibald, late medical officer of health for Luton, who died on Feb. 13, left £25,587.

## COMING EVENTS

## Franco-Anglo-American Medical Society

Lord Horder will open the meeting of the British Section of the Franco-Anglo-American Medical Society, of which he is President in Great Britain, at 3.30 p.m. on Tuesday, Aug. 12, and not at 2.30 p.m. as announced last week (p. 195).

## C.M.F. Surgeons' Dinner

The annual dinner of the C.M.F. Surgeons Club will be held at Claridge's Hotel, London, W.1, on Sept. 11, at 7 p.m. The charge, exclusive of wine, is 25s. Surgeons and anaesthetists who served with the Central Mediterranean Force should apply for tickets through the Secretary of the Club, at 10, Park Square West, London, N.W.1.

## Aslib Study Group

The Association of Special Libraries and Information Bureaux has organized a study group on special librarianship, in co-operation with the Library Association, to be held at Chaucer House, Malet Place, London, W.C.1, during the week Aug. 11-16. Fees are £2 2s. for the course, or 10s. per day. Programme and application forms may be obtained from the Aslib office, 52, Bloomsbury Street, London, W.C.1.

## U.N.E.S.C.O. Conference

A conference under the auspices of U.N.E.S.C.O. has been planned to take place in October to establish a permanent Bureau of International Medical Congresses. Among the activities considered suitable for the bureau to undertake are the collecting of type cultures, improving the circulation of scientific literature, and the establishing of international stock rooms for pure substances not commercially available—e.g., radioactive isotopes and pure-line strains of laboratory animals.

## Narcotic Drugs

The Narcotic Drugs Supervisory Body of U.N. has tentatively fixed Nov. 17 as the day for its next meeting

## APPOINTMENTS

LENNANE, G. A. Q., M.B., B.Ch., Government Medical Officer, Rotorua, New Zealand.

MISS MARJORIE ROUSE is the first nutritionist to be appointed in Tasmania. She is preparing a report for the Commonwealth National Health Scheme.

Miss Rouse, who is a native of New South Wales, graduated from the Science University of Sydney in 1936, and in 1944 came to Britain with a British Council scholarship to work with the Orford Nutrition Survey. She returned to Australia in 1946.

BLAIR, E. J., M.D., M.R.C.P., Physician, New Cross Hospital, Wolverhampton.

HULL ROYAL INFIRMARY.—Honorary Physician: T. Stirling Eddie, M.B., B.S., M.R.C.P. Honorary Assistant Physician: T. Morton J. Stewart, M.D., D.C.H.

KENNEDY, D. A. V., M.B., Ch.B., M.R.C.O.G., Honorary Consulting Gynaecologist, Aldershot Hospital.

LONDON COUNTY COUNCIL.—The following appointments have been made in the Council's mental health services for duty at Maudsley Hospital: Physician, E. W. Anderson, M.D., F.R.C.P.; Senior Registrars, D. L. Davies, B.M., B.Ch., and W. Warren, M.B., B.Chir.

PLKINGTON, FRANCIS, M.B., M.R.C.P., D.P.M., Honorary Physician in Psychological Medicine, Prince of Wales's Hospital, Plymouth.

RUNWELL HOSPITAL, near Wickford, Essex.—Senior Physician, P. D. Scott, M.B., B.Chir. Assistant Physician, E. H. Cranswick, M.B., B.S.

## BIRTHS, MARRIAGES, AND DEATHS

The charge for an insertion under this head is 10s. 6d. for 18 words or less. Extra words 3s. 6d. for each six or less. Payment should be forwarded with the notice, authenticated by the name and permanent address of the sender, and should reach the Advertisement Manager not later than first post Monday morning.

## BIRTHS

KERSHAW.—On July 26, 1947, at Liverpool, to Dr. Mary Cowell, wife of Dr. W. E. Kershaw, a second child—a daughter.

LEACH.—On June 1, 1947, at Crediton, to Dr. Irene Bower, wife of Capt. A. B. Leach, a daughter—Gillian Mary. Address: George Hotel, Combe Martin, Devon.

MACRAE.—On July 28, 1947, at St. Brenda's Nursing Home, Bristol, to Phyllis (née Mahy), wife of James Macrae, M.D., F.R.F.P.S., a daughter.

WILSON.—On July 26, 1947, at University College Hospital, to Lillie and Maxwell Wilson, a son—Andrew Thomas.

## DEATH

COOKE.—On July 29, 1947, at his home, "Whistler's Corner," Shalford, Guildford, after a long illness courageously fought, Cyril John Chesterfield Cooke, M.R.C.S., L.R.C.P., D.M.R.E. Funeral private.

## Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

## Poliomyelitis and Tonsillectomy

Q.—There have recently been four cases of anterior poliomyelitis in children in this district. What interval should be allowed to elapse from the onset of the last notified case before tonsillectomy can safely be undertaken on two children (not contacts) living one mile from the outbreak?

A.—Notifications of poliomyelitis are increasing steadily and it would therefore be unwise to recommend tonsillectomy in any child who is living in an area—urban or rural—where cases are still occurring. The virus may persist in the faeces of convalescent cases for three to four weeks, and be present for the same period in the sewage of the district where cases have occurred. Tonsillectomy should therefore not be carried out for at least four weeks after the last case has been notified.

## Period in Bed after Operation

Q.—After an identical operation with a normal convalescence surgeons may vary by as much as 21 days in the period they keep their patients in bed. Has any really scientific work been done to prove which school of thought is right?

A.—The question of recumbency in bed after operation is a constantly recurring one, and over the years the pendulum swings freely from one side to another. The necessary economics of war in the United States has restored the popularity of early post-operative activity in that country—with seemingly excellent results. The outlook in this country is distinctly more conservative—probably too much so. To get every case out of bed on the first post-operative day simply shows lack of judgment and experience; to keep every straightforward appendicectomy case (especially when a gridiron type of incision has been used) in bed for a week or more is at least entirely unnecessary. A considerable amount of statistical and clinical research on the subject has been carried out in recent years in the U.S.A., and reference may be made to an article by Blodgett and Beattie (*Surg. Gynec. Obstet.*, 1946, 82, 485) in which further work is quoted. Summarized, the benefits of early post-operative rising are: maintenance of general physical strength, less painful wounds, shorter stay in hospital and economy of nursing staff owing to patients being able to care for themselves to a large extent, a decrease in wound disruption and infection, a lower incidence of pulmonary complications, and a great increase in morale.

## Milk in Schools

Q.—School-children get 1 1/3 pint (189 ml.) of milk per day. This entails an enormous amount of labour and a large quantity of milk, although, individually, the amount is insignificant. Is it worth the trouble and expense? Now that children get a balanced midday meal at school, would they not benefit as much from a lump of sugar and a multi-vitamin tablet with the meal? This would free a large quantity of milk and avoid waste, which is bound to occur through absenteeism.

A.—What is a "balanced" meal? The average school lunch is a good meal, but it supplies only about 25 g. of protein, 250 mg. of calcium, 500 i.u. of vitamin A value (mainly in the form of carotene), and 0.4 mg. of riboflavin; these are not half enough for a day. One-third of a pint of milk supplies a further 6 g. of animal protein, 220 mg. of calcium, about 200 i.u. of vitamin A (mainly preformed), and 0.27 mg. of riboflavin. The value of both school milk and school lunches is well shown in a paper by Chattaway, Happold, and Happold (*Journal*, 1946, 1, 429). It should be possible to avoid waste by organizing the collection of surplus milk for conveyance to factories. The value of vitamin tablets is doubtful (see Bransby *et al.*, *Journal*, 1946, 1, 193). School milk accounts for under 5% of the total liquid milk consumed; about 80% of this total is sold through ordinary channels at full price.

## Length of Vaccination Scratch

**Q.**—What is the Ministry of Health regulation length of scratch for vaccination?

**A.**—The Ministry of Health has not yet thought fit to lay down any regulation governing the length of the vaccination scratch. Although no "regulation length" has been prescribed by the Ministry the Vaccination Order, 1930 (S.R. and O., 1930, No. 2), stated in paragraph 7 of the third schedule (Instructions to Vaccinators under Contract) that vaccination should be done by a "linear" incision or scratch "not more than a quarter of an inch long."

## Saturated Solutions for Dispensing

**Q.**—It is said that in dispensing many doctors use a system of saturated solutions, and that 1 fluid drachm (3.5 ml.) of a saturated solution of the following chemicals contains the indicated quantity of the chemical: potassium bromide 30 gr. (2 g.), sodium salicylate 60 gr. (4 g.), sodium bicarbonate 60 gr., potassium citrate 60 gr., ammonium carbonate 12 gr. (0.8 g.). Are these figures correct, and what is the corresponding figure for sodium chloride? Is it also correct that the potassium citrate solution must have some chloroform in it "to prevent oxidation"? Does the darkening in colour which sometimes appears in the sodium salicylate solution on keeping indicate deterioration?

**A.**—The strength of a saturated solution of any pharmacopoeial substance is given in the *British Pharmacopoeia*. The quantities in the question are correct except for sodium bicarbonate, which should be 5.4 gr. (0.35 g.), and for ammonium carbonate, which should be 15 gr. (1 g.). The figure for sodium chloride is 120 gr. (8 g.). The B.P. says that potassium citrate should be kept in a well-closed container. There is no authority for adding chloroform to potassium citrate solution; this would not prevent oxidation. The darkening in colour which appears in a sodium salicylate solution does indicate some oxidation but it may not indicate very much.

## Thrombosis after Pyelography

**Q.**—Following a recent intravenous injection for pyelography of a floating kidney, a middle-aged man of active habits has developed a sclerosis of his right basilar and cephalic veins. (1) To what may the sclerosis be attributed, and may there be other patches of it in the system? (2) Is the condition likely to progress, and is there a possibility of any disablement of the arm or of a clot separating anywhere in the system? (3) What treatment, if any, is indicated?

—It is quite usual for a thrombus to form after pyelography; when, as in this case, it is extensive it shows that the patient is more sensitive to irritating intravenous injection than usual. (1) It is unlikely, without signs or symptoms, that there are more thrombosed veins in this part of the body. (2) There is as a rule no resulting disablement, because there are quite adequate collaterals to prevent oedema and other complications. Separation of the clot does not occur in these cases. (3) There is no treatment indicated except to spare the arm from effort until the condition resolves. Appearance of thromboses elsewhere would be an indication for the administration of dicoumarol.

## Pumpkin Seeds as an Anthelmintic

**Q.**—One often hears of the alleged efficacy of pumpkin pips in the treatment of taeniasis in South Africa. Recently a patient stated that he had been given, without success, two courses of treatment for tapeworm by the orthodox male fern, and then on the advice of a farmer's wife treated himself by ingesting several handfuls of these pips. What is the therapeutic agent present in pumpkin pips?

**A.**—Pumpkin seed or cucurbita (B.P.C.), or pepo (U.S.P.), has for centuries been used as an anthelmintic in the West Indies, Southern Europe, Africa, and the East. It contains about 30% of a fixed oil, an acrid resin, volatile oils, protein substances, and sugar. The resin is probably the active principle. The dose is 1 to 2 oz. (30 to 60 g.) of the dried seed, preceded by a saline purge and followed a few hours later by castor oil. It appears to be safe but unreliable. It is used for roundworm and tapeworm, especially *Taenia saginata*.

## NOTES AND COMMENTS

**Frustration of Left-handedness and Absent Knee-jerks.**—Dr. E. GALLOP (London, S.W.) writes: As always your valuable section headed "Any Questions?" contains much of interest, and this week (July 5, p. 40) there is a reference to the effect of the inhibition of left-handedness in the production of stammering which recalls the case of a young woman I had to examine as to her medical fitness to take up an appointment overseas about a year ago. She appeared to be perfectly healthy, and the only abnormality I could find was that her knee-jerks were absent—really absent. No positioning or reinforcement produced a flicker. She told me that when in the A.T.S. a veritable battery of doctors had been unable to discover why the jerk was missing. I happened to find that she was really a left-handed person and from childhood dexterity had been forced upon her. I could not help feeling that as the result of this most unnatural and gross interference with her inborn characters she had lost her knee-jerk. But it is the only case I have seen and maybe I am barking up the wrong tree.

**Bringing Up Baby.**—Dr. E. J. DENNISON (East Grinstead, Sussex) writes: The question about "Bringing Up Baby" (June 28, p. 958) did not, I think, receive quite the answer it deserved. Presuming that it was asked in all seriousness, then I suggest that the answer might be as follows: *Instance 1.*—If the baby has been fed and has received attention—i.e., wind up, dry nappy, etc.—then it should be put down comfortably and left. A baby requires peace and quiet in order to digest its food. It does not require "company" at this time, for that could only hinder and delay its digestion. *Instance 2.*—If he is picked up 1½ hours before his next meal, then obviously he will have to be "amused" for 1½ hours. Whoever picks him up cannot reasonably put him down after half an hour and expect him to amuse himself for a further hour. If the parents wish to lavish parental love upon him, as indeed they should do, then I would suggest that, at three months old, half an hour immediately before a feed is the best time to do it, and possibly for a short time after while he is bringing up his wind. Regarding not "thwarting" a baby, surely it is time somebody stamped heavily on this kind of nonsense, which is all too common these days. If life is to be bearable for anybody in the house—and, incidentally, for the neighbours, if any—then the baby must be taught, and taught early, to conform to the rules of the household—i.e., meals at certain times, sleep at certain times, and so on—which everybody else follows as a matter of course; just as, when it grows older, it should be taught the rules of ordinary life in the outside world rather than be left to find them out the hard way for itself. Only by doing these things can the parents hope to retain the respect and friendship of their child as he grows up. An unthwarted baby will grow into an unthwarted child, and thence into an unthwarted adolescent and adult. It would be very easy—and very often, I suspect, not incorrect—to trace a number of our present-day troubles—juvenile crime particularly, but also some adult crimes, divorces, strikes, and so on—to an unthwarted babyhood in the person or persons responsible. Certainly the falling birthrate, which happily at the moment shows a temporary check, is partially due to this mistaken idea that a baby should not be thwarted. How often does one hear, "No more for us. The first one was quite enough; bother to bring up." To the parents who asked this question I would say: "Assert yourselves now as the child's guide and teacher; show him how to live in modern society, for he obviously cannot know for himself; then you may reasonably expect happiness for him and for yourselves. If you allow him to rule you, as apparently is suggested, then you are not going halfway to meet trouble: you've got it already."

## Correction

In the answer to a question about bleached bread (July 26, p. 159) reference was made to "canine distemper." This should have read "canine hysteria."

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Attoletry, Westcott, London.* ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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# SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY AUGUST 9 1947

## British Medical Association

### PROCEEDINGS OF COUNCIL

A brief meeting of the Council of the Association was held on July 22, immediately preceding the Annual Representative Meeting. Dr. H. Guy Dain presided.

The deaths of two former members of Council were reported—namely, Dr. D. J. Mackintosh, of Glasgow, and Dr. O. L. Robinson, of Heysham.

#### Regional Hospital Boards

The Chairman said that there was a reasonable medical representation on the new Regional Hospital Boards, but the fact that only 27 B.M.A. nominees were appointed out of 85 nominated afforded an enlightening preview of what was meant by "consultation." Dr. Talbot Rogers considered that the number of people appointed to the Boards was too small in view of the necessity for appointing several subcommittees. Mr. R. L. Newell did not agree; the Boards, in his view, should be largely concerned with policy, leaving detail to local management committees. Use should be made of co-option.

#### The Askwith Scales

Dr. J. Fenton, chairman of the Public Health Committee, in bringing forward a special resolution on the remuneration of public health medical officers, reminded the Council of the recent history of negotiations on the Askwith scale. There had been widespread dissatisfaction among the officers concerned at the interim revision in March, 1946, many officers not benefiting at all from the recommendations. At a recent conference the utmost that the local authority associations would agree to was to increase to 20% the interim award of 10% for the category whose Askwith minimum commencing salary exceeded £1,000. No increase was offered for the other categories, whose interim awards remained at 20% and 30% respectively. It was thereupon resolved to recommend to the Council that, unless the associations agreed to a sufficient and satisfactory increase over the 1929 Askwith minimum levels, no advertisements should be accepted from any local authorities which did not agree to remuneration conforming to the Association's suggestions at the conference. After this recommendation had been tabled, however, a further letter had been received intimating the willingness of the local authority associations to reopen the matter at a conference to be held the following week, provided the recommendation was withdrawn. The Public Health Committee had met on the previous day and had agreed to propose to the Council that the recommendation in question be deferred, and that the Chairman of Council and the Chairman of the Public Health Committee be authorized to take action, including the conclusion of an agreement, or, in the absence of an agreement, any other necessary action.

The revised recommendation in these terms was agreed to unanimously by the Council.

#### Ethical Proceedings

It was agreed on the motion of Dr. N. E. Waterfield, chairman of the Central Ethical Committee, that a joint ethical committee be set up representing the British Medical Association, the British Dental Association, and two other dental bodies to discuss mutual ethical considerations and complaints made by a member of one profession against a member of the other. The terms of reference of the joint committee were also agreed to.

After due consideration the Council, on a report from the Central Ethical Committee, resolved to expel a member of the Association on the ground that his conduct was deemed detrimental to its honour and interests, and that he had wilfully and persistently failed to comply with the regulations.

#### Remuneration of Visiting Staffs

Mr. R. L. Newell presented a report from the B.H.A. and B.M.A. Liaison Committee on the remuneration of visiting staffs of voluntary hospitals. Dr. F. Gray said that the real point to be considered was whether it was worth while to press for payment to visiting staff during the short period of a year before the Act came into operation, bearing in mind that any payment likely to be made would be inadequate, and as such would have a gravely prejudicial effect on the remuneration for many years to come. The Council had before it a draft letter and agreed that this, preferably in conjunction with the British Hospitals Association, with any appropriate modification, should be issued for circulation to voluntary hospitals.

#### Other Business

The Chairman of Council was authorized to forward a suitable letter to nine honorary secretaries who have lately relinquished office and whose services were considered worthy of special recognition.

Mr. H. S. Souttar presented the report of the Science Committee, with recommendations, which were adopted, for the award of the Ernest Hart and Walter Dixon scholarships and four ordinary research scholarships. It was agreed that the income from the bequest by the late Mr. E. A. Insole of just over £5,000 should be applied to the biennial award of a scholarship to the value of £250 for research into the causes and cure of venereal disease.

On the recommendation of the International Relations Committee the period during which the fund of £1,000 authorized for B.M.A. lectures abroad might be utilized was extended until July, 1948. It was stated that two further lecture series were being arranged in Denmark, one in Norway, and one in Spain, and that one was contemplated in Holland.

The Council acceded to a request by the British Medical Students Association for official patronage and a certain amount of financial and other support for an international clinical congress which that association is organizing in July, 1948, in Oxford, Birmingham, and London. It was stated that 200 delegates from 70 different countries would be invited.

The Council considered a draft plan from the Berks, Bucks, and Oxon Branch concerning the purchase of practices. The plan was criticized by Dr. Vaughan Jones and Dr. Wand, and the Council expressed no opinion upon it.

A report from the Industrial Medicine Committee, presented by Dr. Vaughan Jones, contained no recommendations but set forth the considered view of the Committee on questions arising under the Disabled Persons (Employment) Act, in particular the appointment of medical interviewing committees.

### First Meeting of New Council

A formal meeting was held at the end of the Annual Representative Meeting on July 24. New members or members returning to the Council after an interval are Sir Lionel Whitby (President-Elect), Dr. A. Beauchamp, Dr. T. H. Crozier, Dr. P. J. Gibbons, Dr. R. G. Gordon, Dr. J. G. M. Hamilton, Dr. W. Jope, and Dr. T. W. Morgan.

The Council unanimously re-elected Dr. H. Guy Dain to the chairmanship.

The Council members of standing committees were elected, and the Special Committees which had not discharged their reference—twenty-five of them—were continued, in some cases with slight changes in membership. The nomination of members of the Central Medical War Committee was agreed to, and Mr. A. Stavcley Gough and Dr. F. Gray were reappointed representatives of the Association on the Council of the Society of Medical Officers of Health.

## CONSULTANTS ROLL, PART-TIME CONSULTANTS ROLL, AND SPECIAL GROUPS OF MEMBERS OF THE ASSOCIATION

It is apparent that there are throughout the country a number of members who are eligible for inclusion in the Association's Consultants Roll, Part-time Consultants Roll, or one of the Special Groups of members, but who have omitted to make the necessary application. The Consultants and Specialists Committee is anxious that these Rolls should be fully representative of consultant and specialist members of the Association and wishes attention to be drawn to the following particulars of membership.

### I. Consultants Roll and Part-time Consultants Roll

These are electoral rolls for the appointment to the Consultants and Specialists Committee of representatives of those members of the Association who are engaged whole-time or part-time respectively in some branch of consultant or specialist practice.

The Consultants Roll is divided into 17 regions covering England, Wales, Scotland, and Northern Ireland, and from it 20 members are elected to the Consultants and Specialists Committee. Prospective members of the Roll must sign a declaration that they are not engaged in general practice in any form but are practising exclusively as consultants or specialists and are not officers on the active list of the Navy, Army, or Air Force.

Admission to the Part-time Consultants Roll is open to those members of the Association who, although engaged in general practice, devote some part of their time to consultant or specialist practice. From this Roll five members are elected on a national basis to the Consultants and Specialists Committee.

Admission to the Rolls is by individual application and approval by the Consultants and Specialists Committee, subject to appeal to the Council.

### II. Special Groups of Members

These are Groups of members who have distinctive professional interests and who, by reason either of their paucity of numbers or of their local distribution, are unable to obtain

adequate representation of those interests through the Division and Branches. Inclusion of members of the Association in Group must be decided by the Group committee concerned upon receipt of individual applications. At present there are ten such Groups, namely:

*Group of Anaesthetists*, composed of members of the Association engaged predominantly in the practice of anaesthetics.

*Consulting Pathologists Group*, composed of those members of the Association (not being members of the public health service) working in an institutional or private pathological laboratory, engaged in examining and reporting on specimens for clinical purposes.

*Group of Dermatology*, composed of members of the Association who are engaged predominantly in the practice of dermatology.

*Group of Full-time Non-professorial Medical Teachers, Laboratory or Research Workers*, composed of those members of the Association engaged full-time as non-professorial medical teachers, laboratory or research workers.

*Ophthalmic Group*, composed of those members of the Association engaged predominantly in the practice of ophthalmology.

*Group of Orthopaedic Surgeons*, composed of those members of the Association engaged predominantly in the practice of orthopaedic surgery.

*Group of Practitioners of Physical Medicine*, composed of those members of the Association who have specially studied the values of physical methods in the prevention and cure of disease, and whose practice is devoted predominantly to the application of those methods.

*Group of Practitioners of Psychological Medicine*, composed of those members of the Association engaged predominantly in the practice of psychological medicine.

*Radiologists Group*, composed of those members of the Association engaged predominantly in the practice of radiology.

*Spa Practitioners Group*, composed of those members of the Association who regularly prescribe the mineral waters of the spas in which they reside, or who are on the staff of a hospital or clinic where the use of the local mineral waters is part of the routine treatment.

Each of these Groups appoints by election a committee which conducts the business of the Group. The Group committee considers the opinions expressed at the meetings of the Group and may also take the opinion of the Group members by poll. Its findings are placed before the Consultants and Specialists Committee, upon which it is represented, and through it before the Council and the Representative Body.

Members who feel that they are eligible for membership either the Consultants Roll, or the Part-time Consultants Roll, or one of the Special Groups are invited to make application. The requisite forms may be obtained from the Secretary, British Medical Association, B.M.A. House, Tavistock Square, W.C. In this connexion it is stressed that membership of one of the Special Groups does not necessarily preclude membership of the Consultants Roll or the Part-time Consultants Roll, nor does admission to membership to either of the Rolls or one of the Special Groups entail inclusion in any other Group. An individual application should be made in each case.

## NATIONAL (WAR) FORMULARY

Notice is given by the Minister of Health concerning the third edition of the *National (War) Formulary* that insurance committees have been further informed that the date on which the new edition shall come into operation for national health insurance purposes will not, because of delay in publication, be Aug. 1, 1947. Information concerning the chief alterations to the previous edition appears at page 225 of the *Journal* this week. Later, when the operative date has been agreed, official notice of it will be given to doctors and pharmacists through the technical Press.



**CONSULTING PATHOLOGISTS GROUP COMMITTEE**

is a result of the recent ballot Dr. F. B. Smith, M.C. (Preston), as been elected by the members of the Consulting Pathologists Group to be a member of the Consulting Pathologists Group Committee.

**BRITISH HOSPITALS ASSOCIATION**

The following nominations to the Council of the British Hospitals Association from Scottish Area Committees have been adopted: Eastern Area, Lord Russell and Dr. H. J. C. Givson; J.E. Area, A. Burnett Whyte; S.E. Area, W. F. Ferguson; Northern Area, R. Gilbert; Western Area, J. D. Wyllie.

**HEARD AT HEADQUARTERS****That Microphone**

Two impressions of the Annual Representative Meeting. The standard of speaking has deteriorated since the microphone came on the scene. In years gone by, before the day of these contraptions, few speakers had any difficulty in making themselves heard in the great hall of B.M.A. House or even in larger auditoriums. Now many of them have difficulty in making themselves heard in the front row. Some of the speakers come up to the lectern, grasp the microphone in the hand, and twiddle it about. Others speak closely into it as though it were the mouthpiece of a telephone, with the result that the voice is distorted and the words cannot be distinguished six feet away. The microphone seems to cramp the style of even many of the best speakers. They are more conscious of that mechanical bulbous head immediately in front of them than of the more intelligent heads at a little distance. Once again, too, a little protest should be made against the reading of speeches. It is not by a mere arbitrary whim that that practice is condemned in Parliament. Some representatives came up to the rostrum with the most admirable and cogent speech, which they read like a lesson in church, only more rapidly, and quite failed to "get it across," whereas others, putting paper aside and relying on rough-hewn sentences, made a distinct hit.

**Chairmanship**

The other impression of the A.R.M. was the excellence of its chairmanship. Under Dr. Miller's gavel, which he brought down with a resounding blow on the table immediately the red light came on, so that the speaker stopped in some alarm and the next speaker was instantly called upon—under his gavel the meeting went with machine-like precision. Appealed to on one point, he remarked: "I think it is quite in order, but it doesn't make sense." No time was wasted in polite frills. If some people think the chair is dictatorial let them remember what a job it is to control a meeting of 300 representatives, with an agenda covering an enormous range, and with less than three days to carry it through. The various trade union assemblies do not sit nearly as long, nor register anything like the amount of business that is done in a day at the A.R.M.

**Correspondence****Nursing Shortage**

SIR.—In the important debate on the shortage of nurses at the recent A.R.M. I had not the actual figures at hand to relate this problem to its wider setting. The matter was, I think, referred to by another speaker, but the figures are so startling that to have quoted them from memory would have been to invite derision. They are, however, given in detail in the *Economist* of June 21, 1947, p. 963, and it is no exaggeration to say that this article, or a similar set of figures, should be seriously studied by anyone who hopes to see the present nursing shortage with clarity and in any sort of perspective. I will just quote a few lines:

"By 1948 the very severe fall in the birth rate in the early nineteen-thirties will have reduced the total number of children between fourteen and eighteen by over a million. To this natural fall in numbers must be added the young men in military service and the boys and girls between 14 and 15 who will be staying on at school owing to the raising of the school leaving age. The effect of these changes will be to reduce the number of children available for employment from just under 5,000,000 (in 1938) to just over 3,000,000—a very severe drop for a single decade. No wonder employers are feeling the pinch. There will be a further reduction in the number of young people in the labour market in the next decade, 1948 to 1958; but this will be due to the effects of legislation, not of a further fall in births. . . . The balance available for employment will, therefore, have fallen (in 1958) to just over 2,000,000 as compared with 5,000,000 in 1938."

The article finished with a characteristic understatement: "A great deal more thought has still to be given by workers and employers to the distribution of work between the different age groups." Some of this thought must obviously come from the *ad hoc* committee which it was—I am glad to say—decided to set up to consider the nursing situation, and in this case consideration of the problem apart from its statistical background will be time and thought wasted. We have to face a steadily increasing shortage of young female labour for at least ten years and no short-term policy can possibly meet the situation. My plea for a reconsideration of the waste of skilled labour caused by putting trained nurses into factories where they treat less than half a dozen minor casualties each day is frankly stop-gap, but where the scarcity is so great even a small diminution may turn an acute shortage into a famine. I hope therefore that some immediate action will be taken to stop this waste and that future policy will be based on a firm appreciation of the facts I have quoted. I might perhaps recall my letter (*Journal*, July 20, 1946, p. 98) which showed the evil results of neglecting population statistics in Palestine 27 years ago.—I am, etc.,

Winsford, Cheshire.

W. N. LEAK.

**Evidence for Spens Committee**

SIR.—The Secretary of the B.M.A. in his comments on Dr. Haler's letter (*Supplement*, July 5, p. 6) told the world the purpose of the new Spens Committee, therefore there was no need for me or anyone else to have received the inquiry from the "Evidence" Committee to be aware of its nature. He wrote: "The new Spens Committee is concerned only with the range of remuneration of consultants and specialists engaged [present tense] in a public service on a full-time basis, and not undertaking private practice."

In his commentary on my letter (*Supplement*, Aug. 2, p. 47) he alters his ground to say: "The aim is to ascertain the range of professional incomes in 1938-9 of consultants and specialists (who then practised privately and held part-time hospital appointments)."

His first statement is, as I said, confusing; his second makes it quite clear that the new Spens Committee (with the evidence of the income tax authorities as to what consultants and specialists earned in 1938-9) will suggest what the salaries of consultants and specialists will or should be in a State service. No one can object to this inquiry.

May I assure the Secretary that I am as pleased with the rise in the capitation fee as any workman is with a rise in wages. My grouse with the B.M.A. is that it has taken 34 years, two wars, and a Spens inquiry to get the fee raised from 7s. in 1912, with various rises and falls, to 15s. in 1946. Having worked for 36 years and arrived at the official retiring age I cannot in law sell my practice, and what and when my compensation for capital value is to be no one seems to know. In my humble opinion the B.M.A. has been concerned with the Government in thousands of doctors being in this position to-day.—I am, etc.,

St. Osyth, Essex.

R. E. CLARKE.

**Compensation in the N.H.S.**

SIR.—The agreement for the £66,000,000 as compensation for practices appears to be most problematical and nebulous, the Minister being in the position of "Heads I win, tails you lose," and with changing conditions the doctor is the loser. The increase in present-day fees does not compensate for the increase in practice expenses, cost of living, and taxation, so the G.P. must work a larger practice to secure a livelihood, so

there will be fewer doctors in practice. But if the number of doctors as estimated in the first instance to enter the Service is reduced, compensation will be proportionately less, so that the increased practice will receive the same compensation as if it had remained static. Further, panel fees have risen by approximately 50% and private fees by 20% to 40%.

Were the sale of practices unrestricted, the above two factors would lead to an increased capital value, which will be lost under the Act. We bought the pig in the poke. We thought that goods would become more plentiful and cheaper in the post-war years, with a substantial reduction in taxation, while the Government knew that their planned spendthrift policy must be followed by reverse conditions.—I am, etc.,

London, E.C.4.

R. A. MURPHY.

### B.M.A. LIBRARY

The following books have been added to the Library:

- Appleton, A. B., Hamilton, W. J., and Tchaperoff, I. C. C.: *Surface and Radiological Anatomy*. Second edition. 1946.
- Berg, C.: *Deep Analysis: the clinical study of an individual case*. 1946.
- Bertwistle, A. P.: *A Descriptive Atlas of Radiographs*. Sixth edition. 1946.
- Cantonnet, A.: *L'Ophtalmologie du Praticien*. Ninth edition. 1946.
- Carington, W.: *Telepathy: an outline of its facts, theory and implications*. Third edition. 1946.
- Cowdry, E. V.: (Editor): *Problems of Ageing*. Second edition. 1942.
- Cox, H. E.: *The Chemical Analysis of Food*. Third edition. 1946.
- Curtis, A. H.: *Textbook of Gynecology*. Fifth edition. 1946.
- Davis, L.: *Principles of Neurological Surgery*. Third edition. 1946.
- Dilling, W. J., and Hallam, S.: *Dental Materia Medica, Pharmacology and Therapeutics*. Third edition. 1946.
- Dukes, C. F.: *Bacteria in Relation to Nursing*. 1946.
- Dyke, S. C. (Editor): *Recent Advances in Clinical Pathology*. By various authors. 1947.
- Feinberg, S. M.: *Allergy in Practice*. With the collaboration of O. C. Durham and C. A. Dragstedt. 1946.
- Fletcher, E.: *Medical Disorders of the Locomotor System including the Rheumatic Diseases*. 1947.
- Handfield-Jones, R. M.: *Surgery of the Hand*. Second edition. 1946.
- Jervis, Sir John: *On the Office and Duties of Coroners: with forms and precedents*. Eighth edition. By W. B. Purchase. 1946.
- Joe, A.: *The Acute Infectious Fevers*. 1947.
- Katz, L. N.: *Exercises in Electrocardiographic Interpretation*. Second edition. 1946.
- Keers, R. G., and Rigden, B. G.: *Pulmonary Tuberculosis*. Second edition. 1946.
- Kershaw, J. D.: *An Approach to Social Medicine*. 1946.
- King, E. J.: *Micro-Analysis in Medical Biochemistry*. 1946.
- Klyne, W.: *Practical Chemistry for Medical Students*. 1946.
- Le Vay, A. D.: *A synopsis of Orthopaedic Surgery*. 1947.
- Mason, R. L., and Zintel, H. A. (Editors): *Preoperative and post-operative Treatment*. Second edition. 1946.
- Matthews, D. N.: *The Surgery of Repair, Injuries and Burns*. Second edition. 1946.
- Montagu, M. F. A.: *Adolescent Sterility*. 1946.
- Oakes, L., and Pennett, A.: *Materia Medica for Nurses*. Second edition. 1947.
- Oppenheimer, J. M.: *New Aspects of John and William Hunter*. 1946.
- Pattern, B. M.: *Human Embryology*. 1946.
- Pavel, I.: *Les Icères: moyens d'exploration, symptômes, physiopathologie, thérapeutique*. Second edition. 1944.
- Peel, A. A. F.: *Diseases of the Heart and Circulation*. 1947.
- Peel, J. H.: *Textbook of Gynaecology*. Second edition. 1946.
- Percival, G. H., Drennan, A. M., and Dodds, T. C.: *Atlas of Histopathology of Skin*. 1947.
- Pyc's *Surgical Handicraft*. Edited by H. Bailey. Fifteenth edition. 1947.
- Sears, W. G.: *Materia Medica for Nurses*. Second edition. 1947.
- Shaw, W.: *Textbook of Midwifery*. Second edition. 1947.
- Sherrington, Sir Charles: *Selected Writings of Sir Charles Sherrington*. Compiled and edited by D. Denny-Brown. 1939.
- Sutton, G. E. F.: *Aids to Medical Diagnosis*. Sixth edition. 1946.
- Thewlis, M. W.: *The Care of the Aged (Geriatrics)*. Fifth edition. 1946.
- Urbach, E., and Gottlieb, P. M.: *Allergy*. Second edition. 1946.
- Walker, K.: *I Talk of Dreams: an experiment in autobiography*. 1946.
- Walshe, F. M. R.: *Diseases of the Nervous System*. Fifth edition. 1947.
- Wintrobe, M. M.: *Clinical Hematology*. Second edition. 1946.
- Wright, W. D.: *Researches on Normal and Colour Vision*. 1946.

By the National Health Service (Mental Deficiency) Amendment Regulations, 1947 (S.R. and O., 1947, No. 1359), the Minister of Health is substituted for the Board of Control in certain of the Mental Deficiency Regulations, 1935.

## Association Notices

### SCOTTISH COMMITTEE

1947-8 SESSION

Election of three representatives by the Group of seven Divisions comprising Orkney, Shetland, Caithness and Sutherland, Inverness, Outer Islands, Ross and Cromarty, and Argyllshire.

In accordance with the Standing Orders of the Scottish Committee nominations for these three vacancies shall be in writing and may be (a) made by a Division or (b) signed by not fewer than three members of the Group. Nomination forms have been sent to the Hon. Secretaries of the Divisions in the Group, and can also be obtained on application to the Scottish Office. If more than three members are nominated the election shall be by voting papers sent by post from the Scottish Office to each member of every Division in the Group. Nominations should be sent to me at the Scottish Office, 7 Drumsheugh Gardens, Edinburgh, not later than August 23, 1947.

E. R. C. WALKER,  
Scottish Secretary.

### Sir Charles Hastings Clinical Prize

The Sir Charles Hastings Clinical Prize, which consists of a certificate and a money award of fifty guineas, is again open for competition. The following are the regulations governing the award:

(1) The prize is established by the Council of the British Medical Association for the promotion of systematic observation, research, and record in general practice; it includes a money award of the value of fifty guineas.

(2) Any member of the Association who is engaged in general practice is eligible to compete for the prize.

(3) The work submitted must include personal observations and experiences collected by the candidate in general practice, and a high order of excellence will be required. If no essay entered is of sufficient merit no award will be made. It is to be noted that candidates in their entries should confine their attention to their own observations in practice rather than to comments on previously published work on the subject, though reference to current literature should not therefore be omitted when it bears directly on their results, their interpretations, and their conclusions.

(4) Essays, or whatever form the candidate desires his work to take, must be sent to the British Medical Association House, Tavistock Square, London, W.C.1, not later than Dec. 31, 1947. The prize will be awarded at the Annual General Meeting of the Association to be held in 1948.

(5) No study or essay that has been published in the medical Press or elsewhere will be considered eligible for the prize, and a contribution offered in one year cannot be accepted in any subsequent year unless it includes evidence of further work. A prize-winner in any year is not eligible for a second award of the prize.

(6) If any question arises in reference to the eligibility of the candidate or the admissibility of his or her essay, the decision of the Council on any such point shall be final.

(7) Each essay must be typewritten or printed, must be distinguished by a motto, and must be accompanied by a sealed envelope marked with the same motto and enclosing the candidate's name and address.

(8) The writer of the essay to whom the prize is awarded may on the initiative of the Science Committee, be requested to prepare a paper on the subject for publication in the *British Medical Journal*, or for presentation to the appropriate section of the Annual Meeting of the Association.

(9) Inquiries relative to the prize should be addressed to the Secretary.

### A.R.M. Report: Corrections

In the report of the Annual Representative Meeting (*Supplement Aug. 2*) the sub-heading "Practitioners in General Hospital Posts" (p. 39) should read "Practitioners in Junior Hospital Posts" and the word "junior" should be substituted for the word "general" in the first line of the Plymouth motion and in the third line of Mr. Mayne's supporting remarks. Sir Lionel Whitby should have been described as Regius Professor of Physic, University of Cambridge.

## THE PROBLEM OF FERTILIZATION\*

BY

LORD ROTHSCHILD

Fertilization may be defined as the incitement of the egg to development by a spermatozoon and the conveyance of paternal qualities to the egg (Wilson, 1925). The central problem in fertilization is: What is it that the spermatozoon does to the egg which transforms it from being an inert and somewhat moribund cell into a highly organized and differentiated embryo?

## Morphology of Fertilization

Usually the egg is a fairly large cell, in the case of human beings about the size of a small pin's head; this large size is often due to the presence of nutrient material within the cell. The spermatozoon is usually extremely small. It consists of a head entirely composed of nuclear material, a middle piece, the functions of which are not clearly understood, and a vibratile tail. The relative sizes of a human egg and the head of a human spermatozoon are about those of a football and a marble.

The main characteristics of the fertilization reaction are: (1) Both eggs and spermatozoa must be ripe for fertilization to take place. (2) Fertilization is specific; that is to say, crosses between different species or genera can rarely be achieved, or, if they are, the chances of a normal embryo resulting are small. (3) Fertilization is an irreversible phenomenon in nature. (4) Only one spermatozoon fertilizes an egg. (5) After adhesion of the spermatozoon to the egg surface a membrane, the fertilization membrane, is thrown off from this surface. (6) The head of the spermatozoon rotates through 180 degrees when it has passed through the egg surface. (7) The head of the spermatozoon within the egg and the nucleus of the egg travel through the cell on somewhat curved and different paths to meet in about the centre of the egg. Then fertilization merges into cell division and development.

In this brief description there are of course various omissions and generalizations to which there are exceptions. For example, some eggs are fertilized while unripe, while it is common knowledge that interspecific crosses are possible. Even polyspermy occurs on occasion without pathological results. Nevertheless, one must assume that these morphological characteristics are significant and, as such, are particularly worthy of investigation.

The first part of the fertilization reaction occurs immediately after the spermatozoon has adhered to the egg surface. It is called activation, and involves the prevention of other spermatozoa from getting in (the block to polyspermy), the elevation of the fertilization membrane, and the irreversibility of the reaction. F. R. Lillie (1912) centrifuged eggs of the marine worm *Nereis* after the spermatozoa had adhered to their surfaces, the centrifugal force tearing the spermatozoa away from the eggs. Nevertheless, the activation changes referred to above all took place, and chromosomes even started to become visible in the female nucleus.

## Permeability and the Biophysics of Fertilization

It would be surprising if unfertilized and fertilized eggs were in the same physiological condition, and one way of investigating what differences, if any, exist between them is by observing the rate at which various substances diffuse in or out of the egg through the egg surface or plasma membrane. For many years there has been a tendency to consider the unfertilized egg as being in an inhibited condition, a condition which is rectified or corrected by fertilization. After fertilization we might expect such alterations in the egg surface as would permit a greater degree of interaction between the egg and its environment. This view received some support from R. S. Lillie (1909), who believed that there might be a similarity between the effects of stimulating an egg by a spermatozoon or parthenogenetic agent and the effects of stimulating a nerve or muscle. One of the characteristics of stimulated nerve and muscle is a temporary increase in the permeability of their cell surfaces, and R. S. Lillie (1917) found the same after fertilization in sea-urchin eggs. This egg swells osmotically when immersed in diluted sea-water, and the amount of water which enters it can be measured. Lillie found that though the total amount of water which enters an egg from sea-water of known hypotonicity is the same before and after fertilization, the rate at which osmotic equilibrium is established is significantly increased by fertilization. This means that though the osmotic properties of the egg as a whole are unaffected by fertilization some change in the egg surface occurs which enables water to pass through more easily. Though sparingly ionized substances, such as water, can pass through the surface more easily after fertilization than before, it does not follow that ions, which are electrically charged, will do the same, though it is an increase in the permeability to ions which is associated with nerve and muscle reactivity. Consequently there is no reason to expect from Lillie's results that fertilization will necessarily be associated with relatively large changes in the electrical properties of the egg surface. Neither the resistance to electric current nor the voltage, if any, across the membrane need be significantly affected. The same applies to the electrical capacity, though there is a large increase in the electrical capacity of the sea-urchin plasma membrane after fertilization (Cole, 1938). Such an increase in capacity might be caused by this membrane becoming thinner, and it is interesting that, on entirely different grounds, other research workers investigating the effect of fertilization on the permeability of sea-urchin eggs to sparingly ionized substances tentatively came to the same conclusion (Stewart and Jacobs, 1936).

At the same time it has been shown on several occasions that during the fertilization reaction acid diffuses out of the sea-urchin egg (Ashbel, 1929; Borei, 1933; Runnström, 1933; Laser and Rothschild, 1939). The acid, which so far has not been identified, is a fairly strong one, and it might be expected that its diffusion out of the

\*Annual oration to the London Jewish Hospital Medical Society, given on April 17.

egg would be accompanied by appreciable electrical changes, though these would be very difficult to measure in small eggs. Several attempts have been made to measure such electrical changes, but so far the technical difficulties have proved to be so formidable that the results have been inconclusive (Rothschild, 1938; Gelfan, 1931).

The subject of possible analogies between the response of nerve or muscle to a stimulus, and that of the egg to a spermatozoon, is closely bound up with the observation that normally only one spermatozoon fertilizes an egg. What sort of change is propagated through or round the egg from the point of attachment of the fertilizing spermatozoon which prevents other spermatozoa getting in, and what manifestations of this change can be observed?

The rate of propagation of this change must be relatively fast, because a second spermatozoon cannot fertilize an egg some two seconds after the first one has initiated the fertilization reaction. This means, in the case of a sea-urchin egg, that we can perhaps set a lower limit for the speed with which this change is propagated in the egg. It is unlikely to be much slower than one millimetre per second and may be much faster. This block to polyspermy is thought to be effected long before the fertilization membrane has lifted away from the egg surface, and probably before the breakdown or dissolution of granules in the egg surface, which takes about ten seconds to be completed at room temperature and which is probably associated with the fertilization membrane reaction (Moser, 1939).

Are these changes, which occur during the fertilization reaction, of general incidence, or are they peculiar to sea-urchin eggs, upon which a great deal of the experimental work on fertilization and parthenogenesis is done? In no other eggs has the possibility of acid production on fertilization been investigated. On the other hand, experiments have been done on the permeability of eggs to water before and after fertilization. There is no significant increase in the rate of water penetration into the egg of the annelid worm *Chaetopterus pergamentaceus* after fertilization (Shapiro, 1939). Similarly there is no increase in oxygen consumption after fertilization in this egg as there is in that of the sea-urchin. Actually the rate of oxygen consumption decreases (Whitaker, 1933). It must follow that investigations on the effect of fertilization or parthenogenetic activation in altering the permeability of the egg surface to water or other sparingly ionized substances are unlikely to help in finding common denominators in the fertilization reaction throughout the animal kingdom; though this does not of course detract from their interest in the wider field of elucidating the structure of the cell membrane. This makes the investigation of other eggs from the point of view of acid production during fertilization one of the most urgently required experiments in this field.

#### Hyaluronidase

There may be about 400,000,000 spermatozoa in a human ejaculation for the fertilization of one, or perhaps two, eggs. The number of spermatozoa can be reduced a certain amount by dilution, but far less than might be expected considering the number of eggs which will be fertilized. It used to be thought that the great number of spermatozoa was necessary to make the probability of fertilization very high. In recent years it has been found that this is by no means the complete explanation, and the discovery that other factors are involved may well have a profound effect on our understanding of the fertilization reaction and also on the treatment of sterility. These discoveries have so far been restricted to mammalian spermatozoa, but they may have some bearing on fertilization in lower organisms, on which so much experimental work has to be carried out. When freshly ovulated, mammalian

eggs are surrounded by follicle cells, and it has recently been shown that mammalian testes and spermatozoa contain an enzyme, hyaluronidase, which disperses these follicle cells, or dissolves the substances that make them stick to the egg. It is obviously difficult, if not impossible, for a spermatozoon to come into contact with the egg while the latter is surrounded by these follicle cells, and they must therefore be got rid of before fertilization can take place. The fertilizing spermatozoon is not necessarily among the first lot of spermatozoa which reach the mammalian egg. Their hyaluronidase disperses the follicle cells, leaving the egg bare for subsequent spermatozoa to achieve fertilization. One reason that so large a number of spermatozoa is necessary for successful fertilization is associated with the provision of an adequate concentration of hyaluronidase to disperse the follicle cells. This has been verified by several workers in recent years by artificially inseminating and fertilizing rabbits with suspensions of spermatozoa which were too dilute for successful fertilization under normal conditions, but with hyaluronidase, extracted from dead spermatozoa, added to the sperm suspensions (McClean and Rowlands, 1942). Women have been artificially inseminated, and successful fertilization has resulted, by adding hyaluronidase (extracted from bulls' testes) to semen which previously did not cause fertilization (Leonard and Kurzrok, 1945). Various workers in this field have shown that the amount of hyaluronidase in human semen is proportional to the number of spermatozoa present, which confirms what has been said above about the vital role of this enzyme in mammalian fertilization (Joël and Eichenberger, 1945; Werthessen *et al.*, 1945).

Perhaps more interesting still is the fact that female rats can be immunized against bull testes' hyaluronidase and the immune serum prevents the eggs being denuded of their follicle cells *in vitro*. Furthermore, normal rat semen itself contains appreciable amounts of an inhibiting substance (Leonard and Kurzrok, 1945). There are two implications to this discovery. First, it may be that new methods of contraception may be developed by the use of immunized blood sera; secondly, certain cases of sterility may be due to the inhibiting effect of blood on this enzyme's activity. It is known that the bleeding which is occasionally produced during the dilatation of the cervix at the time of artificial insemination is detrimental to fertilization. Clinical experience has also shown that after normal coitus women not infrequently fail to conceive when bleeding from lesions of the cervix or uterus. It therefore seems possible that certain types of sterility previously attributed to a hypothetical spermatozoon immunity may be due to antibodies formed against hyaluronidase, such antibodies passing from the serum into the uterine fluid and preventing fertilization.

The implications of these discoveries are by no means clear when one considers that the eggs of lower organisms, such as sea-urchins, do not have follicle cells round them. Nevertheless, the number of spermatozoa per egg is still enormous. Many eggs have protein coverings round them. For example, frogs' eggs and sea-urchin eggs when laid are surrounded by a shell of jelly. It might be thought that spermatozoa are so small that they can easily get through barriers of this type, but it is not impossible that the enzyme hyaluronidase plays some part in such cases by facilitating the passage of the spermatozoon through the jelly surrounding the egg. Moreover, there is a species-specific lysin in certain mollusc spermatozoa that dissolves the protein membranes round mollusc eggs (Tyler, 1939a).

In other types of eggs, such as those of the trout, there is a special channel in the outer covering of the egg through which the spermatozoon goes to effect fertilization. Even

in such cases an enzyme or lysin of the hyaluronidase type might play a part. Spermatozoa are usually thought to bore their way actively into eggs, but in general this does not seem to be the case. The spermatozoon is often passively absorbed, once it adheres to the egg surface. It is not difficult to imagine that an enzyme of the hyaluronidase type might be necessary for the spermatozoon to pass through the protein surface of the egg.

### Fertilizin

One of the most interesting but complicated phenomena associated with the fertilization reaction, at any rate in marine invertebrate eggs, is the appearance of a substance known as fertilizin in the medium round unfertilized eggs. The existence of this substance was first demonstrated by F. R. Lillie (1913), and subsequent researches have shown that it has two main properties. First, suspensions of spermatozoa maintain a higher rate of metabolism and mechanical activity in the presence of these "egg secretions" than in sea-water in which they are not present. Secondly, in the presence of fertilizin spermatozoa come together in clusters which cannot be disrupted by shaking, but which disintegrate spontaneously. The phenomenon is known as agglutination. The agglutinating substance in fertilizin can be used up by spermatozoa, the amount of it in the sea-water round the eggs depending on the number of spermatozoa agglutinated.

In recent years new and important work has been done on fertilizin, in particular by Tyler and his colleagues. Tyler has advanced the theory that the jelly which is found round unfertilized sea-urchin eggs may be fertilizin, and he has produced evidence confirming this. Tyler (1941) has also shown that fertilizin is not essential for fertilization if the presence or absence of fertilizin is judged by the agglutination or non-agglutination of spermatozoa. If the jelly surrounding the eggs of the sea-urchin *Strongylocentrotus purpuratus* is removed and the eggs are washed until there is no sperm agglutination whatsoever in the sea-water round the eggs, the eggs can nevertheless be fertilized with complete success. It is, however, clear that more spermatozoa are needed when the agglutinating substance has been removed, and this suggests that, apart from the agglutinating effect of fertilizin, the sperm-activation effect referred to earlier on has a function in the fertilization reaction. By increasing the activity of the spermatozoa this substance might exert its influence by increasing the probability of any particular spermatozoon reaching and fertilizing the egg, thus reducing the total number of spermatozoa necessary to ensure a high probability of successful fertilization.

The phenomenon of sperm agglutination presents a further problem of great interest and complexity. This effect is spontaneously reversible (F. R. Lillie, 1913); but after agglutinating spermatozoa markedly lose their capacity to fertilize eggs even though their metabolism and mechanical activity are unimpaired (Tyler, 1941). Nor do they agglutinate a second time. This rather suggests that the agglutination of spermatozoa of the same species is a form of false fertilization between spermatozoa instead of between eggs and spermatozoa; or, at any rate, that there is some reaction between the surfaces of the spermatozoa which is sufficiently similar to that which occurs between an egg and a spermatozoon to alter the spermatozoon in an irreversible manner, though in other ways it is still completely normal. The idea of the "muzzled" spermatozoon provides an explanation of a phenomenon which anyone who has watched fertilization under the microscope has observed—that spermatozoa can be seen bumping up against the surface of an egg and then swimming away without having adhered and initiated the fer-

tilization reaction. Perhaps the spermatozoa which do this are the "muzzled" ones, and have been "muzzled" by the agglutinin on their way through the jelly towards the egg surface. The "muzzled" sperm concept provides a further reason for the vast number of spermatozoa needed per egg to obtain a high percentage of fertilization if fertilizin in solution acts as a barrier, in that any spermatozoon which combines with it on the way towards an egg cannot then subsequently effect fertilization (Tyler, 1941). Therefore a lot of spermatozoa are needed to get through the fertilizin barrier in the sea-water round the eggs, leaving the way clear for the fertilizing spermatozoa.

Kuhn and his collaborators extracted a substance, echinochrome A, from the ripe eggs of the sea-urchin *Arbacia pustulosa*. This substance increases the activity of spermatozoa and is considered by this group of workers to be the agent in fertilizin responsible for increasing the activity of spermatozoa (Kuhn and Wallenfels, 1939; Wallenfels, 1943), though this claim has been contested by Tyler (1939b). The chemical similarity between echinochrome and vitamin K<sub>1</sub> may be significant, particularly in view of the latter's role in blood clotting.

### Biochemistry of Fertilization

From the point of view of the fertilization reaction, an egg exists in four different conditions: unfertilized, being fertilized; fertilized; and, of course, dead. We should expect that these morphological states will be reflected in the biochemistry and, in particular, in the metabolism of the cell. Consequently Warburg's (1908) discovery that the oxygen-consumption rate of fertilized sea-urchin eggs increases by a factor of six after fertilization was hailed with enthusiasm. Naturally, it was said, the egg must respire at a greater rate when fertilized, because it is an embryo, cleaving and differentiating. In some eggs, however, respiration rates do not change at fertilization; while in others the rate actually goes down (Whitaker, 1933). In any case the oxygen consumption of unfertilized sea-urchin eggs can be increased to the fertilized level by special means such as the addition of pyocyanine, or even perhaps by an increase of temperature, without activation occurring (Korr, 1937; Laser and Rothschild, 1939). The truth is that the mere measurement of oxygen consumption is inadequate as an index of metabolic activity. To investigate the biochemistry of fertilization we must probe more deeply into the fine structure of cellular metabolism and find out the precise chemical nature of the reaction cycles measured by the disappearance of oxygen and the liberation of carbon dioxide. This, of course, applies only in those cases where the reaction depends on the availability of oxygen.

The availability of oxygen is mentioned because some eggs, at any rate, can be fertilized in the absence of oxygen. Activation may therefore be an anaerobic phenomenon. This is confirmed by the fact that activation, including acid production, can take place in the presence of cyanide, which inhibits the oxidative cycle of reactions catalysed by the cytochrome system. If activation is an anaerobic process the possibility arises that the acid which diffuses out of the egg during the fertilization reaction is a product of anaerobic glycolysis. This suggests some interesting experiments, for we know in some detail the chemical reactions which go to make up the anaerobic glycolysis cycle, and also how to cause inhibition at various points in the cycle. Of course there are anaerobic metabolic systems which are entirely different from glycolysis, which starts with the breakdown of carbohydrate and ends with the production of lactic acid or alcohol. An example is a system of the cysteine desulphurase type, which anaerobically splits cysteine into hydrogen sulphide, ammonia (a



compound containing ammonia is said to be formed by sea-urchin eggs during fertilization: Örström, 1935), and pyruvic acid.

Another line of investigation is to measure the respiratory quotient during activation, technically a very difficult experiment. There is evidence (Laser and Rothschild, 1939) that the respiratory quotient is rather low during activation, which suggests that activation is associated with the breakdown of fats or proteins rather than carbohydrates.

These facts and speculations about metabolism during the early phases of the fertilization reaction suggest that activation may be associated both with anaerobic processes and with aerobic ones involving the breakdown of fats or proteins. The latter may have an inhibitory effect on the former, including acid production. The inhibitory effects of aerobic processes on fermentation are well known, and the possibility of such a Pasteur effect in the fertilization reaction could be investigated by specific Pasteur-effect poisons such as ethyl carbylamine.

So far we have discussed only the fertilization reaction. There is the separate problem whether there is any metabolic difference between unfertilized and actually fertilized eggs. The researches of Runnström (1933) and Korr (1937) have led to the rather attractive theory that fertilization induces a cytochrome type of metabolism, while the unfertilized egg respire through a non-ferrous autoxidizable carrier of the flavin or pyocyanine type, the cytochrome being present but inactivated. The evidence for this theory is too complicated to discuss in detail here, other than to mention that cyanide is stated to have little inhibitory effect on unfertilized eggs, but a marked effect on fertilized ones. How is cytochrome inactivated in the unfertilized egg? It is well known that changes in the physical state of the egg protoplasm take place as a result of fertilization (Mirsky, 1936; Mazia, 1937; Monroy and Montalenti, 1946); these might result in the activation of cytochrome, but there is no evidence that they do. Korr and Runnström's results have recently been disputed (Robbie, 1946), and it is therefore urgently necessary to repeat the experiments, which, from a technical point of view, are comparatively simple.

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## INFLUENCE OF PENICILLIN ON THE COAGULATION OF BLOOD

### WITH ESPECIAL REFERENCE TO CERTAIN DENTAL OPERATIONS

BY

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Certain minor operations in oral surgery depend for their success on the organization of a firm blood clot in a cavity in bone. This is particularly the case in the operation of apicectomy, where the excision of the end of the tooth root leaves a small but appreciable cavity in the bone covered only with a thin flap of mucoperiosteum. If the clot in this cavity breaks down the sinus which forms leads down to the cut surface of the tooth root and permits it to become infected.

Since penicillin has been available it has become a common practice to introduce the powder into the cavity before suturing. Such an amount of powder may, however, represent as much as 10,000 units or more of penicillin, and a marked tendency for the clot to break down has been observed in cases so treated. Because of this, experiments were made to see whether penicillin had any action on the coagulation time of blood or on the contraction of the clot.

The first experiment was carried out with an impure commercial penicillin (sodium salt) containing 361 units per mg. Of this, 100,000 units was dissolved in 0.5 ml. of normal saline, and serial dilutions (0.25-ml. volumes) were made in normal saline, leaving one volume of normal saline as a control. Normal human blood was then taken from a vein and immediately 0.25-ml. volumes were added to each tube and mixed. The tubes were then observed and the time which elapsed before clotting took place was recorded. A later examination was made to see whether or not the clot had contracted.

It was thought that the anticoagulant effect observed might be due to the impurities in the penicillin, so the same experiment was repeated using pure crystalline sodium salt of penicillin, and in the accompanying table the results are

Table showing effect of Penicillin on Coagulation Time of Human Blood

Final Concentration of Penicillin in Blood (Units per ml.)	Coagulation Time	
	Impure Penicillin	Crystalline Penicillin
50,000	No clot in 24 hours	No clot in 24 hours
25,000	" "	" 32 minutes
12,500	" "	11 "
6,250	" 75 minutes	7 "
3,125	7 "	5 "
1,562	4 "	5 ½ "
781	—	5 "
340	—	2 ½ "
170	—	2 "
Control	2 minutes	

contrasted with those obtained with the impure salt. It will be seen that the result with crystalline penicillin differed only in detail from that with the very impure commercial product, showing that penicillin itself has a considerable retarding action on blood-clotting.

### Effect on the Contraction of the Clot

In the first experiment, with impure penicillin, it was noticed that in the tube containing 6,250 units per ml., in which clotting was much delayed, the clot did not contract. In the observation with pure penicillin the whole of the serum was drawn off after 24 hours and its volume measured. The amount of serum obtained from the control was considerably greater than that from any of the tubes containing penicillin, indicating that even so little as 340 units per ml. had some retarding effect on the contraction of the clot.

### Conclusions

These results have no bearing on the systemic application of penicillin, as the concentration of the drug in the blood is then in the region of only 1 unit per ml. or less. However, it is quite easy to introduce locally sufficient to interfere seriously with coagulation and contraction of the clot.

It would appear, therefore, that the local use of penicillin in an operation where the formation of a firm blood clot is of importance should be limited to washing out the cavity with a solution of the drug not exceeding 100 units per ml. This could, of course, be combined with intramuscular injections if there is any reason to fear wound infection by penicillin-sensitive organisms.

## IRRADIATION OF GASTRIC CANCER\*

BY

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While encouraging progress has been made in dealing with cancers in more superficial and accessible sites, cancer of the stomach still remains a problem. It is responsible for 13,000 deaths annually in Great Britain, and 40,000 in the U.S.A. (Wilbur and Shenson, 1942)—that is, 33% of all cancer deaths in America (Mullen, 1941). But, worse still, its highest incidence in men and women is between 40 and 60 years, when they have established a place in life, a home, and a reputation; when they are most useful to their profession and their country, and most necessary to their families (Ogilvie, 1945). It is the commonest type of cancer, with the worst results from treatment, for on the average only 1-4% of all cases are alive after five years following curative surgery, and only about four months' prolongation of life can be obtained by palliative operations (Livingston and Pack, 1941).

What can be done to decrease this annual toll of valuable lives? Apart from the possibility of prevention, about which we are able to do little until we know more of the causal factors, the problem is one of diagnosis and treatment. Early diagnosis is particularly important, for we know the vast majority of patients can be cured if treated by radical surgery when the disease is localized to the stomach. But at present some 80% of cases of gastric

cancer are beyond any hope of cure by surgery alone when first brought to the surgeon (Ogilvie, 1938). In spite of the tremendous advances that have been made in the surgical treatment of this disease during recent years, radical surgery can hardly become more radical, for physiological or technical reasons. Its limitations are set by Mayo's dictum that a live patient is one of the essentials of a successful operation, and not by timidity and lack of enterprise by surgeons (Ogilvie, 1945). But what of irradiation—for post-mortem findings show that over 20% of people dying of gastric cancer have the disease still confined to the stomach and immediately adjacent lymph glands (Livingston and Pack, 1939)? Owing to the impossibility of a surgical cure in such a vast number of cases, many other forms of treatment, including irradiation, have been tried in the past, but without striking success. Hardly had Roentgen discovered x rays in 1896 when Despeignes applied them to the external irradiation of a gastric cancer.

There is no need for us to recall the different forms and combinations of irradiation applied to this viscus from then to the present day. It should suffice merely to make some general remarks on their limitations and shortcomings.

*External irradiation* fails because of the deep situation of the gastric tumour and its close relation to other vital organs—both factors tending to prevent adequate tumour dosage—and because of the high but variable radio-resistance of gastric cancer cells, possibly increased by infection. This high resistance may be only apparent, owing to limitation of the tumour dose by severe general and skin reactions. Movements of the tumour make accurate centring of the x-ray beam at repeated exposures difficult to obtain. Livingston and Pack (1941) stated that most patients will not survive long enough to benefit from prolonged external irradiation alone because of the profound state of malnutrition many of them attain.

*Contact therapy* with the Chaoul tube covers a relatively small area (2 cm. diameter) in each field with very little penetration at low voltage. Pack (1939) found that only 22% of the surface dose penetrated to 1 cm. below the surface. For comparison, Fairchild finds that 32% of the surface dose of high-intensity irradiation penetrates to 10 cm. below the surface with the technique he has been using. With the Chaoul tube bulky tumours could not be destroyed by single surface doses at one operation, but needed repeated exposures. This could be done only through some kind of fistula or pouch formation. With such a small field of 2 cm., repeated applications would be required for most inoperable tumours, with the obvious difficulty of adequate and uniform dosage. Also, such localized irradiation would have no appreciable effect on any glandular or other local spread, the presence of which is the usual reason for inoperability.

*Radon seed implantation* has the same difficulty of uniform and adequate dosage (as shown by subsequent radiography) when introduced at operation from either serous or mucous surface, or through a gastrostomy opening or the oesophagoscope. There are also dangers of haemorrhage and infection and perhaps perforation due to massive necrosis of the tumour, while the adjacent field of spread does not receive adequate irradiation.

*Intracavity irradiation* with the five-way tube described by Livingston and Pack (1941) has, they claim, the advantages of easy application, fractionation of doses, avoidance of damage to adjacent vital organs, freedom from dangers of haemorrhage, infection, and perforation, and no interference with food intake. But they had not at that time determined how effective a total dose patients would stand, the most effective fractions into which to divide the total dose, or the results as regards palliation or cure. Used

\*A paper read at a symposium on gastric cancer at a combined meeting of the Radiological Section of the Royal Society of Medicine, the Faculty of Radiologists, and the British Institute of Radiology on Dec 14, 1946.

alone it would appear not to have much effect on local spread, but combined with direct irradiation it might perhaps be used to supplement the dose reaching the centre of large gastric tumours.

Many people think that irradiation not only shortens the patient's life but also adds to his sufferings, and therefore is quite unjustifiable. While this may be true of many of the other methods of treatment we maintain that direct irradiation at high intensity has none of these disadvantages.

### Direct Irradiation

Because of the lack of any striking results from these forms of attack on gastric cancer, Fairchild (1935) first conceived the idea of direct irradiation of deep-seated tumours exposed temporarily at operation. Owing to difficulties associated with anaesthesia and the length of time required to give an adequate dose (at the rate of 40 r per minute—the maximum possible at that time) a compromise was attempted. Some cases of rectal cancer were treated by external irradiation applied posteriorly, after turning back skin-flaps over the sacrum and coccyx. By this means adequate tumour dosage was not obtained, so fractional doses were applied daily for a week or ten days. But the wounds became infected when kept open for so long, and the method was abandoned. Further progress was held up until 1944, when Fairchild and Shorter began to work out a technique for the direct irradiation of gastric cancers exposed temporarily at operation as had been originally intended, instead of merely turning back skin-flaps. Using the intensities then available (700 r to 2,000 r per minute), the method was later elaborated to deal with cancers of the oesophagus, pancreas, colon, etc.

### Advantages of the Method

1. More accurate information about the size, shape, position, and extent of the primary lesion, and any local or general spread, can be obtained at the exploratory operation than can be found out by any other methods, either clinical or laboratory. In the thorax, where we can usually make a fairly satisfactory radiological examination, the extent of a cancer is almost invariably greater than it would seem from x-ray films. So in the abdomen the growth is nearly always more extensive than can be determined by the usual examinations and investigations. According to Walters *et al.* (1942), exploratory operation is the only reliable way of deciding the correct form of treatment.

2. Biopsy specimens can usually be obtained to help confirm the diagnosis. With palpable glandular involvement this can be done safely, but incision of the tumour may spread tumour cells or lead to perforation owing to subsequent massive irradiation. Thus biopsy may not be practicable in all cases, but being able to see and feel the tumour should make the diagnosis more certain than when relying on external methods of examination alone.

3. A more accurate and effective dose of irradiation at high intensity can be given direct to the tumour and field of local spread without irradiating such a large volume of normal tissue, including vital organs and skin, unavoidable when irradiating from the skin surface. This may be of great importance in an already anaemic and cachectic patient.

4. More accurate centring of the x-ray beam is possible under direct vision than when relying on x-ray films or clinical examination alone.

5. The skin is left practically intact, and will permit further full dosage to be given externally at a later date should this be deemed necessary. Supplementary external irradiation was given later in some of our earlier cases, beginning about ten days after operation, as we felt that the initial dose was too small to cure. Some had further external irradiation after some months.

6. Various operations to relieve obstruction can be performed before the irradiation, at the same or an earlier and less exten-

sive laparotomy, such as gastrostomy for cardiac obstruction and gastro-jejunostomy for pyloric lesions. Though the obstruction may not be severe it increases owing to fibrosis of the tumour after irradiation. In hopeless cases these operations can be done without irradiation to relieve symptoms.

### Preliminary Investigations and Pre-operative Preparation

Diagnosis and localization of the tumour are achieved as accurately as possible by clinical, radiological, gastroscopic, oesophagoscopic, and laboratory investigations. The general condition of the patient is investigated as regards possibility of metastases, state of nutrition, and fitness for anaesthesia and operation.

Patients with cancer of the upper alimentary tract are often at high risks for operation or irradiation. This varies considerably with the site and type of growth, the degree of interference with nutrition, infection of the tumour or even the whole mucosa, and toxæmia from the growth. The patient with cancer at the cardia or pylorus is usually at a worse risk than the patient with a mid-gastric lesion, owing to the more profound disturbance of nutrition, even amounting to gross deficiencies of many vitally important substances. These deficiencies must be made good, before any extensive operation or intensive irradiation is carried out, by means of a high-protein, high-carbohydrate, low-fat diet, with extra fluids, iron, salts, and vitamins when necessary (Payne, 1940; Reid, 1941; Garlock, 1942; Ravd *et al.*, 1943; Wangenstein, 1943). Infection is combated by the tumour, or in the stomach generally in pyloric obstruction, by daily gastric aspiration and lavage with weak hydrochloric acid solution. Dental sepsis, so often associated with upper tract cancers, is attended to before general anaesthesia. Routine coughing and breathing exercises are begun before operation and continued as soon as possible after operation, to maintain a clear airway and good expansion of the lungs (Shorter, 1944). This is the most important measure in avoiding lung complications after upper abdominal operations, especially when the thorax is opened as well.

### Surgical Approaches

Owing to the tendency of the growth to spread along the stomach, or to lymphatics above, behind, or below the stomach, the exposure must be such as to enable the direct irradiation to be carried out in an antero-posterior plane, otherwise uniform irradiation of the tumour area would not be possible. It follows that the left transthoracic approach is unsuitable for direct irradiation even for the cardiac area and lower oesophagus (Shorter, 1946).

This may be in one or two stages (Fairchild and Shorter, 1945). (1) When there is well-marked cardiac or pyloric obstruction gastrostomy, gastrojejunostomy, or even jejunostomy may be necessary before the patient's condition can be improved sufficiently to stand the wider exposure and irradiation. This is usually done through a small upper left paramedian incision, making exploration of the tumour and the whole abdomen possible. Many cases have in this way been found unsuitable for irradiation owing to unsuspected widespread metastases. (2) When the patient's condition seems satisfactory the abdomen is explored through a different incision more suitable for extension, even into the thorax if necessary. We have usually followed this practice when the condition of the patient will allow it, so as to avoid the two operations advocated by Garlock (1941, 1942). Also it saves moving the patient between making separate incisions for the exploration and the main exposure (Churchill and Sweet, 1942a, 1942b). The form of treatment to be carried out cannot be decided upon beforehand.

so preparation must be made for all contingencies so far as is possible. The abdomen must be thoroughly explored before making an extensive exposure, especially before opening the thorax. It would seem to be unwise, and unfair to the patient, to open his thorax and divide his diaphragm before estimating carefully the extent of spread in the abdomen (Shorter, 1946).

(a) *Midline Incision.*—In our early cases the main approach was through a midline incision from the sternum, excising the xiphoid, to the umbilicus or beyond. With a narrow subcostal angle, the wound was widened by dividing each costal margin and forcibly retracting. Then the tumour was mobilized to bring it down into the open wound. This method was soon abandoned in favour of leaving the tumour *in situ* and retracting the abdominal and perhaps thoracic wall to give direct and wider exposure.

(b) *Angular Abdomino-thoracic Incision.*—For upper gastric tumours a transverse incision was made through the sixth and seventh left costal cartilages from the upper end of the midline incision, and continued round in the fifth space to the posterior axillary line. The thorax was opened and the left side of the diaphragm divided down to the oesophageal hiatus, the incision skirting round the left edge of the pericardium. This method caused less operative shock and decreased the risk of spreading the disease by lymphatic embolism, owing to decreased manipulation of the tumour. Also it gave better access to the cardiac region, though some difficulty was experienced in retracting the angular flap containing the divided left costal margin.

(c) *Oblique Abdomino-thoracic Incision.*—In our later cases this difficulty was overcome by an oblique incision across the upper abdomen, from the ninth right to the seventh left costal cartilage, in line with the outer part of the fifth left interspace. The incision was continued through the left costal margin lower down into the fifth interspace, the thorax opened and the diaphragm divided, as before. This gave a wide straight opening with much better direct access to the whole stomach.

We have found this oblique incision most useful for gastrectomy and oesophago-gastrectomy. Garlock (1946) has recently described a somewhat similar combined abdomino-thoracic approach to the lower oesophagus and cardia, but he explores the abdomen through an upper left pararectal incision, which may be continued into the thorax through the ninth left interspace.

### Points in the Operative Procedure

When operations to relieve obstruction are necessary they are done before the irradiation, and when possible in an area of the stomach not to be irradiated. Irradiation of normal viscera, so far as is possible, is avoided by displacement and packing out of the field. In our earlier cases lead screening was used to protect the skin edges of the wound. More recently we have introduced a special sterilized applicator into the wound. Sterilized oiled silk protects the field against infection during irradiation but allows accurate visual centring of the tumour in the x-ray beam. To avoid shock produced by frequent moving, a special trolley has been designed on which the patient can have both the operation and the irradiation.

### Radiological Data

The apparatus consists of two Metropolitan Vickers constantly evacuated x-ray tubes of the 250-kV type. Special modifications in the layout and in various components of this apparatus have been made, so that both tubes may be used simultaneously in treating a single lesion. This has been done to increase the intensity above that available with the standard apparatus. The lower tube has a vertical traverse only, whereas the overhead tube has a vertical and horizontal traverse. The beam of each tube can be rotated through 300 degrees in a vertical plane. With the use of radiation giving a half-absorption value

of 1.7 mm. Cu, the available surface intensity is of the order of 1,000 *r* per minute from each tube. In each case the focal skin distance is 21.7 cm. and the field 13 cm. in diameter.

*Methods of Irradiation.*—In our original method only one tube was used to administer a single dose of radiation direct to the lesion. This was followed in ten days by a further dose given through the skin. In our later cases this method was modified in an attempt to give an adequate total dose of irradiation at one exposure, with more uniform distribution, so as to avoid the necessity for subsequent external irradiation. For this purpose the overhead tube was used as before, while the lower tube, with the x-ray beam directed upwards, was arranged beneath the patient, with the canvas trolley-top alone intervening. The central ray of each beam was so directed as to pass through the centre of the lesion. In our first method, with one tube, the total initial tumour-surface dose was 500 *r*–1,200 *r*, the latter figure being chosen as a maximum because it had been effective in certain superficial lesions. Also it was thought that a larger dose might cause massive necrosis of tumour tissue, with a risk of haemorrhage and perforation, there being no precedent to indicate the probable effects of such high tumour doses given with a maximum of two to five minutes. In our second method a provisional average tumour dose of 1,300 *r* was decided on, as a minimum throughout the tumour, entailing a surface dose of 1,300 *r* from the under-couch tube and 1,600 *r* direct to the lesion from above. This latter dose is being gradually increased.

*Post-operative and Irradiation Reactions.*—Immediate reactions have been no more severe than would have been expected after the operation alone, which often involved extensive exposure of the viscera, with both thorax and abdomen widely open together, and much manipulation during isolation of the tumour. Even after giving 3,000 *r* in three minutes there has been remarkably little irradiation reaction, which has come on seven to ten days later, when the operation reaction has passed off. It has been mostly limited to nausea and anorexia, with rarely any vomiting or diarrhoea. Blood changes have been less severe than usual after external irradiation, when the dose is spread over a longer time and a far greater volume of tissue and blood is treated. Irradiation reaction has been more severe and the recovery much slower after the external irradiation given to certain of our earlier cases some months after the operation and direct irradiation, even though the patients were generally more fit for the later treatment, which was a relatively smaller dose spread over a few weeks.

### Results of Treatment

During the past two and three-quarter years 32 cases of inoperable gastric cancer have been investigated. Of these patients three refused all treatment and left hospital, and one was considered unfit for exploratory operation, being a man of 80 with a large palpable tumour of the lesser curve. The remaining 28 cases were explored. Three of these were unfit for further treatment—one due to widespread growth and poor general condition; another due to extensive residual growth and insuperable adhesions following partial gastrectomy; and the third due to extensive growth with perforation of a carcinomatous ulcer. Ten of those explored were found unfit for direct irradiation owing to too extensive growth or poor general condition, or both, and had palliative operations only.

This leaves 15 cases that were treated by direct irradiation. These can be divided into two groups—first, a group of seven cases in which the irradiation was purely palliative owing to obvious spread beyond the possible field of irradiation or to poor general condition. Of these, one is

alive and well after five weeks; one lived six months, one five months, and two four months; while the rest died sooner. In the second group of eight cases the growth appeared to be limited to an area that could be irradiated. Of these, one lived 24 months, two 15 months, one seven months, one four months, and one three months after treatment. The remaining two died within the first week—one from bilateral pulmonary collapse while the wound was being closed, the other from spontaneous pneumothorax on the opposite side four days after operation.

### Details of Cases

The following are brief details of some of our cases in chronological order, as we proceeded with and modified our technique.

*Case 1.*—A man aged 35, with carcinoma of the lesser curve, had a laparotomy on Feb. 15, 1944, via the upper midline incision, widened by division of both lower costal margins. The tumour was a large elongated flat plaque extending from 2.5 cm. short of the pylorus to the cardia; its surface was stony-hard, irregular, and with subserous spread. It measured 13 cm. vertically, 7 cm. antero-posteriorly, and 4.5 cm. thick. The rest of the stomach was normal. Spread to glands or viscera was not found. A biopsy was not made, but surgeon, radio-therapist, and pathologist were all sure of the diagnosis. The tumour was irradiated with one tube, the maximal tumour dose being 1,000 r in one minute. External irradiation was begun nine days later, amounting to a maximal tumour dose of 970 r in 12 days. The total maximal tumour dose was 1,970 r in 21 days. The tumour decreased very much in size, with marked contraction of the stomach also. The patient's appetite soon returned, and he was able to eat any food without indigestion. As his stomach became smaller it emptied more rapidly, so that he had to take small meals frequently. He gained over 2 stone (12.7 kg.) in weight after treatment, and returned to work as a newspaper reporter within six months. He was readmitted to hospital at the end of December, 1945, and died from widespread metastases in February, 1946, just over two years after the direct irradiation. Post-mortem examination showed growth in the whole stomach, throughout the chest and abdomen, and in the brain. This was our first patient; he had a relatively small dose of irradiation and lived two years, most of which time he was free from any symptoms.

*Case 2.*—A man aged 67, with carcinoma of the pyloric antrum, had a laparotomy on Feb. 22, 1944, via the upper midline incision. The tumour was a hard irregular cylindrical mass encircling the pylorus and pyloric antrum, 6.5 cm. long and 5 cm. across. Glands in the lesser curve were taken for biopsy, and were reported on as early infiltration with carcinoma cells compatible with stomach primary carcinoma. The tumour and glands were irradiated with one tube, the maximal tumour dose being 1,000 r in 1.5 minutes. External irradiation was begun in nine days, but was stopped after a few days (275 r maximal tumour dose) owing to the development of a lung abscess. External irradiation was restarted six weeks later with a further 1,089 r. The total maximal tumour dose was 2,364 r in 56 days. Almost complete pyloric obstruction developed owing to fibrosis and contraction in tumour after irradiation. No improvement took place by May 30, 1944, so a gastro-jejunostomy was performed. The patient died of heart failure within a week. The second operation could have been avoided had a short-circuit been done at the first operation, though the patient was in poor condition then. The irradiation given was inadequate, but a larger dose was precluded by the patient's poor condition.

*Case 3.*—A man aged 60, with carcinoma of the greater curve, had a laparotomy on April 4, 1944, via the upper midline incision. The tumour was a large irregular stony-hard mass on the greater curve in the pyloric antrum measuring 13 cm. transversely, 7 cm. vertically, and 7.5 cm. antero-posteriorly, with an ulcer 7.5 cm. across facing into the lumen of the stomach. The tumour was attached to and invading the pancreas. There was a subserous spread on the surface of the tumour, and some was removed for biopsy. The report stated that there was a large spheroidal and round-celled adenocarcinoma of the stomach with well-marked mucoid change. No other spread

was found. The tumour was irradiated with one tube—maximal tumour dose, 1,000 r in 1.5 minutes. External irradiation was begun nine days later, amounting to a maximal tumour dose of 991 r in six days. The total maximal tumour dose was 1,991 r in 16 days. His pain disappeared within a few weeks of the direct irradiation, his general condition quickly improved, his appetite soon returned, and he returned to work as a stoker five months after direct irradiation, having gained 1½ stone (9.5 kg.) in weight. He was readmitted for further external irradiation on Nov. 23, 1944, as it was thought the initial dose was too small to cure the lesion. The second maximal tumour dose was 2,646 r in eight days. Systemic reaction was more severe and his recovery was much slower after this, but he continued to improve. He began vomiting at the end of March 1945, owing to obstruction at gastro-jejunostomy by contraction of the growth after treatment. He continued to vomit but refused further operation until the end of June, 1945, by which time his general condition was very poor. At this operation the duodenum proximal to the anastomosis was joined to the jejunum beyond, but he died a few days later from intestinal obstruction by a volvulus after the operation. Post-mortem examination showed growth in the stomach, mostly outside the treated area. He lived 15 months after the direct irradiation and might well have lived longer if he had allowed us to perform the second operation sooner.

*Case 4.*—A woman aged 54, with a leather-bottle stomach from pylorus to cardia, had a laparotomy on May 9, 1944, via the upper midline incision. The stomach was stony-hard from pylorus to cardia. Glands were found high in the lesser curve and below the pylorus. Biopsy of the gland showed undifferentiated glandular carcinoma. The tumour and gland were irradiated with difficulty with one tube, as it was impossible to get the whole lesion into the field of irradiation. The maximal tumour dose was 950 r in 1.6 minutes. External irradiation was begun nine days later, amounting to a maximal tumour dose of 2,310 r in 13 days. The total maximal tumour dose was 3,260 r in 23 days. She improved for a time and was quite free from pain. Her appetite did not improve, and she died at home four months later. A necropsy was not done.

*Case 5.*—A woman aged 57, with carcinoma of the abdominal oesophagus involving the cardia, had an angular abdomino-thoracic incision on May 16, 1944. The abdomen was explored and a small stony-hard pear-shaped tumour 5 cm. long by 2.5 cm. across was found encircling the abdominal oesophagus. There were no signs of spread. The incision continued into the thorax, but no spread was found there. Operation was not possible owing to the poor general condition. The tumour was irradiated with one tube, with a maximal tumour dose of 1,000 r in 4.26 minutes. External irradiation was begun in nine days, amounting to a maximal tumour dose of 2,541 r in 11 days. The total maximal tumour dose was 3,541 r in 20 days. Her general condition improved, and swallowing, which was previously limited to fluids, was very much better. She gained some weight. Further external irradiation to cover the length of the mediastinum and lesser omentum was begun on March 12, 1945. The maximal tumour dose was 2,046 r in four days. The systemic reaction was severe, but her general condition slowly improved. Swallowing became almost normal. Then she developed a pyrexia and died suddenly on Aug. 23, 1945—15 months after the direct irradiation. Necropsy showed death to be due to broncho-pneumonia and cirrhosis of the liver. There was no sign of viable cancer cells in the irradiated area, but some were found in the right lung base. This was the first gastric case for which we opened the thorax and abdomen together.

*Case 6.*—A woman aged 42, with carcinoma of the cardia, had an angular abdomino-thoracic incision and her abdomen explored on Nov. 14, 1944. A tumour about 6 cm. in diameter was found involving the cardia and abdominal oesophagus. Glands were found around the left gastric vessels; no other sign of spread was discovered. Biopsy of glands did not show any involvement with carcinoma cells. Incision continued into the thorax, but the general condition of the patient was too poor to allow direct irradiation or gastrectomy to be carried out, and the wound had to be closed hurriedly. Another attempt was made to expose the tumour for irradiation on Jan. 16, 1945, through the oblique abdomino-thoracic incision.



Great difficulty was experienced with adhesions, and again the operation had to be terminated rapidly before completion. The patient died some 36 hours later. Post-mortem examination confirmed the carcinoma encircling the cardia and lower abdominal oesophagus, causing complete obstruction. No other possible signs of spread were observed except the glands found at operation. Unfortunately this patient had been treated as a case of achalasia for some eight months, in spite of losing 1 stone (12.7 kg.) in weight and having gradually progressive symptoms.

**Case 7.**—A woman aged 46, with carcinoma of lesser curve, had a laparotomy on Nov. 21, 1944, via the upper midline incision. A saddle-shaped tumour 8 cm. transversely by 5 cm. vertically by 4 cm. thick was present on the lesser curve in the pyloric antrum and body. Hard glands were found along the lesser curve and below the pylorus and body of the pancreas. Biopsy of glands revealed infiltration by mucus-secreting carcinoma, showing little differentiation and increased fibrous stroma as in leather-bottle stomach. The tumour and glands were irradiated by two tubes, the maximal tumour dose being 1,528 r. in 2.4 minutes. The patient withstood operation and radiation very well, but suddenly collapsed and died just as the wound was being closed. Necropsy showed complete collapse of both lungs, for which no cause, either intra- or extrapulmonary, was found.

**Case 8.**—This patient, a woman aged 54, had a carcinoma of the lesser curve. Her abdomen was explored via an oblique abdomino-thoracic incision on March 23, 1945, and a saddle-shaped tumour measuring 8 cm. transversely by 4 cm. vertically by 4 cm. antero-posteriorly was found high on the lesser curve, extending a quarter-way round the lumen on each surface; it was stony-hard, nodular, with subserous spread. There were glands along the lesser curve. Biopsy showed moderately differentiated adenocarcinoma with much fibrous stroma invading the lymph gland. There was no other sign of spread. The incision was continued into the thorax. The tumour and glands were irradiated with two tubes, a maximal tumour dose of 1,542 r being given in three minutes. Her general condition improved, her appetite returned, and she gained in weight and lost all dyspepsia. Her stomach had contracted considerably some five months after irradiation, and she had to have frequent small meals. Later, she would not take much food because of the return of pain, and then vomiting began. Her abdomen was explored through a left paramedian incision on Sept. 28, 1945, when much clear fluid was found, with mild peritoneal spread of carcinoma. A palliative jejunostomy was performed, but she died within a week. Necropsy showed widespread involvement of the parietal and visceral peritoneum andomentum, with metastases. The stomach was greatly contracted and showed infiltration by growth from pylorus to cardia.

**Case 9.**—A man aged 68, with carcinoma of cardia, had the abdomen explored through an oblique abdomino-thoracic incision on Feb. 13, 1945. A tumour 6 cm. transversely by 4 cm. vertically by 3.5 cm. antero-posteriorly was found at the cardia. There were glands in the lesser curve and above the cardia, but no spread was observed elsewhere in the abdomen. Biopsy of the glands showed poorly differentiated adenocarcinoma invading the lymph-gland. The incision was continued into the thorax, but no spread was found there. The tumour and glands were irradiated with two tubes, the maximal tumour dose being 1,96 r in 1.8 minutes—smaller than intended because the lower tube became unstable and was turned off. The patient progressed very well for four days, when for no apparent reason spontaneous pneumothorax suddenly developed on the right side, causing rapid death from heart failure in spite of all attempts at resuscitation.

### Conclusions

To summarize our results, 15 out of 32 cases were treated by direct irradiation. In eight of these the disease appeared to be limited to an area that could be irradiated, and of this group one lived 24 months, two 15 months, one seven months, one four months, and one three months after treatment.

Although the series is small we feel sure that direct radiation at high intensity will prove to be a rational and

hopeful advance in the treatment of cancer of the stomach and other viscera. Whether the cancer is rendered inoperable by the poor general condition of the patient or by irremovable local spread, this method will often succeed where surgery alone must inevitably fail. Though wider exposure is needed than for surgery alone, with adequate precautions the whole procedure should not be so shock-producing as is wide surgical excision.

Exploratory operation is the only reliable way of deciding the correct form of treatment, and the hospital of the future will have a radiotherapy room adjoining the operating theatre to facilitate direct irradiation.

It is more reasonable to irradiate most what needs irradiating—i.e., the tumour and field of local spread—and not the overlying skin or intervening vital tissues.

Biopsy may not be practicable in all cases, as it is not altogether devoid of risk when there is no obvious glandular spread. But even biopsy is not always reliable, depending as it does on choice of the right piece of tissue, and being vitiated in some cases by variations in cellular differentiation in different parts of a tumour. Being able to see and feel the tumour should make the diagnosis more certain than when relying on external methods of examination alone, and biopsy will often increase that certainty.

Of course a method involving such extensive surgical procedures and such intensive irradiation must inevitably present new problems. Owing to difficulty in obtaining a sufficient number of suitable cases we have scarcely advanced beyond the "growing-pains." There are many modifications and improvements in technique we would like to try out. We hope that we have shown that our method is a reasonable and practicable possibility, and that eventually we may be able to improve on the present appallingly low cure rate of gastric cancer.

Unless and until we can achieve earlier diagnosis and bring a far greater number of operable cases to the gastric surgeon, there will remain a vast number of victims of this dreadful disease destined to die without even the hope of palliation or amelioration of their sufferings. Much more must be done for these patients, who greatly exceed numerically the relative few with operable lesions under the present conditions of diagnosis. Only too often our attitude is one of defeatism and despair towards these people, whose needs are often desperate. Even limited palliation for relatively large numbers might well balance the success achieved by spectacular and dangerous operations only possible for relatively few (Livingston and Pack, 1941).

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## FIELD INVESTIGATION OF AN OUTBREAK OF DIPHTHERIA

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An outbreak of diphtheria limited to one house occurred at a boys' boarding-school. The history of the outbreak and the tracing of the source of infection may be of interest. The house contained 39 boys, a matron and her daughter (Mrs. T. and A.T.), a house-master, his wife, and four children. The domestic staff consisted of five persons for the boys and three for the family. The population at risk therefore comprised 55 persons, consisting of 11 adults, 40 adolescents, and 4 young children. The house was roughly divided into a private side and a school side, but two of the private-side maids, Y.S. and M.R., waited at table on the boys and family. These maids occupied a bedroom opposite to A.T., the matron's daughter.

### History of the Outbreak

A.T. attended a day school in London. During the half-term holiday the head mistress received a notification that a girl who had last attended school on Oct. 31 had developed diphtheria on Nov. 3. There was no direct contact between this girl and A.T., but on Nov. 12 A.T. developed diphtheria and was removed to the Isolation Hospital. This date occurred during the half-term holiday of the boys' boarding-school. All direct contacts were swabbed and found negative, but in spite of the negative swab Mrs. T. was isolated in her room for eight days as a near contact. The boys returned from the half-term holiday, spent at their homes, and as some of them had been in contact with A.T. previous to going away they were all swabbed. Five of the boys were found to be immune carriers of gravis type, so they were isolated at the school sanatorium. On Nov. 21, nine days later, one of the boys, the house-master's child, and the nursery governess all developed diphtheria. A child in the neighbouring town was also notified on Nov. 28, and two further cases occurred among the boys on Nov. 30.

Frequent throat and nose swabbing of all contacts of the cases was now carried out, and on Dec. 8 the matron and the butler were found to have positive throat swabs, and on these findings were admitted into the Isolation Hospital as carriers. As no K.L.B. were discovered at the Isolation Hospital after swabbing their throat and nose three times on alternate days, they were discharged on Dec. 14. On the 16th, however, the matron and butler were readmitted as they had again become positive. These two people were apparently transient carriers, as no positive organisms were detected on re-examination at the hospital.

The child in the town who developed diphtheria had been visited by one of the maids, Y.S., who was therefore subjected to repeated swabbing of the nose and throat, but every swab was negative. Subsequent inquiry, however, revealed the information that she had been suffering from sores on the scalp and limbs, which had been treated with a fair measure of success by the matron.

On Dec. 22 school holidays started. During the holiday Mrs. T., A.T. (now discharged from hospital), and the butler all had throat and nose swabs taken by their private doctors and were found negative. On Jan. 19, 1947, a few days before the school reassembled, the occupants of the private side returned to prepare the house. As an extra precaution they were swabbed again, and the matron and her daughter were found positive. They left the premises on Jan. 20, before the boys returned, and did not come back until March 1. On Feb. 12 a laundryman delivered a basket of clothes at the house and is said to have held a short conversation with one of the maids, M.R. This

man developed diphtheria on Feb. 16, twenty-eight days after the suspected carriers had left the house, and he suffered from a severe post-diphtheria paralysis. On Feb. 28 the night porter employed at the house also developed the disease and subsequently died of it. On March 1 the two maids, Y.S. and M., left the house and went to Hitchin. Before they left they had been in contact with a new nursery governess, who arrived Feb. 22. On March 17 this governess developed diphtheria.

Summarizing the results of the outbreak: in a community of 57 persons (55 originally and 2 newcomers) there were 11 cases of diphtheria, with one death, one case of post-diphtheria paralysis, and nine immune carriers. The outbreak continued in spite of the absence of the suspected carriers—the matron and her daughter.

### Continued Search for the Carrier

As the last three cases occurred after Mrs. T. and A.T. had left, suspicion fell on the butler, and on re-examining him a single colony of K.L.B. gravis was grown from the swabs taken on March 24, 26, and 27. Before the reports were received also had left the neighbourhood, and could not be traced until April 9, when three concurrent swabs were negative. It was felt that his low infectivity was not a sufficient explanation of the continuance of the disease, although possibly he was responsible for the case occurring on March 17. It was therefore decided to follow up the two housemaids who had gone to Hitchin. Owing to the extraordinary sequence of events at school the M.O.H. of Hitchin, co-author of this paper, had been informed of the arrival of Y.S. and M.R. at an inn in the district, and the following events occurred.

*March 3.*—Arrival of M.R. and Y.S. at the inn.

*March 10.*—A contact at the inn, S.B., developed a sore throat and was off work for a week.

*March 12.*—An out-worker at the inn developed diphtheria.

*March 21.*—A guest staying at the inn left for Brighton and was admitted into Brighton Isolation Hospital with diphtheria on March 24.

*March 24.*—V.B., S.B., Y.S., and M.R. attended a local dance.

*March 28.*—V.B. was admitted to hospital with diphtheria. Throat and nose swabs from Y.S. and M.R. were returned negative, but these two girls were admitted to the Isolation Hospital for further observation.

*March 31.*—A swab of S.B. was found positive and she was admitted to hospital for diphtheria. M.R. and Y.S. were discovered to have verminous heads, and in addition M.R. had scalp sores and an eczematous ear. (It is to be noted that whenever she had previously appeared for examination she had worn a head-scarf.)

*April 2.*—Swabs taken from M.R.'s external auditory meatus and scalp sores were all found to contain K.L.B., gravis type, and virulent. Y.S. was negative.

*April 4.*—Y.S. was discharged and left for her home. The M.O.H. was informed of her contact with a carrier.

### Possible Course of the Infection

There are three possible originators of this outbreak. In the first place, the girl at A.T.'s London school may have infected A.T. and through her the sores of the housemaids may have become contaminated with K.L.B. We think this is unlikely: twelve days is a long incubation period for diphtheria, and there is no evidence that the first girl already had the disease on the last day she attended school (Oct. 31), three days before her case was diagnosed. A.T. was isolated immediately diphtheria was suspected, and did not come into close contact with the maids before she was removed to hospital. Y.S. is the second possibility; and the chief point in suspecting her as the originator of the outbreak is that she was the only connecting-link between the school and the town who actually visited the house where the town case occurred. In addition, the matron dressed her sores, and she was in close contact with the butler, thus explaining the transference of the swabs taken from these two sources. St

waited on the boys at table, and the dates on which the cases fell among the boys are more suggestive of contact infection from one source than of infection from case to case. The last point applies equally well to M.R., and in addition she undoubtedly infected the laundryman. She did not, however, visit the child in the town. The Medical Officer of Health reports that by the time she was admitted to the Isolation Hospital at Hitchin her head was a mass of foul-smelling offensive sores, while Y.S. was comparatively clean. Taking the available evidence as a whole, we think M.R. was the originator and that she infected Y.S., whose skin was already in an unhealthy state. Y.S. took the infection to the town, but, possibly owing to the ministrations of the matron, by the time she reached Hitchin her sores were healing, and the infection was then carried on by M.R.

**Steps Taken to Prevent Spread.**—These were: (1) Careful and repeated swabbing of all members of the infected house and isolation of immune carriers; (2) isolation of the boys from the infected house; (3) protective injections (2,000 units of anti-diphtheria serum) and re-immunization of the boys and the domestic staff; (4) re-immunization of the rest of the school with 0.3 ml. A.P.T.

### Points of Interest

(a) The comparatively small number of cases and carriers in a closed community.—This is no doubt due to the relatively large proportion of protected persons within the community at risk. All the boys except two had had their primary immunization before joining the school. Of the two who had not, one contracted the disease. The other three boys who had the disease had been immunized in 1939, 1941, and 1940 respectively, thus suggesting that the protective power had lessened after five years and that a "boosting" dose was required. Nevertheless, it is reasonable to suppose that the primary immunization of these three boys had helped in combating the disease, as the two adult cases (the laundryman and porter) who had not been immunized were more severely infected. The immediate steps taken to heighten immunity in those not attacked were also effective.

(b) The difficulty of determining the significant carrier.—Much time was lost and two serious cases received their infection through the assumption that Mrs. T. and A.T. were the significant carriers. It was only an obstinate refusal to discard the school-town infection clue, even after negative swabs, that led to the M.O.H. at Hitchin being put on his guard and to the detection of the actual infectors.

(c) That a number of cases of pharyngeal diphtheria occurred from a skin infection of virulent gravis diphtheria.—Although not unknown, this is an unusual occurrence and should lead to a careful scrutiny for skin lesions in an unexplained prolongation of an outbreak.

The spring number of the *American OSE Review* is particularly interesting for a number of articles by Jewish doctors on their experiences in the ghettos and concentration camps established by the Germans. Dr. E. Herman gives an account of a typhus epidemic in 1941-2 in the Warsaw ghetto, where over half a million people were crowded together. "Liquidation" of the ghetto followed in 1943, being "preceded by a tour of S.S. men and Gestapo with monocles in their eyes in shiny limousines." There were about 80,000 cases in the epidemic; he tabulates the neurological syndromes found. Conditions in the Vilna ghetto were little less deplorable, and Dr. Dworzecki mentions that about 75% of the women ceased to menstruate for a varying period of time soon after being herded into it. The camp commandant ordered several women with severe scabies to be shot. Dr. Rosenblum briefly describes the destruction of the Jewish community in Warsaw by shooting, gas, and burning, and the plight of children left to wander in the ruins and forests.

## PARTIAL HEPATECTOMY AND RIGHT HEMICOLECTOMY FOR CARCINOMA OF THE HEPATIC FLEXURE

BY

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The object of this paper is to call attention to the feasibility of carrying out an operation for the removal of a carcinoma of the hepatic flexure of the colon which involves the right lobe of the liver by direct extension. Coincidental partial hepatectomy at the time of gastric resection for carcinoma involving the liver by direct extension from the stomach has been performed by Wangenstein (1943, 1945). It is of interest also to remember that in 1923 Grey Turner stated: "Direct extension of malignant disease from the stomach or colon may render removal of a portion of the liver necessary, and I think this will become one of the most frequent indications, especially as it usually only involves the removal of a slice or wedge from the edge of the organ. In cases of this kind such an extension to the liver need not in itself be a bar to successful operation if the extension of the growth in other directions rendered its removal profitable." Some six years ago I performed a right hemicolectomy for a carcinoma of the hepatic flexure which invaded the right lobe of the liver, and it was necessary to remove a slice of liver with the growth; this patient remains well without recurrence at the present time, proving that the end-result of such an operation is most satisfactory. Recently, however, a much more formidable problem presented itself, and it was necessary to remove a large portion of the right lobe of the liver, including the gall-bladder, for a massive carcinoma involving the liver and hepatic flexure of the colon. Two months previously a surgeon who performed an ileo-transverse-colostomy as a palliative measure considered this growth to be inoperable on account of the extension to the liver. The clinical details concerning this patient are embodied in the case record given below. Since an operation for resection of a large lesion of the right lobe of the liver is a rare surgical procedure the technical details are described.

### Case Record

A man aged 38 developed pain in the right lower abdomen when in India a year ago. It was sharp in character and was accompanied by diarrhoea. This attack subsided and he was able to continue his work. Several weeks later the diarrhoea recurred with four stools a day. He still experienced pain in the right lower abdomen. His appetite was good and he felt fairly well. Seven months ago the abdominal pain became continuous; he lost his appetite, and noticed that the bowels had become constipated. He gradually lost strength, and on examination a lump was found in the right iliac fossa. Three months before we saw him he reached this country and was admitted to another hospital. A hard mass was noted in the right hypochondrium, blood was present in the stools, and *Entamoeba histolytica* was demonstrated. An x-ray examination after a barium enema showed a large filling defect in the transverse colon. He was given a course of emetine therapy to exclude an amoeboma, but this treatment had no appreciable effect. An exploratory laparotomy was then performed after preliminary blood transfusion, and the mass appeared to be a large scirrhous carcinoma of the transverse colon just medial to the hepatic flexure and invading the gall-bladder and liver, to which it was densely adherent, but no secondary deposits were found. The growth was considered to be inoperable and an

ileo-transverse-colostomy was performed. The patient made a good recovery from the operation, the colicky abdominal pain subsided, the stools were normal, and his appetite improved.

Later his condition began to deteriorate, with the development of severe secondary anaemia, and in spite of three blood transfusions of 1 pint (568 ml.) each, the red blood corpuscles fell to 2,400,000 per c.mm. and the haemoglobin to 35%. There was severe pain in the region of the tumour and he was transferred to the Royal Cancer Hospital. On examination the patient looked ill and pale, and had obviously lost much weight. There was a large mass in the right half of the abdomen extending from the right hypochondrium to the upper limit of the right iliac fossa; it was extremely tender and appeared somewhat fixed. Sigmoidoscopy revealed no abnormality; a smear from the bowel showed no cysts or amoebae. There was marked secondary anaemia; red blood corpuscles numbered 1,900,000 per c.mm., and the haemoglobin was 28%. The plasma proteins were normal; plasma ascorbic acid was subnormal. A fractional test meal showed no abnormality. Radiological examination of the colon after a barium enema revealed a large irregular filling defect at the hepatic flexure extending 2 in. (5 cm.) into the transverse colon and 4 in. (10 cm.) into the caecum. This had the appearance of a carcinoma. The patient was given three blood transfusions of 3 pints (1.7 litres), 1½ pints (0.85 litres), and 5 pints (2.84 litres). The last massive transfusion was given because of a rapid deterioration in his general condition, probably due to haemorrhage occurring from the growth into the colon. It was decided—and the patient and his wife wished it—to perform an exploratory laparotomy to determine whether the mass could be removed. This operation was performed on Feb. 12, 1947, and a large mass was found involving the hepatic flexure of the colon and the right lobe of the liver. No metastases were found elsewhere in the liver or in the rest of the abdomen, and the ileo-transverse-colostomy was perfectly satisfactory. It was decided to perform a right partial hepatectomy and right hemicolectomy. The patient has made a good recovery. Microscopical examination of the tumour showed a highly cellular adenocarcinoma.

### Technique of Partial Hepatectomy

After visual inspection and careful palpation of the right lobe of the liver the line of section is determined so that the excision is performed through normal tissue wide of the growth. The right lateral ligament of the liver is divided and the organ is delivered as far as possible into the wound by manual traction. The incision begins on the lateral aspect of the right lobe and the diathermy knife is used. It is essential to divide small areas of the liver at a time so that haemorrhage is completely controlled. This is effected by digital pressure on the liver tissue with gauze and by the insertion of mattress sutures of catgut, using special liver needles. It is pointed out that owing to the thickness of the right lobe of the liver it is impossible to insert through-and-through sutures from the antero-superior to the postero-inferior surfaces, and each suture therefore takes in about half the thickness of the organ. When the middle of the lobe is reached an incision is begun on the antero-internal aspect, passing posteriorly to the gall-bladder. The intrahepatic branches of the right hepatic artery are secured by the application of pressure forceps and are ligated. It is useless to employ pressure forceps to control haemorrhage from hepatic tissue apart from these well-defined vessels. This incision progresses to the middle of the lobe until it meets its fellow from the opposite side. The cystic duct and cystic artery are then ligated in continuity and divided, thus liberating the excised portion of the right hepatic lobe. The raw area of the liver is inspected, and bleeding points are touched with the diathermy coagulating knife; thus all haemorrhage is controlled. This area is covered with several layers of gauze, which are removed at the end of forty-eight hours. Alternatively it can be shut off by means of the great omentum, but it is necessary to drain

the area because of the leakage of bile for several days the post-operative phase. It is possible that the use of fibrin foam may in future prove of value in dealing with haemorrhage from the cut surface of the liver.

### Pre- and Post-operative Treatment

Before an operation of this magnitude is performed investigations are made as to the patient's general fitness and any abnormalities are rectified whenever possible. Special attention is given to the cardiovascular, respiratory and urinary systems. The blood is examined to determine the degree of secondary anaemia and whether there is protein deficiency. A severe degree of secondary anaemia may be present, and a number of pints of blood are required to bring the haemoglobin content up to a level of at least 70%. The blood ascorbic acid is estimated, and the patient is given this substance in doses of 100 mg. twice daily, together with thiamine and riboflavin in doses of 3 mg. thrice daily. A high-protein and high-carbohydrate diet is given, with plenty of fluid.

Blood transfusion is started during the operation, and this continues into the post-operative phase, the amount transfused depending on the patient's condition. Intravenous fluids are given for at least during the initial forty-eight hours until intestinal peristalsis returns, when the patient can begin to take small quantities of fluid by mouth. He requires a minimum of 3,000 ml. of fluid in twenty-four hours, composed of 400 ml. of plasma and the rest of glucose-saline. After partial hepatectomy the patient is apt to become dehydrated and to develop secondary anaemia; a blood transfusion may be required to rectify this condition. Casein hydrolysates are given in order to increase the protein intake, and in spite of the daily dose of ascorbic acid the blood values of this substance may be subnormal. The availability of superficial veins for transfusion purposes may become distinctly limited, and in this patient it was necessary to use the right external jugular vein, which was quite satisfactory. When the right area of the liver is drained anteriorly through the right paramedian incision, and not through a stab incision in the right loin, it is advantageous to employ postural drainage by turning the patient into the ventral position every twenty minutes every two hours by day. Skilled nursing and meticulous attention to all details in the management of the patient are essential, and the rehabilitation programme must be carried out very gradually whenever the liver has been subjected to trauma. Jaundice may develop during convalescence in patients who have had wounds of the liver, and they must be kept under careful observation for a long time after discharge from hospital.

### Summary

Attention is directed to the operation of partial hepatectomy combined with right hemicolectomy for carcinoma of the hepatic flexure of the colon infiltrating the right lobe of the liver. The technique of partial right hepatectomy is described and the pre- and post-operative management is given. The clinical history is cited of a patient for whom this operation was performed successfully, and another patient is cited who is some six years after resection of the anterior aspect of the right lobe of the liver combined with right hemicolectomy for carcinoma of the hepatic flexure of the colon.

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A circular from the Ministry of Health announces that the Food and Drugs (Milk and Dairies) Act, 1944, will not be brought into operation this year. The Act regulates dairy farms and farmers and the production of clean milk.

## HERNIA OF THE DIAPHRAGM AS A -COMPLICATION OF LABOUR

BY

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Diaphragmatic hernia in the parturient woman is probably not excessively rare. The lack of references to such cases in the medical literature therefore seems remarkable, especially as regards prognosis, of which I can find no mention. Even Browne's (1944) comprehensive book does not include this complication of pregnancy. A practitioner faced with a radiograph showing a large hernia through the diaphragm in a woman nearing term cannot be blamed if he feels somewhat apprehensive as regards labour, with the additional strain and pressure which will accompany the pains, and he may be tempted to perform a quite unnecessary caesarean section. I have had two cases of large diaphragmatic hernia and one of eventration of the diaphragm under my care during their confinements, and I feel that the publication of a brief note may prove helpful. These cases were seen before September, 1939, and the clinical notes are scanty and incomplete, as the original hospital case sheets cannot be traced.

### Case Reports

**Case 1.**—This patient, aged 21, had had one previous confinement without complications. The weight of the child was not recorded. She was well till the thirty-sixth week, when dyspnoea on the slightest exertion and occasional vomiting started. A radiograph of the chest demonstrated a large diaphragmatic hernia on the right side, with the greater part of the stomach bulging into the thorax through the diaphragm. There was no obstetrical abnormality and the head was deeply engaged. It was decided to induce labour prematurely, and surgical induction by puncture of the membranes was performed at the thirty-eighth week. Pains started soon afterwards. Morphine, 1/6 gr. (11 mg.), hyoscine, 1/150 gr. (0.43 mg.), and paraldehyde, 6 dr. (21 ml.), in olive oil were given per rectum during the course of labour. A child weighing 6 lb. 4 oz. (2.9 kg.) was delivered naturally twenty-two hours after rupture of the membranes. Slight dyspnoea was evident at times during the second-stage pains, but was not severe enough to cause anxiety or require treatment. There was no cyanosis. Immediately after delivery vomiting was troublesome and continued for four days. Attacks recurred during the remainder of the puerperium unless meals were kept dry and small. Eventual recovery was satisfactory and further symptoms are not recorded. Surgical treatment for the hernia was not advised.

**Case 2.**—This patient, aged 36, had had two previous confinements, which according to her statement were uncomplicated. A radiograph of the chest was taken late in pregnancy after complaints of shortness of breath. This revealed a very large diaphragmatic hernia on the right side, reducing the thoracic space on that side to what appeared to be an alarming degree. The patient was admitted to hospital and put to rest, when labour started spontaneously. The first stage was quick and caused no abnormal symptoms. Second-stage pains, however, caused considerable distress, with dyspnoea, and at times slight cyanosis. Oxygen was administered during the pains throughout the second stage and gave great relief. There was some delay with the head on the perineum, and the patient was delivered easily by a low forceps operation under light chloroform, ether, and oxygen anaesthesia. Recovery was uneventful.

**Case 3.**—This patient, aged 25, had had one previous confinement which resulted in a stillborn child weighing 9 lb. (4.1 kg.) being delivered by forceps. During the present

pregnancy she had attacks of epigastric pain and shortness of breath. Examination of the chest revealed dullness at the left base, with weak breath sounds and absence of vocal resonance. The apex beat was 1½ in. (3.8 cm.) to the left of the sternum. A left-sided pleural effusion was suspected, but a radiograph revealed a marked degree of eventration of the diaphragm, which was confirmed by screening. Labour started naturally at term and lasted five hours. There were no signs of distress during the second stage, and a child weighing 7 lb. 13 oz. (3.5 kg.) was delivered. Partial separation of the placenta and a moderate post-partum haemorrhage complicated the third stage. Eventual recovery was satisfactory.

### Discussion

Diaphragmatic hernia is usually classified as congenital or acquired and true or false. A so-called false hernia has no sac. Eventration of the diaphragm and thoracic stomach, with a short oesophagus, may produce the same symptoms as a true hernia by diminishing the space available for lung expansion and oxygenation of the blood. Of the true hernia the congenital type is rare, and is stated by Richardson (1929) to occur more often on the left side. All authorities agree that the acquired type is nearly always found on the right side at the site of the oesophageal hiatus, and it is probable that Cases 1 and 2, described above, were of this variety. Such hernias are thought to be due to congenital weakness of the muscular ring of the oesophageal hiatus, allowing the sac to bulge into the right pleural cavity alongside this structure. It seems that small hernias of this description are not uncommon. Rigler and Eneboe (1935) were able to demonstrate forty-four cases of hernia in 4,200 radiological examinations, and they stated that the condition is commoner in the female in the ratio of 15 to 4. Harrington (1935) stated that routine examinations during laparotomy show that in 50% of persons no para-oesophageal opening can be felt, but in 50% two or three fingers are admitted. He regards an opening admitting up to two fingers as within normal limits. Increased intra-abdominal pressure seems undoubtedly a factor in producing or increasing the size of these hernias, and the stomach may slip in and out of the sac according to the degree of pressure and gastric tension. Ude and Rigler (1929) have observed such cases in women following multiple pregnancies, large ovarian cyst, large myoma, and ascites with malignancy. Rigler and Eneboe have also shown that small para-oesophageal hernias are by no means uncommon in late pregnancy. In 195 radiological examinations in the third trimester of pregnancy they demonstrated hernias in 12.8%—in 18.1% of the multiparas and 5.1% of the primiparas. In routine gastro-intestinal examinations they found such hernias in only 1%. Therefore it seems reasonable to presume that some degree of hiatus hernia is not uncommon in late pregnancy, especially in multiparas or in women in whom there has been a previous increase of intra-abdominal pressure from some other cause. The number of these hernias which reach proportions large enough to cause symptoms in late pregnancy or labour must be small, as it has already been pointed out that there is little mention of such cases in the medical literature. Large hernias which do not cause symptoms are, however, likely to go unrecorded unless discovered accidentally, as exact diagnosis is not possible without chest radiography. But if, as according to Rigler and Eneboe (1935), 12.8% of women have some degree of hernia in late pregnancy it seems likely that a small proportion of these may enlarge with repeated pregnancies; or, again, it is possible that any large hernia encountered is originally of congenital origin.

**Symptoms.**—The common symptoms caused by hernia through the diaphragm associated with pregnancy are



gastric upsets—that is, nausea or vomiting—and dyspnoea. If such symptoms occur they usually start late in pregnancy, after the thirty-fourth week. The three cases described all suffered from dyspnoea during late pregnancy, and in Cases 1 and 2 it caused some distress during the second stage of labour. In Case 1 there was vomiting in late pregnancy, which was especially aggravated after delivery and continued to be troublesome during the puerperium, probably owing to some alteration of the position and tension of the stomach after the uterus had emptied.

**Treatment.**—During late pregnancy the patient must rest more than usual, and if dyspnoea is not relieved should be confined to bed. Vomiting can usually be relieved by attention to the diet. Small and frequent meals of soft food or fluids may be necessary. Postural treatment may be useful, the patient herself usually finding out which position suits her best. Laxatives should be given to ensure regular bowel action. In cases with severe encroachment on the thoracic cavity induction of premature labour must be considered. A long second stage is not desirable, as the dyspnoea may increase with the pains and the patient become distressed. If, therefore, there is any reason from the history or clinical findings to suspect that labour may be prolonged, induction at the thirty-eighth week is probably the wisest course. A medical induction may be tried, and if this fails the membranes should be ruptured. If disproportion or other obstetrical complications are present caesarean section will of course have to be considered. During labour the usual sedatives should be given in the first stage. Oxygen may be necessary during the second stage and is essential if the patient becomes at all cyanosed. It should be given during the pains, and affords great relief. Low forceps delivery and episiotomy are indicated should there be the least delay on the perineum. Cyclopropane or local anaesthesia should be used.

In the puerperium careful dieting may be necessary if vomiting is troublesome as in Case 1. Vomiting usually ceases within a week as the stomach settles to its new position and gastric tension becomes adjusted.

The question of after-treatment of these large hernias cannot be fully considered here. In the majority of cases all symptoms disappear after delivery. Most authorities are of the opinion that surgical treatment is not indicated in cases of large hernia unless the sac is known to contain small gut and is therefore liable to strangulation. Morrison (see Richardson, 1929) believes that relatively few cases require operation. Treatment on medical lines should be continued if any symptoms persist.

**Prognosis.**—In all three cases described there was a severe degree of encroachment on the thoracic space—in two by true diaphragmatic hernia and in one by eventration of the diaphragm. The main object of this publication is to emphasize that labour may be allowed to proceed with safety under such conditions and that catastrophic effects do not occur. Whether the hernial hiatus is further enlarged as a result of labour is a matter for conjecture. Unfortunately these cases were not re-examined radiologically after the puerperium. Rigler and Eneboe, however, re-examined twenty-five cases after the puerperium in which small and moderate degrees of para-oesophageal hernia had been present in late pregnancy. They found that in only three of these cases could a hernia still be demonstrated radiologically. It seems, therefore, that though further stretching of the hiatus is probable during pregnancy and labour the hernia will retrogress as soon as the abdominal tumour is removed, and in many cases with only small and moderated degrees the condition will revert to normal. This conclusion is supported by the cessation of symptoms in nearly all cases after the puerperium.

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## A NEW TREATMENT OF RHEUMATOID ARTHRITIS

BY

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It is always difficult to prove the value of a new therapy especially when it concerns a disease which, like rheumatoid (atrophic) arthritis, to a great extent improves spontaneously, without any treatment. The *Primer on Arthritis* issued by the Committee of the American Rheumatism Association in 1942, contains the following about rheumatoid arthritis: "Few accurate statistics on the natural course of the disease are available, but in general it may be said that fewer than one-fourth of the patients 'recover,' or half 'improve' or the disease becomes 'quiescent,' and remaining one-fourth become progressively worse. It is particularly important that these facts should be borne in mind when one is assessing the value of any therapeutic regimen."

According to literary data, the results of the gold, heteroprotein, and vaccine therapies are almost the same—that 65–75% are cured or improved and some 25–35% remain unchanged. If we compare these data with the statement quoted above, we get the amazing fact that nearly as many recover without any treatment as with treatment. The apparent paradox indicates that either all our therapies are worthless or statistics are unsuitable for assessing therapeutic effects.

Hitherto we have tested the value of a therapy by determining what percentage of a given number of cases we cured or improved. This is, however, a misleading procedure, because the number included those which healed spontaneously. We can assess the value of a new treatment only by determining how many cases it cured or improved out of the "one-fourth" which did not improve either spontaneously or by the usual therapies. Should such a case improve or recover—and especially if the improvement is quick and lasting—then we can be convinced that the change is not spontaneous but a result of the new therapy. To an experienced physician it cannot be difficult to select from his patients the cases suitable for testing, and I am sure that in the cases reported below there is no doubt about their belonging to this category. I thought it necessary to raise these considerations of method before proposing a new treatment for rheumatoid arthritis.

A young woman suffering for three years from rheumatoid arthritis became pregnant. In the third month of her pregnancy she recovered unexpectedly, though until then her disease had seemed incurable. Later on I saw another similar case: the patient twice became pregnant, and in both instances her illness stopped; but after childbirth it recurred. Similar cases have been observed by others although naturally not in great numbers, because few women in such an invalid condition become pregnant. P. S. Hench (1938) collected from American medical literature the reports on the pregnancy of women suffering from rheumatoid arthritis. He found, from 1864 onward

en authors giving accounts of thirty-seven cases of pregnancy among twenty women. These twenty women improved to an astonishing extent during thirty-four of their pregnancies. The improvement, however, ceased some time after their delivery (9.4 months afterwards on an average).

### The Method

I presumed as an explanation of this recurrence that pregnancy produces an unknown material which causes the improvement. Further, I assumed that this hypothetical material circulates in the blood of pregnant women and can be transfused and utilized elsewhere. On the basis of these conjectures I transfused the blood of pregnant women into persons suffering from rheumatoid arthritis. In each case I gave 300 ml. of citrated blood. I repeated this several times, according to the symptoms of improvement. To demonstrate my results—for the reasons outlined above—I did not choose the statistical method. Statistically, I got with this treatment the same result as with the other therapies—that is, of 28 cases 64% recovered or improved and 36% remained unchanged. But to meet what I said in the introduction to this account I selected those seemingly hopeless cases in which scientific treatment had so far yielded no result—cases, therefore, which undoubtedly belonged to the "one-fourth" who became "progressively worse."

I would call attention especially to two facts. First, the speed with which the improvement took place. Compared with the months or years needed to effect an improvement with gold therapy—which seems to be the most efficacious method at present—the improvement in our cases came with dramatic suddenness. Secondly, the lasting effects of the improvements. Patients Nos. 2, 3, and 6 remained healthy up to the time of writing (1946), and have not relapsed. They feel the changes in weather conditions, and during menstruation their joints are sometimes sensitive, but a real relapse has not occurred. Patient No. 4 committed suicide in 1944, for fear of the persecutions. Patient No. 1 was killed in 1944 by the Nazis. Until their deaths both had been free from symptoms.

Not all cases react equally well to these transfusions. We are discussing a disease of which the exact pathogenesis is unknown to us; we do not even know whether it is a homogeneous illness or a group of substantially different diseases showing only similar clinical features. So long as we are unable to differentiate the subspecies and determine in advance which case will improve by this method, we have to be satisfied with the fact that there are some cases of rheumatoid arthritis which can be promptly and permanently cured by the unknown material circulating in the blood of pregnant women.

### Case Reports

**Case 1.**—A married woman aged 41 first had the disease in 1938, without fever, and within two months all her joints were affected. Mitral insufficiency was present. The sedimentation rate was 50 mm. Except for the hips, all joints were swollen and painful. Her moving and walking capacity was limited. The simplest actions—dressing, washing, getting up—could not be performed without help. The tonsils and dental abscesses were removed. No treatment brought any improvement. She was given 300 ml. of blood from a pregnant woman on Jan. 1, 1941. Chills and a temperature of 100.8° F. (38.2° C.) followed. Next day the improvement was surprising. She regained her power to move and the pains ceased almost completely. She got up, dressed, put on her shoes by herself—actions which she had been unable to do for months—and in her exhilaration began to knead bread, although the day before she had been unable even to button her dress. The improvement achieved on the first day was lasting, and slowly increased. Several trans-

fusions were given during the following years. All improvements proved to be lasting. She was able to walk long distances, to work, and to run her house. During menstruation her joints were somewhat sensitive. Until her death in 1944 there was no relapse.

**Case 2.**—A 25-year-old woman first had arthritis in 1933. All her joints were progressively affected, and fever was present. In 1939 she had pneumonia and myocarditis. Before the transfusion she was for four months under hospital treatment for polyarthritis. Except for her hips, all her joints were affected and she was completely disabled. The sedimentation rate was 50 mm. The first transfusion of 300 ml. of blood from a pregnant woman was given on Feb. 17, 1941. Chills and a temperature of 103° F. (39.4° C.) followed, but next day there was improvement, especially in the joints of the upper limbs. The pains diminished substantially, and the joints became free. A little later the improvement reached the joints of the lower limbs, and she steadily improved. Several transfusions were given, but after the first she was completely healed, was free of pain, and was able to work.

**Case 3.**—A 32-year-old dressmaker had polyarthritis gravis. Her illness began in 1931, in her knees and wrists, with fever. During the next ten years the disease spread to all her joints, mostly with feverish attacks. Since 1939 the disease had grown rapidly worse. The feverish periods were more frequent and longer. In September, 1939, she had myocarditis. Since 1939 she had been in hospital five times and when I first saw her she had been in hospital for eight months. She was completely crippled, could not walk, move, or work. In the last months she could not even leave her bed. The sedimentation rate was 50 mm. On March 29, 1941, a transfusion of 300 ml. of blood from a pregnant woman was given and she felt better the same day. The improvement increased during the next days. The pains diminished, the joints became freer, and on the fifth day she walked round the ward for the first time in five months. We repeated the transfusion several times. The improvement continued. She is practically cured, and is able to earn her living again. Up to the time of writing (1946) she has had no relapse.

**Case 4.**—A man aged 66 had been ill for four years, with feverish attacks. Treatment had not helped him, and the polyarthritis progressed irresistibly. He suffered severe pain and was unable to get up or to turn over in bed by himself. His gait was very clumsy and his appearance was Parkinson-like. He had to be washed and dressed. For three months he had been under hospital treatment. The sedimentation rate was 58 mm. On April 9, 1941, a transfusion of 300 ml. of blood from a pregnant woman was given. The upper limbs became more active on the next day, his bearing straightened, and his gait was easier. His condition improved rapidly and progressively. He felt stronger and healthier in general, and left hospital substantially improved. I saw him two months later, when he was completely cured.

**Case 5.**—A woman aged 48 had had polyarthritis for ten years. Except for the hips and knees, which were painful, all her joints were swollen and their active or reflex movements limited. The sedimentation rate was 25 mm. A transfusion of 300 ml. of blood from a pregnant woman was given on June 2, 1941, and fever followed. The first signs of improvement were observed on the sixth day. She gradually improved, the pains decreased, the swellings were reduced, and movements and walking were better. The transfusion was repeated, and she left the hospital in a painless, active state.

**Case 6.**—A woman aged 29 had ischialgia in 1937. Polyarthritis began in April, 1940, and gradually affected all her joints, but there was no fever. When I first saw her all her joints were more or less affected, deformed, swollen, and painful. She could walk only with great difficulty and was unable to work. The sedimentation rate was 40 mm. On July 8, 1941, she received 300 ml. of blood from a pregnant woman. Improvement began on the sixth day. After several transfusions the pains ceased. She has some sensitiveness to weather, but can move and work. Up to the time of writing (1946) she has had no relapse.

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## Medical Memoranda

### Tuberculosis of the Adenoids

In 1945 fifteen cases of tuberculous cervical adenitis were treated at the country branch of the Hospital for Sick Children. Shortly after admission the tonsils and adenoids were removed and examined microscopically. The incidence of tuberculous infection of the tonsils was about 70%, as might be expected from a study of the literature, but it was surprising to find that in this short series three cases showed infection of the adenoids. They are recorded because tuberculosis of the adenoids is rarely mentioned. In 1924 Crowe and MacCready, in an analysis of the pathology of tonsils and adenoids removed at the Johns Hopkins Hospital, noted that tuberculous lesions were present in 2.5% of 1,000 cases of adenoidectomy. In these cases there was no clinical evidence of tuberculosis. No other record could be found of the incidence of tuberculosis of the adenoids in children. One case in an adult was described by Pegler in 1911.

#### CASE REPORTS

**Case 1.**—A male child aged 15 months was admitted to hospital on Aug. 10, 1945, with many enlarged glands in both sides of the neck and a discharging sinus in the left side. He had had cervical adenitis since the age of 3 months. His general condition was fairly good, and his weight and height were normal. The tonsils and adenoids were removed on Sept. 25, 1945. Section showed tubercles with giant cells in both tonsils and in the adenoids. At no time was there any clinical or x-ray evidence of tuberculosis of the chest or elsewhere.

**Case 2.**—A female child aged 11 months was admitted to hospital on April 18, 1945, with bilateral enlarged cervical glands and a fluctuant abscess below the left mandible. The glands had been enlarging for about a month, and although the child was a little underweight she was plump and looked fairly well. The abscess was immediately incised and expressed. There was a little further glandular enlargement and loss of weight during the next two to three weeks; then she began to improve, and on May 17 was fit for removal of the tonsils and adenoids. This was done, and a second abscess was expressed. Section showed tuberculosis of the adenoids but not of the tonsils. There was no clinical or x-ray evidence of tuberculosis elsewhere.

**Case 3.**—A male child aged 13 months was admitted to hospital for cervical adenitis in February, 1946. He had a discharging abscess on the right side; this was expressed and the tonsils and adenoids were removed on May 4, 1946. He looked well and was a little above the average weight for his age. Section showed evidence of tuberculosis of the right tonsil and of the adenoids. There was no clinical or x-ray evidence of tuberculosis elsewhere.

#### COMMENT

In each of these cases there was gross cervical adenitis in a child under 2 years of age, and the tuberculin patch test was positive. There was no evidence of tuberculosis of the chest or elsewhere, the weight was about the average or above the normal for the age, and the general health appeared to be good. Clinically there was very little enlargement of the tonsils and adenoids in the first two cases and no inflammation. In the third case there was some enlargement and inflammation of the tonsils during the early part of the illness. No information was obtained as to the origin of the infection in these cases. In none of them was the condition of the tonsils and adenoids such that their removal would have been advised on ordinary clinical grounds. It is probable that investigation of a larger series would reveal infection of these tissues to be more common than is generally supposed.

Treatment consisted in removal of the tonsils and adenoids, expression of glands in which abscess formation had occurred, and general care in the hospital's country branch. These cases are interesting in comparison with cases of streptococcal cervical adenitis. Here the child is pallid and debilitated, and often acutely ill with enlarged red tonsils and nasal obstruction. In the tuberculous infection many glands may be grossly enlarged, but the child is relatively well and the tonsils and adenoids are small and pale.

Macroscopically the tonsils and adenoids were small and of a soft, firm consistency. Sections showed giant-cell systems and areas of necrosis typical of tuberculosis. In these cases there

was no difficulty in demonstrating the pathology in sections taken from any part of the tissue. No special technique was used.

Acknowledgment is due to Mr. Denis Brown, F.R.C.S., for permission to publish these cases, and to Drs. Richardson and Bodian for preparing the sections.

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Pegler, L. H. (1911). *Proc. roy. Soc. Med.*, 4, 76 (Sect. Laryng.).

### Mental Disturbance as the Leading Symptom in Typhoid Fever

The following case of typhoid fever is worth recording because of the prominence of mental symptoms and the indefiniteness of the pyrexial illness in the early stages. It also illustrates the difficulty experienced during the war in interpreting symptoms of psychoses in the Middle East where toxic confusional states occurred far more often than at home. Pyrexia of unknown origin was common and was as likely to occur in a patient in a psychiatric hospital as elsewhere.

#### CASE REPORT

An Army chaplain aged 36 was admitted because of increasing mental disturbance over the past six days. He was by this time restless and agitated, banging his head against the wall and crying out that all was lost. No contact could be made with him other than that he begged to be placed before a firing squad. His voices were accusing him of having turned from God, and were threatening him with eternal torment such as his wife and child supposedly in the next room, were suffering at the hands of the devil in being boiled in oil and yet unable to die. He had been pyrexial for several days, so a full investigation into this was made after examination by the medical specialist and under his guidance.

Clinically nothing whatsoever pointed positively to typhoid in the last few days of the illness. Blood investigations revealed nothing abnormal, with the exception that after two subcultures a growth of what was identified as *Bact. typhosum* was found. This identification was made on what was estimated as the thirteenth day of the pyrexia. In the meantime the patient's condition deteriorated rapidly, and he died the following day. A post-mortem examination showed typical typhoid changes throughout, though intestinal perforation had not occurred.

During the course of the illness the mental disorder had given considerable concern. The acute symptoms had been of gradual onset and at first appeared to be quite unconnected with an incidental pyrexia. The patient became depressed, stated that he did not feel well, and spent hours looking at family photographs. He had been under a psychiatrist for two months on account of emotional instability, undue activity, and vociferation about his work. He had admitted a previous depressive breakdown; but now he had become disorientated, and lived in a state of continuing torment in what he considered to be gaol. He was intensely suicidal and had to be restrained. From the first he was resistant and uncooperative, and was continually whispering hoarsely that he was going through hell. He maintained that he had no physical illness. The same delusions of persecution persisted throughout, accompanied by extreme agitation, until he became comatose through exhaustion the day before he died.

#### COMMENT

Here the depressed form of acute confusional psychosis occurred in a febrile illness which proved to be a fatal case of toxæmic typhoid fever. Depression began at or just before the onset of pyrexia in a man of known cyclothymic constitution and progressed, with the development of acute suicidal tendencies, as the pyrexia continued, later being absorbed in a confusional setting of disorientation, imperception, and acute hallucinosis. The persistence of relatively fixed delusions suggested the precipitation of a depressive psychosis. This case illustrates the difficulty of diagnosing the depressed form of confusional psychosis and shows well the resemblance between this disorder and the depressive phase of manic-depressive psychosis, and occasionally the depressed form of katatonic

I wish to thank Col. O. J. O'Hanlon, late R.A.M.C., for permission to describe this case.

W. MAUDE, M.B., Ch.B.  
Late Captain, R.A.M.C.; Graded Psychiatrist.

## Reviews

### WORCESTER ROYAL INFIRMARY

*A History of the Worcester Royal Infirmary.* By William Henry McMenemey, M.A. (Pp. 356; illustrated. 21s.) London: Press Alliances, Ltd. 1947.

This handsome book has evidently been a labour of love for its author, and we cordially congratulate him on the result. It is the history not only of a notable hospital but of many aspects of civic life in Worcester during the past two hundred years. The hospital is one of the oldest provincial voluntary hospitals, and it owes its birth mainly to the vigorous personality of Bishop Isaac Maddox, a distinguished churchman who, fortunately for Worcester, was also greatly interested in hospitals. He founded the London Smallpox Hospital and was a firm believer in the value of vaccination at a time when it was regarded with suspicion even in many medical quarters. Dr. McMenemey builds his story of the hospital mainly round a few attractive and forceful personalities. One of them, John Wall (1708-75), a surgeon to the hospital and a voluminous writer on medical subjects, founded the celebrated Royal Worcester Pottery as well as a large and prosperous family. (The fertility of the professional classes in the 18th and early 19th centuries was remarkable. Hastings was the sixth son of a parson, and families of a dozen or so are quite common in this history.) T. W. Walsh (never on the staff) left medicine to become "Stonehenge," one of the classical writers on sport, editor of the *Field*, and founder of the National Coursing and All England Lawn Tennis Clubs. Several members of the staff became Fellows of the Royal Society and had more than a local reputation.

The book has a special interest for members of the B.M.A., for the activities of its founder are conspicuous in the record, increasing our respect for the industry, diplomacy, and versatility of a remarkable man. Appointed apothecary (that is, house-surgeon) to the Infirmary at the age of 18, he left to become a distinguished student at Edinburgh, and returned to serve no less than 43 years as a surgeon. There were few activities in the city in which he did not play a leading part: he was an alderman, the founder of the Worcester Natural History Society, a foundation member of the British Association for the Advancement of Science, and last but not least the founder and for many years the most active member of the B.M.A. Dr. McMenemey amply justifies his statement that "he was destined to become the leading personality of his day in the profession of medicine and the most distinguished of Worcester's doctors."

We can confidently recommend this book to all interested in the early history of our Association and to all who can enjoy a spirited, well-written, and carefully documented account of the trials and triumphs of those who made the Worcester Royal Infirmary what it is. The book is well illustrated, and a word of praise is due to the publishers, who as a gesture to the Infirmary have charged their costs only.

ALFRED COX.

### EARLY AMBULATION

*Early Ambulation and Related Procedures in Surgical Management.* By Daniel J. Leithauser, M.D., F.A.C.S. (Pp. 232; illustrated. \$4.50.) Springfield: Charles C. Thomas. Oxford: Blackwell Scientific Publications, Ltd. 1946.

Dr. Leithauser writes in advocacy of early ambulation after operation. He points out that purgation and fluid deprivation in the pre-operative period, immobility immediately after the operation, and prolonged confinement to bed in the phase of convalescence are the causes of pulmonary and circulatory complications, bowel atony, muscle wasting, invalidism, and all those ills that go to make up what he terms the "laparotomy syndrome." All this had to be said, but it has been said before—often. The author's special contribution is that he gets patients to stand by the bedside as soon as they have recovered from the anaesthetic, and discharges them from hospital in a day or two. The author's background is difficult to assess. By his description of a hypothetical case treated on standard lines (pp. 34 and 35), and by the number of cases of parotitis he en-

countered, he seems to have been unfortunate in his early training and to neglect surgical progress in the rest of the world. Fig. 11, p. 84, shows a method of gastric suction that would prevent not merely ambulation but any movement, and make even respiration difficult. His attention was drawn to the benefits of early ambulation in 1938 by the rapid recovery of a patient who got out of bed a few hours after appendicectomy. He has practised the method since then, his experience consisting of 55% of appendicectomies and little major surgery. Those operated on for chronic appendicitis left hospital after an average stay of 1.9 days, and those operated on for acute after 2.19 days.

What is normal practice to-day, with which the claims of this book should be compared rather than with a hypothetical case? The patient is not purged, starved, or dehydrated before operation, but his deficiencies in blood, fluids, and nutrition are corrected, and he is taught breathing, leg, and abdominal exercises so that he can start these under supervision as soon as he recovers from the anaesthetic. He is encouraged to move as soon as he is conscious, and allowed to sit on the edge of his bed to empty his bladder and to walk to a commode when his bowels act. He is allowed to get across the room to a chair when he wishes to, and urged to do so after four days. He is kept in hospital till his wound is soundly healed—that is, from six to twenty days—but urged during that time to resume his normal activity. That first-day ambulation for everybody, instead of for those who wish it, is a better policy seems doubtful, and second-day discharge from hospital even more so.

If Dr. Leithauser's colleagues in his home town practice the kind of pre- and post-operative care he outlines in the first chapters, he has done them a signal service in writing this book. If any British surgeons still keep patients in bed for three weeks they ought to read it; they also ought to be shot. This is the work of an enthusiast who has seen the light and wants to tell the world. Good luck to him!

W. HENEAGE OGILVIE.

### VITAMINS AND HORMONES

*Vitamine, Hormone, Fermente.* By Dr. med. Rudolf Abderhalden. (Pp. 250. Swiss francs 14.50.) Basle: Benno Schwabe and Co. 1946.

*Chemistry of Vitamins and Hormones.* By S. Rangaswami, Ph.D., and Prof. T. R. Seshadri, Ph.D. (Pp. 329. 7 rupees, 8 annas.) Waltair, South India: Andhra University. 1946.

Vitamins and hormones claim our attention and challenge our intellect for three main reasons: they regulate general or special manifestations of all forms of life; their existence and distribution are of great significance in theories about the origin and chemical evolution of living organisms; and they provide us with therapeutic agents of great potency and precision. The books now under review, representative perhaps of the Germany of yesterday and the India of to-morrow, are good examples of the eagerness with which current biochemical information is being collected, arranged, and reported. Dr. Rudolf Abderhalden's book is the third edition of a work originally published in Halle in 1943. It is explicitly designed to give the medical practitioner the acknowledged facts about the physiology of the vitamins, hormones, and enzymes, omitting all material that is purely theoretical or speculative. The book is carefully planned and arranged, as might be expected from the author, who bears the name of a family renowned in biochemistry. The treatment of the subject is almost lexicographic. The author devotes a section to each of the principal vitamins and hormones, setting out the properties, chemical constitution, methods of estimation, natural distribution, physiology, clinical applications, and medicinal sources. He summarizes everything pertinent in a lucid and tidy way, though the general reader, misled possibly by the easy exposition into thinking that biochemistry is a simple discipline, will soon be chastened by the structural formulae, one of which occupies half a page. Of interest are the lists of proprietary vitamin and hormone preparations available (presumably) in Germany during the war, and issued by the firms of Wander, I. G. Farben, and Merck. By the section on ferments is brief and sketchy, apart from pages devoted to the "Abwerproteinase" reaction worked out by Emil Abderhalden and his colleagues based on the theory that functional diastases...

tissue is associated with the release of the characteristic tissue proteins into the general circulation. These stimulate the liver, which responds by elaborating corresponding proteinases, which are excreted in the urine and may be used in the diagnosis of endocrine diseases. A similar type of urinary proteinase is claimed to occur when malignant growths are present, and may be of value in diagnosis.

The book by Dr. Rangaswami and Prof. Seshadri, both of Andhra University, is a conscientious review of the progress of vitamin and hormone chemistry during the past fifteen or twenty years. The authors take little for granted and illustrate all important chemical reactions by the appropriate structural formulae. The book abounds in flow-reaction diagrams, carefully drawn, clearly printed, and not crowded on the page. The text is written in a direct and simple style, and, while there is nothing unusual in the plan of presentation, an unusual amount of information has been collected. The book will be useful to the student of organic chemistry as well as to the biochemist. European and American readers may regret the omission of any tabulations of the vitamin content of the principal Indian foodstuffs, and such might provide an instructive appendix to a subsequent edition of this useful book.

W. R. FEARON.

### POISONS IN FIRST AID

*Poisons, Their Properties, Chemical Identification, Symptoms, and Emergency Treatments.* By Vincent J. Brookes and Hubert N. Alyea. (Pp. 209. 16s. 6d.) New York: D. Van Nostrand Company, Inc. (250 Fourth Avenue).

The authors of this book, which is intended for the use of the police and those who practise first aid, are a sergeant of police and an associate professor of chemistry. They begin with an account of tests, symptoms, and treatment. Under the latter they discuss the use of emetics but intentionally omit mention of gastric lavage. The main section is a list of poisons arranged alphabetically with formulae, description, uses, tests, symptoms, and treatment. Each entry is intended to be complete, which involves repetition of such phrases as "Summon a physician," but this arrangement is useful for quick reference provided that the poison taken is suspected. The tests given are for application to the remains of the substance or to a first vomit; they are not intended for traces. A table briefly summarizes the information. The authors then devote a section to industrial hazards, also arranged alphabetically, which includes a table of the number of parts per million of volatile substances and dusts in the atmosphere permitted in New Jersey. The division into these sections hardly seems necessary, since each is in alphabetical order and there is a good index. Chapter 6 is on foods, plants, snakes, and spiders, and chapter 7 on special techniques such as artificial respiration and the administration of oxygen. The appendix includes a glossary and tables of reagents and weights and measures. The illustrations are excellent, though perhaps that of a poisonous snake is too lurid.

Some of the omissions seem strange to us, though differences in American practice may account for them—for instance, neither weed killer nor sheep dip is mentioned under "arsenic." The authors do not discuss salicylic acid and aspirin, nor do they refer to the use of calcium compounds such as chalk in the treatment for oxalic acid poisoning. However, on the whole they present the material appropriately to the readers for whom the book is intended. No medical man will find it useful as a textbook, but for rapid reference, especially by those in contact with industry, it is well arranged and comprehensive.

J. H. RYFFEL.

*A Synopsis of Orthopaedic Surgery* (London: H. K. Lewis; 15s.), by A. David Le Vay, M.S., F.R.C.S., summarizes the literature to help students, including postgraduates, to prepare for examinations. We need not therefore expect it to be "readable," and indeed it is sometimes irritating. Readers will find it more useful for learning the facts of orthopaedic pathology and diagnosis than for its account of treatment, where there is some lack in critical assessment of method—for example, in the description of the now generally discarded lateral bloody approach to the hip-joint. Nevertheless Mr. Le Vay's book will be useful to a student for revision if he already has a knowledge of the subject based upon clinical study, and it should stimulate him to search other sources. For this purpose it would be improved if each section included selected references to the modern literature.

### BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

*Escape to Live.* By Wing Commander Edward Howell, O.B.E., D.F.C. (Pp. 230. 8s. 6d.) London: Longmans, Green and Co 1947.

The commander of a fighter squadron describes the 1941 Middle East campaigns, his capture, and ultimate escape.

*An Introduction to Gastro-Enterology.* By James D. Lickley, M.D. (Pp. 143. 8s. 6d.) London: Simpkin Marshall (1941), Ltd 1947.

A manual for medical students and house-men on the diagnosis and treatment of disorders of the alimentary tract.

*Atlas of Bacteriology.* By R. Cranston Low, M.D., F.R.C.P.Ed., F.R.S.Ed., and T. C. Dodds, F.I.M.L.T., F.I.B.P., F.R.P.S. (168 plates. 32s. 6d.) Edinburgh: E. and S. Livingstone. 1947.

Coloured plates depicting cultures and photomicrographs of micro-organisms.

*An Introduction to Dermatology.* Formerly by Sir Norman Walker, F.R.C.P., and G. H. Percival, M.D., Ph.D., F.R.C.P.E., D.P.H. 11th ed. by G. H. Percival. (Pp. 349. 35s.) Edinburgh: E. and S. Livingstone. 1947.

This edition has been rewritten; includes many coloured plates.

*Studies of the Renal Circulation.* By Joseph Trueta, M.D., et al. From the Nuffield Institute for Medical Research, Oxford. (Pp. 187. 25s.) Oxford: Blackwell Scientific Publications. 1947.

Experimental investigations into the renal and intrarenal circulations.

*A Guide to Anatomy.* By E. D. Ewart. 6th ed. (Pp. 318. 25s.) London: H. K. Lewis. 1947.

An illustrated manual of anatomy intended for students of physiotherapy.

*Le Vie dell'Errore Clinico.* By Ettore Debenediti. (Pp. 160. No price.) Turin: Edizioni Minerva Medica S.A. 1947.

A general account of errors in clinical diagnosis.

*Medicine.* By A. E. Clark-Kennedy, M.D., F.R.C.P. Vol. 1. "The Patient and His Disease." (Pp. 383. 20s.) Edinburgh: E. and S. Livingstone. 1947.

The first volume of a work intended to correlate the facts of medicine rather than to instruct in its various methods.

*Modern Dermatology and Syphilology.* By S. W. Becker, M.D., and M. E. Obermayer, M.D. 2nd ed. (Pp. 1,017. £5 10s.) London: J. B. Lippincott Company. 1947.

Includes new material on vitamin therapy, penicillin, and tests for syphilis.

*Conduction Anesthesia.* Edited by J. L. Southworth, M.D., and R. A. Hingson, M.D. (Pp. 981. £5 10s.) London: J. B. Lippincott Company. 1946.

An account of local analgesia by means of nerve block, refrigeration, and local infiltration, as well as spinal analgesia.

*Précis de Physiologie.* By L.-C. Soula. (Pp. 1,085. 1,450 francs.) Paris: Masson et Cie. 1947.

A textbook of physiology.

*Précis de Dermatologie.* By A. Civatte. 5th ed. (Pp. 1,152. 1,700 francs.) Paris: Masson et Cie. 1947.

An outline of dermatology for the student and practitioner.

*Rheumatism.* By Lord Horder. 5th ed. (Pp. 61. 2s. 6d.) London: H. K. Lewis. 1947.

Notes on the causes, incidence, and prevention of rheumatism, with a plan for national action.

*Le Problème du Cancer et Son Evolution Recente.* By Michael Mosinger. (Pp. 664. 1,000 francs.) Paris: Masson et Cie. 1946.

A study of the aetiology and pathology of neoplasms.

*L'Hyperinsulinie.* By Marcel Sendrail. (Pp. 247. 500 francs.) Paris: Masson et Cie. 1947.

A monograph on clinical and experimental hyperinsulinism.



## BRITISH MEDICAL JOURNAL

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## NEUROSIS AND INDUSTRY

No time could be more appropriate than the present for any contribution towards increasing the productivity of our available manpower. It is common to think that this task is one to be solved mainly by the creation of stimulants or incentives—the stick or the carrot—to higher levels of output, and that the most effective techniques for this purpose can be evolved by those experienced in industrial management. The contradictory views expressed in the correspondence columns of the Press in the last few months, however, have made it apparent that little scientific progress has been achieved in the task of finding those positive influences which might raise the level of output. On the other hand, it has become increasingly evident in recent years that a serious loss of productivity is due to the persistence of, and possibly an increase in, negative influences, or factors which prevent individuals from maintaining their normal rate of output—e.g., those which lead to absence from work.

During the war, when evidence from many sources indicated that neurotic illness was one of the common causes of absence from work, the Industrial Health Research Board sponsored a study on "the true incidence of neurosis among factory workers and of its effects on production, and for an appraisal of the factors predisposing to such illness." The report of the study,<sup>1</sup> which was carried out by Dr. Russell Fraser and collaborators, certainly answers the questions on the extent of neurosis and its effects on production; and even if, as is pointed out, the results cannot be applicable with certainty to a wider field and to peacetime conditions, the findings have a familiar ring in relation to the industrial scene to-day, and they are too important to be ignored.

Fraser's careful investigations covered a random sample of over 3,000 male and female workers from a population of 30,000 employed in thirteen light and medium engineering factories. The main results are that neurotic illness caused between a quarter and a third of all absence from work due to illness and that neurosis was responsible for the loss of 1.09% of the men's possible working days and of 2.4% of the women's—a loss equivalent to an annual absence of three working days by every man studied and of six days by every woman. The latter figures may not at first sight sound serious, but what is more disturbing is that 10% (9.1% of the men and 13% of the women) had suffered from definite and disabling neurotic illness, and a further

20% (19.2% of the men and 23% of the women) from minor forms of neurosis—e.g., psychosomatic illness, some abnormalities of personality which indicated reduced mental health—during the six months before examination. These figures are much more serious in their implications when it is borne in mind that the investigators only recorded illness leading to absence. The milder interferences cannot but have been there with quite unknown effects on output either by direct loss in work done or by indirect effects in inefficient work.

It is stated in the report that "it was not the purpose, nor the outcome, of this inquiry to show how neurotic illness can best be alleviated. It is, however, implicit in many of the findings that measures tantamount to good welfare and social work, both within and outside the factory, would be beneficial in alleviating and preventing neurosis, as would also, presumably, more extensive facilities for the medical treatment of neurotic illness than were available during the war." After the incidence of neurosis was determined a search was made for evidence of any association between the incidence of neurosis and the environment of the subjects—not that it was assumed that any particular environmental factor associated with more than average neurosis was a cause of this increase in neurosis, but rather that the demonstration of a significant association with any particular factor is informative from several points of view. The circumstances associated with more than the usual incidence of neurosis include many that would be expected—e.g., excessive hours of work, restricted social contacts, recreation, or leisure interests, work unsatisfying or requiring skill inappropriate to the worker's intelligence, monotonous work programmes, and certain types of work. Particularly noteworthy are the statements that most commonly the circumstances outside the factory which were associated with a high incidence of neurosis are "characterized by unsatisfactory human relationships. The more obviously unsatisfactory the human relationships the closer the association. . . . Further, since unsatisfactory human relationships outside the factory are associated with a high incidence of neurosis, it is probable that the nature of the human environment within the factory may influence the amount of neurosis." It is also of fundamental importance to note that in the factories studied neurosis was as frequent among those on the more skilled as among those on the less skilled jobs, and as frequent among those usually receiving the highest range of earnings as among those usually earning less. Further, it was almost as frequent among foremen as among workers. These latter findings suggest that the effects of neurosis on production may be far greater than can be reckoned by objective indices such as absence. It is obvious that the quality of human relations within the working group is very heavily affected by the quality of the leadership available, which in turn must be adversely affected by an appreciable incidence of neurosis shown to exist at least within the lower levels of management.

The outstanding implication of this important report is the urgent need for further research in this field. It was remarked earlier that the doctor could contribute to the present crisis by helping to keep absence from work at a

<sup>1</sup> Russell Fraser, *The Incidence of Neurosis Among Factory Workers*. M.R.C. Indust. Hlth. Res. Board Report No. 90, 1947. H.M.S.O. Price 1s. 3d. net.

with the infectivity, morbidity, and mortality of familiar diseases such as measles and whooping-cough.

### NEW POLIOMYELITIS MEASURES

The importance of early diagnosis in cases of acute poliomyelitis and polio-encephalitis has been repeatedly stressed and is obvious. With no more than some hundreds of cases in this country in each year since 1938 few doctors have had the opportunity of seeing cases at the early paralytic stage. To make good this fortunate lack of experience the Ministry of Health has taken the initiative and sponsored the shooting, which began this week, of a short film on the early diagnosis of poliomyelitis. It is hoped that the film will be shown to medical audiences about a fortnight hence. The British Medical Association has agreed to assist the Central Office of Information in distributing copies of the film and in arranging for it to be shown to doctors. The Secretaries of Divisions or Branches who would like the film to be seen in their areas should communicate directly with the Secretary of the B.M.A. Projectors and operators can be made available by the regional offices of the C.O.I.

On the question of treatment there have been two interesting developments in the London area this week. Consultations have been held between representatives of the L.C.C. and the London teaching hospitals. During the week ending Aug. 9, 106 cases were admitted to hospitals in the L.C.C. area, as against 55 in the previous week. The London teaching hospitals have now agreed to set up as soon as possible special units for the treatment of cases of poliomyelitis in the acute stage. The beds set aside for this purpose will be allocated through the Emergency Bed Service (Telephone Clerkenwell 6571).

The Emergency Bed Service has also agreed, during the present emergency, to extend its services in connexion with the distribution of mechanical respirators outside the immediate London area. No matter how early the diagnosis is made, a proportion of these cases will require treatment by means of mechanical respirators. The E.B.S. has a record of the location of all the "iron lungs" available in and around the London area and is prepared to arrange for these respirators to be moved promptly from hospitals where they are not in use to hospitals which need them.

### LIMITS OF CERTIFICATION

The doctor's first duty is to his patient. In these days it seems necessary to repeat this truism over and over again because there are so many forces at work trying to upset this traditional duty of the medical man who treats the individual. The filling in of certificates has become an occupational disease in the medical profession, and in our issue of Aug. 2 (p. 187) Dr. Desmond Curran drew attention to an unfortunate example of this minor medical malady. In the same issue we recorded the view put to the A.R.M. by Dr. J. H. P. Giff (*Supplement*, p. 34) that the time had come "to make a stand against this unnecessary and aggravating certification." Dr. Giff was concerned with certificates for surgical corsets. Dr. Curran was dealing with the Civil Service Commissioners, who asked for a full and detailed report which "would place them in a better position to decide on each candidate." Dr. Curran, in our view quite properly, informed the Commissioners that he would state only his opinion whether there was any medical reason why a man should or should not be accepted. He makes the point that a candidate will express himself freely to the doctor if he knows that what he says will be regarded as confidential: this is of particular importance in psychiatric cases. There is, too, the possibility that a candidate

will take for granted that anything he says will be regarded as confidential and will assume, as he has every right to assume, that what he says to his doctor will not "be put away in a Government file and perhaps seen by numbers of laymen." That the Civil Service Commissioners did not perhaps feel too happy about the matter is shown in their request to Dr. Curran that he should regard as strictly confidential "the information concerning their practice." With more and more people being caught up in the State machine this question of certification will become more and more important. And as the medical profession comes more under the control of the State the individual doctor will find it increasingly difficult to perform his duty to the individual patient. Dr. Curran asks for "an authoritative ruling on the limits of certification intended for the use of lay bodies." Just who should or would make this a ruling is not clear, but at least a medical man asked to provide such a certificate should make quite sure that the full consent of the person examined is obtained before any certificate or report is submitted. Dr. Edward Glover in the correspondence columns this week (p. 269) suggests that the post-war period may be a silly season for psychology. He may or may not be right, but it is certainly a silly season for certificates.

### ERGOTAMINE IN THE TREATMENT OF PRURITUS

One of the methods used for the treatment of pruritus is the administration of ergotamine tartrate. Nevertheless it may cause gangrene, as a recent paper by Kenney<sup>1</sup> shows. Ergotamine tartrate constricts the peripheral vessels and reduces the extent of arterial pulsation. Presumably it is the diminution of the peripheral blood supply that relieves the pruritus, and if the diminution goes too far the danger of gangrene arises.

Lichtman<sup>2</sup> in 1931 began the use of ergotamine ("gynergen") for pruritus, and described 4 cases (2 of renal and 2 of hepatic origin). He gave 1 mg. three times a day by mouth, and stopped the drug as soon as relief was obtained; the results were excellent. Snell and Keyes described a series of 12 cases, and noted that pruritus occurred in 60% of patients with gall stones; they gave ergotamine tartrate by mouth and also by intramuscular injection. Later workers, however, recorded ill-effects. Yater and Cahill<sup>3</sup> had a patient whose legs had to be amputated because of gangrene induced by ergotamine. Gould, Price, and Ginsburg<sup>4</sup> gave 0.25 mg. of ergotamine subcutaneously daily for four days. After the second injection pain and coldness developed in the extremities, followed by cyanosis and impaired sensation. This patient died four days after the initial dose of ergotamine tartrate. These cases are of course exceptional, and as a rule when coldness and cyanosis appear they cease when the drug is discontinued. Further treatment includes papaverine hydrochloride (20-30 mg.) intravenously or orally as a vascular spasmolytic. Ergotamine tartrate is contraindicated in the presence of sepsis or of cardiovascular disease.

Since such serious risks attend the use of ergotamine for the treatment of pruritus, it seems likely that it will soon be replaced by the new antihistamine drugs, such as "anthisan" or "neoantergan,"<sup>5</sup> which are effective at least when the pruritus is associated with urticaria. Extensive pharmacological investigation has revealed no serious toxic effects from the use of these substances.

<sup>1</sup> *New Engl. J. Med.*, 1946, 235, 35.

<sup>2</sup> *J. Amer. med. Ass.*, 1931, 87, 1463.

<sup>3</sup> *Med. Clin. N. Amer.*, 1933, 16, 1455.

<sup>4</sup> *J. Amer. med. Ass.*, 1936, 108, 1625.

<sup>5</sup> *Ibid.*, 1936, 108, 1631.

<sup>6</sup> Hunter, R. B., *Lancet*, 1947, 1, 672.

## CONTACT LENSES

BY

C. G. KAY SHARP, M.D.

The possibilities of contact lenses have been appreciated since 1827, but it was not until von Rohr, of Jena, developed the glass contact lens that they became available for general application. In this country Dr. Josef Dallos, of Budapest, in more recent times, has made a material contribution to the development of contact lenses. In general, much secrecy has surrounded the manufacture of contact lenses, and little has been written about them in the medical press. Contact lenses are now an established treatment for definite clinical conditions. They are becoming available in increasing quantities, but the demand far exceeds the supply. At present this is mainly due to the deficiency in the number of trained technicians, and although the position is improving there is still a delay of three to four months before supply.

## Varieties

Contact lenses are transparent optical appliances so made that they fit closely over the conjunctiva covering the sclera but provide for a small clearance over the cornea. The earlier contact lenses were, and in some of the principal ophthalmic centres still are, made of glass, but during the late war intensive development took place in the provision of contact lenses made of plastic material.

This material has certain advantages over the glass product: (1) It has more resiliency and elasticity—the thin scleral portion of the contact lens can the more easily adapt itself to any disparity between its curvature and the curvature of the sclera. (2) It is clearer than glass. (3) It is unbreakable, except with gross misuse. (4) It is about one-ninth the weight of glass, thus reducing ocular fatigue to a minimum. (5) It is more resistant to the action of tears; consequently plastic contact lenses require to be repolished less frequently than glass lenses.

For general purposes it may be accepted that contact lenses are made either of glass or of plastic material. The methods by which they are produced are briefly: (a) blown glass, as in the production of artificial eyes; (b) glass ground from solid glass; (c) glass moulded to the shape of the eye: an impression of the eye is taken as for a denture; (d) plastic contact lenses fitted to the eye by the ophthalmic surgeon, the final prescription incorporating such adjustments as he may find to be necessary and also the lens power required to correct the residual axial ametropia. All these methods are in use at the present time. Whether or not one of them will eventually prove to have sufficient advantages to justify its adoption as the method of choice remains to be seen. Enough data are not yet available, especially in regard to the use of plastic material, but my own experience, gained in ophthalmic practice and in the Contact Lens Centre at the Royal Eye Hospital, London, tends to show that the advantage lies with plastic material. In all types of lenses the corneal segment of a contact lens is in the initial stages plano, and the additional spherical power, plus or minus, is worked on the anterior surface of the segment.

## Advantages and Limitations

One of the results of placing a contact lens on the eye is that the curvature of the cornea is supplanted optically by the spherical curvature of the corneal segment of the contact lens. The presence of a well-fitting contact lens may at first be appreciated as is that of a wrist watch, or a ring on the finger, for the first time, but very quickly the sensation disappears, and there is no difference of sensation whether the contact lens is in position or not.

Patients are not necessarily able to discard their spectacles entirely when adopting contact lenses. Each case has to be considered on its merits by the ophthalmic surgeon; but, generally speaking, contact lenses are an important and useful addition.

The length of time these lenses may be worn varies considerably. Some patients may wear them all day, but much depends on their neuro-vascular condition and on the condition

of the conjunctiva, and as a general rule it is considered satisfactory if contact lenses can be worn continuously with comfort for four hours. This period is sufficient for most special purposes—e.g., dances, theatres, cinemas, public functions, sports, and flying duties. Plastic contact lenses are especially valuable in sports and in flying duties on account of their safety and light weight. A greater number of hours' wearing time per day may be obtained by staggering the periods of wearing.

The hypermetrope should see as well with contact lenses as with spectacles, but in the higher powers may at first be conscious of a slightly smaller retinal image. The myope, especially in the higher powers, should see better with contact lenses than with spectacles on account of the larger retinal image.

## Indications

Undoubtedly, when the supply of contact lenses permits, the greatest number will be used for cosmetic reasons. The young adolescent who normally wears thick lenses in spectacles may justifiably be recommended to adopt contact lenses for special purposes, whether social, professional, or sports. The presbyope may be advised to wear contact lenses, if desired, but for optical reasons bifocal lenses cannot be prescribed: he must decide whether correction of the ametropia for distant vision or for near vision would be the more useful.

There are indications for contact lenses in many pathological conditions, as an aid to plastic surgery in the prevention of symblepharon, and in the location of intraocular foreign bodies. In incomplete closure of the eyelids, ectropion, entropion, trichiasis, and proptosis contact lenses are prescribed for protective purposes, as they afford immunity from corneal irritation and ultimate ulceration. They are useful in preventing troublesome sequelae in sclerosis of the conjunctiva following trachoma and burns of the eye.

The most remarkable results from the use of contact lenses are achieved in keratoconus, nebulae, and leucomata, and in mustard-gas keratitis. In all these conditions the anterior surface of the cornea presents gross irregularity which cannot be corrected with spectacles. The contact lens replaces this irregular surface, optically, with the regular spherical surface of the corneal segment, on which is worked the spherical correction of the axial ametropia. Consequently, if there is any clear cornea available in the pupillary area, or after an optical iridectomy, contact lenses permit a considerable improvement in visual acuity.

I know of patients registered as blind under the Blind Persons Act who have obtained little or no improvement in visual acuity with spectacles, but whose vision has improved from 3/60 to 6/12 with contact lenses. Instead of being registered as blind persons they have legally been able to obtain a licence to drive a car.

In albinism and aniridia much relief may be obtained from the distressing photosensitivity, especially if an artificial iris be added to the corneal segment. In neuroparalytic keratitis contact lenses provide all the advantages of a tarsorrhaphy with none of its disfigurement. Surgical treatment of the trigeminal nerve or gasserian ganglion is an indication for the provision of contact lenses in anticipation and prevention of a neuroparalytic keratitis. Contact lenses specially fitted with metallic inclusions—e.g., metal bead at 3, 6, 9, and 12 o'clock, or a metal ring at the junction of the scleral and corneal segments—are used in the location of intraocular foreign bodies.

## Fitting

The determining factor both in glass and in plastic contact lenses appears to be the careful fitting of the contact lenses by the ophthalmic surgeon. Contact lenses manufactured from a mould of the eye have many advocates, but the errors which may arise from taking a mould are by no means negligible, and the procedure is an unnecessarily unpleasant one. It seems to have no advantages over the simpler method of applying plastic contact lenses, with such adjustments as may be apparent to the ophthalmic surgeon when fitting them.

The contact lens consists of two segments—the scleral and the corneal—each having a different radius of curvature. The scleral segment fits snugly on the conjunctiva covering the

sclera. The corneal segment has a slightly smaller radius of curvature than that of the cornea, thus providing a small space between the cornea and the contact lens. This space is filled with a buffer solution isotonic with the tears. The pH of the buffer solution prescribed varies with the pH of the tears. An exception to the rule that there should be clearance of the cornea may be made in conical cornea, where a corneal segment may be prescribed in close contact with the corneal cone, so preventing progression and even slightly reducing the effect of the cone.

The contact lens should not be so firmly in contact as to constrict the conjunctival vessels, nor so loosely attached as to permit the buffer solution to escape, with the admission of air bubbles. It should not be so large as to interfere with the movements of the eyes nor so small as to be liable to be caught by the eyelids in movement. For these reasons mass production on standard measurements is impossible, each eye having its own individual requirements.

### DEGREES OF MURDER

Sir Norwood East, president of the Medico-Legal Society, read a paper on "Psychiatry and Degrees of Murder" before that body on June 26. His object was to show that while criminality in murder varies widely according to circumstances and personality any doctrinaire approach—any rigid fixity of degrees—would destroy the elasticity which prevails to-day and which on the whole secures in each case perhaps the closest approximation to justice that is reasonably possible.

During the period 1929-38 in Britain the death sentence was passed on 175 persons. Of these 81 were executed, while the sentence of 81 was commuted to penal servitude for life. (The few remaining cases were of sentences quashed on appeal, or dealt with abroad, or, under the Children and Young Persons Act, sentenced to be detained during the King's pleasure.) An examination of the figures for the last 67 years shows a proportionate increase in the number reprieved. In the period 1880-1929 the proportion reprieved was 44.16%, in the following ten years 50%.

As far back as 1866 a Royal Commission favoured the grading of murder, but although various Bills to that intent were introduced into Parliament they were all withdrawn or failed to get through. The difficulties of grading are very great. In grading by indictment, for example, a man might be charged with murder of the second class, whereas the course of the trial might show that it was a deliberate and brutal murder of the first class; but to alter the indictment would not be easy. Grading by the judge was not accepted by the Select Committee on Capital Punishment in 1930 because it would leave too much to the temperament and general attitude of the judge concerned. Grading by the jury was equally unacceptable to that committee because the evidence before the court is restricted to what is directly relevant to the proof of guilt and excludes many important matters which are rightly taken into account in the exercise of the prerogative of mercy. Even when the facts are clear the jury can hardly exercise equitably a grading discretion. Sir Norwood East instanced the usual prejudice against homosexual conduct, which, he suggested, might prevent a jury from assessing without bias the degree of guilt of a man who had killed his male paramour in an outburst of jealousy. There remains grading by the Home Secretary, which in practice does, generally speaking, meet the want of classification.

### Findings of the Psychiatrist

The findings of the clinician, toxicologist, pathologist, and psychiatrist, said Sir Norwood East, might all assist in grading murder. The psychiatrist would note the effects on behaviour of various degrees of intelligence and will-power, emotion and temperament, character and personality, and abnormal mental states, and would take cognizance of social, ethical, economic, and other factors, thus demanding a wide approach. Many homicidal crimes were associated with emotional stress. The prevailing psychological atmosphere at the trial of the survivor of a suicide pact or of a deserted woman who had committed infanticide might cause those taking part to temper their judge-

ment with sympathy and leniency, which might be all to the good, but it exemplified the importance of treating the offender individually.

Several degrees of murder were associated with insanity. Three gradations appeared when the crime was associated with mental defect—imbecility, feeble-mindedness, and moral defectiveness. The psychoneuroses and various states of psychopathic personality introduced degrees of culpability not amounting to legal irresponsibility but apparent to the psychiatrist. A jury was not equipped to assess minor degrees of mental abnormality.

Viewed broadly, murder was usually the result of reasoning or emotion or a combination of the two. If it was agreed that the reasoned murder was generally the most criminal, it might also be accepted that gradations of unpremeditated murder would depend to some extent upon whether the accompanying emotional picture was usually praiseworthy or detestable. Love, protectiveness, anxiety, and fear had survival value, and were generally esteemed; jealousy, avarice, cruelty, and revenge were socially destructive and were experienced only in minor degree, if at all, by the average man, and so were censured. If murder resulted from a tense emotional situation connected with an estimable factor it might be more easily condoned than crime which was the result of a factor in itself blameworthy.

### Events Surrounding the Crime

Sir Norwood East related a number of cases of murder which had come within his own experience—cases of premeditated murder, cases due to sudden provocation, cases in which callous or cautious conduct following the crime indicated different degrees of criminality. Insanity might be suggested if the death had resulted from a multiplicity of wounds or from the application of successive methods of killing, any one of which would have effected the purpose. But it was almost equally probable that in either case the accused would present no other mental abnormality than an intense emotional disturbance. He instanced a case in which a man killed his nagging wife by striking her on the head with a hammer, by manual strangulation, and finally by tying a stocking tightly round her throat, and yet he showed no evidence of disease or defect, and continued to show none. Combinations of abnormal mental states occurred and also required assessment. In a series of 200 murderers examined by him, and reported on some years ago, who were not insane or mentally defective, 48% confessed their crime before or shortly after arrest. A personal study of the men and their histories led to the conclusion that emotionally the confession was sometimes an act of atonement, as was sometimes a plea of guilty at the trial.

While important advances had been made in recent years in the psychiatric grading of murder due to mental abnormality, it seemed unlikely that the near future would provide a scientific and standardized grading of the many general and psychiatric imponderables involved, applicable to all cases, and capable of maintaining the present equitable balance between public safety and humanely directed clemency.

Sir Norwood East concluded his analysis of the situation by deprecating pedantic disputes between the supporters of the doctrines of determinism and free will. These would have no place in the practical problems of grading, though at the same time the importance of inherited causal factors of disposition and temperament, or of the early years of life in the formation of character, could not be denied. Even in later years any person might be profoundly influenced for good or ill by his associates and often fail to realize what was happening. "It is frequently said that the mental condition of the man who commits murder is abnormal at the time. In cases of insanity, mental defectiveness, or minor mental disorder the abnormality is a pathological deviation from the mental condition of the so-called normal man. In many other cases it is no more than a transient deviation from the man's usual self, and is associated with excessive instinctual activity, excessive emotional tension, lessened control, and disregard for social and ethical values. In a few cases the crime expresses the character of the criminal, and is neither the result of a pathological deviation from the normal nor a temporary deviation from himself." Perhaps they might go further and suggest that, other things being equal, these criteria represented a rising scale of culpability.

## MEDICAL WOMEN'S INTERNATIONAL ASSOCIATION

### CONGRESS AT AMSTERDAM

The Fifth Congress of the Medical Women's International Association, held at Amsterdam from June 24 to 28, was attended by over 350 delegates representing 16 different countries. It was extremely successful from the international point of view, and was marked by the outstanding hospitality of the Dutch Government, people, and medical women. The Congress was opened by the Minister for Social Affairs. The Burgomaster and Municipality of Amsterdam entertained the delegates at a reception, and the Vice-Chancellor of Leyden University, who played a prominent part in the resistance movement when the Nazis tried to force him and his staff to adopt a Nazi constitution, received the Congress at the University.

Prof. A. Ruys, of Holland, was elected president for the next three years; Mme Montreuil-Straus, of Paris, was elected honorary secretary, and Dr. Doris Odium, of Great Britain, honorary treasurer. Miss Louisa Matindale was made an ex-officio member of the governing body, and the following were appointed vice-presidents: Dr. Agnete Braestrup (Denmark), Dr. Eriksson-Lihr (Finland), Prof. Gauthier-Villars (France), Dr. Guest (Canada), Dr. Miloshevitch (Poland), and Dr. Barbara Stimson (United States). Dr. Bertha Van Hoosen (U.S.A.), who was one of the Founder Members, was made an Honorary Member in recognition of her outstanding services to the Medical Women's International Association. It was decided that the secretariat should be located in Paris for the next three-year period.

The Council for 1949 will be held in Helsingfors, and the next Congress will be in Philadelphia in 1950 or else in Paris. Mme Montreuil-Straus and Dr. Odium will act as observers at the meeting of the General Assembly of the World Medical Association in Paris next month.

### World Reconstruction

Prof. A. Ruys, opening the discussion on "The Responsibility of Medical Women in the Reconstruction of the World, as Physicians, as Social Workers, and in International Work and International Co-operation," dealt with the situation in Poland, Hungary, Czechoslovakia, France, Belgium, and the Netherlands. All six countries had been heavily damaged by the war; five were occupied by the Germans. In those countries where hygienic conditions were good before the war and the incidence of infectious diseases had been low, as in the Netherlands, reconstruction was proving a much easier task than in others whose hygienic conditions were less advanced.

The death rate increased in all six countries. In Poland the population was reduced by 31.4% owing to the extermination measures of the Germans. In the Netherlands the death rate, which was low before the war (8.6), rose to 15.4 in 1945, but in 1946 the Netherlands, as well as Belgium and Hungary, had returned approximately to the pre-war figures, whereas in the other countries the death rate was still much higher. Typhus was a major problem in Hungary, Poland, and Czechoslovakia, but not in the West. Cases of typhoid increased greatly in Europe, except in France, but by 1946 the figures had gone down considerably, especially in the Netherlands. The incidence of tuberculosis also rose appreciably, except in France; but here there was a high incidence even before the war.

The birth rate was still very low in Poland, but in the Netherlands it was exceptionally high. Prof. Ruys regarded this as evidence of the great vitality of the people, who, after a winter of extreme starvation, quickly regained their strength. Infant mortality had been exceptionally high in 1945 in Belgium, the Netherlands, and France, but by 1946 the figures were at the pre-war level.

In Poland, Czechoslovakia, and the Netherlands rations were now adequate in caloric values, but fats and proteins were still deficient. In Belgium the food situation was nearly back to normal, but in France and Hungary conditions were far from satisfactory. Housing conditions were terrible in large parts of Poland, more than 80% of the buildings having been destroyed.

In Hungary only 25% of the houses of Budapest were undamaged; in Czechoslovakia one-quarter were destroyed by bombing. In the Netherlands 23% of the buildings were damaged by war or flooding. In France and Belgium there had been little damage except in the Ardennes, but everywhere there was a deficiency because so few new houses had been built.

### Part Played by Medical Women

The proportion of women doctors in Poland was 25%; in Czechoslovakia 15%; in Hungary 10%; in the Netherlands 10%; in France 5%; and in Belgium 1.5%. In Poland there were nine women professors and nearly 200 women research workers at universities. A woman doctor was head of the Ministerial Department for Women and Children. In Czechoslovakia and Hungary they had the same rights as their male colleagues, but in fact did not attain to the higher posts. In the Netherlands and France medical men and women had equal rights, and on the whole the outstanding medical women had no difficulty in obtaining the higher positions. In the Netherlands two were professors in the University of Amsterdam. In France there were professors at the universities and some women had charge of hospitals. In Belgium there was one woman professor at the University of Brussels, but on the whole medical women had very little influence.

In all these countries women doctors took part in general practice and in nearly all the specialties, but they showed a preference for paediatrics, gynaecology and obstetrics, psychiatry, ophthalmology, and preventive medicine. Polish women apparently were playing a relatively large part in the social and hygienic reconstruction of their country. In the other countries they had still to struggle against considerable male prejudice.

In international organizations there were very few medical women. All the countries except Hungary felt that women had special responsibilities which differed from those of their male colleagues. Up till now the voice of women in the international field had been too faint. This was not always the fault of the men. Dr. Ruys thought that medical women were often too timid, or had too little self-confidence, or perhaps were spiritually too lazy, to make themselves heard. She felt that only a strong effort on the part of the women themselves would make Governments aware of the contribution that their women doctors could make.

### Conditions in Scandinavia

Dr. Eriksson-Lihr dealt with conditions in Denmark, Finland, Norway, and Sweden. The birth rate had increased noticeably in all four countries between 1939 and 1946. The death rate in Sweden had gone down. In Norway it had greatly increased, and Finland lost nearly 79,000 people during the war. In all four countries the death rate in 1945 and in 1946 was lower than in 1938. Infant mortality in 1945 and 1946 also showed a gratifying reduction, although it had greatly increased during the war years.

In Finland and Norway food was often deficient, and cases of hunger oedema occurred. Lack of vitamin C was seen in Finland, and of vitamin A in Norway in adults. Curiously, dental caries decreased in Finland whereas in nearly all countries it had increased.

In Sweden there were 7.5% of medical women, in Norway 8%, in Denmark 9%, and in Finland 17%. The value of public education in health subjects was stressed, but all four countries felt that some measure of compulsion was necessary to make sure that the public used the preventive services. They all felt that women should play a larger part in public affairs. She quoted an old Chinese saying to the effect that women are never privileged to prevent disaster but are always called on in the reconstruction.

### United States

Dr. M. Eliot, Associate Chief of the Children's Bureau, U.S. Department of Labour, said that housing was a great problem in America. Some 1,200,000 American families lacked separate dwellings and were sharing with others in October, 1945. Since then 1,600,000 married veterans had returned without homes



to go to. Another 1,300,000 single veterans had married. Adequate housing would require new construction at four and a half times the pre-war rate. The problem of juvenile delinquency was magnified and aggravated during the war and still continued to be serious.

Women doctors amounted to some 5% of the profession, or about 8,250. The majority engaged in private practice, 85% in cities and towns; 5% were qualified as specialists, especially in paediatrics, psychiatry, and pathology. In April, 1943, after two years' effort and with the support of all women's organizations, women doctors were appointed to the Army and Navy corps. Promotion was slower than for men. The demand for women doctors in civil practice had increased greatly. Women had encountered many handicaps in relation to appointments on hospital staffs. A number of women served as members of the House of Delegates of State Medical Societies. Group practice had greatly increased, privately arranged among the doctors themselves.

In the absence through illness of Dr. Margaret C. Macpherson, Dr. Janet Aitken read her report on Great Britain. There were 51,533 doctors in Great Britain of whom, roughly, one-seventh were women, with about 5,000 in active practice. Women in general practice were firmly established and they were also employed in the public health services. Openings in consultant practice were more limited. The British Medical Women's Federation was the only organization representing medical women as such. It had a membership of some 2,200, was representative, and was recognized by Government Departments, public authorities, and the British Medical Association.

### General Discussion

These and other reports were followed by a lively discussion in which members of all the countries present took part. Certain interesting features emerged.

1. The main post-war problem was unanimously agreed to be lack of houses with all its attendant social and moral dangers.
2. The figures for delinquency were still much higher than before the war in nearly all countries, and there was also some increase in criminality.
3. The vital statistics of most countries were surprisingly good. Nutrition was recognized to be the main factor in maintaining physical health and to a great extent in supporting morale.
4. The countries that were more advanced before the war, even though they were occupied, had, on the whole, made a remarkable recovery. The less advanced countries were obviously more handicapped and conditions were still unsatisfactory in most of the Central European countries.
5. Communicable diseases had not increased to the extent that had been feared, although there was an increase in most countries in tuberculosis and venereal disease.

Finally it was agreed that the position of medical women varies in different countries. In those which were more advanced the social status of women was higher than in the more backward countries. It was noteworthy, however, that the position of medical women in Poland appeared to be relatively high. Although in most countries they had normally equality of opportunity, many women experienced difficulty in obtaining the higher posts, and it was felt that this was due not so much to lack of capacity as to a certain amount of prejudice. There appeared to be general agreement that women had a special contribution to make to reconstruction by the very fact that they were women, a contribution which should be made in close co-operation with their male colleagues. It was also felt that medical women had tended in the past to take too little interest in public affairs, and that it was their duty to fit themselves to take part in all the activities which regulated the life and future of their nation and mankind.

Psychiatric social work has a wide range. Three types of work of particular interest to general practitioners are described in pamphlets recently published by the Association of Psychiatric Social Workers. They are: *Interviews with Parents in a Child Guidance Clinic* (1s. 3d.); *Some Aspects of Foster Home Placement for Difficult Children* (9d.); *War Damaged Youth* (1s. 9d.). In each case the price given includes postage, and requests for copies should be addressed to the Hon. Secretary, Publications Subcommittee, Association of Psychiatric Social Workers, 4, The Drive, Acton, London, W.3.

## CONGRESS OF PHYSIOLOGISTS

### SOME IMPRESSIONS

[FROM A CORRESPONDENT]

The first International Physiological Congress was held in Basle in 1889, under the presidency of Frithiof Holmgren (1831-97). Last month (July 21-5), Sir Henry Dale, O.M., presided over the seventeenth of the series at Oxford. At the first congress over 120 members had represented 13 countries, while over 1,200 members from 38 countries were assembled at Oxford for the seventeenth.

The sixteenth congress had been held at Zürich in 1938 in the large building of the Federal Technical University (Eidgenössische Technische Hochschule). At Zürich it had been decided that the next congress should take place in Oxford in 1941. The seventeenth congress was therefore six years overdue. The background against which it took place was very different in many ways, but in some ways strangely similar. This time, however, there was curiosity as to whether the Russians would be represented, and it was with a sense of pleasure and almost of relief that it was learned that there was a substantial Russian delegation led by Academician Orbeli.

To a Londoner who had not visited Oxford since 1938 it seemed that the war had left few traces, and this impression must have been even more striking to visitors from many of the European countries represented. But this was nevertheless a very sober congress with little inclination and, indeed—in Oxford—little opportunity for merriment.

### Preliminaries

Most of the members arrived, as requested, by the early evening of Monday, July 21, and, after finding their rooms and studying the maps printed in a booklet of General Information made their way to Rhodes House, which was the headquarters of the secretariat. Each member was there presented with a detailed programme of communications, film-shows, and demonstrations, a printed List of Members, a 398-page paper-bound book containing abstracts of communications, and—a most delightful surprise—a copy of a new edition of Sherrington's *Integrative Action of the Nervous System* sponsored by the Physiological Society and published by the Cambridge University Press. Thus at the same time was a tribute paid to a great physiologist-philosopher and a souvenir of more than sentimental value given to each member of the congress. Although it was sad that Sherrington's health did not permit him to attend the congress, his new foreword to the *Integrative Action*, and a brief message of welcome read by the President at the opening session, went far to compensate for his absence.

The first official function was an evening reception given by H.M. Government at Christ Church. Guests were received by the Rt. Hon. H. A. Marquand, the Paymaster-General, who was late. This, and the large number of members, some of whom were encumbered by wives, meant that the last of the weary guests had been queuing for over an hour before being admitted to the promised land of free drinks in the Great Hall. Whether many physiologists thought a perfunctory handshake with a politician an adequate excuse for retarding for so long their progress to the bar is a matter for conjecture. However, once in the Great Hall and after the first drink or two, spirits revived, old friends were spotted and spoken to, and new friendships arose between those who had previously exchanged only reprints. So were some of the main objects of an international congress fulfilled in the first evening.

The opening session was held the following day in the Sheldonian Theatre. Sir Henry Dale made a brief speech of welcome and then called upon Prof. B. A. Houssay (Argentina), Dr. Robert Lim (China), Academician Orbeli (U.S.S.R.), and Prof. H. Fredericq (Belgium). Some of the foreign speakers were interesting, if involuntary, exemplars of the newer relation between science and the State. Houssay, whose name is at some time or another familiar to every medical student, has been deprived of his Chair of Physiology at Buenos Aires because he signed a manifesto protesting against political intervention in the affairs of his university; Robert Lim appeared in a

general's uniform, and the Soviet physiologist dragged in an irrelevant reference to the "freedom-loving nations." A further manifestation of the brave new world of 1947 was a telegram read by the president from Dr. Joseph Needham—who makes lightning appearances at congresses as a sort of Unesco good fairy—announcing that he was too busy to attend and read his scheduled paper on "International scientific co-operation and the value of an International Union of Physiology."

The opening session over, members thronged into the garden of Trinity College for the congress photograph.

### Communications

As usual, the number of communications—over 350—was so great that it was a physical impossibility to attend more than a very small fraction of them. At any time, nine communications were being read or discussed simultaneously in nine different buildings, in addition to the films and demonstrations that were taking place in other laboratories or departments. The number of the communications precludes any but a passing reference to a few samples. The material of many of them was already familiar, and many others were concerned with the minutiae of small and specialized sections of physiology.

In contrast to the congress of 1938, there were relatively few communications from biochemists; but there was substantial representation of biophysical investigation, especially in relation to neurophysiology. Mention will be made below only of a few communications on subjects of actual or potential chemical interest. K. H. Beyer *et al.* (U.S.A.) had been working with a new compound—caronamide—which was evolved with the object of finding an agent which would act on the kidney in such a way as to retard its excretion of penicillin, thus reducing the wasteful elimination of the drug via the urine. L. Brull (Belgium) described an ingenious experimental technique for treatment of acute uraemia such as that which follows poisoning with salts of heavy metals. Dogs were nephrectomized, and when full uraemia had developed a normal kidney from a dog killed up to one hour before was transplanted into the neck. There was a considerable drop in the blood urea of the animals, and in some cases the transplanted kidney survived for five days. J. B. S. Haldane (Britain) described the disagreeable effects upon himself and colleagues of oxygen inspired at a pressure of several atmospheres. Extreme differences in the time of onset of these effects were observed in different individuals and in the same individual at different times. E. Jacobson (U.S.A.) announced that it is physiologically impossible to be simultaneously in a state of emotional tension and muscular relaxation, and proposed progressive relaxation as a method of treatment for psychiatric and psychosomatic disorders. J. McLeod (U.S.A.) claimed that penicillin protects spermatozoa against the damaging effects of high oxygen-tensions. S. Wolf and H. G. Wolff (U.S.A.) had studied the gastric blush in a subject with a gastric fistula larger than that of Alexis St. Martin—Beaumont's famed and reluctant patient. D. Lehr found experimentally and clinically that mixtures of two or three sulphonamides had the same antibacterial effect as, but less toxicity than, the same total quantity of a single sulphonamide. G. V. Anrep (Egypt) reported a powerful coronary vasodilator—khellin—derived from the seeds of an umbelliferous plant which grows widely in the Middle East. No new hopes were raised by V. Koronchewsky (Britain), who has spent the past decade weighing the viscera of rats after injection of various sex steroids, in describing effects of polyhormonal treatment of aged rats.

A new and horrible term—"successfully prophylacticated animals"—was introduced by G. E. Wakerlin (U.S.A.) and a host of colleagues in the printed abstract describing the alleged protective action of crude renal extracts against experimental hypertension in dogs. L.-P. Dugal and M. Thérien (Canada) found that guinea-pigs could withstand extremes of cold better after dosing with ascorbic acid, and E. H. Venning and J. S. L. Browne (Canada) that the adrenal response to injury of the debilitated patient was absent or weak compared to that of the healthy subject.

E. Braun-Mcenzdez (Argentina) summarized the work of the Buenos Aires school on the mechanism of renal hypertension. Renin, an enzyme secreted by the kidney, reacts with hypotensinogen to form hypertensin, which has a pressor and vasoconstrictor action and is destroyed by hypertensinase. The

sting of the stinging nettle is caused by histamine and acetylcholine, according to N. Emmelin and W. Feldberg (Britain). I. Greenwald (U.S.A.) questioned, partly on the basis of historical studies, whether endemic goitre is really due to deficient iodine intake. A. von Murali and E. Lüscher (Switzerland) reported a factor prepared from the brain, spinal cord, and myelinated nerves of young animals which increases the rate of regeneration of cut and degenerated nerves. Scorpion venom has a decurizing action on striated muscle, according to E. C. del Pozo and L. G. Anguiano (Mexico). Results obtained by R. G. Grenell (U.S.A.) suggest that adrenal cortical hormones may find a new clinical application in the combating of cerebral oedema following head injuries. E. Mellanby (Britain), in the discussion which followed his paper on the rickets-producing action of cereals, believed that vitamin D might act by stimulating the production of an enzyme which breaks down phytic acid—the factor in cereals which combines with dietary calcium to form an insoluble phytate.

Many other communications could, and probably should, be mentioned, and reference to some of the most important has been deliberately omitted because the subjects are too difficult or their practical bearing at present too remote.

### Books and Films and Early Instruments

Unquestionably the most interesting and significant of the side-shows was the exhibition of early medical works at the New Bodleian Library. This included a number of medical manuscripts, some of them beautifully illuminated, and one of them (of about A.D. 1290) containing the earliest known representation of a dissection of a human cadaver. Among the more famous books exhibited were the *Fabrica* (1543) of Vesalius; Roesslin's *The byrth of mankynd* (1552); proofs of an incomplete and suppressed reprint of 1723 of Servetus's *Christianismi restitutio*, the theological treatise which contained the first (1553) printed description (but without supporting evidence) of the lesser circulation; Paré's surgical works; the *De venarum ostiis* (1619) of Fabricius; Helmont's *Ortus medicinae* (1648); Hooke's *Micrographia* (1665); Borelli's *De motu animalium* (1680-1)—in which the living organism is depicted as a system of pumps and levers; the rare first edition (1733) of the *Haemastatics* of Stephen Hales—who made pioneer investigations of the physiological dynamics of plants and animals while a parson at Teddington; Percival Pott's work (1766) on head injuries, and many other works which were the foundations upon which the medical science of to-day was built.

Other cases were devoted to an exhibition of documents illustrating "The Oxford Scene." This started with the Chancellor's Register, written in the first half of the 14th century, and finished with a letter from Lord Nuffield to the Vice-Chancellor offering to endow a postgraduate medical school at Oxford. A typescript note on "Medical Studies at Oxford" confesses that "The Laudian Code of 1636 required lectures on Galen and Hippocrates, and these remained, with Aretaeus and Celsus, as the principal medical authors studied until nearly the end of the nineteenth century"—surely rather an exaggeration.

Opposite the New Bodleian was an exhibition of early scientific apparatus pertaining to medicine and surgery. This was arranged by the Museum of the History of Science, which is housed in the Old Ashmolcan, and was chiefly remarkable for the very fine collection, of well over a hundred pieces, of early microscopes. The remaining exhibits were a rather random collection of objects ranging from anatomical preparations to pill-rolling boards.

Mention should also be made of the bookstall set up by Blackwell's in Rhodes House. Here, members of the congress could purchase or order books on the spot, and the wide selection of medical and physiological works displayed drew many British and foreign visitors—some of the latter deploring their scant supply of currency. Blackwell's had managed to publish, just in time for the congress, *Studies of the Renal Circulation*, by Trueta, Barclay, Daniel, Franklin, and Prichard—a book which had been awaited with much interest since these authors published a preliminary communication nearly a year before. On the Saturday following the congress, Dr. A. E. Barclay's pioneer work in developing cineradiography as a technique of physiological research received fitting recog-

nition by the award of an honorary D.Sc. by the University. Another of Blackwell's publications which was much-thumbed was John F. Fulton's massive biography of Harvey Cushing.

Many of the members showed short films demonstrating their work, but a special showing of new educational films made by I.C.I. was arranged for Wednesday evening at the Taylor Institution. This entertainment was packed to more than capacity—possibly because of a widespread interest in visual education and possibly because of the lamentable absence in Oxford of *Vergnügungsmöglichkeiten* of the sort available in Zürich. The brilliant series of teaching films on anaesthesia previously sponsored by I.C.I. had set a very high standard, and opinions were divided as to the value of this new physiological series. The first of them demonstrated an extraordinarily elaborate technique in which, in brief, a system of pumps was substituted for the heart of a dog. If this was anything more than a complicated piece of gadgetry the film did not indicate it. Another film on the action of acetylcholine was far more satisfying as a teaching film, although it exemplified one of the dangers of the medium—oversimplification. In a film, bald and uncompromising statements are made, and there is little room for qualifying remarks and reservations. Nevertheless these film demonstrations succeeded in giving a remarkably vivid portrayal of what the demonstrator was trying to do.

#### Closure

At a Convocation of the University in the Sheldonian Theatre, to which the whole congress was invited, honorary doctorates of science were conferred upon C. H. Best (Canada), H. S. Gasser (U.S.A.), B. A. Houssay (Argentina), A. Krogh (Denmark), and A. Szent-Györgi (Hungary). The closing session of the congress followed immediately, and it was decided that the eighteenth congress should be held in 1950 in Copenhagen. Suitable tribute to the admirable work of Capt. E. W. Geidt and Prof. E. G. T. Liddell in organizing the congress was paid by the president, who also showed the specially bound copy of the congress edition of the *Integrative Action of the Nervous System* which had been signed by leaders of physiology of several nations for presentation to its author.

### INTERNATIONAL SOCIETY OF SURGERY

The twelfth congress of the International Society of Surgery will be held in London from Sept. 14 to 20, under the patronage of His Majesty the King. The programme is as set out below, but, owing to the unexpectedly large number of visitors who have expressed their intention of attending, arrangements have been made, with the kind co-operation of the British Medical Association, to hold some of the scientific sessions in the Great Hall of B.M.A. House in Tavistock Square, which is a short walking distance from University College in Gower Street. Details of any such alterations will be announced from time to time and will be posted in the registration office at the College daily.

Sunday, Sept. 14, 10 a.m. to 6 p.m., Registration Office and Bureau open all day at University College, Gower Street, W.C. Members of Hospitality and Ladies' Committee in attendance; 8 p.m., Evening reception and reunion of members at the Royal College of Surgeons of England (Lincoln's Inn Fields, W.C.), by invitation of the President and Council of the College. Informal dress.

Monday, Sept. 15, 9 a.m., Registration Office and Bureau open at University College; 9.30 a.m., Meeting of International Committee at Royal College of Surgeons of England; 11 a.m., Inaugural ceremony in the Hall of Lincoln's Inn, by kind permission of the Treasurer and Masters of the Bench of the Honourable Society of Lincoln's Inn. Group photograph of congress; 2 p.m., Opening of exhibition of surgical instruments at University College by Dr. Leopold Mayer, President of the Congress; 2.30 p.m., First scientific session at University College: Role of Penicillin in Surgical Practice, Sir Alexander Fleming, F.R.C.S., F.R.S. (London); 4.30 p.m., Recent Advances in Arteriography and Venography, Prof. Dos Santos (Lisbon); 5.30 p.m., Opening of Wellcome Historical Exhibition at South Kensington by Sir Alfred Webb-Johnson, P.R.C.S.; 8.30 p.m., Reception by the President of the Society at Savoy Hotel.

Tuesday, Sept. 16, 9 a.m., Bureau open at University College; 9.30 a.m., Second scientific session at University College: Recent Advances in Vascular Surgery, Prof. René Leriche (Paris); 11.30

a.m., Surgical Treatment of Pulmonary Stenosis, Prof. Alfred Blalock (Baltimore); 2 p.m., Visits to hospitals, parties conducted from University College; 2.30 p.m., Deferred discussion, if required; 6 p.m., Reception by Viscount Kemsley at Chandos House, Queen Anne Street, W.; 8 p.m., Dinner at Royal College of Surgeons of England to delegates and members of the International Committee given by the President and Council of the College.

Wednesday, Sept. 17, 9 a.m., Bureau open at University College; 9.30 a.m., Third scientific session at University College: Operative Treatment of Fractures, Prof. Danis (Brussels); 11.30 a.m., Results of Early Operation in War Wounds of the Lungs, Dr. Bastos Ansart (Barcelona); 2 p.m., Visits to hospitals, parties conducted from University College; 5.30 p.m., Meeting of International Committee at University College; 5.45 to 7 p.m., Reception in the Great Hall of the British Medical Association House by invitation of the President and Council of the Association; 8 p.m., Reception at the Royal Society of Medicine, 1, Wimpole Street, W., given by the President and Council of the Society. Sir Gordon and Lady Gordon-Taylor will receive the guests.

Thursday, Sept. 18, 9 a.m., Bureau open at University College; 9.30 a.m., Fourth scientific session at University College: Results of Heparin in Surgery, Dr. C. Crafoord (Stockholm); 11.30 a.m., Recent Progress in the Treatment of Burns, by a Russian surgeon; 2 p.m., Visits to hospitals, parties conducted from University College; 5 p.m., General Assembly of the International Society at University College; 8 p.m., Reception by the Royal College of Surgeons of England at the College, Lincoln's Inn Fields, W.C.

Friday, Sept. 19, 9 a.m., Bureau open at University College; 9.30 a.m., Fifth scientific session at University College: Role of Vasodilatation in Arterial Disease, Dr. Diez (Buenos Aires); 11.30 a.m., Skin Defects: Their Repair by Flaps and Free Skin Grafts, Prof. T. Pomfret Kilner, F.R.C.S. (Oxford); 2 p.m., Visits to hospitals, parties conducted from University College; 4 to 6 p.m., Reception by Sir Hugh and Lady Lett at the Hall of the Society of Apothecaries of London, Black Friars Lane, Queen Victoria Street, E.C.; 8 p.m., Reception by His Majesty's Government.

Saturday, Sept. 20, 9.30 a.m., Deferred discussions, closure of scientific business; 2 p.m., Conducted visits to places of interest in London; 2.30 p.m., Pilgrimage of Homage from the Bureau to places of interest connected with Hunter and Lister; 8 p.m., Official dinner at Dorchester Hotel.

Sunday, Sept. 21, Excursions to places of interest near London—e.g., Windsor, Kew, etc.

During the week of the Congress there will be an exhibition of Hunteriana, specimens, books, etc., at the Royal College of Surgeons of England. Parties of not more than 12 persons will be conducted over the College at times to be announced.

The exhibition of surgical instruments and appliances, books, etc., will be at University College and will be open each day from 9.30 a.m. to 5 p.m., and on Saturday until noon.

Tickets for visits to hospitals will be issued at the Bureau, where parties will assemble before being conducted to the various hospitals.

A special programme of entertainments for the ladies will be available at the time of the Congress.

On Monday, Sept. 22, those members who have previously made the necessary arrangements will travel to Edinburgh. On Tuesday, Sept. 23, registration will begin at 9.30 a.m. in the Department of Surgery, University New Buildings, Edinburgh. An attractive programme of operations, symposia, lectures, demonstrations, etc., has been prepared. Social functions include a luncheon by the Secretary of State for Scotland, and receptions by the Royal College of Surgeons of Edinburgh and by the University. There will also be a garden party given by the Lord Provost and the Town Council and a series of excursions. The visit terminates on Friday, Sept. 26.

Prof. G. Grey Turner, M.S., F.R.C.S., is Chairman of the British Executive Committee; Sir Alfred Webb-Johnson, P.R.C.S., Chairman of the Consultative Committee; and Mr. H. W. S. Wright, M.S., F.R.C.S. (9, Weymouth Street, Portland Place, London, W.1) the Honorary Secretary of the Congress. The Honorary Treasurers are Mr. J. E. H. Roberts, O.B.E., F.R.C.S. (89, Harley Street, London, W.1) and Mr. Victor H. Riddell, F.R.C.S. (68, Chester Square, London, S.W.1).

The Secretary of State for Scotland recently visited the Rehabilitation Centre at Bridge of Earn, which was transferred to the hospital there from Gleneagles in April of this year. The scheme was started to admit coal miners in 1943, and in 1944 extended to admit industrial workers generally, and finally all classes of males. The Secretary of State praised the success attained (82% restored to fitness), and said that it seemed to be not generally known that the facilities were available to everybody who could benefit from them. A doctor could arrange for the admission of a patient, the only limit being the accommodation available and the absence at present of facilities for women patients.

## THE KING'S FUND: FIFTIETH ANNIVERSARY

H.R.H. The Duke of Gloucester presided at the fiftieth annual meeting of King Edward's Hospital Fund for London, held on June 27 at St. James's Palace. A message was read from the King which stated:

"I shall, as Patron, follow with close interest the future of the Fund in the changing conditions of to-day. I am confident that those who have contributed so generously in the past will continue their support, and I know that all responsible for the management of the Fund will see that its great resources and influence are wisely used in the service of the sick and those who tend them in the hospitals."

The Duke of Gloucester said that now that the decision to nationalize the hospitals had been taken new responsibilities would devolve upon the Fund and new opportunities open before it. The National Health Service Act would bring to an end the distinction between voluntary hospitals and those maintained by local authorities. The Fund would be called upon to help both kinds of hospitals in the future. The fact that in this great reorganization the Fund remained free to do its work in its own way was a mark of public confidence in its management. He referred to the good progress made in the scheme for providing bursaries for administrative and other officers, and also to the grants authorized for travel. He said that representatives of Charing Cross Hospital had been afforded the means of making a Continental tour, visiting new hospitals at Basle, Zürich, Paris, and Stockholm to study the latest developments in hospital reconstruction, bearing in mind the new Charing Cross to be built at Harrow.

Finally he mentioned the interest which the Fund was taking in the work of the voluntary hospitals and homes accommodating incurable and elderly cases. In several instances special grants had been authorized, and as soon as a survey was complete it might be necessary to sanction expenditure under this head for capital purposes.

The Treasurer, Sir Edward Peacock, said that the income of the Fund had been well maintained and had been little affected by the proposals of the National Health Service Act. The City Companies had continued their beneficence. The total receipts in 1946, including legacies, amounted to £491,409, an increase of over £26,000 on the year before. The ordinary distribution of £302,750 had been maintained, and £47,500 had been provided by special grants.

### Activities of the Fund

The chairmen of various committees of the Fund then presented brief reports. Dr. Morley Fletcher, for the Nursing Recruitment Committee, stated that during the year over 4,000 candidates for training had been advised at the recruitment centre, and help had been given in finding hospital vacancies for groups of girls coming from the Colonies and one or two foreign countries. Sir Harold Wernher described the work of the Emergency Bed Service. Over 10,000 calls for help in finding a hospital bed for a patient had been dealt with during the year. The shortage of beds, even for urgent cases, was more acute than it had ever been, even though the London voluntary hospitals had reopened several thousands of beds and had only about 15% of their pre-war complement closed.

Sir Hugh Lett presented the report of the Committee on Hospital Diet, and stated that the standard of feeding in the hospitals in the Fund's area was definitely better than it had been, and it was hoped that it would improve still further, notwithstanding the problems of rationing and shortage of equipment. Sir Henry Tidy referred to recent developments of the work of the Fund in connexion with convalescent homes. A directory of such homes, he said, was being prepared, and arrangements were being made for medical men and laymen to visit them. The Fund had been able to assist in the reopening of homes closed during the war.

Lord Moran, in moving a vote of thanks to the Duke of Gloucester for presiding, said that perhaps the first purpose of the new Act was to make one standard for hospital services, so that inefficient hospitals might be brought up to the level of the efficient. But in such standardization care must be taken not to rob the hospitals of their personality or to lose those features which, with the fruits of research, had sent the good name of our hospitals over the world.

## BEIT MEMORIAL FELLOWSHIPS FOR MEDICAL RESEARCH

Sir Henry Dale, O.M., G.B.E., F.R.C.P., F.R.S., and Lord du Parcq have been appointed to succeed Lord Rayleigh, F.R.S., and Lord Macmillan of Aberfeldy as trustees of the Fellowships.

The following elections have been made:

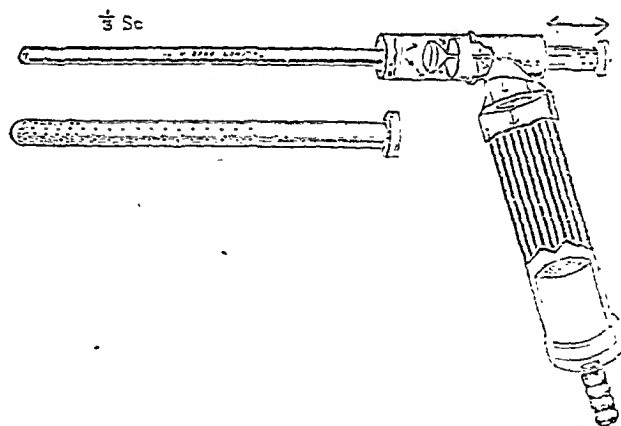
*Fourth Year Fellowship (£700 a year):* F. Sanger, B.Sc., to study the structure of proteins, with special reference to insulin (at the Department of Biochemistry, University of Cambridge).

*Junior Fellowships (Normal value £600 a year):* J. W. Lyttleton, M.Sc., to study the purification and subsequent physico-chemical characterization of proteins involved in the coagulation of blood (at the Lister Institute of Preventive Medicine); A. J. Marshall, B.Sc., to study the humoral and nervous control of the decidual reaction of the mammalian uterus (at the Department of Zoology and Comparative Anatomy, University Museum, Oxford); L. Silberman, B.A., B.Sc., to study the community costs of tuberculosis in terms of public assistance and industrial outlay to patients and dependants, man-day wastage, and social service provisions, with special reference to the problem of reinstatement and re-vocation (at the University of Birmingham); G. Weber, M.D., Ph.D., to investigate the reactions and behaviour of physiologically important proteins (at the Sir William Dunn School of Biochemistry, University of Cambridge).

## Preparations and Appliances

### MODIFIED SIMPSON-SMITH SILENT SUCKER

Mr. M. D. SHEPPARD, Chelmsford, Essex, writes: The Simpson-Smith silent sucker is too well known to need description or appreciation. It is, however, occasionally defeated by blood which clots in the rubber tubing between it and the collecting bottle, or by pieces of fibrin and pus which tend to gather round the valve and cause an obstruction. For these reasons



it seemed desirable that clots should be trapped and prevented from entering the rubber tubing and that the valve mechanism should be enlarged and made easily accessible for cleaning.

In the modified sucker the principle on which the apparatus depends for its success has not been altered. The valve tubing and seating have been much enlarged and the valve can be cleaned by unscrewing the handle leading from it. This handle forms part of a much enlarged connexion between the valve and the rubber tubing and contains a sieve which will trap any solid matter large enough to cause a block in the tubing. Such a block is always difficult to locate and remove during the flurry of the operation when blood or other fluid floods the surgeon's field of action. This sieve often clogs up but is soon cleaned; the chamber can be emptied of its contents by unscrewing the base.

Messrs. Down Bros. have kindly carried out these modifications and I am indebted to them for their useful suggestions and co-operation.

## ORDER OF ST. JOHN OF JERUSALEM

The *London Gazette* has announced the following promotions in, and appointments to, the Venerable Order of the Hospital of St. John of Jerusalem:

*As Knights:* Major J. F. Hamilton and Dr. R. D. Thomas.  
*As Commanders (Brothers):* Surg. Rear-Admirals A. E. Malone, C.B., K.H.P., and H. M. Whelan, K.H.S. (since deceased), Brig. G. S. McConkey, O.B.E., Major G. S. Phillips, Drs. F. L. Richard, P. S. Selwyn-Clarke, C.M.G., M.C., C. C. B. Gilmour, C.B.E., J. M. Hermon, G. P. Huws, and N. Hamilton Fairley, C.B.E. *As Officers (Brothers):* Surg. Capt. L. F. Strugnell, R. C. May, O.B.E., M.C., and K. D. Bell, R.N., Cols. C. R. Croft and T. J. L. Thompson, O.B.E., M.C., Lieut.-Cols. F. A. Bevan, T.D., and T. F. Briggs, R.A.M.C., Lieut.-Col. M. P. Atkinson, I.M.S., Lieut.-Col. C. P. Stevens, M.B.E., Major T. W. Carriek, R.A.M.C., Drs. A. Byrne-Quinn, J. A. L. Roberts, G. C. Williams, J. MacKenzie, K. Chrysanthis, H. G. Davies, H. H. Warren, T. W. David, G. R. Jones, G. P. Williams, J. W. Reid, and C. A. Bence. *As Associate Officer (Brother):* Col. S. L. Bhatia, C.I.E., M.C., I.M.S. *As Officer (Sister):* Dr. Lucy C. Simpson Davies (since deceased). *As Associate Officer (Sister):* Dr. Parrin Shroff. *As Serving Brothers:* Mr. V. C. J. Harris, Drs. W. W. M. McKinney, J. S. Gray, A. S. Hendric, M. F. Leslie, E. Smalley, G. Walker, V. Wilkinson, H. J. Henderson, M.C., C. B. Leong, J. B. Mackie, G. L. Gale, J. A. Tomb, P. C. Rayner, J. Cook, G. P. Smith, O.B.E., C. H. Vernon, J. Gourley, G. G. W. Hay, P. T. Davidson, G. S. L. Kemp, D. K. Gaitskell, J. Blyth, A. R. Lester, P. E. Creswell, and D. I. Evans. *As Associate Serving Brothers:* Drs. J. Cohen, P. C. Kwan, and S. S. Ramler. *As Serving Sisters:* Drs. Joan I. Franklin-Adams, Margaret M. Basham, Kathleen E. Slaney, Florence M. Morris, O.B.E., Lai Po-Chuen, Phyllis Haddow, and Sybil K. Batley.

## Reports of Societies

## MENTAL HEALTH SERVICES UNDER THE NEW ACT

The effect of the National Health Service Act on mental health services was the principal theme of discussion at the twenty-fourth annual meeting of the Mental Hospitals Association, held in the City of London Guildhall on July 15 and 16, and opened by the Lord Mayor. In its report the Executive Committee regretted the passing of visiting committees and the divorce of the domiciliary from the hospital service, but took the view that the Association should do all in its power to assist the Minister to produce an efficient and beneficial service. The fact that the Ministry and the Board of Control had taken the Association into consultation in the preliminary stages was appreciated.

## Service for Mental Defectives

Dr. D. H. H. THOMAS, medical superintendent of the Royal Albert Institution, Lancaster, read a paper on mental deficiency services in relation to the Act. He touched also on the extent of mental subnormality as indicated by the estimate of the Board of Education that one child in ten in the elementary schools would require special education on this account. The term, of course, included retardation of potentially normal children by environmental factors; on the other hand, children certified under the Mental Deficiency Acts were not included in this figure. He pointed out that many more defectives were receiving some form of community care than were receiving institutional care. The more than 50,000 under statutory care in the community and the 24,000 under voluntary care would be mainly the responsibility of the local health authorities, leaving some 49,000 in institutions under the Act.

The crucial time for deciding the success of the training of a defective person was at the point when statutory supervision was no longer available—namely, at the time of final discharge from the provisions of the Act. The Board of Control was now asking local authorities to undertake friendly supervision for a year after formal discharge. It was at this time that the social worker was called upon to show the greatest skill in the management of the case, the power of the authority having been withdrawn, and the only link being the esteem of the

patient for the social worker. The organization of voluntary mental health work was now extensive and skilful, and he hoped that the fullest use would be made of it. Touching on research, he pleaded for the greatest latitude in the interpretation of what constituted research in relation to mental deficiency.

## Mental Health and General Services

Dr. W. McCARTAN, medical superintendent of Brighton County Borough Mental Hospital, speaking on the integration of mental health services with the general medical services, said it would appear that the inclusion of psychiatric beds in the general (non-teaching as well as teaching) hospitals would go far to ensure such integration. The question arose, however, how far the widespread setting up of psychiatric beds in non-teaching hospitals would cover the needs of short-term psychiatric cases, and how far these would duplicate the provision already made in modern mental hospitals.

"The setting aside of a few wards in the general hospital will not provide a psychiatric department. It may be adequate for the treatment of neuroses, but it would exclude recent and acute cases of psychosis in many of which the prognosis is more favourable than in the milder, though often more intractable, neuroses. It is in that the word 'suitable' in the Nuffield Trust report assumes its importance."

If no provision was made in the general hospital for the recent and acute psychosis patient, mental hospitals must press on with arrangements for their own treatment units, and this might lead to redundancy. The question to be decided by governing bodies was whether it would be best to sponsor psychiatric beds in non-teaching general hospitals or to have units readily available to both general and mental hospitals. The varying needs and special conditions of different areas would determine what arrangements should be made, but whatever scheme was adopted it was to be hoped that provision would be made for neurological and psychiatric collaboration.

## Shortage of Mental Nurses

In a paper on present and future trends in psychiatry, with special reference to workers in mental hospitals, Dr. S. W. HARDWICK, medical superintendent, City of London Mental Hospital, said that one of the most pressing problems was the senile patient. It had been said that schizophrenia was the most common among serious psychotic disorders, but he wondered whether mental illness in old age was not more common. The problem was a complex one, because it was not easy to draw a sharp dividing line between the deterioration expected in normal old people and the severe disturbance which amounted to senile dementia. Fortunately the public conscience had recently awakened to the fact that the care and comfort of the aged was the public's own concern and duty. (The report of a Special Committee of the British Medical Association entitled *The Care and Treatment of the Elderly and Infirm*, price 3d., has just been published.)

Dr. Hardwick went on to discuss the nursing shortage, which affected mental hospitals particularly. Intimately connected with this subject was that of nursing training. According to some authorities, notably the Society of Medical Officers of Health, the whole present scheme of training should be altered to afford a shortened practical basic course of two years—the nurse then after examination qualifying as an enrolled nurse—followed by one year's higher training for those wishing to rise to the rank of ward sister in special subjects. Part-time employment had been suggested, but the part-time nurse brought with her a train of difficult problems. It could only be hoped that the shortage of workers would be made good so that an integrated mental health service could go forward.

Dr. Hardwick ended his paper on a warning note. Psychiatry was rapidly advancing and widening its scope, but it was still a youthful science and had not yet got rid of its growing-pains. Its future career was beginning to take shape, but hard work lay ahead and many hurdles had to be overcome. It would be wrong to expect too much in too little time.

"The report by the Berks, Bucks, and Oxon Regional Hospital Council under the Nuffield Trust urges that 'all large general hospitals should have a psychiatric department with both in- and out-patient facilities for the diagnosis and treatment of suitable [italics] cases of mental illness in both adults and children.'"



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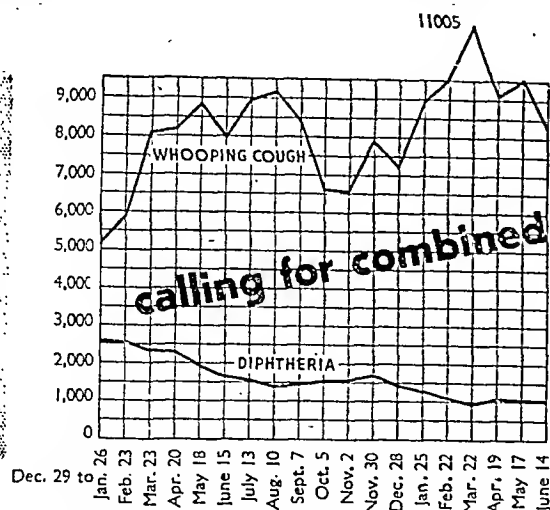
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## Correspondence

### Metric Equivalents

SIR.—In the course of the session of the Royal Society Empire Scientific Conference, held last July, which was devoted to the consideration of greater uniformity in standards of measurement, the following resolution was adopted:

"If textbooks and scientific data or memoirs are expressed in systems other than the metric, conversion factors or the metric equivalent should be included."

The object which it was intended to achieve by the resolution was to make British scientific papers more intelligible to overseas readers only familiar with the metric system.

We should be grateful if you would arrange to bring this proposal to the attention of your Council in order that consideration may be given to the best means of implementing it. We would suggest that, should your Council or governing body be in general sympathy with the proposal, a meeting of those to whom this letter is addressed, or their representatives, should be called at a convenient date. At such a meeting any special points of difficulty arising could be discussed, and if possible a fairly uniform system worked out which could be recommended to the publishers of journals and textbooks.

We would add that it is intended, as far as possible, to implement the resolution in the reports of F.S.I.R. work published through H.M. Stationery Office either by giving the metric equivalent of data expressed in British units or by the provision of a table of conversion factors. The Royal Society is also proposing to implement the resolution in its own publications. Any correspondence on the subject of this letter should be addressed to the Director, National Physical Laboratory, Teddington, Middlesex.—We are, etc.,

R. ROBINSON

President, Royal Society.

H. H. DALE

President, British Association

E. V. APPLETON,

Secretary.

Department of Scientific and Industrial Research

C. G. DARWIN,

Director, National Physical Laboratory

C. C. PATERSON,

Chairman, British Standards Institution Council.

\*The metric equivalents of British weights and measures have been included in the *British Medical Journal* since January, 1946, with the object of making "British scientific papers more intelligible to overseas readers only familiar with the metric system." An article entitled "The International System of Weights and Measures," by Dr. J. M. Hamill, was published in the *Journal* of April 5, 1947.—ED., *B.M.J.*

### Late Complications of Amoebiasis

SIR.—The interesting paper by Mr. P. Theron (July 26, p. 123) is useful and timely and reminds me of my experience in Mesopotamia during the 1914-18 war and subsequently in surgical practice in the North of England. From those experiences I can confirm most of the points dealt with in the paper, and as surgical history usually repeats itself it will be well to be on the look-out for delayed recrudescences of amoebiasis. I saw several cases where such complications arose a long time after the return to this country of those who had been out East and in some few who had never been out of England. I would like to mention one most striking example, and though the notes are not to hand, the recollection is so vivid that I can quote the main features without dates and other particulars.

Some months after his return from the East, a man about 28 developed rectal symptoms and signs so suggestive of carcinoma that for a time I concurred in that diagnosis. In the event the condition proved to be dysenteric, and I have to confess that I had previously made a similar mistake in diagnosis in dealing with a soldier in Basrah. As a temporizing measure an inguinal colostomy

was made, and it was a rapidly spreading and extensive ulceration, almost like a phagedaena, which attacked the abdominal wall for some inches around the bowel opening which suggested an amoebic origin for the whole trouble.

When injections of emetine were used the ulceration ceased to spread and soon cleared up, as did the rectal amoeboma. Some months later the patient again came under my care, this time with a hepatic abscess, which had to be opened and drained before recovery followed. After a further period of good health lasting for months there were recurrent abdominal symptoms, which cleared up with emetine only to be followed again after a few months with further symptoms of hepatitis. This time the patient became very depressed, refused to come into hospital or be properly treated, and died by his own hand. It will always remain a regret that there was no post-mortem examination.

Such experiences suggest that these late complications mean that the amoebiasis is deeply entrenched and difficult to eradicate. But for immediate improvement and often cure emetine is marvellous, and, though this therapeutic test has always been anathema to laboratory workers, emetine may confer such great benefit that its use should not be unduly delayed in doubtful cases. We always gave 1 gr. of the hydrochloride daily for a week or ten days. The injections were made deeply into the muscle on the outer side of the thigh, and I never saw mischief follow, which is more than can be said for injections into the buttock.—I am, etc.,

Taplow, Bucks

G. GREY TURNER.

### The B.M.A. and the Commonwealth and Empire

SIR.—No one who has read Sir Hugh Lett's Presidential Address in the *Journal* of July 26 (p. 121) reviewing the work of the B.M.A. can fail to be impressed by the importance and significance of their new proposals. The establishment of a British Commonwealth Council and of an Empire Medical Advisory Bureau at B.M.A. House, working in close association with London House, is supplying not only a long-felt want but is a courageous act of leadership, interpreting current opinion and anticipating the future needs of the profession throughout the Commonwealth and Empire.

The comparatively small loss of life from wound, infection, accident, and disease during the war has been the outstanding contribution of our combined medical services. There is a strong desire that this "combined operation" should be continued in peace, and this liaison can only be achieved by travel, personal contact, and postgraduate study. As a group of nations we are perhaps too inarticulate to express our appreciation and gratitude to each other by word, but here indeed is a scheme which embodies all these sentiments.—I am, etc.,

London, W.1.

L. R. BROSTER.

### Limits of Certification

SIR.—Dr. Desmond Curran (Aug. 2, p. 187) is to be congratulated on the stand he has taken. During the latter part of the war I repeatedly called attention to the dangers that would arise if wartime selection methods were to be applied in civilian life. The view that, in the interests of "efficiency," Government departments, educational authorities, and industrial administrators have the right to exploit and, worse still, to place on record psychiatric reports belongs to the totalitarian outlook which, allegedly, we went to war to abolish.

With the actual nature of the clinical tests I am not for the moment concerned, although some of them are absurd enough. The fact is, however, that psychological experts, no doubt smarting from a sense of inferiority and gladdened by the opportunity to display prescience, are apt to forget they are bound by codes of professional discretion which can be abrogated only in the interests of justice and on the instance of a court of law. No doubt lay psychologists are not officially bound by these codes. But we may look forward to the time when they too will recognize their responsibilities in this matter. In the meantime it is to be hoped that medical psychologists will support the stand Dr. Curran has taken. It is perhaps inevitable that the post-war period should prove to be a "silly season" for psychology: but the shorter the season the better for all concerned.—I am, etc.,

London, W.1.

EDWARD GLOVER.

**Temporal or Giant-cell Arteritis**

SIR,—In his excellent article on temporal arteritis Dr. Kenneth Robertson suggests (Aug. 2, p. 168) that reports of this condition should be made as cases appear. Since my attention was drawn to it in the *Medical Annual* of 1942 I have had at least five cases confirmed by biopsy, two of which have been shown at local B.M.A. meetings, and as I have been told of other cases recognized by local general practitioners the condition is not very uncommon. The sex incidence of my cases is unusual, four being males. All have been 60 or above. In one rheumatoid arthritis was associated, and in one prostatic carcinoma. Blood changes, fever, malaise, and depression were not characteristic, and it seems clear that diagnosis depends on biopsy of the temporal arteries. There was a remarkably similar look about my patients, with skin drawn tightly over prominent bony cranial ridges, so that in clinical photographs the sometimes dusky red temporal vessels were easily demonstrated. Headache in four cases was severe, worse on pressure, temporal or bitemporal, and not associated with vomiting. I was not able to assure myself of peripheral vascular disease other than what might be expected in this age group, and, as all survived, had no post-mortem opportunity. In two there was evidence of intracranial involvement—one the case where headache was not prominent but where a confusional state was associated with paresis of the lower limbs, and one where, following some months of severe headache, there was rapidly developing blindness on the side of the affected temporal vessel, with evidence of retinal artery thrombosis. Biopsy appeared to hasten relief from headache, but had no specific effect on those with intracranial lesion, though freedom from pain and the provision of a definite diagnosis and relatively cheerful prognosis had probably some effect on one of them.

Excision of part of the vessel is not troublesome, as the lumen is practically occluded. For this reason I do not hesitate over biopsy as treatment, though in future I shall certainly consider anticoagulants. Differential diagnoses which arose were temporo-mandibular arthritis, cerebral tumour, and arteriosclerosis with cerebral thrombosis and degeneration. If the existence of temporal arteritis is remembered, however, diagnosis has seemed straightforward, and, especially since the work of Cooke and others, the interest has seemed to lie in its causes, general and local, why the arterial tree becomes diseased at all, and why the temporal arteries should so often be the branches first affected. I have no suggestion about the general cause, but locally would point out that the temporal vessels run over bony ridges in close relation to joints, muscles, and fasciae in constant movement, exposed to "micro-trauma" from hats, brims, spectacles, and pillows, and only protected from such and from temperature change by a thin layer of skin.

At the Royal Sussex County Hospital we are planning investigation into temporal artery histology in the aged compared with that of less exposed vessels more inured to physical stresses and strains. But as a clinically diagnosable condition temporal arteritis seems simple if remembered.—I am, etc.,

W. A. BOURNE.

W. A. BOURNE.

**Salaries of Specialists in N.H.S.**

SIR,—We all naturally see this matter of specialization most easily from our own particular angle, and so I naturally feel no difficulty in agreeing with Dr. Clifford Allen (Aug. 2, p. 189) when he feels "that the M.D. and M.R.C.P. should be considered equal to the M.S. and F.R.C.S." But it is not less easy to agree with him when he says that "if a D.P.M. is appended to the medical degrees it should not lead to a poorer remuneration." The medical degrees (presumably the M.D. and M.R.C.P.) imply that their holder has a good general grasp of medicine and so a more proportionate view of his own special branch of it.

But the question will arise as to whether those who have none of the higher degrees just mentioned, but simply hold a diploma such as the D.L.O. or the D.C.H., should be ranked equally with those who also hold the F.R.C.S. or M.R.C.P. It seems to me that there are difficulties here and that the varying stature of the many diplomas is to blame. For example, the D.A., to which Dr. Allen refers, is the main higher qualification in a rather isolated branch of medicine, but the D.R.C.O.G. ranks

well below the M.R.C.O.G., the recognized specialist qualification in another well-defined branch. Surely the time for a country-wide standardization of medical degrees and qualifications is more than overdue.—I am, etc.,

Edgware, Middlesex.

G. H. JENNINGS.

SIR,—I should like to endorse whole-heartedly the argument briefly but effectively outlined by Dr. Clifford Allen in his letter (Aug. 2, p. 189). The instance he cites of a salary scale offered to "specialists in nervous and mental diseases" (I quote the words of the advertisement to which he refers) comparing unfavourably with that offered to general physicians and surgeons is unfortunately not confined to the Iraqi Government. A county council with a deserved reputation for being less parsimonious than most to their whole-time specialists recently displayed similar discrimination in their advertisement in the *B.M.J.*

It cannot surely be seriously disputed that possession of the same or equivalent higher qualifications and experience in any field of medicine or surgery should carry the same remuneration in a salaried service, whatever the basis of that service. Any departure from this principle invites the dangers of neglect of the financially depreciated specialty mentioned by Dr. Allen; but even were the basis of discriminatory remuneration to be accepted—which, I repeat, I regard as indefensible—the specialist in psychological medicine could claim that his own branch demanded one of the highest rates of all by virtue both of its sociological importance and the statistical proportion among sick people of the problems with which it deals. Whence then arises this tendency to financial undervaluation of these appointments? Whilst emphatically agreeing that any such tendency must be entirely excluded from a National Health Service, an understanding of one possible explanation for its continued existence may help in removing it.

Governments, governing bodies, and appointment committees in general tend all too often to be well in the rearward of contemporary medical thought and values. To them the psychiatric specialty may still predominantly suggest a conception which was for so long responsible for the Cinderella status of the mental health services, whereby the D.P.M. became the touchstone, and apprenticeship in mental hospitals begun almost immediately after qualification effectively prevented all but the distinguished few from obtaining higher qualifications in general medicine. One effect of this conception has been that among candidates for specialist appointments, whereas the general physician had to have his M.D. or M.R.C.P. and the surgeon his F.R.C.S., the psychiatrist, whatever his other merits or experience, might have simply a D.P.M., which is of course not a higher qualification at all. The fact that this conception is no longer true does not, unfortunately, prevent its implications from influencing those at present responsible for offering appointments and deciding salary scales.

The conclusion to be drawn is either that these bodies have yet to discover (or refuse to believe) that first-class men are available for their appointments in psychological medicine—or that, for reasons of economy or prejudice, they don't want them even if they are. One thing is, however, quite certain: they will not in fact attract such men until they demonstrate effectively their recognition of the standard required and the status implied by that standard, of which remuneration equal to that offered to other branches is simply one indication, albeit a significant one.—I am, etc.,

Bognor Regis, Sussex.

DAVID STAFFORD CLARK.

**Working Hours in N.H.S.**

SIR,—May I support Dr. P. B. Atkinson's letter (Aug. 2, p. 190)? The matters he suggests in para. 3—e.g., 28 days' leave, every other week-end off, no patient seen after 6 p.m.—are principles which would unite G.P.s together far more than the controversial one of sale of practices, which many of us think is as out of date as buying Army commissions and as immoral as simony. How comes it that the A.R.M. has just rejected these points (vide *Supplement*, Aug. 2)? No wonder you report (p. 178): "It soon became clear that medical men . . . especially those in general practice, are . . . uneasy about the present . . . situation."—I am, etc.,

Lincoln.

G. D. SUMMERS.

## State Medical Service

SIR.—It is, I think, high time that we were told of the negotiations at present going on between the B.M.A. and the Government. What are the conditions? What is to happen to existing stocks of drugs, dressings, etc.?

If the practitioner is to become a State servant, will he be granted an allowance for car and running expenses? What remuneration is to be paid to his wife for her many services to the practice?—I am, etc.,

Acock Green, Birmingham.

G. A. POWELL-TUCK.

## Treatment of Acute Mastitis

SIR.—I was interested to read the two letters on the treatment of acute mastitis by Dr. J. MacLeod (July 14, p. 865) and Dr. R. Marcus (July 5, p. 30). In 1945-6 I treated a series of cases with penicillin (12,500 units 3-hourly intramuscularly). All cases received sulphathiazole, and their dressings were incised, while alternate cases received penicillin only. The average length of stay in hospital of the controls was compared with that of some 350 cases similarly treated in the previous two years, and was almost identical—and I am presumed to be an accurate standard.

Clinically those receiving penicillin healed more quickly and with less interference with function after conservative result, but it could not be proved statistically. This appeared to be due to a difficulty in classifying a minority of the infection and an insufficient number of cases treated with penicillin. The simple well-localized abscess is not usually treated by any of the well-recognized treatments. The infection is the one where there is a homogeneous induration of one or two quadrants, and fortunately this is just the one which does well on penicillin. A radial incision to evacuate the abscess used in my series, healing readily and not requiring dressings or secondary suture.

I agree with Dr. Marcus that stilboestrol is necessary, as these cases are not hindered by lactation unless the infection is severe, when it is best to have an incision. Breast H. hypostol dipropionate then appears to be more effective than stilboestrol. It therefore seems necessary to have a standard classification of the type and severity of the infection before any assessment can be made of the efficacy of any one line of treatment.—I am, etc.,

A. FIDDER MORPHY,  
Lieut. R.A.M.C.

B.A.O.R.

## Complete Removal of Prostate

SIR.—I was interested to read Mr. H. S. Souttar's article (June 28, p. 917) on complete removal of the prostate, in which he states that it will be generally agreed that the extravascular approach to the prostate "introduced" by Mr. Millin presents considerable advantages over the older transvesical methods. As Mr. Souttar seems to think that the prevesical or retropubic approach is something new I should like to point out that it has been used off and on for 41 years. It was employed in 1906 by Zuckerkandl, in 1909 by Van Stoekum, in 1922 by Lidski, and in 1933 by Jacobs and Casper.

There seems now to be not only a yearly but a monthly increase in the number of techniques for prostatectomy, and in spite of this wide variety Mr. Souttar appears to have incorporated some novel ideas into his method. Consequently I am in absolute agreement with Mr. W. W. Galbraith (July 26, p. 150) in stating that many surgeons lacking a thorough knowledge of prostatic surgery might be led to try Mr. Souttar's operation with results which might be disastrous to the patient.—I am, etc.,

London, W.I.

W. K. IRWIN.

## Antacids for Peptic Ulcer

SIR.—Dr. A. H. Douthwaite, in his paper "Choice of Drugs in the Treatment of Duodenal Ulcer" (July 12, p. 43), describes under the heading "Antacids" the neutralizing action of various chemical agents by plotting the free hydrochloric acid titration values according to the usual fractional test-meal procedure.

While this is a good diagnostic method for a variety of conditions, we would suggest that, for the purpose under discussion, a pH scale instead of acid titration values and a meal approxi-

mating more closely to the average diet of the peptic-ulcer case would provide a sounder basis physiologically and be of greater clinical significance. Such modifications, we suggest, might well give a closer correlation between the experimental tests and the present-day therapeutic evaluation of antacids than that shown by Dr. Douthwaite.

These comments are not intended to detract from the importance of Dr. Douthwaite's main thesis, namely, the relationship of ulcer pain to hypermotility, but the sound development of chemical antacids would seem to be of sufficient importance in the control of acidity and pepsin activity (the latter factor was not mentioned by Dr. Douthwaite) to justify some consideration of what we consider to be a weakness in the present experimental position.—I am, etc.,

The Crookes Laboratories, Limited,  
London, N.W.10.

E. W. GODDING.

## New Theory of Jaundice

SIR.—In the *Journal* of May 31, Dr. Paul Fourman reviews (p. 766) under the above heading the book of I. Pavel, of Bucharest. I was very interested to read about the theory of spasm of the sphincter of Oddi, which is said to be brought about by emotional and nervous factors. A similar suggestion was made in Nairobi in 1944 by Dr. Jules de Mello, who described jaundice among Goans as caused by spasm of the biliary passages just as the spasms of the bronchioles in asthma. A curious method of treatment by branding among these Goans was described, which suggested the possibility of the spasm theory.—I am, etc.,

Nairobi

A. R. DHANJL.

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— (1946). *E. Afr. med. J.*, 23, 87.

## Burn Toxaemia Treated by Rapid Venesection and Transfusion

SIR.—Corporal X. Y., Nottinghamshire Yeomanry, was accidentally burned by petrol on June 23, 1942. He was evacuated by air 48 hours afterwards. He was delirious on arrival and his pulse was difficult to count. The haemoglobin was 125%. There were deep and extensive burns of both legs and both forearms. He improved after saline and plasma infusion but relapsed three days later; this time he did not respond to further infusions. His condition became gradually worse. Vomiting was frequent and hiccough persistent. His face was an ominous greyish-blue colour and he had a running pulse. From previous and bitter experience it was considered that he would not live much longer than 24 hours unless something drastic happened.

Venesection and transfusion were therefore undertaken. A cannula was tied into the right median basilic vein and a little saline run through it. A pint of fresh cross-matched blood of the same group and three pints of stored blood were near the bedside. Venesection was then started from the left median basilic vein, and while this was going on the pint of fresh blood was transfused slowly on the opposite side. After 3½ pints of blood had been withdrawn rapidly by the venesection the patient collapsed suddenly, air hunger ensued, and he became almost pulseless. Prompt resuscitation was required. The foot of the bed was raised on chairs and the transfusion speed was increased to its maximum and oxygen administered. The patient rallied. Next morning he was sitting up in bed and enjoying his breakfast; his colour was much improved. Vomiting and hiccough never recurred and his subsequent progress was uneventful.

After two skin-grafting operations had been performed his wounds healed and he was evacuated to the U.K. At the time we thought the venesection had been too rapid, but to have drastic effect and to avoid dilution of toxins when transfusion is also occurring rapid and large-volume venesection is necessary. On this occasion air hunger and collapse ensued with such little warning that the precaution of inserting the large cannula for transfusion before starting the venesection was invaluable. No conclusion can be drawn from the treatment of a single patient, but the effect was suggestive enough to warrant further trial in the advanced stages of "toxaemia of burns." We do not think that it is indicated in the more common type of extremely ill burn patient who in a later stage is suffering from septic absorption from infected raw areas.—I am, etc.,

Leeds.

MICHAEL C. OLDFIELD.



### Treatment of Abortion

SIR,—Dr. J. McD. Corston and Mr. John Stallworthy (July 19, p. 89) are to be congratulated on the low mortality of 0.17% in their series of 600 abortions treated by surgical evacuation of the uterus. Their results at least question the validity of the generalization that the mortality among cases of abortion treated actively is twice that among those treated conservatively. Studdiford (1939), not using chemotherapy, did not find any significant difference between the results in 1,248 cases treated actively from 1934 to 1937 and those of a control series of 7,184 cases treated conservatively from 1920-33.

In the North Middlesex County Hospital surgical evacuation of the uterus is the general rule. But in frankly septic cases not manifesting general peritonitis necessitating immediate laparotomy one of two courses is followed, depending upon the clinician in charge. In each a vaginal swab is taken for culture. Thereafter the uterus is evacuated immediately, drainage is established by a catheter, through which glycerin is introduced by a modified Hobbs' (1927) technique, and chemotherapy given as indicated by the bacteriological findings. Or a sulphonamide is administered and evacuation is postponed until the bacteriological report is available, when if haemolytic streptococci are present evacuation is not undertaken until the temperature has been normal for three or four days, while in the absence of haemolytic streptococci evacuation may be undertaken in febrile patients but is frequently postponed until the patient is afebrile.

In 1945 the M.R.C. Classification of Diseases was adopted in the hospital. Our abortion figures for that year (those for 1946 are not yet available) are comparable to those of the Oxford writers. Threatened, spontaneous complete, missed abortions, and one incomplete abortion in which the uterus was not evacuated (*vide infra*) have been excluded. During the year 480 cases of inevitable, incomplete, and septic abortions were treated along the lines indicated. In addition, five of them had laparotomy performed because of peritonitis. One patient died—a mortality of 0.2%.

**Fatal case.**—Progressed satisfactorily for four days after evacuation of uterus, when vomiting, accompanied by renal tenderness, set in followed by oliguria, drowsiness, coma, and death nine days after operation. Before admission had visited an abortionist on six occasions. P.M. (coroner) oedema of the brain and subacute nephritis.

Among the cases excluded, as indicated, two patients died. Brief details of these are given lest it should be thought that the selection in the cases presented has been prejudiced. In neither case was there operative interference.

(a) Primigravida, aged 20, admitted with auricular fibrillation when 20 weeks pregnant. Spontaneous complete abortion. Steady deterioration. Died ten days later.

(b) Primigravida, aged 35, admitted moribund from septicaemia. Aborted foetus but not placenta. No haemorrhage. Died six hours after admission. *Cl. welchii* in blood culture and in foetal tissues.

Prompt evacuation of the uterus is certainly more convenient for the patient. It ensures that the abortion is completed. It shortens her immediate illness and stay in hospital. Perhaps larger series will be published showing the results obtained under modern conditions. But if conservative treatment proves to be significantly safer, then many more hospital beds for the treatment of abortion will be required.

Unlike the authors I do not operate early on patients with severe haemorrhage. Ergometrine 0.5 mg. is given intramuscularly to arrest it, and repeated in one hour, two hours, and four-hourly during the period of resuscitation. Only exceptionally is the immediate additional removal of a piece of tissue from the cervical canal required. In the exsanguinated patient morphine gr.  $\frac{1}{4}$  (16 mg.) and the first dose of ergometrine are given intravenously consecutively—this prevents the vomiting sometimes caused by the intravenous oxytocic. The haemorrhage arrested, she is rendered fit by blood transfusion for deliberate evacuation of the uterus.

Packing of the uterus I find almost unnecessary. Haemorrhage at evacuation is due to trauma which is preventable or can be controlled by sutures, incomplete evacuation of the

uterine contents for which the remedy is obvious, or atony of the uterus. This last can be overcome by the avoidance of deep ether anaesthesia, by bimanual compression, or the use of an oxytocic. For rapid action of the oxytocic I usually have the anaesthetist give it intravenously during the evacuation. I should like to endorse the authors' closing statement that routine treatment is easy to prescribe, but on the nice decision of when to administer it may hang the balance between life and death.

—I am, etc.,  
London, N.18.

ANTHONY W. PURDIE.

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### Premature Birth at Sea

SIR,—While I was acting as a ship's surgeon in 1946 a premature baby weighing only 2 lb. 7 oz. (1.1 kg.) was born at sea and has survived. Is this a record for the survival of an infant of this size born under these circumstances?

The mother was a primipara, aged 28, who had been married nearly seven years. In 1944 she had a dilatation and curettage, and later that year a cyst was removed from the left ovary and at the same time a round ligament suspension operation was performed. At this operation it was noticed that the right ovary was represented by a rudimentary seed, and the right tube was congenitally absent. The remaining portion of the left ovary, after the cyst had been removed, was quite healthy. She became pregnant in 1946, and decided to return home to England from Australia.

When first seen on the ship on July 6, 1946, when her membranes ruptured, she stated that her L.M.P. was on Dec. 2, 1945. The patient commenced good labour pains on July 10, and during the evening of the next day was delivered of a live and fully developed baby girl weighing 2 lb. 7 oz.

At this time the ship was passing through the Indian Ocean and the temperature in the ship's hospital was 96° F. (35.6° C.). The baby was wrapped in cotton-wool and placed in a cot. It was given 1 drachm (3.5 ml.) of diluted breast milk by pipette every two hours for the first 6 days; this quantity was then increased from 2½ dr. (8.5 ml.) to 5 dr. (17.5 ml.) every two hours during the next 12 days. On the nineteenth day the baby could suck well and was given bottle feeds every three hours. For the first week of life the baby became very blue during feeds and caused some anxiety, but it quickly recovered on the administration of oxygen.

A letter received from the parents in January, 1947, states the baby weighed over 15 lb. (6.8 kg.) and was progressing satisfactorily.—I am, etc.,

London, S.W.12.

D. E. HAYES.

### The Coroner's Court

SIR,—We have read with some interest and much perturbation the procedure of the coroner's court in the case of Dr Clements, etc. We were under the impression that the duty of the coroner's court was to certify the cause of death only and not to try persons or pass a verdict as to their guilt.

Had Dr. Clements been alive he would have been condemned by this coroner's court, then been tried in court (which would have been biased against him by the verdict of the coroner's court), and then, thirdly, have to stand for trial again at the Old Bailey. Surely some mistake has occurred in this case—perhaps it is a sign of the times.—I am, etc.,

London, S.E.9.

B. N. BLOOD.

\*Our Medico-legal Correspondent writes: There was nothing new or improper in the procedure of the coroner's court in the Clements case. From time immemorial the coroner's jury has found named persons guilty of causing the death of the deceased. In fact, if they are to declare the cause of death it would be rather illogical to expect them not to do so. When a jury finds that a named person murdered the deceased or was guilty of his manslaughter, the coroner issues a warrant for the arrest of the person and, since the Act of 1926, commits him for trial as though he had been examined before magistrates. He is therefore not tried again until he comes up to assizes; in fact, it is wrong to speak of the coroner's court "trying" him at all. Their finding is merely an expression of opinion incidental to their verdict on the cause of death, and biases the assize jury no more than would the order of justice committing him for trial.

### Actinomycosis of Rectum and Anus

SIR,—In connexion with an investigation which I am making into the incidence and symptomatology of actinomycosis involving the rectum and anus, I should be greatly obliged if any of your readers would let me have details of any such cases which may have come under their observation.—I am, etc.,

London, N.W.3.

V. ZACHARY COPE.

### Rutin in Capillary Fragility

SIR,—The annotation entitled "Rutin in Capillary Fragility" (May 31, p. 771) is in our view too committal on several points as yet *sub judice* and is incorrect on a number of others.

The name "citrin" has been, and still is, applied by many writers indiscriminately to concentrates, of various origin, that may or may not have been made precisely according to the method described by Szent-Györgyi in 1936. All these concentrates, however, seem, in so far as their physical properties have been described, to be water-soluble and relatively stable in aqueous solution. How "citrin" can possibly contain appreciable quantities of hesperidin, a glycoside of hesperetin (and therefore a derivative of flavanone—not flavone) and virtually insoluble in water, was never explained by Szent-Györgyi when he suggested that his citrin might be a mixture of hesperidin and its desmethyl compound, called by him "eriodictin" (*not* eriodictyol, an aglycone, already well known to occur in yerba santa and other plant materials). Unfortunately in the same paper Szent-Györgyi referred both to eriodictin and to eriodictyd, admitting subsequently (private communication) that the latter word was due to a printer's error! This did not help to lessen the confusion.

Two other workers have reported the isolation from "citrin" of eriodictyol glycosides and the preparation from them of eriodictyol by hydrolysis. It has been stated that these materials, though water-soluble, have no effect on capillary fragility. If either of these glycosides is Szent-Györgyi's hypothetical eriodictin, its water-solubility is difficult to understand; it would mean that replacement in the fairly complex hesperidin molecule of one methoxy group by a hydroxy group causes a virtually insoluble substance to become extremely soluble in water. We also find it difficult to credit the claim that insoluble hesperidin has been isolated from the soluble "citrin." As to the alleged inability of hesperidin to raise capillary resistance, we can only call attention to our published work, which seems unknown to the writer of your annotation: separately we have reported on many occasions that hesperidin, after repeated recrystallization from boiling methanol and probably rendered thereby more nearly pure than any other specimens examined, exhibits marked vitamin-P activity both on experimentally depleted guinea-pigs (A. L. B.) and on patients (H. S.) with low capillary resistance not raised by pure ascorbic acid alone.

Part of the discrepancy in experimental findings is no doubt due to the different origins and treatments of the materials tested and to the absence of any standard preparation or generally accepted technique for the biological test. It has also been suggested that the chalcone of hesperidin (with the oxygen ring opened) may be the active form and, owing to its relative instability, present in small quantities in apparently pure hesperidin, of which it is a tautomer. Californian investigators have claimed vitamin-P activity for the methyl ether of this chalcone, and a much increased stability, but the only material so described and examined by us did not appear to be of the claimed chemical composition. On the other hand, the work of Parrot and his colleagues in Paris with mixtures of isomeric epicatechins suggests that one of these isomers may be a highly potent form of the vitamin, perhaps responsible in traces for the activity of other less potent and apparently pure compounds.

However that may be, our own tests do not substantiate the claim that rutin—a derivative of flavonol, not flavone—has marked activity in the treatment of nutritional vitamin-P deficiency. Preliminary experiments on guinea-pigs and human subjects indicate that its activity is no greater than, and may indeed be only about half that of, hesperidin. Moreover, neither of the two samples received by us from the U.S.A. appears to be a single pure compound: both are pale greyish-green powders, from which pale yellowish crystalline material

can be separated by recrystallization. Of these two specimens, one was found to have a melting-point of 191° to 191.5° C., the other of 186° to 188° C. Even if the former is pure (which we do not believe), the latter cannot be.

Admittedly the whole of this confused position could not be clarified in a short annotation, still less in a letter, but we cannot accept your claim that "probably the active substance is rutin" without careful scrutiny of the evidence in favour of hesperidin chalcone and its methyl derivative or, more recently and more convincingly, of certain epicatechin isomers by Parrot and his colleagues. On chemical and biochemical grounds, therefore, we maintain that your conclusion as to the activity of rutin and the nature of vitamin P cannot be substantiated. Equally potent criticisms may be levelled at your assessment of its clinical uses.

Although we have confirmed the observation that a certain proportion of cases of hypertension have a significantly low capillary resistance, and also that the proportion of patients with retinal haemorrhage is significantly greater among those with low capillary resistance, we have no evidence to suggest that these phenomena are aetiologically related. As to the action of rutin in increasing the capillary resistance of hypertensive patients, our experience is that either an enormous quantity or very prolonged administration is necessary before any demonstrable effect is obtained. We have, in fact, not yet succeeded in restoring to normal levels the low capillary resistance in any hypertensive patient by means of rutin. Until much more information is available we feel that your statement that the most important purpose for which rutin may be given is "to prevent haemorrhage in patients with hypertension" is liable to give a false impression.—We are, etc.,

A. L. BACHARACH.

H. SCARBOROUGH.

### Spinal Pumping

SIR,—Before the iron curtain clanged down A. D. Speransky was successful in publishing an account of the researches of his group in English. *A Basis for the Theory of Medicine* was published in New York in 1935. Here the reasons for his belief that the nervous system plays an important part in the genesis of acute and chronic illnesses are expounded. I have summarized his hypotheses in two papers published in this country—"Recent Researches in the U.S.S.R.," *Bristol med.-chir. J.*; "Constitution and Chronic Disease," *Brit. homoeop. J.*, 1939, 29, 224. Moreover, many of the experiments which formed the basis of his theories have been published in French and German journals, and a long bibliography at the end of his book indicates some of the sources.

Briefly put, Russian studies of the circulation of the blood and C.S.F. in the medulla, subarachnoid spaces, and spinal nerve sheaths gave rise to a number of new working hypotheses for investigating the role of the nervous system in pathological processes. The passage of antibodies through the blood-stream barrier was studied in experimental rabies by Ponomareff, A., and Tchekhoff, A. (*C. r. Soc. Biol.*, Paris, 1927, 97, 376), and Jowelew, B. M. (*Z. ges. exper. Med.*, 1930, 74, 217) and it was in this research that the technique of pumping or "pompage" to break down the blood-stream barrier and increase the permeability of the vessels of that barrier was devised. It was claimed that the antitoxins of diphtheria, tetanus, and dysentery could be made to pass through the hitherto impermeable barrier by this method.

The technique was first applied to human beings in cases of meningitis, where in six cases extraction and reintroduction of 10 ml. of C.S.F., repeated five to eight times, had dramatic results. A seventh case ended in a death, and the technique was abandoned temporarily as the "pompage" could not be altogether absolved. It was introduced again in the treatment of acute rheumatic fever with the idea that the salicylates could be brought into closer contact with the nervous system, and Gorschkow, M. A., and Babkova, A. A., published their results (*Z. ges. exper. Med.*, 1929, 67, 278). After the exhibition of salicylates 10 ml. of C.S.F. was withdrawn and reintroduced eight to forty times. 70% cures were claimed in first attacks and over 70% cures in cases where the attack was the second or third one. Later, "pompage" was used without any salicylates, and though the results were not so striking good effects were obtained.

Speransky also noticed that after "pompae" there was sometimes a dissociation of the rheumatic fever syndrome: sometimes the temperature fell but the joints remained swollen for some days; or alternatively the pyrexia was maintained for some days but the swelling and pain in the joints rapidly disappeared. He argued from his study of trophic disorders that the rheumatic process was a specific nervous dystrophy, and that it was not necessarily the increased accessibility of the salicylates provided by the pumping that was remedial, but that the pumping itself was a nervous "stimulus" that provoked a new set of reactions in the nervous system which could abolish the pattern set up by the rheumatic process. Pumping, therefore, is a non-specific method of interference, and Speransky's team claimed good results in typhus and malaria. But Speransky gives the warning that pumping is a trauma of the nervous system, and if it is not followed by a reaction specifically useful it will inevitably make the position worse.

The Gillmans are to be congratulated on their enterprise in clinically confirming the results claimed by the Russian workers.—I am, etc.,

Bristol,

FRANK BODMAN.

### Iodine and Failing Lactation

SIR.—With reference to the article by Dr. Margaret Robinson on "Iodine and Failing Lactation" (July 26, p. 126), you may be interested to hear that my late respected kinsman William Bennett, of Otley, was 70 years ago prescribing iodine for the last three months of pregnancy and the first three months of the puerperium as a routine measure. His instructions were: "Take two drops of Lugol's iodine (freshly made) upon a lump of sugar dissolved in milk each morning throughout the 7th month; four drops in the 8th month; and six drops in the 9th month; repeat the six drops for the next three months." He insisted that the increase of dosage should be made when the moon was at full. For the pernicious vomiting of pregnancy he gave tinct. iodi mitis, 2 min. (0.12 ml.), in aired water, fasting.

When busily engaged in practice he attended a maximum of 280 confinements per annum. He was in active practice over 32 years, and in the extreme of age I have frequently heard him state that where his instructions had been followed no mother was without milk and no vomiting was uncontrolled. I personally have followed his treatment with similar results for the last 25 years. It is interesting to have specialist if not consultant approval, albeit belatedly, for this treatment. Has any work been done upon the connexion between pernicious vomiting, failure of lactation, and "pining areas for cattle and sheep"?—I am, etc.,

Leeds.

JAMES E. OUTHWAITE.

### Standard of Nursing in the U.K.

SIR.—The letter from the Registrar of the General Nursing Council for England and Wales (July 26, p. 149) deals with after which is always of importance but perhaps especially at the present time, when the shortage of nurses is being so severely felt by all classes of hospitals and allied institutions. The Registrar refers to the fact that the G.N.C. is being pressed from certain quarters to a lowering of its standards of training, and points to the fact that nursing education standards here would already appear to be falling below those in the Dominions.

Is it permissible to suggest that the pressure on the G.N.C. comes from experienced and responsible sources, and that those responsible for British nursing standards would be well advised to pay heed to it rather than to raise further the standards of theoretical nursing education in this country?—I am, etc.,

Inverness.

T. C. MACKENZIE.

### Report of B.M.A. Film Committee

SIR.—It is distressing that the Report of the B.M.A. Film Committee (Appendix II, Supplementary Report of Council, *Supplement*, June 21, p. 140) should have evoked neither appreciative nor critical comment in your columns. I must confess that, not being an avid reader of the *Supplement*, the Report at first escaped my attention, and with this in view one must earnestly hope that its relegation to the last few pages of the *Journal* did not impede its potential circulation. Further, its

length is of such proportion as might engender timidity on the part of a non-technical reader. Patient reading, however, dispels this notion, and student and teacher alike will find it of interest if not of value also. Surely the committee is to be commended on the publication of this document, for though many fragments of it have appeared before and separately, the collation of such material at a time when medical schools are still busy endeavouring to formulate their own ideas on the subject must be beset with difficulties.

The inclusion of a short section on the film strip (paras. 26-33) is indeed interesting and encouraging, though by virtue of loose definitions and important omissions this part of the Report lacks the necessary conviction. For instance, no mention is made of the fact that such strips are customarily prepared on non-inflammable film of 35-mm. gauge and that (at present) two frame sizes are available. Reference to one of the more important features of film strip has only been made in the most nebulous manner: it should be understood that the scripting and construction of a first-class strip is not at all unlike that of a motion picture. Hence, in the many cases where the demonstration of movement is non-essential, the former medium may be used with even greater efficiency than the latter and at a fraction of the production cost. Points concerning the production of recapitulatory film strips from selected frames of motion pictures need not be laboured here, but a section of film strip should not be complete without some allusion to the miniature lantern slide, without which there is a danger of imposing an unnecessary limitation on the versatility of the medium as a whole.

No doubt the above points would have been covered by a more complete survey, but as, in the words of the Report (para. 31), "Films and film strips are probably the most closely related visual aids . . ." it seems important that a clear conception of the inter-relationships involved should be presented. Together with the Scientific Film Association's Film List this Report must form a valuable guide to present trends, and should stimulate those of us who are even remotely connected with the preparation and use of visual aids.—I am, etc.,

Department of Medical Photography,  
Westminster Hospital.

PETER HANSSELL.

### POINTS FROM LETTERS

#### Request from Finland

Dr. F. CHOWN (Penzance, Cornwall) writes: I have received a letter from a Finnish doctor—Dr. Reino Lagus, Pettosalmi—to say that he is likely to attend the International Congress for Mental Health, to be held in London in August, 1948, and in order to solve the difficulty of getting foreign currency he is willing to receive an English doctor, or member of his family, as a guest in his house for a month either this summer or at the beginning of next summer, if he in exchange will help Dr. Lagus in his stay in England. Dr. Lagus speaks English. The address is: Dr. R. Lagus, Arhadia, 31, A 23, Helsinki, L., Finland.

#### Warmth and Colour

Prof. W. BURRIDGE (Oxford) writes: . . . I have to suggest . . . that no explanation of colour vision can be held satisfactory if it neglects the artists. They are the scientists of colour sensing, and we should grant them the credit of being as correct in their judgments as we are in our own. That is to say, a satisfactory colour vision theory must make automatic provision for a division of colours into the warm, cold, and neutral as well as for yellow to be perceived as warmer than red. Up to the present, however, the physiologists and psychologists have assumed that the artists have made an awful mistake in sensing yellow as warmer than red. They have consequently framed theories to accord with the assumption that the artists are wrong. But if the artists were right there must be something fundamentally wrong with the assumption. It is also agreed among writers of textbooks on vision that no satisfactory explanation was known to them of the production of colours by Benham's top. This question was taken up in India by Dr. Naidu, of Annamalai University. He found a very simple explanation of the production of colours by Benham's top. In fact, by accepting a different basis for the fundamental action of light on the eye, colour production by Benham's top became a predictable phenomenon. Colour production by Benham's top accords with the artists' division of colours as well as with the sensing of greater warmth in yellow than in red.

## Obituary

### J. SCOULER BUCHANAN, M.B., F.R.F.P.S.

Mr. J. Scouler Buchanan died suddenly on July 23 at the age of 56. He was present at the July meeting in Oxford of the Association of Surgeons of Great Britain and Ireland, apparently in his usual good health. On his return to Glasgow he developed a mild coronary attack, which was followed in only two weeks by a fatal recurrence. His place in the Western Infirmary, where he was on the honorary staff for nearly thirty years, will be difficult to fill. A son of the late Dr. John A. Buchanan, of Rutherglen, he qualified M.B., Ch.B. at Glasgow in 1912 and served for a year and a half as house-surgeon and house-physician in the Western Infirmary. Having decided on a surgical career, his next step, so seldom taken now though still often advocated, was to spend some months in general practice. On the outbreak of war Buchanan joined the R.A.M.C. He was in France and Belgium from the autumn of 1914 and, apart from a short period at home during 1915, served continuously in France till 1918, latterly as a surgical specialist. At the end of the war he was transferred to Glasgow as orthopaedic surgeon to the Bellahouston Red Cross Hospital. In 1919 he was elected to the staff of the Western Infirmary, where he joined the clinic of the late Mr. Archibald Young. In 1925 the death of Sir William Macewen led to Young's promotion to the regius chair of surgery and Buchanan became his university assistant. A few years later he became senior assistant to the late Mr. Farquhar Macrae in the Western Infirmary and, after Macrae's retirement, held a similar position with Mr W. A. Campbell. In 1936 he was promoted visiting surgeon and two years later became hon. lecturer in surgery to the University of Glasgow. Thus throughout his professional career he held appointments in the Western Infirmary, but in his younger days he had also been for ten years an assistant surgeon to the Royal Hospital for Sick Children, and for the last seventeen years he had been consulting surgeon to Ayr County Hospital. He was a Fellow of the Royal Faculty of Physicians and Surgeons of Glasgow, and after serving for several years on the council he was elected Visitor in 1946. In the same year he was elected to the council of the Association of Surgeons of Great Britain and Ireland. He did more than his share of public work, and at the time of his death was a member of the boards of management of the Western Infirmary and of the Royal Maternity Hospital, and was chairman of the advisory committee of the staff of the Western Infirmary. He was a good committee-man and his advice was highly valued by his lay and medical colleagues.

W. W. G. writes: Buchanan excelled as a general surgeon and had an extensive private consulting surgical practice. Patients trusted him without reservation, for here, they knew, was a man full of human sympathy yet master of the situation. He was thorough in the pursuit of an accurate pre-operative diagnosis and, having taken his decision, a bold operator. He taught and practised meticulous pre- and post-operative treatment and he was rewarded by brilliant results in the most diverse fields of surgery. Indeed the writer regarded him as one of the few remaining great general surgeons. As a teacher Buchanan achieved outstanding success. He had an inquiring and critical mind and an extensive knowledge of surgical literature; he prepared carefully; he delighted in the giving of instruction and he understood the students and their difficulties. With undergraduates and postgraduates alike he was one of the most popular surgical teachers in the West of Scotland. He served for a term of years as examiner in surgery to the University of Glasgow and as examiner for the Fellowship of the Royal Faculty. In this he was thorough and conscientious and many a candidate has had occasion to be grateful for his unexpected patience. He did not believe in writing unless he had something of real value to put on record. His few publications are marked by the clarity of expression and careful preparation which were so characteristic of the man. "Scouler" was an asset at any gathering whether medical or lay. He was a "good mixer" and had a host of friends. He was a keen sportsman, a good shot, and an enthusiastic angler, and he

greatly enjoyed a day on the golf links. He was kindly and courteous, ever ready to help those in trouble, and he was held in the highest esteem by all his friends and colleagues. He was taking an increasing place in the councils of the profession in Scotland and his untimely death at the zenith of his career is a loss which we can ill afford. His wife, a daughter of the late Mr. John H. Hair, of Lossiemouth, who himself had medical interests, was his most devoted helper in all his many activities. To her, to his daughter and to his son, a recent Cambridge medical graduate, we offer our sincere sympathy.

Dr. HUGH HAMILTON BOYDEN died suddenly in Paris on June 30 at the age of 41. Dr. Boyden entered Bart's Hospital in 1922 and qualified by the Conjoint Diploma in 1928. After serving as casualty house-physician at Bart's he took up an appointment as house-surgeon at the Royal Portsmouth Hospital. Before the outbreak of war he volunteered for service with the R.A.M.C. and was gazetted lieutenant in September, 1939, but was later discharged on medical grounds. Dr. Boyden was an enthusiastic supporter of the B.M.A., which he joined in 1930, and was elected Assistant Secretary and Public Relations Officer of the Portsmouth Division. He was honorary anaesthetist at the Portsmouth and Southern Counties Eye and Ear Hospital, and from 1942 a member of the Portsmouth Insurance Committee, the Portsmouth Medical War Committee, and the National Service Board. His diverse activities brought him into contact with many medical men, who regarded him with affection and high esteem. We extend our sympathy to his widow, whom he married in 1946.

## Medical Notes in Parliament

### SUPERANNUATION REGULATIONS

LORD HENDERSON in the House of Lords on Aug. 5 moved that the Special Order on the Health Service (Superannuation) Regulations, 1947, be approved. His account of the regulations followed closely that given by Mr. John Edwards in the House of Commons on July 24 and reported fully in our issue of Aug. 9 (p. 232).

The Earl of MUNSTER said the regulations were highly complicated. The Opposition did not intend to divide the House on this resolution, but it would be well to recall that the medical profession was not committed in any way to the details embodied in the Order, nor would they be so committed until they had further knowledge of all the other details which were necessary in dealing with the Government's proposals under the principal Act, and, furthermore, until they ascertained the views of the profession. He pointed out that the Order made no provision for interchangeability in the case of a medical officer who transferred from local government service to university service. He believed some concession should be made to doctors for their long period of training and late age of entry into this scheme, which must prevent them from qualifying for the maximum pension at the normal retiring age. As for the older doctor, he would like to see some concession by way of added years for the practitioner who would enter the service on the Appointed Day. It was clear that the Government could not concede either of those points in the draft regulations because the House had to accept or reject the regulations as a whole, but perhaps Lord Henderson could give an assurance that no medical practitioner who was entitled to enter the Service would be denied the opportunity for superannuation because of his age.

LORD HENDERSON said it was true that the scheme made no provision for medical officers who transferred from local government service to university service. But the Ministry was in sympathy with the point, which would be borne in mind when an opportunity presented itself for legislation amending the Local Government Superannuation Act, 1937. As to a suggestion that the scheme should cover the staffs of medical schools, the terms of the Act were such that it could cover only those actually engaged in the health services. He could not hold out any hope of added years being granted in respect of the medical practitioner's training. If that was done for doctors the same concession would have to be accorded to every profession. All doctors would enter the scheme in their last year in hospital after qualification. In the normal case this would be at 23 or 24 years of age, when they could look forward to forty years' service and to earning their full pension on retirement.

Lord LLEWELLIN said that when additional technical men were recruited at the Admiralty there was some provision for giving added years.

Lord HENDERSON said he would look into the point, but his information was that there was at present no public scheme under which added years were granted. In respect of the elderly doctor, preferential treatment could not be given. To give it would have repercussions on other groups within the scheme. The elderly practitioner who had reckoned to provide for his retirement from the sale of his practice would not be worse off under the new arrangement, and, in addition, might earn something for the future under the new scheme. He might continue for an extra year or two after 65 to complete the qualifying period of ten years for pension. Lord Henderson gave an assurance that the Minister would deal with such a case in a sympathetic and understanding manner. He said that in any case the elderly practitioner would after five years be entitled to any of the lump sum benefits. In respect of the immediate cover and the immediate pension, provision for the qualifying period was contained in all existing public service schemes, and there seemed no good reason for departing from it in the present one. He could not hold out any hope of the scheme being modified at this stage to provide for immediate cover and minimum cover. The arguments of Lord Munster would be borne in mind by the Minister when the operation of the scheme was being reviewed. No scheme could be regarded as definitive for all time. Whatever modifications were found to be necessary would be made to ensure that the scheme worked to the best advantage of all employed in the National Health Service.

The House then agreed to the special Order.

#### Scottish Regional Areas

On July 29 Mr. SNADDON moved that the National Health Service (Scotland) (Determination of Areas of Regional Hospital Boards) Order, 1947, dated June 5, 1947, be annulled. He said objection was taken to certain of the areas as being unsatisfactory—for example, areas No. 3 Eastern Region and No. 5 Western Region so far as they related to the county of Perth. The Secretary of State had decided to include the whole of the county of Perth in the Eastern Hospital Region in direct opposition to advice he received from the British Medical Association and the British Hospitals Association. He had ignored the natural affiliation of West Perthshire with the county and market town of Stirling and also the advice given by his medical experts.

Col. GOMME-DUNCAN remarked that patients in West Perthshire would still be able to go to their previous hospital centre, but many difficulties might result if that hospital area was not prepared to receive them.

Sir JOHN GRAHAM KERR pointed out that in the scheme before the House the distribution of population and the number of hospitals were unequal between the approximately equal medical schools of Glasgow and Edinburgh. One was allocated a population of nearly 3 millions and the other a population of a little over 1 million. This plan, if carried into effect, would be a tremendous blow to the medical school of the University of Edinburgh.

Mr. MALCOLM MCMILLAN advocated the inclusion of the Outer Hebrides in the Western Region based on Glasgow rather than in the Northern Region.

Mr. NIALL MACPHERSON said one would naturally consider that the South-West of Scotland would look to Glasgow, but he had received representations from the B.M.A. Branch in the South-West that they desired that area to be linked with Edinburgh.

Mr. WESTWOOD, replying for the Government, said the convenience of patients was the first thing to be considered if effective results were to be obtained from the new legislation. Before any action was taken he had consulted the Scottish Universities, the three Scottish medical corporations, the British Medical Association, the Association of Mental Hospitals in Scotland, the Nuffield Provincial Hospital Trust, the local health authorities, the Scottish T.U.C., and the British Employers' Federation. Each organization was clearly advised that the boundaries of the Hospital Regions did not imply any restriction on the admission of a patient from one region to a hospital in another and would not restrict the undergraduate or postgraduate medical teaching of students from one university in a hospital associated with another university. It was intended that the Northern Region, which had no university within its boundaries, should be associated principally with Aberdeen University but also with Edinburgh and Glasgow Universities in view of local associations. Since the order was made he had received representations concerning the Outer Isles, Moray and Nairn, Western Perthshire, Dumfries, Stirling,

and Clackmannan. There was no hospital in Western Perthshire, and there was not likely to be one for a year or two under the National Health Service. The argument that patients and medical practitioners in the Outer Isles had always looked to Glasgow for hospital and specialist services was recognized when the boundaries were fixed, but the Outer Isles were allocated to the Northern Region to avoid splitting the areas of the two local health authorities. Development of hospital and specialist services in the Northern Region, together with improved air communications with Inverness, would influence the flow of patients, but people in the Outer Isles would still be free to seek admission to the Glasgow hospitals. A provisional proposal to put Nairn in the North-East Hospital Region had been strongly opposed by the British Hospitals Association, so it was transferred to Inverness County. Ten times more patients went from Nairn to Inverness than went to Aberdeen.

The Regional Boards had not yet been set up, but as soon as the boards and chairmen were appointed there would be meetings at which the Scottish Office would attempt to give guidance on the co-ordination of the services. At present the central hospitals in Glasgow and Edinburgh took patients without regard to areas, and there was no intention of interfering with the past arrangement. In densely populated areas such as Glasgow, where there were several hospitals in a small area, the intention was to set up an admission bureau to deal with applications according to the urgency of the need for in-patient treatment. The general practitioner would know where the best service was to hand, and through him arrangements would be made for the patient's entrance into hospital.

On an assurance from Mr. Westwood that if the regional allocation was found to be imperfect he would adjust to make for efficient hospital administration, Mr. Snaddon withdrew his motion for the annulment of the Order.

#### Medical Members of Regional Boards

Mr. HUGH FRASER, on July 31, asked the Minister of Health why Staffordshire had no official medical representation on Regional Hospital Board No. 12, Birmingham; and why he had accepted only three of the six nominations put forward by the medical profession for this board.

Mr. BEVAN observed that it had never been intended that the members of boards should be delegate representatives of particular areas or particular interests. They were persons appointed as a team for their knowledge and experience, after consulting the various professional and other bodies. This board of 29 members included eight medical men, of whom two were suggested by the University, four by medical professional bodies, and one by a hospital body. He was satisfied that this provided a proper balance of medical knowledge and experience.

**Infantile Paralysis.**—Col. STODDART-SCOTT on Aug. 7 asked the Lord President of the Council what public money was spent on research into the causes, prevention, and treatment of infantile paralysis. Mr. Herbert Morrison said research on virus diseases, of which infantile paralysis was one, formed an important part of the programme of the Medical Research Council, and over £10,000 was being spent upon it in the present year. The proportion of this represented by the salaries of workers devoting most of their time at present to studying infantile paralysis was about £2,000.

**Vitamin C.**—As children over five can obtain an adequate amount of vitamin C from their ordinary diet, Mr. Strachey does not propose to extend the present age limit for the allocation of orange juice.

The Ministry of Pensions have now issued the *First Report of the Standing Advisory Committee on Artificial Limbs* (H.M.S.O., pri 3d.). The Committee, under the chairmanship of Sir Charles Darwi F.R.S., was charged by the Cohen Committee to investigate certain problems relating to the design, manufacture, and fitting of artificial limbs, and to study ideas and suggestions submitted by members of the public. The committee has examined 103 suggestions from various sources, of which 39 were considered worthy of research. It has paid particular attention to the production of mechanical hand. Research has been carried out at the draw office and workshop in the Limb Fitting Centre at Queen Mary Hospital under the direction of Dr. Craft. Prosthetic devices from various other countries have been examined, and a visit was paid to Germany in 1946, particularly to estimate the value of the cineplastic and Krukenberg operations. The cineplastic operation was not considered to be suitable until a lighter prosthesis was available. Discussing the Krukenberg operation, the committee says that it is not fully prepared to recommend that it should be carried out in England; however, it should not be denied to amputees, particularly those blinded, who wish to undergo it.





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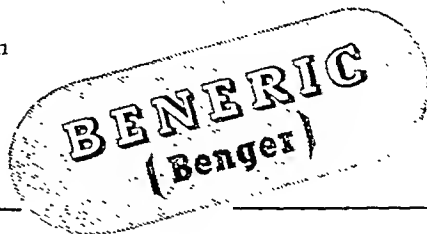
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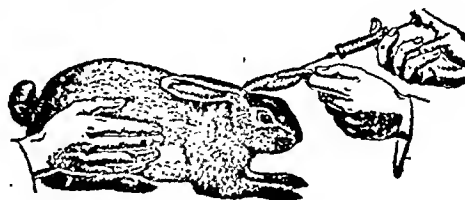
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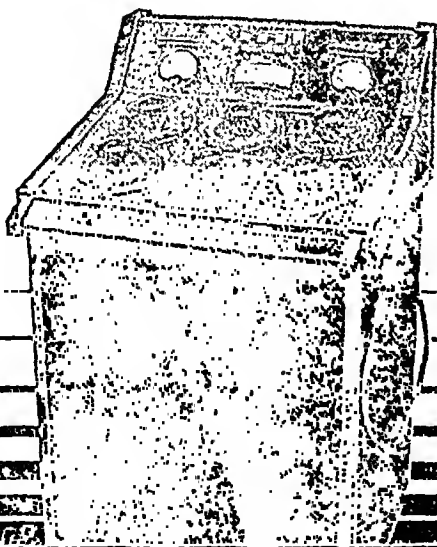


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## Universities and Colleges

### UNIVERSITY OF CAMBRIDGE

The late Dr. Louis Cobbett, formerly Lecturer in Pathology in the University, left £1,000 to the Department of Pathology to be applied by the person for the time being holding the post of professor of pathology in promotion of research in such manner as he shall think best.

H. M. Woodman, M.B., B.Chir., has been approved (in absence) for the degree of M.D.

### UNIVERSITY OF LONDON

Prof. J. Z. Young, M.A., F.R.S., will deliver two public lectures in the physiology theatre, University College, Gower Street, W.C., on Tuesdays, Oct. 7 and 14, at 5.15 p.m. His subject is "The Structure of Peripheral Nerve and of Nerve Endings."

A course of six public lectures on "The Physiological Mechanisms of Vision" will be given by Dr. M. H. Pirenne in the physiology theatre, University College, on Wednesdays Oct. 8, 15, 22, and 29, and Nov. 5 and 12, at 5 p.m.

Dr. Bernard Katz will deliver a course of six public lectures on "Transmission of Excitation in Nerve and Muscle" in the physiology theatre, University College, on Tuesdays, Oct. 21 and 28 and Nov. 4, 11, 18, and 25, at 5.15 p.m.

Students and others interested in the above subjects are invited to attend the lectures. Admission is free, without ticket.

On the occasion of the celebration of Education Day on Nov. 20 the degree of LL.D. (*honoris causa*) will be conferred on Viscount Nuffield.

Percy Cyril Claude Garnham, M.D., has been appointed to the University Readership in Medical Pathology tenable at the London School of Hygiene and Tropical Medicine.

Francis Thomas Garnet Prunty, M.D., M.R.C.P., has been appointed to the University Readership in Chemical Pathology tenable at St. Thomas's Hospital Medical School from Oct. 1.

Frederick Robert Selbie, M.D., Ph.D., has been appointed to the University Readership in Bacteriology tenable at Middlesex Hospital Medical School from Oct. 1.

The degree of D.Sc. has been conferred on Prof. E. I. King, Ph.D., Professor of Chemical Pathology at the British Postgraduate Medical School.

The University of Toronto has been added to the list of approved institutions for the purposes of the M.B., B.S. degrees for external students.

The Warneford Hospital, Oxford, has been provisionally recognized for the purposes of the Postgraduate Diploma in Psychological Medicine under category (1) Institutions for Mental Diseases, and Great Barr Park Colony, Birmingham, has been recognized for the purposes of the Postgraduate Diploma in Psychological Medicine under category (2) Institutions for Mental Deficiency.

Selly Oak Hospital, Birmingham, and Dudley Road Hospital, Birmingham, have been added to the list of recognized institutions for the External Diploma in Clinical Pathology.

### UNIVERSITY OF MANCHESTER

Andrew Topping, M.D., F.R.C.P., has been appointed Professor of Preventive Medicine and Director of the Department of Preventive Medicine of the University and will take up his duties in November.

### UNIVERSITY OF SHEFFIELD

The offices of the Dean of the Faculty of Medicine of the University are now at 358, Mushroom Lane, Sheffield, 10 (Tel.: Sheffield 63376).

### UNIVERSITY OF ST. ANDREWS

George Howard Bell, M.D., F.R.F.P.S., lecturer in physiology in the University of Glasgow, has been appointed Professor of Physiology in University College, Dundee.

### ROYAL COLLEGE OF PHYSICIANS OF LONDON

At a quarterly comitia of the College, held on July 31, with the President, Lord Moran, in the chair, the following Fellows of the College were elected officers for the ensuing year: *Censors*, George Graham, E. Bellingham Smith, William Johnson, Sir Adolphe Abrahams; *Treasurer*, W. G. Barnard; *Registrar*, H. E. A. Boldero; *Assistant Registrar*, W. D. W. Brooks.

The Registrar announced that the Murchison Scholarship for 1947 had been awarded to Constance C. Forsyth, M.B. The Baly Medal was awarded to Prof. B. A. Houssay (Buenos Aires) for his services to physiology by his researches on endocrine control of carbo-

hydrate metabolism, and the Bisset Hawkins Medal to Dr. C. H. Andrews, F.R.S., for his researches in typhus and influenza.

Dr. F. M. R. Walshe was appointed Harveian Orator and Dr. J. A. Charles, Bradshaw Lecturer, both for 1948. The following lecturers for 1948 were also appointed: Lumleian, Dr. J. F. Nattrass; Goulstonian, Dr. C. M. Fletcher; Oliver-Sharpey, Dr. J. F. Wilkinson; Mitchell, Dr. R. Coope; Abrahams, Dr. J. W. Trevan.

Lord Moran was elected representative of the College on the National Consultative Committee for the United Kingdom on Food and Agriculture Organization of the United Nations.

The following, having satisfied the Censors' Board, were elected Members of the College:

E. W. Abrahams, M.D., A. G. V. Aldridge, M.D., V. H. Allan, M.B., D. J. Arkle, B.M., K. Aterman, M.D., H. W. Balme, M.B., G. M. K. Baloch, M.D., J. A. Bassett, L.R.C.P., O. D. Beresford, M.B., A. Bloom, M.D., W. J. H. Butterfield, B.M., J. R. Chatterjee, M.B., H. Conway, M.B., J. A. Cosh, M.B., R. A. Craig, M.B., E. G. A. Crawshaw, M.B., D. M. Douglas, M.B., A. Y. Ekdawi, M.B., J. R. Ellis, M.B., E. Emanuel, B.M., M. Feibel, M.B., H. M. Foreman, M.B., H. Goopewardene, M.B., N. S. Gordon, M.D., L. Gutmann, M.D., J. B. Hannah, M.D., W. J. Hay, M.B., K. W. G. G. Heathfield, M.D., C. Langton Hewer, M.B., A. J. Hird, M.B., J. A. Hobson, M.D., W. H. Hood, M.D., Margaret E. Hughes, M.B., D. B. Irwin, M.B., D. I. Jenkins, M.B., R. A. Jones, M.B., F. E. Joules, M.D., R. E. Kelly, M.B., J. D. Kidd, M.B., G. L. Leashart, M.B., J. M. Ledingham, L.R.C.P., K. N. Lloyd, M.B., J. S. Logan, M.D., T. P. Loke, M.B., P. M. McAllen, M.B., J. K. G. MacArthur, M.B., S. L. Malhotra, M.B., D. E. Marmion, M.B., J. A. Milne, M.B., R. Montgomery, M.B., Captain, R.A.M.C., G. A. Neligan, B.M., J. H. Paterson, M.D., A. Poteliakhoff, M.B., J. D. L. Reinhold, B.M., Margaret L. Reinhold, M.B., A. H. T. Robb-Smith, M.D., R. W. Rowan, M.B., J. E. Royds, M.B., W. F. Scott, M.B., G. B. Shaw, M.B., B. H. Smith, M.B., T. Stapleton, B.M., R. S. Stevens, M.B., C. Symons, M.B., Margaret L. Taylor, M.B., H. E. Thomas, M.B., P. H. Tooley, M.D., S. C. Truelove, M.D., H. R. E. Wallis, M.B., F. J. H. Walters, M.B., M. Watt, M.B., H. F. West, M.B., C. B. I. Wilby, B.M., M. W. Wood, M.B.

Licences to practise were conferred upon 137 candidates (including 28 women) who had passed the Final Examination in Medicine, Surgery, and Midwifery of the Conjoint Board and have complied with the necessary by-laws:

K. R. V. Argles, D. A. L. Ashforth, R. W. Attwood, J. M. Barritt, Janet B. Bell, J. H. Blackman, E. I. Boxer, D. G. Boyle, G. P. Bradfield, J. P. P. Bradshaw, H. R. Bradford, T. C. L. Brown, C. M. Browne, K. L. Buckley, Pauline P. Budd, G. H. Buford, M. Caturani, K. L. Clemenson, J. M. Clubb, R. O. N. G. Cole, K. J. Covell, K. A. Cowan, W. R. Daniel, A. I. Darling, C. J. C. Davey, A. C. Davies, L. Davies, Jacqueline Domagala, Ada Dudack, M. L. Dyson, Pamela M. Farmer, T. J. Felix, W. J. Gall, J. H. Garson, J. V. Gibson, Joy K. Gellatly, J. V. Gibson, Joy K. Griffiths, M. Grinfield, Angela C. Hayward, T. G. Heron, Stella J. Hill, D. Housley, J. H. Jones, D. G. Jones, A. H. Kassan, M. R. Khan, D. B. Jacques, Barbara Jones, D. G. Jones, A. H. Kassan, M. R. Khan, D. B. Learning, I. Lederer, W. Lees, Ruth M. Licence, Joyce J. P. Lomas, T. McCaffry, R. I. MacInnes, I. D. Mackichan, J. A. Mahoney, A. E. B. Matthews, M. D. Mehta, F. W. Millard, I. O. Miller, A. L. Mintz, Barbara A. Moore, C. T. Morgan, Dorothy A. Morgan, A. H. Morris, M. Morris, H. J. Moss, G. N. Mulliner, D. S. Oakland, H. Owen, Susan H. Palmer, R. T. Parr, R. F. Pearson, A. R. Pann, R. J. Pine, R. C. S. Pointon, P. Pratt, J. Presti, Violet M. J. Procter, A. R. Pybus, D. M. Rahilly, D. M. Reader, Pauline Readman, E. R. Reid, S. Hill, L. Reis, Joan Rendall, D. Rider, S. M. Rivlin, J. C. Rushon, A. J. Rurick, P. W. Seagranti, P. G. Seagr, J. Southgate, Sheila J. Spencer, H. Seim, A. H. Stern, J. D. Stevens, D. B. Stott, Rosa Sutton, P. B. Taylor, J. R. Theobald, J. M. Thomas, J. M. B. Titmas, Olive I. Todd, Ruth W. Toaler, P. G. Trehanne, J. S. Turner, M. H. Turner, C. R. B. Vincent, I. McN. Walker, N. D. W. J. de S. Wijkman, W. M. Wilkinson, K. P. Williams, L. B. Williams, Sheila G. Willis, G. Wiseman, C. H. Wood, Yvette Woodford-Williams, G. R. V. Worrall, Pamela N. Wright, F. Wyer, R. E. V. B. Young.

Diplomas in Public Health were conferred, jointly with the Royal College of Surgeons of England, on the following successful candidates:

A. S. Darfing, D. C. Davidson, H. McI. Davies, W. J. Elwood, B. L. Frank, R. M. Galvan, G. I. Harding, J. H. Hudson, R. W. Kind, Evelyn M. Lee, N. C. London, J. A. Lister, D. MacLeod, R. J. Niven, R. N. Onyemeluke, J. H. Rayner, C. A. Royde, B. Schwartz, R. W. Scott, M. Shamsuddin, C. H. Shaw, R. Shouman, K. N. Srivastava, W. F. Tierney, K. O. A. Vickery, J. R. D. Williams, H. D. Wilson.

The following Diplomas were also conferred, jointly with the Royal College of Surgeons of England. The names of the successful candidates were printed in the issues of the *Journal* indicated in parentheses:

Diplomas in Anaesthetics (July 5, p. 37, and July 26, p. 156); Diploma in Laryngology and Otolaryngology (July 26, p. 156); Diploma in Child Health (July 5, p. 37); Diploma in Medical Radiotherapy (May 31, p. 789); Diploma in Psychological Medicine (July 26, p. 156); Diploma in Industrial Health (July 26, p. 156); and Diploma in Medical Radio-diagnosis (May 31, p. 789, and July 5, p. 37).

### ROYAL COLLEGE OF SURGEONS OF ENGLAND

At a meeting of the Council of the College, held on July 31, with Sir Alfred Webb-Johnson, Bt., President, in the chair, it was decided that candidates for the final F.R.C.S. must have served a period of postgraduate surgical training of 12 months in posts approved by the College and that six months of this period must have been occupied in residence in a hospital recognized for the purpose.

Diplomas of Membership were granted to the 137 successful candidates whose names are printed above in the report of the meeting of the Royal College of Physicians of London; Diplomas in Public Health were granted, jointly with the Royal College of Physicians of London, to the 27 successful candidates named in the same report.

No. 30

## INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended July 26.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included), (b) London (administrative county), (c) Scotland, (d) Eire, (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London), (b) London (administrative county), (c) The 16 principal towns in Scotland, (d) The 13 principal towns in Eire, (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1947					1946 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	31	—	23	3	—	41	6	17	1	3
Deaths .. ..	—	—	1	—	—	—	1	1	—	—
Diphtheria .. ..	174	15	33	13	2	308	22	74	32	10
Deaths .. ..	2	—	—	—	—	2	—	—	—	—
Dysentery .. ..	61	11	23	—	—	90	27	29	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Encephalitis lethargica, acute .. ..	3	—	—	—	—	1	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Erysipelas .. ..	—	—	22	7	3	—	—	33	9	1
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Infective enteritis or diarrhoea under 2 years .. ..	—	—	—	—	—	—	—	—	—	—
Deaths .. ..	61	4	20	51	5	38	1	12	61	4
Measles* .. ..	7,644	373	60	332	10	3,741	478	161	58	2
Deaths .. ..	4	—	—	—	—	4	—	—	—	—
Ophthalmia neonatorum .. ..	55	1	17	—	—	72	6	16	1	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Paratyphoid fever .. ..	18	2	—	—	—	14	1	1(A)	—	—
Deaths .. ..	—	—	1	—	—	—	—	1(B)	—	—
Pneumonia, influenza .. ..	311	18	1	1	5	363	18	2	2	3
Deaths (from influenza)† .. ..	7	—	—	—	—	1	—	—	—	—
Pneumonia, primary .. ..	—	—	142	15	—	—	—	125	22	—
Deaths .. ..	—	17	—	—	7	—	16	—	5	6
Polio-encephalitis, acute .. ..	34	8	—	—	—	—	—	—	—	—
Deaths .. ..	2	—	—	—	—	—	—	—	—	—
Poliomyelitis, acute .. ..	302	51	28	6	7	18	—	2	2	—
Deaths .. ..	—	2	—	—	—	—	—	—	—	—
Puerperal fever .. ..	—	1	8	—	—	—	3	16	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Puerperal pyrexia‡ .. ..	133	6	8	1	—	145	16	16	3	1
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Relapsing fever .. ..	—	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Scarlet fever .. ..	987	76	96	25	19	994	86	92	14	16
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Smallpox .. ..	—	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Typhoid fever .. ..	8	1	—	3	3	8	—	10	5	—
Deaths .. ..	—	—	—	—	1	—	—	2	—	—
Typhus fever .. ..	—	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Whooping-cough* .. ..	1,924	233	31	71	4	2,468	166	29	44	14
Deaths .. ..	5	2	2	—	—	8	1	3	—	—
Deaths (0-1 year) .. ..	337	41	59	—	12	342	53	59	20	11
Infant mortality rate (per 1,000 live births) .. ..	—	—	—	—	—	—	—	—	—	—
Deaths (excluding still-births) .. ..	3,828	596	569	—	100	3,851	632	499	168	108
Annual death rate (per 1,000 persons living) .. ..	—	—	11.8	—	—	—	—	11.0	10.8	—
Live births .. ..	9,124	1479	1166	—	268	8,778	1378	1104	356	236
Annual rate per 1,000 persons living .. ..	—	—	23.5	—	—	—	—	22.2	22.8	—
Stillbirths .. ..	248	31	35	—	—	285	37	26	—	—
Rate per 1,000 total births (including stillborn) .. ..	—	—	29	—	—	—	—	23	—	—

\* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

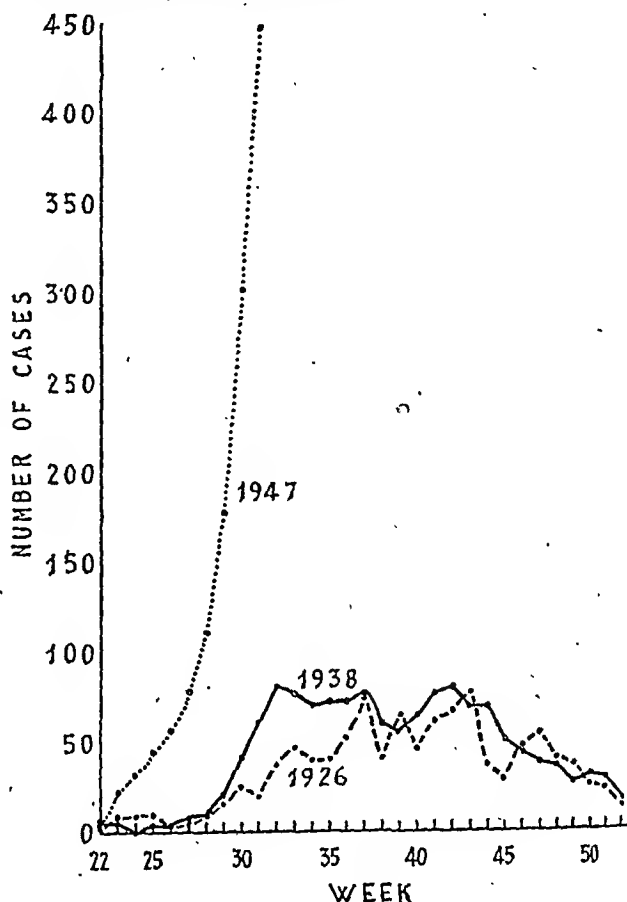
‡ Includes puerperal fever for England and Wales and Eire.

The return of births and deaths for Eire is not available this week.

## EPIDEMIOLOGICAL NOTES

## Poliomyelitis -

The notifications of poliomyelitis in England and Wales for the week ending Aug. 2 numbered 448, compared with 302 in 177 in the two preceding weeks. The graph shows the rise and fall of the outbreaks in 1926 (1,160 cases) and 1938 (1,46 cases) in contrast to the steeply rising curve of notification this year. The seasonal rise began about six weeks earlier than usual, and the previous record figure of 81 cases in the 32nd and 42nd weeks of 1938 was passed in the 28th week of 1947 when there were 110 notifications.



The 448 cases notified during the week ended Aug. 2 represent an increase of about 50% on the figure for the previous week (302). A rate of increase of this order has now been recorded for the last four weeks, and provisional figures for the week ending Aug. 9 suggest that it is still continuing.

The largest increases in notifications were in the following county areas, which include county boroughs (the figures for the previous week are shown in parentheses): Durham 4 (20), Lancs 36 (17), Yorks E.R. 16 (3), Yorks W.R. 70 (52) and Surrey 32 (15).

Corrected notifications of acute poliomyelitis in England and Wales for the March quarter of this year have just been published. There were 6 "non-civilian" cases. There were 96 civilian cases, in 2 of which the age was not known. Of the remaining 94 cases 5 were under 1 year, 13 were aged 1-3, 7 were aged 3-5, 13 were aged 5-10, 13 were aged 10-15, 25 were in the age group 15-25, and 18 were over 25 years of age. In the same quarter there were 4 cases of acute polio-encephalitis notified.

In the period from March 30 to July 26 of this year in England and Wales there were 911 original notifications of acute poliomyelitis, and 106 cases of polio-encephalitis. The counties or county boroughs most affected were: poliomyelitis—Yorkshire West Riding (153), London (113), Lancashire (85); polio-encephalitis—London (21), Surrey (15), Yorkshire West Riding (10).

## Pathological Specimens

As a result of a recent memorandum on acute poliomyelitis prepared by Medical Officers to the Ministry of Health (July 26, p. 141) a large number of specimens have reached the Virus Reference Laboratory, Colindale Avenue, London, N.W.9. The

laboratory is grateful for the co-operation of clinicians and pathologists. It is, however, necessary to emphasize that the virus of poliomyelitis has never been isolated from spinal fluid, and specimens of cerebrospinal fluid were requested only from cases where it was possible that some other neurotropic virus might be the cause of the illness. Such specimens must be transported packed in ice; specimens sent by ordinary post are of no value. Specimens of faeces are not requested at present, as monkeys, which are the only animals suitable for primary isolation of the virus, are not available for this purpose for the time being.

In addition to the post-mortem specimens in glycerol saline asked for by the Virus Reference Laboratory, Colindale, it is also requested that representative specimens of spinal cord, as much as possible of the brain stem, and pieces of cortex including the motor area be preserved in formal saline and sent either to Prof. J. McIntosh, Middlesex Hospital, Mortimer Street, London, W.1, or to Dr. J. G. Greenfield, National Hospital for Nervous Diseases, Queen Square, London, W.C.1.

#### Paratyphoid B Outbreak

Investigation of the recent outbreak of paratyphoid B at Lea Valley Cottages, Wheathampstead, continues. Since our earlier report (Aug. 9, p. 235) routine testing of blood and faeces of the persons living in the row of twelve cottages, from which all the early cases arose, has given positive results in 3 further cases. One is the mother of the original case; another is the father in a household from which several cases have already been isolated; the third is also the father in an infected household with five or six patients. This last man appears to be an intermittent urinary carrier and was a Regular Army soldier for some 13 years up to 1945, most of his service being in India.

#### Diphtheria Immunization in Scotland

Since 1941 about one million Scots children have been immunized against diphtheria under local authorities' schemes. It is also estimated that out of 1,237,000 Scots children under fifteen 765,000 have been immunized. This information is given by the Department of Health for Scotland in a brochure setting out details of the publicity material available to authorities for local campaigns in 1947. The objective, the brochure emphasizes, is to secure the immunization of the whole child population of Scotland. At present the leeway to be made up is chiefly among pre-school children. A special effort should be directed towards immunizing young children at the earliest suitable age, that is, at or shortly before the child's first birthday.

#### Discussion of Table

In *England and Wales* there were 756 fewer notifications of measles than during the previous week. Decreases were also recorded for scarlet fever 49, cerebrospinal fever 29, diphtheria 28, and whooping-cough 7, while increases occurred in the notifications of acute poliomyelitis 125 and acute poliomyelitis 18.

The south-eastern and eastern counties were mainly responsible for the decline in measles notifications, contributing a fall of 433 cases. Other large decreases in the incidence of this disease were reported from Yorkshire West Riding 263 and the North-Midland counties 130. On the other hand 308 notifications were made from Northamptonshire, an increase of 111 on the previous week.

The decrease in the incidence of scarlet fever was spread fairly evenly over the whole country, and there were only small local variations in the notifications of whooping-cough compared with the week ending July 19.

The largest decreases in the notifications of diphtheria were Lancashire 12 and Yorkshire West Riding 10. Of the 18 notifications of paratyphoid, 10 were reported from Hertfordshire (St. Albans U.D.) and are referred to above.

The increase of 135 notifications of acute poliomyelitis was the largest weekly increase yet recorded. These 302 cases were reported from 37 counties in England and Wales, the largest increases on the previous week being London 32, Yorkshire West Riding 26, Middlesex 11, Warwickshire 11, Durham 7, Essex 7, and Kent 6. Northamptonshire, Westmorland, and Monmouthshire with 1, 2, and 1 cases respectively, in the week ending July 19, reported no fresh cases in the following week, whereas six counties which had no cases in the earlier week reported as follows for the week under discussion: Nottinghamshire 1, Oxfordshire 1, Isle of Wight 2, Brecknockshire 2, Cardiganshire 1, and Carmarthenshire 4.

In *Scotland* increases were noted in the notifications of primary pneumonia 40, dysentery 11, measles 10, and acute poliomyelitis 9. Of the 28 cases of acute poliomyelitis reported, Glasgow accounted for 13.

In *Eire* scarlet fever notifications were 6 fewer than in the previous week, but measles notifications rose by 110 and whooping-cough notifications by 18.

In *Northern Ireland* a decline from 29 to 19 notifications of scarlet fever was the only notable difference from the previous week.

#### Quarterly Returns for Eire

The birth rate during the March quarter of 1947 was 23.3 per 1,000, which is 0.8 greater than that of the corresponding quarter of 1946. An infant mortality rate of 92 per 1,000 registered live births was reported, compared with 81 per 1,000 in the 1946 March quarter. The maternal mortality rate was 1.4 per 1,000 registered births. The death rate from all causes was 21.4 per 1,000 of the population, compared with 17.4 in the March quarter of 1946. The death rate from all forms of tuberculosis was 1.3 per 1,000, of which pulmonary tuberculosis was responsible for 1.0; the tuberculosis rates for the corresponding quarter of the previous year were very similar (1.2 for all forms and 0.9 for pulmonary tuberculosis). Deaths from the principal epidemic diseases represented a rate of 0.5 per 1,000, as in the first quarter of 1946; the number of deaths recorded from these diseases were typhoid fever 8, scarlet fever 1, whooping-cough 106, diphtheria 19, measles 10, and diarrhoea and enteritis under 2 years 232.

#### Week Ending August 2

The notifications of infectious diseases in England and Wales during the week included: acute poliomyelitis 448, acute poliomyelitis 39, scarlet fever 803, whooping-cough 1,737, diphtheria 200, measles 6,954, acute pneumonia 271, cerebrospinal fever 48, dysentery 53, paratyphoid 19, and typhoid 6.

## Medical News

#### Milk for Children

From Aug. 1 children attending grant-aided nursery schools are to receive 2/3 pint of milk a day. As from the same date a pint of milk daily at 1½d. per pint will be available from the registered suppliers all the year round for children between the ages of 5 and 16 who are unable, because of mental or bodily disability, to attend school, and, in the case of mental disability, have not been notified or reported to the Mental Deficiency Act authority, or, having been so dealt with, are not in an institution or attending a full-time occupation centre to which the milk-in-schools scheme applies. Parents or guardians should apply to the local food office for Form WF. 42.

#### Speech Therapists

There are between 75,000 and 100,000 children needing treatment for speech defects. The Minister of Education, speaking on June 28 at the opening of the Moor House School, Hurst Green, Surrey, which is the first school in this country to cater specially for children whose defects require treatment by speech therapists, said that local education authorities were at their wits' end to secure more therapists. About 500 are needed, which is 350 more than are now employed. There are 107 students now in training as speech therapists.

#### Award to Lord Stamp

The American Government has awarded the Medal of Freedom with Silver Palms to Lord Stamp for his services during the war, when he was British scientific liaison officer for biological research in the U.S.A. from November, 1943, to December, 1945.

#### Deputy Secretary to Ministry of Health

The Minister of Health has appointed Mr. J. M. K. Hawton, C.B., to be a Deputy Secretary to the Ministry of Health following the appointment of Sir Arthur N. Rucker to urgent duties with the preparatory commission to the International Refugee Organization.

#### Register of Dietitians

The Board of Registration of Medical Auxiliaries has published a third edition of the *Register of Dietitians*, and medical practitioners can obtain copies free on application to the registrar of the Board at Tavistock House North, Tavistock Square, London, W.C.1.

#### Education Ministry and Health

The Medical Branch of the Ministry of Education, which deals with the School Meals Service, the School Health Service, and Special Educational Treatment for Handicapped Pupils, is from Aug. 1, 1947, to be known as the Special Services Branch.

#### Wills

Dr. Anthony Richard Neligan, of Droitwich, who died on Dec. 8, 1946, left £31,907.



## COMING EVENTS

## Aslib Conference

The 22nd annual conference of the Association of Special Libraries and Information Bureaux will be held on Sept. 19-21 at the London School of Economics, Houghton Street, W.C.2, and Canterbury Hall, Cartwright Gardens, W.C.1. Prof. R. E. Peierls, F.R.S., will deliver the opening address on Sept. 20 at 11 a.m. on "The Effect of Atomic Energy Developments on Scientific and Technical Publication."

## Old Students' Dinner

St. Thomas's Hospital Old Students' Dinner will take place at Church House Restaurant, Great Smith Street, Westminster, S.W., on Friday, Oct. 3, at 6.45 p.m. for 7.30 p.m., when the chair will be taken by Mr. C. A. R. Nitch, M.S., F.R.C.S. Rationing restrictions will limit the number of places to 250. If therefore the number of applications exceeds 250, the list will be closed and unsuccessful applicants notified. It is regretted that no guests may be invited this year. Speeches will be strictly limited. The price of the dinner, inclusive of gratuities and drinks during dinner, will be 25s. Dinner jackets or lounge suits will be worn.

## Ophthalmological Congress

The executive committee of the Third Pan-American Congress of Ophthalmology has issued a general invitation to all members of the British Medical Association interested in ophthalmology to attend the congress, which is to be held at Havana, Cuba, from Jan. 4 to 10, 1948. The president of the Congress is Dr. Tomas R. Yanes, P.O. Box 970, Havana, Cuba.

## Advancement of Science

The American Association for the Advancement of Science will meet at Chicago on Dec. 26-30. Further information may be obtained from the society's headquarters, Smithsonian Institution, Washington, D.C.

## APPOINTMENTS

The Civil Service Commissioners have appointed Drs. D. A. Ogden and F. Y. McKendrick to be medical officers in the Prison Service of England and Wales.

BOARDMAN, D. L., M.B., Ch.B., Assistant Pathologist, Bolton Royal Infirmary.  
BODKIN, KATHLEEN M., M.R.C.S., L.R.C.P., Senior Assistant Medical Officer of Health, Borough of Hendon.

JACKSON, S. H., M.B., Ch.B., Pathologist, Bury Infirmary.

LONDON COUNTY COUNCIL.—The following appointment in the Council's mental health services at the hospital indicated in parentheses is announced: Assistant Medical Officer, G. C. Heller, M.D. (Friern).

MILLEN, R. M., M.D., M.R.C.O.G., Obstetrician, Chase Farm Hospital, The Ridgeway, Enfield, Middlesex.

## BIRTHS, MARRIAGES, AND DEATHS

The charge for an insertion under this head is 10s. 6d. for 18 words or less. Extra words 3s. 6d. for each six or less. Payment should be forwarded with the notice, authenticated by the name and permanent address of the sender, and should reach the Advertisement Manager not later than first post Monday morning.

## BIRTHS

DAVIES.—On Aug. 6, 1947, to Dr. Celia Marjorie Davies (*née* Rapport), wife of Dr. D. L. Davies, 13, Ennet Park, N.W.7, a son.

DOYLE.—On Aug. 1, 1947, at Northampton, to Margaret (*née* Bethell), wife of Dr. G. B. Doyle, a son.

HAMILTON.—On July 30, 1947, at the London Hospital, to Norah, wife of Dr. Henry C. Hamilton, of Portrush, Co. Antrim, a daughter.

HARRISON.—On Aug. 7, 1947, at King's Lynn, to Mary (*née* Bowen), wife of John O. Harrison, F.R.C.S., a daughter.

REEVE.—On July 21, 1947, at Bristol, to Marjorie (*née* Organ), M.B., Ch.B., wife of C. P. Reeve, a daughter.

STANFORD.—On Aug. 3, 1947, to Elspeth Stanford, M.B., Ch.B. (*née* Harrison), wife of J. G. Stanford, a son.

TAIT.—On July 27, 1947, at Burton House Maternity Home, Stafford, to Maureen, wife of Squad-Ldr. C. E. Tait, R.A.F.V.R., the gift of a daughter—Mary Edwin.

## MARRIAGES

FLEMING—FIELD.—On Aug. 5, 1947, at Banbury, Oxon, Dr. H. F. Fleming to Dr. Sheila Field.

PEEL—MELLISH.—On July 26, 1947, John H. Peel, F.R.C.S., F.R.C.O.G., to Freda Margaret Mellish.

TILL—TUNSTALL-BEHRENS.—On July 23, 1947, in Cornwall, Kenneth Till, M.B., B.Chir., to Morwenna M. Tunstall-Behrens, M.B., B.Chir.

## DEATHS

AMBROSE.—On July 30, 1947, at his home, 2, Hilton Drive, Paignton, Devon, after a long illness, Alfred Parker Ambrose, M.R.C.S., L.R.C.P., L.S.A., London. Aged 73 years. R.I.P.

## Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

## Spread of Poliomyelitis

Q.—Under the heading "Poliomyelitis and Water" (July 19 p. 119) you suggest that infection often comes from the virus carried in the nasopharynx and conveyed in food. Can fruit pickers infect the fruit at their work? Can infected mucus washed out of the nasopharynx during bathing in fresh water, or at bathing pools infect other bathers? Can flies or insects carry infected mucus or excreta to food or fruit? Will food or fruit be sufficiently cleansed by tap water?

A.—It is possible for fruit to become infected with the virus of poliomyelitis, either directly from sprayed droplets and contaminated hands, or indirectly by faecal-feeding flies or dust. Various workers have drawn attention to the fact that poliomyelitis occurs during the fruit season and small localized outbreaks attributed to the eating of strawberries have been described (see Barber, G. O., *B.M.J.*, 1938, 2, 1137). It is therefore advisable to wash all fruit and when possible to peel off the skin before giving it to children. Bathing pools may also become contaminated, and children should not be allowed to use bathing pools in areas where the infection is occurring.

## Sulphur in Rheumatism

Q.—The 1931 B.M.A. Committee on Chronic Rheumatism considered sulphur to be one of the few drugs of value in chronic osteoarthritis. Intramuscular or intravenous injection of colloidal sulphur are strongly advised for osteoarthritis in a modern textbook. Is there any knowledge of how this drug causes improvement?

A.—There is considerable diversity of opinion as to the value of sulphur in rheumatism, but it has been used a great deal in America and good results have been claimed, especially when it has been combined with a low-carbohydrate diet—a point of some importance. Race, in an investigation into its biochemical action, found deficient sulphur oxidation in rheumatism, and Cavadias found deficient sulphur conjugation. The organic matrix of the joint cartilages contains chondroitin acid, which when broken down yields chondroitin and sulphuric acid, and it has been suggested that loss of sulphur from the cartilage may tend to the development of arthritis. Many workers have found a deficiency of cystine in the nails in sufferers from rheumatic diseases. Rawls *et al.*, treating cases with injections of colloidal sulphur, thought it was of most value in cases of rheumatoid and mixed arthritis. When injected it usually causes a pyrexial reaction, and its beneficial action has been attributed to this effect in line with such other methods as injections of milk, T.A.B., etc. When given by mouth it has a mild purgative action, and many regard this as the explanation of any benefit that may follow.

## Fluorine and Dental Caries

Q.—(a) Are minute quantities of fluorine in water essential for the proper formation of teeth? (b) What practical measures can be adopted to ensure that an infant obtains an adequate and assimilable intake of fluorine in a district devoid of natural fluorine? The incidence of dental caries is high in this area, mostly among young people, all teeth being extracted. The water supply is unprotected and thus potentially contaminated. So most people rely on rain-water collected in tanks. (c) What is the fluorine compound of choice for adding to water, and what quantity should be added to each 100 gallons (454.6 litres)?

A.—(a) It has been demonstrated that children living continuously for the first twelve years of life in fluoride areas have a lower caries attack rate than those residing in fluoride-free areas. It has not yet been established, however, that the addition of fluoride to fluoride-free domestic water supplies will produce similar or identical results. Large-scale experiments

are now being carried out in various parts of the world to determine whether the addition of fluoride proves beneficial. It should be remembered that excess fluorides cause mottling and unsightly staining of the enamel. (b) It is possible to add fluoride to the drinking-water, though, as stated above, the evidence that this practice is beneficial is suggestive but not yet conclusive. (c) The compound normally used is sodium fluoride, added in the proportion of one part per million.

### Sex Hormones and Prostatic Hypertrophy

**Q.**—It is said that late in life the oestrogenic testicular hormone predominates over the male testicular hormone, and is thus responsible for prostatic overgrowth. Why, therefore, should oestrogenic substances be used for the treatment of carcinoma of the prostate? The results are often gratifying, but what is the rationale of this treatment?

**A.**—There is a difference between non-malignant prostatic enlargement and carcinoma of the prostate. The theory put forward in the former case is based upon (1) actual assays of urinary oestrogens and androgens throughout life—the preponderance of oestrogens in older people is relative because of the diminution of androgens; and (2) experimentally oestrogens will produce a fibromuscular enlargement of the prostate, which is prevented in some degree by the simultaneous administration of androgens. Testosterone has been advocated for benign enlargement of the prostate, and, although it appears to produce symptomatic improvement, a committee of the Medical Research Council, investigating this, failed to establish any objective criteria of beneficial result. With regard to carcinoma of the prostate, oestrogens are given to inhibit the pituitary secretion of gonadotrophic hormone, with resulting disorganization and atrophy of the testes; that is, a physiological castration is produced, and as a result testicular androgens cease to be secreted. A similar effect is obtained by surgical castration, which is also used in this condition. The removal of testosterone constitutes the removal of an androgenic stimulus to the malignant prostate and its metastases. The results are good for a time—months or years—but ultimately relapse occurs.

### Recurrent Otitis Media

**Q.**—My two children have had many attacks of otitis media over the past year. During the last attack, a month ago, the girl, aged 5, had both drums punctured with immediate relief, and the boy, aged 4, recovered on sulphamezathine. Now both children are ill again, but the pain and tenderness have receded on sulphamezathine, although the drums are still red after a week of treatment. Both children snuffle, suggesting sinus trouble, but during the last attack, although the same symptoms were present, the specialist said none was evident. Is there any treatment to nose or throat likely to be effective? The girl still has her tonsils and adenoids, but the boy's were removed a year ago; his first attack of otitis media coincided with measles.

**A.**—In all cases of recurrent otitis media the cause is in the nasopharynx. Sinusitis can be excluded with certainty by a good radiograph, and this would seem advisable in both children. In the girl's case tonsils and adenoids should be removed, and in both children any sinusitis treated. In the boy's case there are probably some small residual adenoids around the Eustachian opening which cannot be removed by a eurette. They can be destroyed by irradiation with radium or deep x rays.

### Menorrhagia in Middle Age

**Q.**—What is the treatment for (non-neoplastic) menorrhagia of middle age? What, in this case, are the indications, dosage, and timing in the menstrual cycle for (a) ethisterone, (b) methyl testosterone? What dosage of the latter can be regarded as safe for avoiding the development of male characteristics?

**A.**—Even when a neoplasm has been excluded there remain many possible causes for menorrhagia, and treatment varies accordingly. Useful advice on this case is not possible without further information. Ethisterone is indicated if the underlying trouble is shown to be a deficiency of progesterone during the second half of the cycle. It is much less active than progesterone itself, but a suitable dose for trial would be 5 to 10 mg. (in tablet form for sublingual absorption) thrice daily for seven to ten days premenstrually. Methyl

testosterone is sometimes used for functional uterine haemorrhage, whether it be ovular or anovular; 5 mg. can be given by sublingual absorption once or twice daily during the whole cycle, but this treatment should not be continued for longer than two months without an interval.

There is some difference of opinion as to the dose of androgens which is "safe" as regards the production of virilism. It depends not only on the type of preparation used and the route of administration but also on the duration of treatment. Thus a large dose given for a few days only may have no ill effects, whereas a smaller dose continued for a long period may cause voice changes, hirsuties, etc. Above all, it should be recognized that women vary considerably in their susceptibility to testosterone; the age of the patient may also be a factor. It is therefore difficult to lay down hard-and-fast rules, but generally it is wise not to give more than 400 mg. of methyl testosterone (sublingual route) or more than 150 mg. of testosterone propionate (by injection) in any one month. In either case treatment should not be continued for longer than two months at a time, and careful watch should be kept for the first sign of a virilizing effect.

### Obesity

**Q.**—Is there a new American drug which "rapidly and safely reduces the weight of the obese, and which is devoid of any glandular material"?

**A.**—The likelihood is that the new American drug is either dinitrophenol or amphetamine. The former may cause cataract and should never be used. The latter is not to be recommended, for two reasons. The first is that if patients take drugs for obesity they think they can eat as much as they like because the drug will make them thin; the second is that the taking of amphetamine over a period makes the patient nervous, excitable, unable to sleep, and liable to fainting attacks or collapse. There is only one treatment for obesity, which is severe restriction of the diet, maintained for at least three weeks. (See L. H. Newburgh, *Arch. intern. Med.*, 1942, 70, 1033.)

### Sterility

**Q.**—A young man was examined for sterility after three years of marriage. The external genitalia were normal, but a specimen of semen contained only a third of the normal number of spermatazoa, fully motile and with no abnormal forms. No pus cells or organisms were found. Would treatment with sex hormones be of benefit, and what are the preparation of choice and the dosage? His wife appears to be normal.

**A.**—A reduction in the total number of spermatozoa, without other evidence of spermatogenic inadequacy, is not sufficient indication that the male is responsible for the sterility; also, the total sperm count varies from time to time, and is especially depressed after frequent coitus or nocturnal emissions. Sterility is not unknown when both parties appear to be normal, and ultimate conception can take place even after ten years. If, however, repeated counts show a low total number of spermatozoa, gonadotrophic hormone of pregnant mare's serum, 1,000 units injected intramuscularly three times weekly, might be of help.

### Sweating Hands

**Q.**—During examinations a female student of massage, aged 21, suffers from profuse sweating of the palms of her hands to such an extent that massaging becomes difficult. Powdering her hands does not help. As she is likely to take only two more examinations and the condition does not occur in her normal work any operative procedure such as sympathectomy would seem too radical. What drug would be most helpful and in what dose should it be prescribed? It must not, of course, give rise to unpleasant side-effects during the examination. It is feared that tincture of belladonna might cause unpleasant drying of the mouth.

**A.**—Belladonna is almost certainly the answer to this problem. Of the tincture she will probably need 20 minims (1.2 ml.) taken three-quarters of an hour before the examination. The dryness of the mouth will not be enough to cause distress or difficulty in answering the examiner. The effect of belladonna on this student should be studied carefully as soon as possible.

The dose to produce decided dryness of the mouth should correct the hand-sweating. Preliminary tests with 10 minims (0.6-ml.) will also reveal any undue susceptibility to the drug.

### Toxic Dosage of Vitamins A and D

**Q.**—*Recently a poultry journal stressed the risk of giving too much cod-liver oil to chicks; overdosage is said to give rise to "crazy chick disease"—which causes the chick to lose its sense of balance; it tends to sway backwards on to its haunches and gives the impression that it is suffering from leg weakness. Is there any evidence of comparable effects in the human?*

**A.**—No condition comparable to the disease in chicks has been reported in man from consuming large quantities of cod-liver oil. It is virtually impossible to produce hypervitaminosis A or D in humans by ingesting large quantities of cod-liver oil. Nausea and vomiting would occur long before a toxic level is reached. The toxic dose of vitamin A, if taken for a prolonged period, is in the region of 240,000 units daily, and that of vitamin D is probably 200,000 units or more. This amount of vitamin A is present in 8½ oz. (240 ml.) of cod-liver oil, and the vitamin D in nearly 90 oz. (2.65 litres). It would be impossible to consume this amount daily for any length of time.

### Retrosternal Pain

**Q.**—*I suffer from pain behind the sternum opposite the fourth costal cartilage; this started four years ago and is of a colicky nature, occurring once or twice weekly, day or night, three to four hours after meals, and is relieved by swallowing or by a hot drink. Left alone it may remain from five to twenty minutes. There are no other complaints. What are the nature and treatment of this condition?*

**A.**—This pain must have its origin within the alimentary tract; many of its features suggest that it arises in the oesophagus, but the interval of three or four hours between food and the onset of pain raises the possibility of pain referred from the duodenum. It is clearly a symptom which requires investigation, for no diagnosis can be made on the history alone, and obviously no treatment can be prescribed until a diagnosis has been made. A careful radiological examination of the oesophagus, stomach, and duodenum is the first step; an oesophagoscopy may be indicated later. These suggestions are offered on the assumption that physical examination is normal.

### Chemical Contraceptives

**Q.**—*Many patients complain of the expense of proprietary contraceptives. Can a prescription be given for a chemical contraceptive jelly that is cheap and effective?*

**A.**—Unfortunately the *Pharmacopoeia* contains no contraceptive preparations, and they are too complex for ordinary prescriptions. Hence one is bound to rely on the proprietary ones. All contraceptive materials prove unsuitable, on rare occasions, so that it is necessary to change from one to another where there is intolerance. I have never heard of a patient responding badly to more than one of the three proprietary preparations usually advised. By the way, the Family Planning Association have had all the best-known contraceptives analysed and tested, and they can supply an approved list. This is under review at the moment and should be available again soon.

### Sensitivity to Primula

**Q.**—*A male aged 40 complains of a rash on the body after contact with primula plants. Is there any method of desensitization?*

**A.**—Desensitization, preferably prophylactically, can be carried out, either orally or by injection, with various extracts of the oleo-resins from the leaves of primula plants. The results are variable and a complete prolonged immunity is exceptional; repeated pre-seasonal therapy is usually required. The details of the treatments and of the methods of preparation of the various types of extracts used can be obtained from books on allergy, such as *Allergy in Theory and Practice*, by R. A. Cooke (1947, W. B. Saunders, Philadelphia); *Clinical Allergy*, by L. Tuft (1937, W. B. Saunders, Philadelphia). A commercial extract is available. Avoidance of contact is the treatment of choice.

## NOTES AND COMMENTS

**Pink Disease.**—Dr. LINDSAY A. DEY (Sydney, New South Wales) writes: In the *Journal* of June 21 (p. 911) there is a question and answer on pink disease. May I congratulate the writer on what he has written, especially the last sentence? When chief resident medical officer at the Royal Alexandra Hospital for Children I had under my care the first case of pink disease recognized in New South Wales. Sir Charles Clubbe had recognized it from a description sent to him by Dr. Swift, of Adelaide—it was either at the end of 1915, or more likely early 1916. I endorse every word that your writer has said. I have seen children die in hospital. I have seen children so sick that I was sure they would die, but who have recovered when taken home after a talk with a courageous mother on the lines set out in the article. The only other thing I am sure of in this disease, which is so very interesting and so easily recognized when looked for, is that it is a virus infection affecting the sympathetic nervous system. Again congratulating your contributor.

**"Dyspeptic" Ulcers.**—Dr. GEORGE GRAHAM (London, W.1) writes: May I suggest a different answer to the question about "dyspeptic" ulcers (July 19, p. 120). Bacteriological investigations have not revealed the presence of any bacteria which can be regarded as the causative agent, but it was shown in 1938 by Dodd, Johnstone, and Buddingh and confirmed in 1939 by Burnet and Williams that the virus of herpes simplex is the causative agent, since characteristic lesions can be produced in the cornea of a rabbit with material from the ulcer. Consequently it has been suggested that "herpetic stomatitis" is a better name than "dyspeptic" or "peptic" ulcer, or "aphthous stomatitis." Nothing is known which will prevent the patient having recurring attacks, but in my own experience they seem to come less frequently as I get older. The pain and discomfort can be greatly relieved in two ways: (1) Touching the ulcer firmly with a stick of silver nitrate. This is a very painful process but after ten minutes the pain is completely relieved for twenty-four hours. This procedure may have to be repeated once or twice before the ulcer heals. (2) The ulcer is swabbed with a 1% solution of gentian violet every three hours. This method is very useful if three or more ulcers are present at the same time, or if a single ulcer is in a rather inaccessible position.

### REFERENCES

Dodd, K., Johnstone, L. M., and Buddingh, G. J. (1938). *J. Pediat.*, 12, 96.  
Burnet, F. M., and Williams, S. (1939). *Med. J. Austral.*, 1, 637.

**Judicial Hanging.**—Col. N. J. C. RUTHERFORD, D.S.O. (Farnham, Surrey), writes: I have always been interested in this subject (July 26, p. 159) since the time that a prison medical officer showed me over a well-known jail and gave me a description on the spot of the last walk of the condemned man from the death cell to the garret-like building containing the equipment for hanging a man. The doctor showed, and explained to me, the mechanism of the drop into the pit, reached by a short flight of steps from the level of the platform where the condemned takes his last stand. What astonished me was the doctor's statement that as the trap is sprung and the man drops all the official spectators of the hanging walk out and the shed is locked for half an hour. At the end of this time the doctor returns, descends into the pit, and examines the body to ensure that life is extinct. I took it that this gruesome but necessary precaution is enforced to meet the possible failure of the fracture or dislocation of the vertebral column. I may add that it is thirty years since the prison doctor gave me this dramatic description, but I have never read of an execution since then without thinking of that half-hour of time. I suppose the operative words are "almost invariably." I wonder if this custom is still in force?

**Displaced Persons.**—Dr. PATRICK J. SMITH (late of U.N.R.R.A.) writes: I wish to thank each of my colleagues who so kindly sent medical literature for the use of D.P. doctors. Should anyone not have received a personal acknowledgment, I should be glad to hear from him.

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Allology, Western, London*. ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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B.M.A. SCOTTISH OFFICE: 7, Drumsheugh Gardens, Edinburgh.

# SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY AUGUST 16 1947

## REMUNERATION OF VISITING STAFFS

In the report of the proceedings of Council published in our last issue (Aug. 9, p. 49) it was stated that a draft letter on the above subject had been approved for circulation, with any appropriate modification, to voluntary hospitals, preferably in conjunction with the British Hospitals Association. The draft has since been revised in consultation with the B.H.A. and the two Associations have jointly issued the following circular to voluntary hospitals in England and Wales. The issue of a circular in Scotland is being considered by the Scottish Branch of the B.H.A. and the Scottish Committee of the B.M.A.

### Payment of Part-time Visiting Medical Staff

To: The Secretary or House Governor

The Honorary Secretary of the Medical Committee

Dear Sir,

This letter is addressed jointly by the British Hospitals Association and the British Medical Association to the governing bodies and the part-time visiting consultant and specialist medical staffs of voluntary hospitals in England and Wales. It is concerned with questions relating to the payment of these staffs during the interim period before the introduction of a publicly organized hospital service.

This whole question has been fully discussed in the Liaison Committee which has for some years been established by the two Associations. In order to avoid any apprehension it may be categorically stated that there is no divergence of view between the two Associations on the fundamental questions of principle involved, upon which they are in complete agreement.

These are: (1) The principle of payment of visiting medical staffs which has long been advocated by the B.M.A. and was officially adopted by the B.H.A. in 1942. (2) That the implementation of this principle at the present time should not deprive the voluntary hospitals of their invested funds, the importance of which has been recognized under the National Health Service Act, which makes special provision for their use in important ways in the creation and development of the new health service.

Both Associations have also appreciated the difficulties in the wholesale implementation at the present time of the principle of payment—difficulties for which there is a great variety of reasons, many of them not being financial.

Since advice is urgently sought by medical staffs and by hospital governing bodies alike throughout the country, both Associations have agreed jointly to make the following recommendations as an interim measure:

(1) The question of payment of part-time visiting medical staffs on the basis of computation of such payments, and whether such payments should cover all or some of the medical staff at a particular hospital must remain for the present a matter for determination by the governing body of the hospital after such consultation with the medical staff as is appropriate, and having regard to local conditions and to all other relevant considerations.

(2) Governing bodies of voluntary hospitals should therefore consult with their medical committees or visiting medical staffs as to any action that is desirable, having regard to all relevant circumstances and local conditions affecting the individual hospital.

In the past the B.M.A. has suggested that the method of payment might be by annual salary based on sessional rates; and, having recently negotiated with the local authority associations the payment of consultants and specialists at the rate of four

guineas for a session of 1½ to 2½ hours, or two and a half guineas for sessions not normally exceeding 1 hour, it thinks that similar arrangements might be aimed at in the voluntary hospitals.

The B.H.A. is of opinion that, since the question of payment itself is to remain a matter for local discretion, it is desirable that the basis of computation of any payment should also be a matter for discretion in the light of the variety of circumstances, types of hospital, conditions of appointment, etc. In further support of its view the B.H.A. points to the fact that there is no parallel between the local authority and voluntary hospital systems in several important respects relating to this question, and to the fact that there is at present no nationally agreed scale of fees for medical staffs in hospitals.

It is the hope of both Associations that the advice contained in this circular will be received, alike by governing bodies and visiting medical staffs, in the spirit of co-operation in which it is offered. The Liaison Committee of the two Associations intends to keep the position under continuous review so that any further action mutually agreed may be taken at appropriate times.

Yours faithfully,

J. P. WETENHALL,

Secretary, British Hospitals Association.

CHARLES HILL,

Secretary, British Medical Association.

## MEDICAL STAFFING OF L.C.C. HOSPITALS

### NEW SALARY SCALES AND DESIGNATIONS

The medical staffing arrangements of the London County Council's hospital service have been open to criticism because they do not provide an adequate number of specialist positions, to ensure retention in the service of highly skilled staff and because specialists who are employed are not so graded and are paid inadequately. With a few exceptions the Council has not provided a career for a full-time clinical specialist in its general hospitals, while other authorities have done so. Good clinicians have been retained by appointing them as medical superintendents.

The Hospitals and Medical Services Committee of the Council considers that the medical staffing of the hospitals should be reorganized on the lines of clinical units for the larger branches, each in charge of a specialist medical officer, with an appropriate staff of subordinate assistants, but in view of the impending transfer of powers to regional hospital boards such a scheme might not be appropriate at this juncture. In order that the hospital service may be handed over as well staffed as possible it is proposed to create further positions of surgeon-specialist and senior physician in substitution, where appropriate, for positions of medical superintendent, deputy, or senior resident medical officer. These proposals are designed to meet the difficult position of many senior medical officers, qualified and acting as specialists, whom it would be unfair to transfer to regional boards with a grading other than of specialist.

One additional position of surgeon-specialist and one of senior physician is proposed for each of seventeen general hospitals. If an existing medical superintendent is successful in securing one of these positions he is to be allowed to remain at his hospital and to continue to carry out his administrative duties; his designation will be senior physician (superintendent) or surgeon-specialist (superintendent), and he will receive a free house in addition to his pay as a specialist. A specialist

acting as deputy will receive remuneration at the rate of £50 additional to his specialist pay. At each of the fourteen special hospitals it is also proposed that there should be a physician superintendent (new designation), who will be allowed to retain the emolument of unfurnished house in consideration of his administrative duties. The deputy medical superintendent will be redesignated assistant specialist.

The consolidated salary for senior physician or surgeon-specialist will be £1,500-£100-£1,800, with, as already stated, an unfurnished house at those hospitals where he is required to perform the duties of medical superintendent. For the assistant senior physician or surgeon-specialist the remuneration will be £1,000-£50-£1,400 (inclusive; no emoluments). An allowance of £50 a year will be paid to the surgeon-specialist or senior physician at a general hospital or the specialist or assistant specialist at a special hospital who performs the duties of deputy to the medical superintendent. The vacancies are first to be circulated within the service, and only those appointments which cannot be filled adequately by that method will be advertised publicly.

#### Medical Staff of Mental Hospitals

The Council is also proposing to raise its scales of pay for senior mental hospital doctors because it has found that since the war an appreciable number of second and first assistant medical officers of specialist qualifications and attainment have left the service for appointments in provincial mental hospitals where their professional standing commands, immediately or potentially, greater remuneration than is offered by the Council.

It is now proposed that the scale of £1,500-£100-£1,800 on a consolidated basis shall be applied to senior mental hospital officers who can be regarded as occupying specialists' positions. This full scale will be applied to the medical superintendent of all the hospitals and institutions (with the exception of the Fountain Hospital, where, because of its relatively small size, the salary of the medical superintendent will be £1,500 (fixed), plus a house), and, in recognition of the fact that the medical superintendent not only discharges the duties of chief clinician but has a heavy burden of administrative responsibility, he will be given in addition to the proposed salary the emolument which he already receives of a house.

For the position of deputy medical superintendent at the "acute" mental hospitals the salary is to be the minimum of the consolidated scale for the specialist—namely, £1,500—and in recognition of administrative responsibility a further sum of £50. For the deputy superintendent at the transferred and mental deficiency institutions (except Fountain Hospital, where it is £100 less) the proposed salary is £1,200-£50-£1,400. For first assistant medical officers at the "acute" mental hospitals who can be regarded as "graded" or assistant specialists the salary will be £1,100-£50-£1,300.

New designations are suggested for the officers concerned—namely, physician-superintendent for medical superintendent, and assistant physician for first assistant medical officer at "acute" hospitals and specialists at Sutton Emergency Hospital; no change in the title of first assistant medical officer at remaining hospitals.

#### Pathological Laboratory Service

An increase of staff for the L.C.C. pathological laboratory service is proposed. The work in the group laboratories has increased by nearly 70% and in the hospitals' laboratories by not less than 75% during the last ten years. There are to be four additional positions of senior assistant pathologist, one for each of the group laboratories, and seven additional positions of assistant pathologist to strengthen the staff of the group laboratories and of the busiest hospital laboratories. The basic salary of the senior assistant pathologists is to be £1,050-£50-£1,350, compared with the present basic salary of £750-£50-£1,000. There are also proposals for increases in the numbers and rates of pay of technical staff.

#### TRADE UNION MEMBERSHIP

The following amendment is made to the list of "closed-shop" authorities:

Non-County Borough Councils: Delete Southall.

#### NATIONAL (WAR) FORMULARY

It has been agreed that the date on which the third edition of the *National (War) Formulary* will come into operation for National Health Insurance purposes shall be Oct. 1, 1947. Copies of the *Formulary* will shortly be received by doctors and chemists. Insurance committees have been requested to bring to the notice of doctors by means of a slip enclosed with each copy the operative date for the new edition, following which date authority to use previous editions is cancelled. Advance information in detail of some of the changes will be published in the *Journal* of Aug. 9 at p. 225.

## Correspondence

#### Working Hours in the N.H.S.

SIR.—At the Annual Representative Meeting of the B.M.A. recently held in London, two motions advocating the provision of fixed working hours for doctors under the State Medical Service were defeated (*Supplement*, Aug. 2, p. 31). The decision must have surprised many of us, and one cannot be wondering if it is, in fact, a true reflection of the present trend of opinion among the profession as a whole. On the contrary, practically all my medical acquaintances are of the opinion that the present system is both unnecessary and unjust, and a most apprehensive regarding conditions under the new service unless provision is made for a rota for night-duty, week-end work, and during sickness.

It is clear to all reasonable people that any job involving 24-hour day, year in and year out, is a most undesirable and in fact, intolerable imposition. The only grounds on which it could possibly be defended are those of proved necessity. We all know, however, that this necessity does not, in fact, exist, so that the present system is obviously quixotic in the extreme. One has only to consider the events of the last war during which millions of people were attended by "strange" doctors, without, so far as one knows, any calamities or even serious complaints, to see that this is so. The provision of health centres and fixed hours would, I feel sure, herald a period of greatly increased happiness and efficiency for ourselves and our families, and would be no less a boon to the general public. Failing these things, one can look forward to the State Medical Service with nothing but apprehension.

I submit that the decision already referred to, made by a handful of doctors, should not be taken as final, and would suggest that a general vote be taken on a subject which is so prominent in all our minds at the moment, and which is obviously going to be so vital to the success or otherwise of the National Health scheme.—I am, etc.,

Wigan.

H. DAKIN.

#### Superannuation

SIR.—We now know the details of the scheme of superannuation devised for the State medical service. Since 1939 and indeed in the first world war, many people, not only medical officers, served their country temporarily but not less industriously or efficiently than members of the regular Services. The latter during this time earned accrued pension rights, but the temporary members did not, being thus so much the less remunerated for their work.

The numbers of years served, therefore, in any of the Service of the Crown, if in the same capacity, should be added to the number of years ranking for superannuation. There are obvious and just reasons why this should be done, and I hope the Association will press for this addition to the Regulations.—I am, etc.,

Plympton, Devon.

RICHARD HOWARTH.

SIR.—Dr. D. Campbell (*Supplement*, July 26, p. 23) referred to the plight of doctors of 65 as regards pensions under the N.H. Act. Surely his is a minor point, for will these doctors not only receive no pension but also be refused permission to practise?

Worse still. Surely the proposals also mean that all doctors of 55 and over when the N.H.S. commences will be unable to





**B.M.A. LIBRARY**

The following books have been added to the library:

- Albrecht, F. K.: *Modern Management in Clinical Medicine*. 1946.  
 Arcy, L. B.: *Developmental Anatomy*. Fifth edition. 1946.  
 Bankoff, G.: *The Conquest of Cancer*. 1947.  
 Barcroft, Sir Joseph: *Researches on Pre-Natal Life*. Vol. I. 1946.  
 Boome, E. J., and Richardson, M. A.: *Relaxation in Everyday Life*. Second edition. 1945.  
 Bowlby, J.: *Forty-four Juvenile Thieves: Their Characters and Home Life*. 1946.  
 Brown, A. E.: *The Doctor and Tomorrow*. 1946.  
 Burnet, F. M.: *The Background of Infectious Diseases in Man*. 1946.  
 Densford, K. J., and Everett, M. S.: *Ethics for Modern Nurses: Professional Adjustments—I*. 1946.  
 Fidler, A.: *Whither Medicine: From Dogma to Science?* 1946.  
 Freud, A.: *Psycho-analytical Treatment of Children: Technical Lectures and Essays*. Translated by N. Proctor-Gregg. Parts I and II. 1946.  
 Garrod, A. E., Batten, F. L., and Thursfield, H. (Editors): *Diseases of Children*. Fourth edition by D. Paterson and A. Moncrieff. Volume I. 1947.  
 Gesell, A., and Ilg, F. I.: *The Child from Five to Ten*. 1946.  
 Gibberd, G. F.: *Short Textbook of Midwifery*. Fourth edition. 1947.  
 Goldring, W., et al.: *Experimental Hypertension* (Special Publication of New York Academy of Sciences, Vol. 3). 1946.  
 Harrison, G. A.: *Chemical Methods in Clinical Medicine*. Third edition. 1947.  
 Hinselwood, C. N.: *The Chemical Kinetics of the Bacterial Cell*. 1946.  
 John, H. J.: *Diabetes: A Concise Presentation*. 1946.  
 Lawrence, R. D.: *The Diabetic A B C*. Ninth edition. 1944.  
 March of Medicine: *Modern Attitudes in Psychiatry*. 1946.  
 Napier, I. E., and Das Gupta, C. R.: *Haematological Technique*. Third edition. 1945.  
 National Research Council: *Women in Industry*. By A. M. Bactja. 1946.  
 National Research Council: *Practical Malarology*. By P. F. Russell, et al. 1946.  
 Newman, Sir George: *Quaker Profiles*. 1946.  
 Osborne, W. A.: *Essays and Studies*. 1946.  
 Schiff, L.: *Differential Diagnosis of Jaundice*. 1946.  
 Sequeira, J. H., Ingram, J. T., and Brain, R. T.: *Diseases of the Skin*. Fifth edition. 1947.

**Association Notices****Nathaniel Bishop Harman Prize**

The Council of the British Medical Association is prepared to consider a first award of the Nathaniel Bishop Harman Prize in the year 1948. The value of the prize is approximately £100.

The purpose of the prize is the promotion of systematic observation and research among consultant members of the staffs of hospitals who are not attached to recognized medical schools. It will be awarded for the best essay submitted in open competition. The work submitted must include personal observations and experiences collected by the candidate in the course of his practice. A high order of excellence will be required. No study or essay that has previously been published in the medical press or elsewhere will be considered eligible for the prize.

Any registered medical practitioner who is a consultant member of the staff of a hospital in Great Britain or N. Ireland and is not attached to a recognized medical school is eligible to compete. If any question arises in reference to the eligibility of a candidate or the admissibility of his essay, the decision of the Council shall be final.

Should the Council of the Association decide that no essay submitted is of sufficient merit, the prize will not be awarded in 1948 but will be offered again the year next following this decision, and in this event the money value of the prize on the occasion in question shall be such proportion of the accumulated income as the Council shall determine.

Each essay must be typewritten or printed in the English language, must be distinguished by a motto, and must be accompanied by a sealed envelope marked with the same motto and enclosing the candidate's name and address.

The writer of the essay to whom the prize is awarded may be requested to prepare a paper on the subject for publication in the *British Medical Journal* or for presentation to the appropriate section of the Annual Meeting of the Association.

Essays must be forwarded to reach the Secretary, British Medical Association House, Tavistock Square, London, W.C.1, not later than Dec. 31, 1947. The prize will be awarded at the Annual Meeting of the Association to be held in 1948. Inquiries relative to the prize should be addressed to the Secretary.

CHARLES HILL,  
Secretary.

**FORMATION OF NEW SOUTH ESSEX DIVISION**

Notice is hereby given by the Council of the Association to all concerned that it has formed a new South Essex Division, comprising the Municipal Boroughs of Romford and Dagenham, and the Urban Districts of Hornchurch and Grays Thurrock, the new Division to come into existence as from the date of this notice. The Division known as the South Essex Division has been renamed the South-East Essex Division.

CHARLES HILL,  
Secretary.

Aug. 16, 1947

**Meetings of Branches and Divisions****METROPOLITAN COUNTIES BRANCH**

The annual general meeting—the eighty-ninth—of the Metropolitan Counties Branch was held at B.M.A. House on July 8. Mr. Eric Steeler occupied the chair during the first part of the proceedings and inducted Dr. E. A. Gregg as the new president.

The report of the Branch Council, which was adopted, stated that the membership of the Branch now stood at 6,232 as compared with 4,900 at the corresponding date last year. The Branch was reviving its pre-war activities, including the setting up of standing committees and the arrangements for an annual address to final-year students and the newly qualified.

The following officers were elected for the session 1947-8: president-elect, Mr. A. M. A. Moore; vice-presidents, Dr. Robert Bailey, Sir Crisp English, Dr. W. A. Milligan, and Dr. E. T. Wright; honorary treasurer, Dr. C. G. Martin; honorary secretary, Dr. Alistair French.

Dr. E. A. Gregg, as president of the Branch, gave a brief informal address. He confessed to a feeling of some disappointment concerning the functions performed by the Metropolitan Counties Branch. The Branch ought to occupy a far more important place than it did in the professional life of this great area of London and Middlesex. But it was difficult to devise methods whereby this could be done, seeing that the Divisions themselves carried out so much of the work which would ordinarily fall to the Branch. The Divisions had direct access to Headquarters and to the Association generally, and therefore many matters were, naturally, short-circuited.

One of the problems of the profession was to instruct their patients and the public generally in the legitimate and discriminating use of new introductions into medicine, so that false hopes might not be raised. This led him to a consideration of the work done under National Health Insurance, a measure originally prompted from without, but the working of which had been for the good of the country and not without some advantage to the profession. It was a matter of amazement that, when further provisions embracing the whole population came to be considered, the powers that be should have lightly put aside the organization of National Health Insurance and all the experience it represented and have started to build up something quite new. He still could not understand why it had not been possible to expand, enlarge, and improve upon the National Health Insurance Acts, getting rid of their faults and anomalies, and making them the basis on which the further Service was constructed.

Concerning the discussions now proceeding, Dr. Gregg said that there was no sinister secrecy about them. Certain conclusions were arrived at by the profession, through the most democratic method of ascertainment, and those taking part in the discussions with the Ministry were fully-informed as to the feeling and determination of those they represented. The Negotiating Committee had given nothing away at any stage in those discussions. All that it had done had been to clear away some of the difficulties which might have been in the minds of the Ministry and show the reasons for the principles which the profession had put forward and the weakness or inadvisability of some of the Government proposals in connexion with the new Service. That was what the committee had been doing during the past few weeks. It was hoped to receive the replies towards the end of the month, and, having received them, it would be for the profession to determine the action it should take. He hoped that this would reassure some who were anxious about the present position.

Through the Public Relations Department of the Association relations with the public had greatly improved, and the doctors' point of view was now understood to an extent that had never before obtained. Much good work had been done in improving the terms and conditions of service under National Health Insurance. This work only recently had found its fulfilment. Yet he wished sometimes that in their general outlook they placed a greater emphasis on the vocational aspects of the profession. All should, of course, be paid properly for the work they did, but the glory of the profession was not the income derived from it; rather was it the fact that in a particular way, and to an extent perhaps beyond any other profession, they had the opportunity of serving their fellow men. In Belfast, the city from which he came, they had a motto which, roughly translated, meant, "Of so much have we received. What shall we render in return?"

A vote of thanks was accorded to Dr. Gregg on the motion of Mr. Steeler, and, on the motion of Dr. Alfred Cox, a further vote was accorded to Dr. C. G. Martin for his services as honorary secretary of the Branch during the past seven years.

LONDON SATURDAY AUGUST 23 1947

## CHRONIC HYPERTENSION AND PREGNANCY\*

BY

F. J. BROWNE, M.D., D.Sc., F.R.C.S.Ed., F.R.C.O.G.

*Emeritus Professor of Obstetrics and Gynaecology, University of London; Consulting Obstetric Surgeon, University College Hospital, London*

Siward. Had he his hurts before?  
Rosse. Ay, on the front.  
Siward. Why then, God's soldier be he!  
Had I as many sons as I have hairs,  
I would not wish them to a fairer death.

MACBETH, Act 5, sc. 7.

Until comparatively few years ago discussion of the clinical features of the toxæmias of pregnancy and concerning their aetiology laid the chief emphasis on the state of the kidney and the presence or absence of albumin in the urine. Little or no attention was paid to the vascular changes which we now know to be one of the essential features and one of the earliest disturbances in pre-eclamptic toxæmia. Thanks to numerous investigators considerable progress has been made in elucidating its causes, though much still remains to be learnt.

I do not propose to discuss the causes of this hypertension, but rather to consider pregnancy as it occurs in the woman who before her pregnancy starts is the subject of chronic hypertensive vascular disease. Its importance will be apparent from the fact that these patients constitute about 25% of all cases of "toxæmia of pregnancy." Pre-eclamptic toxæmia is much more common, contributing about 70%, while chronic glomerular nephritis in pregnancy (sometimes badly named "nephritic toxæmia") is the rarest of all—about 5%. Notwithstanding the frequency of chronic hypertension in pregnancy it has received little attention in obstetric literature. This is, I think, due partly to the fact that obstetricians have confused the condition with "chronic nephritis"—with which, however, it has nothing in common—and partly because it is only in recent years that through antenatal care there have been opportunities for the study of women in the early weeks of pregnancy and that the recording of blood-pressure readings at these early antenatal visits has become routine.

### The Standard of Normal Blood Pressure

A definition of chronic hypertension will depend on one's ideas as to what is the standard of normal blood pressure. Reid and Teel (1939) take the standard as 140/90. Chesley and Annitto (1947) also adopt this standard, but they ignore the reading at the first antenatal examination. On the other hand they include all cases in which this level is reached before the 24th week of pregnancy. Henry (1936) showed that the blood pressure in normal pregnancy tends to be lower than in the non-pregnant state. This is especially true of the diastolic pressure, and as a result the

pulse pressure tends to be 10 mm. greater than in the non-pregnant. He regards this as a mechanism by which the heart is enabled to meet the increased demands made on it by the increase in blood volume and vascular area of normal pregnancy.

For many years we in the Obstetric Unit of University College Hospital adopted the standard 130/70 for the normal pregnant woman. Since 1940, influenced by the work of Robinson and Brucer (1939, 1940), we have used the standard 120/80. These workers showed that: (1) the normal range of blood pressure is 90 to 120 systolic and 60 to 80 diastolic; (2) blood pressure does not rise with age in normal persons but it does in hypertensive and pre-hypertensive persons; (3) a history of blood pressure above 120 systolic and 80 diastolic over a ten-year period is pathological, and an almost infallible sign of incipient hypertension; (4) transient rises of blood pressure should not be ignored and should lead one to suspect a further permanent rise; (5) slightly over 40% of the population (in the U.S.A.) is either actually or potentially hypertensive. It is usual for obstetricians to adopt 140/90 as the standard of normal blood pressure, but I believe that this is much too high and that if this standard is adopted many pregnant women with chronic hypertension will be overlooked and disaster may occur, or disaster that has previously occurred will remain unexplained. Some of my own most interesting and instructive cases of chronic hypertension in pregnancy had blood pressures under 140/90 when pregnancy began, and the diagnosis would have been missed had the usual standard been adopted. An example is Mrs. M., referred to later. It is customary, too, in antenatal clinics to ignore the first reading of blood pressure if it is found to be high. The patient is allowed to rest, and then a second reading is taken, and if it is lower, as it generally is, this is recorded as the true level. I believe that this is wrong and that the first reading is significant and should be recorded, though there is of course no harm in taking it again after rest and recording that also. Indeed, if the second reading is lower it may have a prognostic significance, as we shall see later. The blood pressure of the normal pregnant woman does not rise significantly with nervousness. If it does she is hypertensive or potentially so. I described this condition in 1933 as the "early warning rise of blood pressure" and showed that in 65% of such women the blood pressure later in pregnancy became permanently elevated.

\* William Meredith Fletcher Shaw Memorial Lecture delivered at the Royal College of Obstetricians and Gynaecologists, London, on July 4, 1947.

### Diagnosis

The patient may be known to have chronic hypertension before the pregnancy began. It may have followed on a previous eclampsia or pre-eclamptic toxæmia, though whether it is the *result* of these disorders is doubtful. There is evidence that such patients would have developed hypertension had they never been pregnant. Josephine Barnes and I (1945) in a study of the relatives of these women showed that in the patient who has chronic hypertension in pregnancy there is a familial tendency to the disease, as shown by its high incidence in blood relatives, while in pre-eclamptic toxæmia there is no such tendency, though I suspect that there is in subjects of pre-eclamptic toxæmia and eclampsia who after these disorders develop chronic hypertension. This view receives support from the work of G. W. Theobald (1933), who has shown that the death rate from chronic vascular hypertensive disease is not any higher among married than among single women. Whether the onset of the disease is hastened by eclampsia or pre-eclamptic toxæmia so that it appears at an earlier age than it would otherwise have done is a nice point for discussion.

The majority of patients, however, have not been under observation before they book at the antenatal clinic, and the possibility of diagnosis will then depend on the stage of pregnancy at which the hypertension is discovered. Chesley and Annitto (1947), as I have pointed out, take 24 weeks as the borderline. I have always placed it at 20 weeks. If the blood pressure is raised above the standard for the first time after that period the case is classed as "pre-eclamptic toxæmia"; if before it, as "chronic hypertension." Sometimes the patient is seen for the first time after the 20th week, and then in the absence of a previous history classification is impossible between chronic hypertension and pre-eclamptic toxæmia.

### Clinical Features

The pregnant woman with chronic hypertension is generally somewhat older than usual: in my last series the average age was 30.2 years as compared with 27.9 years for all pregnant women. She usually feels well, there is no oedema or albuminuria, and kidney function tests do not show any deficiency except in the most severe type of case. If there has been a previous pregnancy it has often ended in stillbirth or abortion. In my last series of 194 cases between 1942 and 1946, analysed for this lecture, there were 48 multiparae, who between them had 78 pregnancies but only 27 live infants—a foetal loss of 65.3%. It is of interest to note in passing that these same 48 women in their present pregnancy—that is, the one under observation and supervision—produced 45 live and surviving infants—93.7%, a foetal wastage of only 6.3%. This may be a tribute to the value of antenatal care in these cases.

*Fall of Blood Pressure in the Second Trimester.*—It is curious that in a certain proportion of cases of chronic hypertension in pregnancy the blood pressure falls in the second three months. This phenomenon was first noted by Reid and Teel (1939) and was confirmed by Chesley and Annitto (1947), who found that a decrease of 20 mm. Hg systolic occurred in 39.6%. In 11.3% the fall exceeded 40 mm. Hg, while in 50% there was no change. In my last series of 194 cases it fell in the second three months in 40%. The cause of the fall is not definitely known. Apparently it always occurs in pregnant hypertensive dogs, and Rodbard and Katz (1944) suggest that it is related to the low-resistance circuit that develops during pregnancy. As Chesley and Annitto (1947) point out, this mid-pregnancy fall is important in relation to diagnosis, for if the patient has not been seen early in pregnancy pre-eclamptic toxæmia

is apt to be diagnosed. We shall see later that it has also some bearing on prognosis.

*Exacerbation of Hypertension in Later Months.*—Whether or not this fall in blood pressure occurs in mid-pregnancy the tendency is for a rise to take place in the later weeks. This may happen in the middle three months, but as a rule it does not set in till the 25th week or even much later, and it may not occur at all. In my last series of 194 cases it occurred in 54%. In the first series reported by Browne and Dodds (1942) it happened in 61%.

### Relation of Blood Pressure to Albuminuria and Foetal Death

If and when the blood pressure reaches 160 mm. Hg systolic, albuminuria is apt to appear, and this may or may not be accompanied or followed by oedema. In other words, on the chronic hypertension is superimposed pre-eclamptic toxæmia. The level of blood pressure at which albuminuria appears varies considerably. The average in my last series was 160 mm. Hg systolic, but in one case the blood pressure reached 185/110 without albumin appearing. In another there was no albuminuria though the blood pressure at three antenatal visits was 160/80, 180/90, and 182/116, while in two others it was present when pressures of 134/75 and 140/90 were recorded. These figures are only rough approximations, as the blood pressure in chronic hypertension is exceedingly labile. Thus it may be recorded as 140/90 on the first occasion on which albumin is found at the weekly or fortnightly visit, but that does not necessarily mean that it was at that level when the albumin first appeared in the urine. The experiments of Chesley and Markowitz (1939) suggest that the albuminuria is caused by spasm of the afferent arterioles of the glomeruli. On immersing the hand in cold water for two minutes the blood pressure rises suddenly. If the systolic and diastolic blood pressures rose more than 16 mm. Hg albumin appeared in the urine and its onset coincided with release of the spasm. It is evidently due to the anoxia caused by the spasm injuring the glomerular capillaries. Clinical experience shows that when the blood pressure reaches 160 mm. Hg systolic, albumin usually appears in the urine. At the same time the foetus is apt to die *in utero* from concealed accidental haemorrhage. This is believed to be due to spasm of the spiral arteries of the decidua, causing anoxia and injury of the walls of the vessels distal to the constriction. When the spasm passes off and blood again floods the capillaries their walls give way. It will be recalled that Markee's (1940) observations on endometrial transplants in monkeys show that this spasm and consequent haemorrhage in the mucosa is the immediate cause and precursor of menstruation. That a similar spasm is present in women with pre-eclamptic toxæmia is well known, for it is visible in the retina arterioles when the systolic blood pressure exceeds 150 mm.

The appearance of albumin in the urine in the patient with chronic hypertension is of very serious significance for the foetus. In my last series it developed in 14.9%. Among these the foetal and neonatal mortality was 17.8%. If the above conception of the cause of the albuminuria is correct it will be evident that the albuminuria is not itself the cause of the foetal death, nor is the death due to any toxic substance retained by the injured kidney. The albuminuria is associated with the foetal death because both are due to the same cause—that is, vascular spasm which in the kidney causes albuminuria and in the uterus causes concealed haemorrhage.

In normal pregnancy pre-eclamptic toxæmia with hypertension and albuminuria develop in only about 1% of cases. In my last series of cases of chronic hypertension it developed in 14.9%, and in the first series reported with

Miss Dodds in 1942 in 17.9%. If the view is correct that albuminuria is the result of raised blood pressure and vascular spasm, the question that has to be answered is: Why does the blood pressure tend to rise still further in such a large percentage of patients who start their pregnancy with chronic hypertension? The solution of this question would throw much light on the cause of the rise of blood pressure in pre-eclamptic toxæmia, but at present we do not know the answer.

### Treatment

#### The Question of Terminating Pregnancy

In the more severe cases the question of terminating the pregnancy will arise. This should be done if at the beginning of pregnancy the tests of kidney function show decided deficiency or if there is well-marked retinal arteriosclerosis, exudates, or papilloedema, or persistent albuminuria. My experience shows that, even though renal function tests fail to show any definite failure to excrete or concentrate, and even though there are not any fundal changes, if before the 20th week there is persistent albuminuria it is not worth while continuing, for intrauterine death will almost certainly occur.

When in the more severe degrees of hypertension in early pregnancy there is difficulty in deciding whether the pregnancy should be continued the reaction to rest will be a valuable guide. This involves admission to hospital for a week or more, with daily records of blood pressure. If the blood pressure falls to normal or near normal levels the outlook with proper supervision is good. If, on the other hand, it remains at 150/100 or over the outlook is doubtful, and the decision as to whether the pregnancy should be allowed to continue may well rest with the woman and her husband. If it is allowed to continue very strict supervision throughout the entire pregnancy, preferably in hospital, will be necessary.

In patients in whom the results of these various tests are satisfactory the pregnancy may be allowed to continue. From the start of the pregnancy periods of rest should be enjoined, and the duration of these should increase as pregnancy progresses. Exacerbation of the hypertension is as a rule not likely to occur before the 25th week, but after that time the patient should be watched very carefully. The usual monthly visit is not enough. Even though all is going well she should be seen at least once a fortnight, and in the more severe cases once a week. Should the blood pressure rise to 150 mm. systolic she should be put to bed, preferably in hospital, and kept there for at least a week. When this is done the blood pressure usually falls to a safe level, and she may be allowed up about the ward and even out of doors. But it is rarely, if ever, safe to allow her home once this dangerous exacerbation has occurred. It is of the utmost importance to remember that the "critical level" of blood pressure is 160 mm. systolic, and that above that level albuminuria is apt to occur and the foetus to perish *in utero*. All our efforts must therefore be directed to keeping the blood pressure below this critical level, and for this purpose we have at present no better remedy than rest in bed, with a mild sedative at night such as 5-10 gr. (0.32-0.65 g.) of "carbromal." There is no need for any special diet restrictions, and a low-protein diet is unnecessary. Should pre-eclamptic toxæmia supervene with albuminuria and oedema, restriction of salt and fluid will be advisable.

In patients whose blood pressure is at a dangerously high level and does not respond to these simple measures potassium thiocyanate has been advised. I have used it in only two cases, and in neither did it seem to be of much value. In one the foetus died *in utero* at 23 weeks. The details of the other case are as follows:

Mrs. A., aged 32, had had one previous pregnancy that ended in abortion at four months. She first came under observation at 16 weeks, when her blood pressure was 198/120. Her father had died of heart disease and her mother of a stroke. Her highest blood urea was 30 mg. per 100 ml.; urea clearance, 56.45%; urea concentration, 1.25%; there was no albuminuria or any evident fundal changes. She was seen by Dr. Kenneth Harris, and under his supervision in the medical wards was treated with potassium thiocyanate. In due course, and when her pregnancy had reached 33 weeks, he wrote as follows: "Initially the B.P. showed improvement with potassium thiocyanate treatment (relief of headaches and lowering of B.P.), but now her B.P. has gone up in spite of continued drug treatment. I would recommend termination unless (a) her kidney function tests are all normal; (b) her B.P. falls appreciably in the next week." At 34 weeks retinal exudates appeared, and as the foetus was still alive caesarean section was done and a viable child obtained, which survived and is now well. It is of interest to note in passing that six months after delivery this patient's blood pressure is 210/120; there is no albumin in the urine and her fundus oculi has cleared up, so that she does not seem to be any worse.

With such simple measures as I have outlined the great majority of women with chronic hypertension go to term without any trouble and are delivered spontaneously of living healthy children. This is especially true of those whose blood pressure at the start of pregnancy is below 150/100. If, however, at any time papilloedema, with or without retinal exudates, develops, the pregnancy must be terminated at once; but if these develop late in pregnancy there is no need to sterilize unless the patient has all the children she wants or the hypertension is so pronounced that it seems unlikely that she will ever be able to bear a living child.

#### Method of Delivery

If there is no serious exacerbation and pre-eclamptic toxæmia does not supervene a natural delivery may be allowed at term. If a "breakdown" occurs, however, the case is different. Once albuminuria develops there is great danger of intrauterine death, and it may be advisable to terminate the pregnancy as soon as the foetus is viable. This should, if possible, be delayed until the end of the 37th week, counted from the first day of the last menstrual period. Even then it should be remembered that the foetus is often small, so that at the end of the 37th week it may not weigh more than 4 lb. (1.8 kg.), though the chances of survival seem to depend more on the degree of maturity than on weight. If therefore the pregnancy has reached the end of the 37th week there need be no hesitation in terminating it, though it is of course better to wait longer if it is possible to do so without undue risk of death *in utero*.

The really difficult cases for decision are those in which the pregnancy has reached only the 32nd or 33rd week, and where on account of uncontrollable hypertension with or without albuminuria the foetus is in daily danger of perishing. In such cases we have occasionally tried to gain a few more days by the use of "veratrine" in small repeated doses. This drug certainly lowers the blood pressure, but its action is very transient and the injections need to be repeated every three or four hours day and night, so that it hardly seems worth while, especially as supplies are limited in this country at the present time.

For the delivery of the premature infant caesarean section suggests itself as the easiest and safest method. It saves the infant from all trauma and therefore should in theory be the best method. Local anaesthesia is best, and as soon as the child is delivered its air passages should be cleared of all mucus and foreign material by a mucus extractor, if possible before it takes its first breath, for many of these infants die of inhalational pneumonia. Caesarean



section, however, is not the whole answer to the problem of delivery, and the results are not infrequently disappointing. The infant born by the natural passages seems to gain something that it loses by caesarean section. This is probably because, while respiration is inhibited by the higher centres during the last months of intrauterine life, the inhibition is slowly released by the slight asphyxia that occurs during natural labour, with the result that after birth the child breathes better than one born by caesarean section, in whom this stimulus is lacking. For this reason there is an increasing tendency at the present time to deliver more of these infants by induction of premature labour, using the rubber bougie or stomach tube so that the membranes may be intact as long as possible. It must be remembered that on account of the softness of the cranial vault and the delicacy of the cerebral vessels the premature infant is particularly apt to sustain a fatal cerebral haemorrhage during delivery. The slightest asphyxia, with resultant congestion of the cerebral veins, may lead to a haemorrhage into the lateral ventricles from the choroid plexus. A wide episiotomy so as to prevent delay of the head on the perineum and compression by the vulval ring may be a life-saving measure, and if there is delay on the perineum the application of forceps is advisable, but they must be applied laterally with the blades over the ears.

### Prognosis

#### The Child

In our combined series the foetal loss was 9.2%. In the series recently reported by Chesley and Annitto (1947) it was 38.2%. The difference is certainly accounted for by the less rigid standard of hypertension adopted by them. The outlook for the child bears a definite relation to the height of the blood pressure at the start of pregnancy. Of the patients whose blood pressure at the start of pregnancy was 150/100 or over the foetal mortality was 63.6%. One may therefore say that, speaking generally, if the patient starts her pregnancy with a blood pressure of 150/100 or over there is only a 30% chance of her bearing a viable child. There are, however, not infrequent exceptions to this rule, and cases occasionally occur in which the blood pressure is 180 or over at the beginning of pregnancy or before it and yet the pregnancy is uneventful and successful. An example of this is Mrs. D., referred to later. One of the most puzzling questions in these cases is to distinguish at the beginning of pregnancy which patient will do badly and which well. I am not here speaking of the cases of malignant hypertension with badly involved kidney, papilloedema, and retinal exudates, or persistent albuminuria, which always do badly and should be terminated as soon as possible, but of the case of mild or moderate degree in which there are no other abnormal signs except the hypertension itself. Why does one of these cases do badly and another do well? Why in one such case does the blood pressure rise dangerously, albumin appear in the urine, and the foetus die *in utero*, while in another apparently equally severe at the beginning of the pregnancy all goes well, the blood pressure never rises, there is no albuminuria, and a living child is born at term? It might be supposed that the two are different in nature, that the case that does badly is really an example of occult or latent chronic nephritis that lights up during the pregnancy. I do not believe that this is the explanation, for I have followed some of these patients for years. If they were examples of occult nephritis surely in the course of ten or twelve years the nephritis would have advanced sufficiently to become clinically manifest, with persistent albuminuria, yet it does not seem to do so. One example of a patient whose course I have followed for 14 years will illustrate this point.

Mrs. M. first came under our observation in 1933 when she aborted at 20 weeks. She was then aged 33 and there had been three previous pregnancies. The first had ended in eclampsia in 1927, the second and third had ended at seven months, and of these three pregnancies there had been no living child. In her fifth pregnancy she was first seen at the 12th week. Her blood pressure was 142/84; there was no albuminuria; the haemoglobin was 75.1%, the blood urea 22 mg. per 100 ml., and the urea clearance 67%. She was admitted to hospital with a diagnosis of "recurrent toxæmia," as it was believed that the underlying cause of the recurrence was chronic hypertension. She was kept in hospital until delivery. At 23 weeks the blood pressure fell to 110/75 and remained normal till the 30th week, when in spite of rest and care it began to rise until at 33 weeks it reached 168/118. Three days later albumin appeared in the urine and persisted till the end of the 36th week, when the membranes ruptured spontaneously. Caesarean section was done one week later and a living child weighing 4 lb. 4 oz. (1.9 kg.) was born; it survived, and is now 9 years old and well. After delivery the mother's blood pressure fell and on discharge from hospital it was 126/72, but there was still a trace of albumin in the urine. Nine months later the blood pressure was 150/90 and the albumin had disappeared. In November, 1946—eight years after delivery—her blood pressure is 162/98 and there is still no albuminuria. The absence of albumin after all these years shows, I think, that hers is not a case of latent chronic glomerular nephritis (occult nephritis). The case of Mrs. D. (see below) lends support to this view.

In every case in which the foetus died *in utero* the blood pressure had not fallen in the second three months. On the other hand all patients in whom the blood pressure fell in the second three months gave birth to living children. This point may therefore have some prognostic value. Chesley and Annitto state that if a rise of blood pressure occurs in the second three months it is ominous for the foetus.

#### The Mother

**Immediate Prognosis.**—In the first series of 222 cases reported in 1942 by Miss Dodds and myself there were only two deaths. In the new series of 194 cases there were also two deaths, and neither could be attributed to the hypertension. One was due to ileus following caesarean section for fibroids, and another to pulmonary embolism. With exacerbation of blood pressure there is a special danger of ante-partum haemorrhage, eclampsia, and cerebral haemorrhage. In Chesley and Annitto's (1947) series of 218 patients the incidence of eclampsia was exactly the same as in all patients, and the incidence of pre-eclampsia toxæmia was increased seven times.

**Remote Prognosis.**—The question at once arises: Is the woman who has chronic hypertension made any worse by pregnancy? Is her expectation of life shortened? In 1939 Gladys H. Dodds and I published the late results of 65 chronic hypertensive women who had gone through 16 pregnancies and had been followed up for periods up to twelve years. We wrote as follows: "Judged by the general condition, height of blood pressure, and cardiac changes the pregnancy did not seem to have any ill effect in 52 of the 65 patients. In seven the effect of the pregnancy was unknown: six are dead (9.2%). . . . In spite of these few fatal cases we believe that the large majority of women with simple hypertension may pass through several pregnancies, go to term, and give birth to live infants without suffering any demonstrable deterioration in their condition." One example in illustration may be given.

**Mrs. D.**—This patient's first pregnancy had been terminated 22 weeks at another hospital on account of albuminuria. She first came under our care in 1931 in her second pregnancy when chronic hypertension was diagnosed. The highest recorded blood pressure was 164/80 and she was delivered of a macerated foetus. In the follow-up her blood pressure

four weeks after delivery was 180/110, and at five months post partum it was still 180/110, with no albuminuria. She then became pregnant for the third time, and at eight weeks her blood pressure was 164/106. Now this patient has been observed by us in five subsequent pregnancies. She has produced five living children, the last, which weighed 8½ lb. (3.85 kg.), in 1945. Eight weeks after the birth of this last child her blood pressure was 132/90 and in July, 1946—that is, one and a half years after the last child—it was 126/70. There is no albumin in the urine, the fundus oculi is normal, and kidney function tests are constantly within normal range. It is remarkable that in the first two pregnancies under our care the blood pressure remained elevated during the whole of the time. In the remaining three it fell to normal or subnormal levels in the middle months, usually but not always with a tendency to rise again towards the end of pregnancy.

I do not wish to claim that the hypertensive patient is actually benefited by pregnancy, though this case suggests that this may sometimes happen, but at least I can end the survey on a cheerful note. The experience gained by a further follow-up during and since the war confirms me in my opinion that pregnancy is not injurious provided the patient survives the immediate risks of the pregnancy itself, which are certainly somewhat greater than in the normal patient. Pregnancy does not seem to cause any permanent aggravation of the hypertension.

In 1945 Josephine Barnes and I approached the problem from another angle. We examined the blood pressures of approximately 2,000 women, half of whom were nulliparae and half had borne children. It is obvious that if pregnancy aggravated hypertension the mean blood pressures in the parous women should be significantly higher than in the nulliparae. The results classified in age groups are shown in Table I.

TABLE I.—Showing Mean Blood Pressure in Nulliparous and Parous Women classified in Age Groups

Age Group		Total No. of Cases	Systolic B.P.		Diastolic B.P.	
			Mean	S.D.	Mean	S.D.
10-19	N. P.	82	119.4	11.0	76.3	9.6
	P.	3	109.0	49.6	69.0	4.9
20-29	N. P.	401	119.3	15.7	76.2	11.3
	P.	205	121.8	14.1	77.4	10.8
30-39	N. P.	274	126.9	15.5	78.5	12.3
	P.	364	126.0	15.0	70.0	13.2
40-49	N. P.	105	134.9	19.3	85.0	12.1
	P.	275	134.7	22.3	85.5	13.0
Over 50	N. P.	53	152.7	30.9	91.6	17.0
	P.	191	155.1	30.7	93.2	16.0

N. = nulliparous. P. = parous. S.D. = standard deviation.

Table I shows that there is no significant difference between the mean blood pressures in nulliparous and parous women in any age group. It shows also that the mean blood pressure rises with age, but this applies equally to the parous and the nulliparous woman. Table II shows the same thing

TABLE II.—Showing Percentages of Nulliparous and Parous Women with Blood Pressures over 120/80 and 140/90

Age Group		Total No. of Cases	B.P. over 120/80		B.P. over 140/90	
			No.	%	No.	%
10-19	N. P.	82	23	28.0	0	
	P.	3	1	33.3	0	
20-29	N. P.	401	101	25.2	16	4.0
	P.	208	64	30.7	9	4.3
30-39	N. P.	274	117	42.7	23	8.4
	P.	364	133	36.6	27	7.4
40-49	N. P.	105	61	58.0	20	19.0
	P.	275	162	59.0	55	21.1
Over 50	N. P.	53	38	71.7	21	39.6
	P.	191	151	79.0	91	47.7

N. = nulliparous. P. = parous.

in a different way. Here two different standards of blood pressure are taken—120/80 and 140/90—but there is no significant difference between the numbers of nulliparous and parous women in any of the age groups. It may be remarked that these figures suggest that pre-eclamptic toxæmia and eclampsia do not of themselves cause chronic hypertension, or even cause a latent hypertension to appear at an earlier age than it otherwise would have done. On this optimistic note I may conclude.

### Summary

Chronic hypertension constitutes about 25% of all cases of toxæmia of pregnancy.

It must be differentiated from chronic nephritis and pre-eclamptic toxæmia.

In the chronic hypertensive the blood pressure tends to fall to a normal level in the second three months of pregnancy. It may or may not rise again in the later weeks.

If the systolic blood pressure rises above 160 mm. Hg albumin is likely to appear in the urine and the foetus to die *in utero*. The reasons for these occurrences and the relation between them are discussed.

Except in the more severe cases, with signs of renal involvement, retinal arteriosclerosis, exudates, or papilloedema, there is no need to terminate pregnancy in the early weeks.

If the pregnancy is allowed to continue treatment should aim at keeping the blood pressure below the danger level of 160 mm. Hg. For this the best agent is rest—if necessary in bed.

With careful supervision most patients with chronic hypertension go to term and deliver themselves spontaneously of living infants.

In those patients in whom the pregnancy is allowed to continue the outlook for a successful pregnancy depends chiefly on the height of the blood pressure at the beginning of pregnancy. If it is over 150/100 only about 33% give birth to viable infants.

The incidence of pre-eclamptic toxæmia is about seven times, and of eclampsia ten times, that in women who are normal at the start of pregnancy.

There is no reason to believe that the hypertension is permanently aggravated by the pregnancy.

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Medical men thinking of starting a practice in the more remote areas of the British Empire will be interested in an article (in French) by Dr. Kalbarmatten entitled "The Bush Doctor" which appeared in *Acta Tropica*, 1946, 3, 130. The author worked for six years as a "company doctor" in the Cameroons and Belgian Congo. He precedes a general account of living conditions by a plea that employers should acquaint prospective medical officers with them more accurately than at present. He believes that, though many companies prefer to employ an unmarried man, a wife and home form a very desirable background for the medical man and help to overcome the solitude that is often his lot. He stresses the need for a good all-round education in medicine, surgery, and obstetrics as well as a knowledge of tropical diseases, since the daily rounds leave little time for reading.

# **FURTHER OBSERVATIONS ON THE PRODUCTION OF CANINE HYSTERIA BY FLOUR TREATED WITH NITROGEN TRICHLORIDE (AGENE PROCESS)**

BY

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In an earlier paper (Mellanby, 1946) it was shown that wheaten flour, "improved" by the so-called "agene" process, which involves the treatment by  $\text{NCl}_3$ , produced, when eaten by dogs, the condition known as canine hysteria, or, in the U.S.A., as running fits; untreated flour from the same grist produced no such fits, and when it replaced treated flour in the diet the fits stopped. Reference was made to the earlier work of Wagner and Elvehjem (1944), in which, following up an unpublished observation by Parry, they showed that commercial wheat gluten produced symptoms of hysteria in dogs with great rapidity and intensity. Previously Melnick and Cowgill (1937) had produced convulsive reactions in dogs on diets of high gliadin content. It followed that, if all these observations were true, then the gluten which Wagner and Elvehjem used in their work and the gliadin of Melnick and Cowgill had almost certainly been prepared from agenized flour. As stated in the paper referred to above (Mellanby, 1946), "obviously the next test to be made in regard to canine hysteria was to compare the effects of wheat gluten made from untreated and agenized flour respectively, and this is now being done." These tests had actually been made before the 1946 paper was published, and the results expected had been obtained. A film illustrating the effect of gluten from agenized and untreated flour on the production and cure of canine hysteria was shown at the Ministry of Health on Jan. 20, at Vanderbilt University on April 1, and at the International Physiological Congress in July of this year. It seems desirable to put these facts on record, and the opportunity will also be taken of giving a brief account of one or two other observations in this field.

## **Action of Gluten Prepared from Agenized and Untreated Flour**

In all the experiments described below the flour was agenized to the extent of 8 g. of  $\text{NCl}_3$  to 280 lb. (127 kg.) of flour. This is an ordinary degree of treatment of flour used for human consumption.

In the earlier experiments gluten was prepared by making a dough with flour; the dough was put in muslin, and the starch washed out under cold tap-water. It was soon found that gluten made in this way from agenized flour, when added to the basal diet (see previous paper), produced typical nervous reactions, including epileptiform fits and other symptoms of canine hysteria. The amount of gluten added daily to the diet of the dogs represented about 400 g. of original flour. Under these conditions dogs developed hysteria in about four days. The same amount of gluten prepared from untreated flour of the same grist produced no such fits and, if it were allowed to replace gluten made from agenized flour in the diet of animals with canine hysteria, they recovered. Later it was found that washing the dough with warm water at a temperature of 40–45° C. had certain advantages, such as a great reduction in the time of washing out the starch and a reduction in loss of gluten sticking to the muslin. Gluten produced from untreated flour by the hot-water method, when substituted for that from agenized flour, also cured the affected animal.

It was found that the gluten contained a considerable amount of the original fat of the flour, and, as a technical method of testing whether flour has had the  $\text{NCl}_3$  treatment is by determining the chlorine in the petrol-ether soluble portion (Kent-Jones and Herd, 1930), it seemed possible, in the early days of this work, that the toxic effect of the flour was associated with the fat fraction. Agenized flour was therefore extracted with a solution of equal parts of ether and of alcohol. After removal of the ether and alcohol the soluble concentrate was taken up as a suspension in oil and added to the diet of dogs. It was found that this fat fraction produced no hysteria but that the fat-free flour was as toxic as the original whole flour. It can therefore be deduced from this that the toxicity of the gluten was not associated with its fat content.

Having traced the toxic action of the agenized flour to the gluten fraction of the dough, an effort was then made to see whether the toxicity was associated with the gliadin or with glutelin. Gluten was prepared from treated flour and allowed to stand overnight with 65% alcohol at 37° C. It was then possible to mince the gluten into a granular mass; this was allowed to stand with 65% alcohol at a temperature of 75–80° C. under a reflex condenser for 48 hours. During this period three partial changes of the alcohol were made. After extraction the solution was centrifuged, since filtering was impossible, and the precipitate, insoluble in 65% alcohol, was regarded as predominantly glutelin, whereas the protein in the alcoholic extract was regarded as mostly gliadin. The alcohol was driven off from the gliadin fraction, and the residue was put into a pressure steamer and steamed for one and a half hours, after which it was minced and added to the diets. In the case of the glutelin fraction also the remaining alcohol was driven off and the residue treated in the same way as the gliadin before being added to the diet. The gliadin fraction produced typical hysterical outbursts when added to the diet of dogs, as did the glutelin fraction, but in the latter case the toxicity was definitely less than that of the gliadin. When the gliadin and glutelin fractions were added together to the diet the effect was similar to that produced by a corresponding amount of the original gluten, and severe hysteria and fits developed. It can probably be deduced from this experiment that the toxic substance producing canine hysteria was associated both with the alcohol-soluble (mainly gliadin) and with the alcohol-insoluble (mainly glutelin) fractions, that the gliadin fraction was more powerful in this respect than that of the glutelin, and that the chemical treatment had not destroyed any of the toxic substance. It is possible that the presence of this toxic factor in both fractions may have been due to the incomplete separation of the two proteins, but on the whole it is more probable that both proteins are involved in this chemical reaction.

## **Production of Hysteria in Ferrets by Agenized Flour**

Reference was made in the former paper to the fact that the nervous symptoms had not been seen in rats fed on agenized flour; the same was found to be true for mice, but typical symptoms have been produced in ferrets whether fed on agenized flour itself or on gluten prepared from this flour: fat-extracted agenized flour is as potent as the flour itself, but the extracted fat has no effect. Unagenized flour from the same grists produces no abnormal symptoms, and when fed to affected ferrets the symptoms disappear. In connexion with these hysterical and other nervous outbursts produced in ferrets by this means the following points may be noted:

1. The affected animals are more drowsy than usual and tend to sleep a lot.

2. They are more vicious when handled and bite much more readily than normal animals.
3. Ferrets develop real hysteria in the sense of charging round the cages and running into the cage sides.
4. They develop true epileptiform fits when severely affected.

On the whole, however, ferrets do not appear to be quite so susceptible to these nervous abnormalities as do dogs. On the other hand, they have the advantage that experimental work can be done with much smaller quantities of the toxic agent.

Messrs. Wallace and Tiernan kindly lent the apparatus for agenzizing flour on a laboratory scale. The flour used in most of the experiments reported here was treated in the laboratory, whereas that used in those described in the 1946 paper was done in the mill.

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PERFORATED PEPTIC ULCER

SHORT-TERM VARIATIONS IN FREQUENCY

BY

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In a previous paper (Illingworth, *et al.*, *Journal*, 1944, 2, 517, 655) attention was drawn to certain seasonal, weekly, and daily variations in the frequency of perforated peptic ulcer.

The purpose of the present paper is to examine these short-term variations more fully, to enlarge the data previously given, and to add fresh observations on the influence of meal hours and of physical stress in determining the moment of perforation. The material comprises all cases of perforation treated in the three main Glasgow Hospitals (Royal, Western, and Victoria Infirmaries) during the period 1924-45. The patients are drawn from a heavily populated but geographically small area of the West of Scotland, and the majority are engaged in heavy industry.

In 1938 and again in 1943 we established that the three main hospitals treated 80% of all cases dealt with in the district, and our knowledge of local conditions convinced us that this proportion was a reasonable estimate for the whole period covered by the survey. The exclusion of the remaining 20% of perforations is not likely to be a serious cause of error for the present purpose, because there is no policy of preferential admission to the smaller institutions in certain months, on certain days, or at certain hours.

Results

**Seasonal Variation.**—Perforations occurring in like months were added together and the result is given in Fig. 1. It is seen that the incidence of perforation remains

remarkably uniform during the spring and summer, but falls off strikingly in autumn (August, September, October), and finally reaches a high peak in December. The foci of

chief interest are the transition periods July-August and October-November, together with the December peak.

In order to study these periods more closely we regrouped our cases by calendar weeks (instead of by calendar months), and the result is given in Fig. 2. It will be seen that the incidence of perforation is somewhat high in the first two weeks of July and then begins to fall off to the low level of autumn: the fact that the fall begins in the second half of July is of some interest. July is the popular holiday month in the West of Scotland, and the great majority of the artisan and labouring class are on holiday during the "Glasgow Fair," which lasts for ten days during the second and third or the third and fourth weeks of July. It seems possible that the period of rest may be responsible for a degree of immunity from perforation in the ensuing months. The lowest weekly incidence of perforation has been reached by mid-September, and thereafter the incidence gradually rises till the spring and summer level has been regained by mid-December. Again, the December peak is seen to be due not to a uniformly high incidence throughout the month but to a high incidence in the later weeks: the appearance of a sudden transition to a high incidence at the middle of the month is, however, an artefact attributable to arbitrary grouping in seven-day periods.

The nature of the December peak is better seen in Fig. 3, which shows the number of perforations by individual days from Dec. 1 to Jan. 15 (perforations occurring on like days throughout the 22-year period being added together). It will be seen that there are wide fluctuations from day to day, but the trend as a whole is quite clear—namely, a steady increase throughout the month.

It is worth noting that there is no special peculiarity about the number of perforations in the Christmas-New Year week, and this fact weighs against dietary or alcoholic excesses being responsible for the high incidence of per-

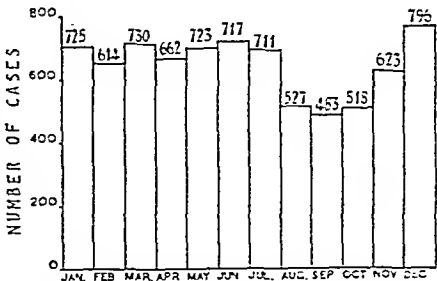


FIG. 1.—Perforated peptic ulcer; incidence by months (1924-45). The chart is adjusted to standard 30-day months; the numerals give the actual cases observed.

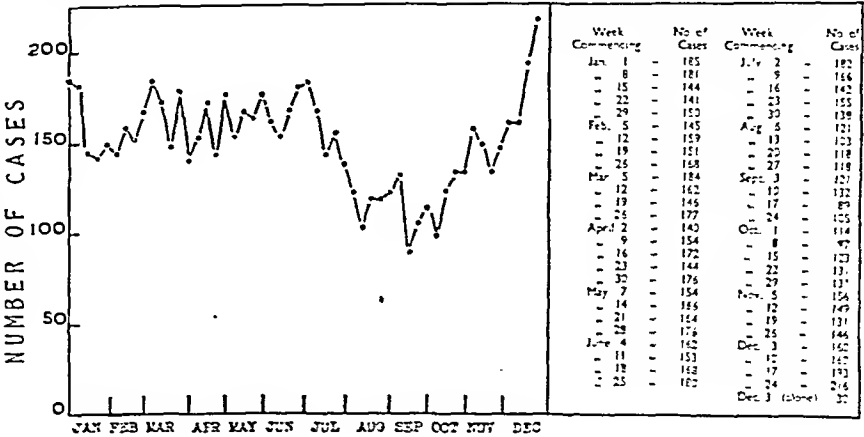


FIG. 2.—Perforated peptic ulcer; incidence by calendar weeks (1924-45)

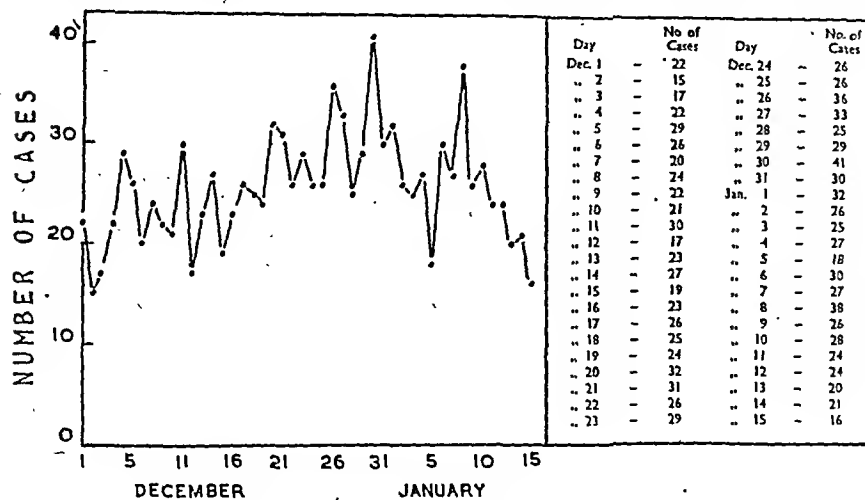


FIG. 3.—Perforated peptic ulcer; incidence by single days (1924-45).

foration. Again, it is perhaps relevant to point out that in Scotland there is more merrymaking at the New Year than at Christmas, and that in the first days of January there is actually a fall in the incidence of perforation from the high level reached by the end of December. We conclude, therefore, that the December peak cannot be attributed to seasonal festivity, but we are unable to suggest an alternative explanation.

**Weekly Variation.**—In our previous report we showed that perforation did not occur with uniform frequency throughout the week, but that there was a deficit of perforations on Sundays and Mondays. It seemed useful to extend this observation (which was based on a sample of patients treated during the war years). We have therefore classified all our patients by the day of the week they were admitted to hospital, and perforations admitted on like days throughout the 22-year period have been added together. The result is given in Fig. 4. The suggestion that there is a deficit of perforations on Sundays and Mondays is fully borne out by this large series, and moreover it is seen that there is a fairly steady increase in perforations towards the end of the week. This finding seems to be compatible with the suggestion previously offered, that rest of the week-end might be responsible for a measure of immunity from perforation in the ensuing days.

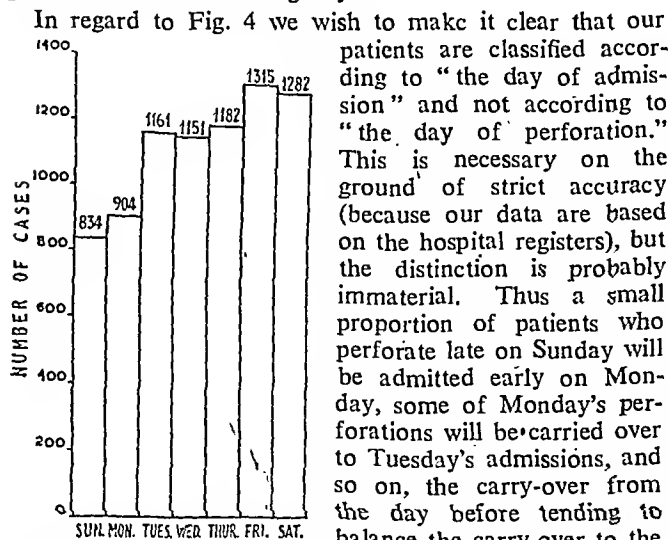


FIG. 4.—Perforated peptic ulcer; incidence by days of week.

In regard to Fig. 4 we wish to make it clear that our patients are classified according to "the day of admission" and not according to "the day of perforation." This is necessary on the ground of strict accuracy (because our data are based on the hospital registers), but the distinction is probably immaterial. Thus a small proportion of patients who perforate late on Sunday will be admitted early on Monday, some of Monday's perforations will be carried over to Tuesday's admissions, and so on, the carry-over from the day before tending to balance the carry-over to the day after. The possibility that there might be greater

delay in admission at the week-end than during the week was excluded by examining a sample of patients (Western Infirmary, 1938-45): the intervals between perforation and operation were in close agreement.

**Daily Variation.**—Perforation does not take place with uniform frequency throughout the day, as we were able to show previously with a sample of some 900 patients. We have extended the observation to a larger series comprising all patients treated at the Western Infirmary during the period 1938-45. It is relevant at this point to state that the perforation of a peptic ulcer occurs with such dramatic suddenness and is accompanied by such intense pain that there is generally little difficulty in determining the precise time of onset.

Of 1,348 perforations the time of perforation was recorded in 1,169 (Fig. 5). It will be seen that perforation is rare during the night, gradually increases in frequency during the morning, reaches a peak in the middle of the afternoon

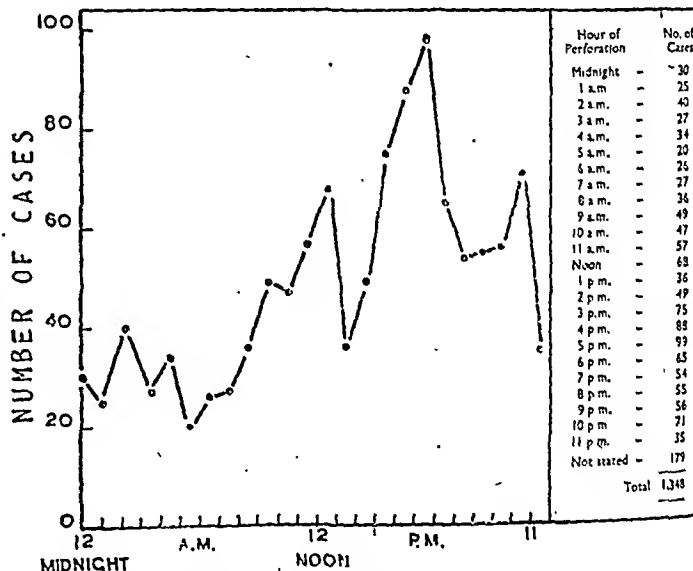


FIG. 5.—Perforated peptic ulcer; hour of perforation.

and again diminishes in frequency during the evening. It is noteworthy that the frequency is greatest towards the end of the working day and is lowest during the period of rest. This may be compared with the low incidence after the summer holiday period and the week-end rest.

In addition to the influence of rest on the daily variation in frequency two other factors merit inquiry: these are the influence of meal-hours and of physical stress. These factors were inquired into during the interview of 537 patients who had previously suffered perforation (Western Infirmary patients treated during the period 1938-45).

The relation of the moment of perforation to the time of the last meal is given in Fig. 6. It will be seen that perforation was most frequent between two and three hours.

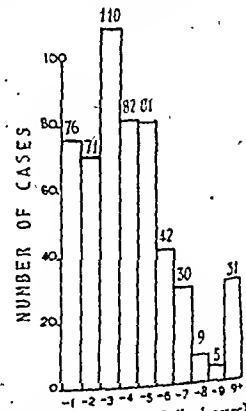


FIG. 6.—Interval (in hours) between perforation and last meal.



after a meal. Some such relationship is, however, a natural consequence of the fact that the peak incidence of perforation is in the middle of the afternoon and that the majority of patients have dinner at noon. A better idea of the relationship between perforation and the last meal is obtained by considering separately those patients who perforated (a) between 6 a.m. and noon, (b) between noon and 6 p.m., and (c) between 6 p.m. and midnight. These groups are represented in Fig. 7, where it will be seen that there

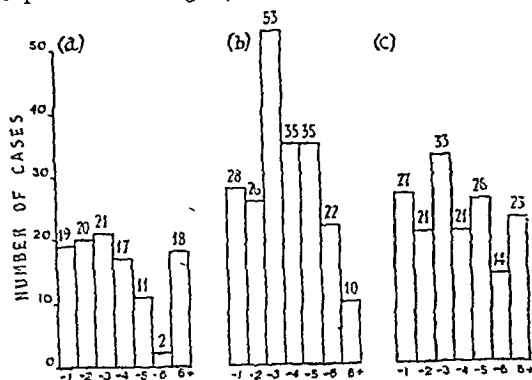


FIG. 7.—Number of hours between perforation and last meal in patients perforating between (a) 6 a.m. and noon; (b) noon and 6 p.m.; (c) 6 p.m. and midnight.

is no correspondence among them as regards a peak incidence related to the preceding meal. We concluded that there was no evidence to suggest that perforation occurs at any particular phase of digestion.

Finally we investigated the possibility that perforation might be precipitated by strenuous bodily exertion. We were able to ascertain what the patients were doing at the precise moment of perforation in 504 cases, thus:

No strain (364 cases):			
Standing ..	92	Sleeping ..	42
Sitting ..	69	Washing, shaving ..	16
Walking ..	80	Kneeling ..	2
Lying awake ..	43		
Strain doubtful or mild (98 cases):			
Stooping ..	27	Eating ..	16
Crouching ..	3	Drinking ..	16
Act of sitting ..	8	Turning in bed ..	5
Act of rising ..	11	Having barium meal ..	1
Stretching up ..	11		
Straining (42 cases):			
Pushing, pulling, carrying, hammering ..	30	Playing football ..	1
At stool ..	6	Jumping ..	1
Coughing ..	1	Leaning on stomach to ease pain ..	3

From the foregoing it is clear that severe exertion plays little part in precipitating perforation. Indeed, there is a strong impression, especially on reading the detailed records, that the patients were engaged in all the normal activities of daily life when the pain of perforation struck them.

### Summary

Attention is drawn to the short-term variations in frequency of perforated peptic ulcer as seen in a large series of cases treated in Glasgow hospitals in the period 1924-45.

1. Perforations are relatively uncommon in August, September, and October, and unduly common in December. The beginning of the autumn fall corresponds with the local holiday period at the end of July, and may be due to the period of rest. The December peak is not due to over-indulgence at the Christmas period.

2. Perforations are relatively uncommon on Sundays and Mondays, and become more common towards the end of the week. This may be related to rest at the week-end.

3. Perforations are uncommon during the night. The frequency of perforation increases towards the end of the morning, drops in the early afternoon, and again increases notably towards the end of the afternoon. These changes may well be related to periods of rest and fatigue.

4. No evidence was found that perforation was related to the phase of digestion or occurred during strenuous bodily exertion.

## SOME CLINICAL OBSERVATIONS ON THE PRESENT OUTBREAK OF ACUTE POLIOMYELITIS

BY

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When many cases of poliomyelitis are occurring, as in the present epidemic, a varied clinical picture is presented. Confusion may arise because, with emphasis on damage to the cranial nerves, other forms of meningo-encephalitis of unknown aetiology may be simulated. The percentage of bulbar cases varies in different epidemics. In the hospital of which I am medical superintendent we have been struck by the comparatively high percentage of cases showing bulbar involvement as compared with our previous experience of the disease. Had the symptoms remained entirely brain-stem, with drowsiness a marked feature and an absence of pareses or palsies of the usual asymmetrical distribution of poliomyelitis, there would have been justification for believing that intermixed with unmistakable cases of poliomyelitis were examples of a virus meningo-encephalitis, possibly in no way related in its causal agent to poliomyelitis. From a close study of some of our cases, however, there appears to be little doubt that the cases with which we are dealing, with marked meningeal and bulbar inflammation, are in fact cases of true poliomyelitis. In only a small number was there drowsiness at onset, or even during the course of the illness. Clouding of consciousness and confusion, which appeared in a few cases, amounted to no more than the delirium seen in many acute toxic illnesses. With close observation of the progress of the cases and the ultimate finding of paresis and paralysis there was little doubt that the cause of the illness was the poliomyelitis virus.

### Degrees of Attack and Age Incidence

All degrees of attack are experienced, from the case in which there is only a mild transient illness, simulating other minor illnesses such as the common cold, to the most extreme forms of paralysis involving vital centres in the medulla and causing death within a few hours. The encephalitic or bulbar types may be missed in their minor form but for the occurrence of a frank case of poliomyelitis in another member of the family.

The following cases might be quoted as exemplifying variation in degree of attack:

Two cases were admitted from one family—a woman aged 31, and her child aged 4. Had the child's been an isolated case, with no known contacts, much difficulty might have been caused in diagnosis. The child, 12 days before admission, complained of headache and pain in right leg and abdomen and had vomited. On admission temperature was normal and the child was apparently well and active, but there was distinct weakness of the right facial muscles. There was no nuchal rigidity or stiffness of spine, and Kernig's sign was absent. More complete examination, however, showed weakness of the right masseter and right sternomastoid. Cerebrospinal fluid and colloidal gold reaction—no abnormality. Diagnosis was made easier by the admission on the same day of the mother with definite poliomyelitis. She had almost complete flaccid paralysis of both lower limbs and lower part of rectus abdominis. Her symptoms had begun with abdominal pain and backache three days before admission; 24 hours before admission she had

\* EDITOR'S NOTE.—Dr. Kelleher, who has had special experience of poliomyelitis during the present epidemic, has, at a time of great pressure, kindly consented to write this article at very short notice in order to afford some guidance to medical men with less experience. For any incompleteness of presentation editorial exigency must be pleaded.—Ed., B.M.J.

## ACUTE POLIOMYELITIS

headache, chilliness, and weakness of legs. On day of admission headache was severe, vomiting was fairly frequent, and there was considerable pain and rigidity of posterior cervical muscles. Cerebrospinal fluid showed typical changes: increased protein and moderate increase of cells, mainly lymphocytes. The woman was in the seventh month of pregnancy.<sup>1</sup>

This disease should no longer be called "infantile paralysis," because frequently the adult is attacked and the attack, as in this instance, may be more severe than in the child. According to some New York statistics, whereas 40 years ago 85% of the victims were young children or infants, the proportion in more recent cases has dropped to something like 30%.

It would be wrong to deduce age incidence on the basis of the fewer than 70 cases in which poliomyelitis has been confirmed at the Western Hospital during the last two months, but it may be mentioned that 33% of the patients were under 5; 40% between 5 and 15; and 37% over 15. The disease is rare after middle age. The oldest in the present series was a man aged 41, who had a very severe form of the disease involving flaccid quadriplegia and respiratory failure. The youngest was an infant of 8 months. There have been three deaths in the series—one of them the man just mentioned; another a boy of 11, with an attack of the bulbar type and respiratory involvement; and the third an infant, with no extreme paralysis, death resulting probably not from poliomyelitis but from an intercurrent gastro-enteritis, associated at first with feeding difficulties. This child was one of twins, both bottle-fed, the other twin apparently escaping entirely.

## Cranial Nerve Involvement

As an indication of the emphasis on cranial nerve involvement in the present epidemic the following instances may be given:

In a public school of mixed boys and girls there was an outbreak of illness just before the summer holidays. Many children had high temperatures and headache, some sore throat, and vomiting. One girl aged 13 complained of difficulty in swallowing and pain at back of neck. On admission she was found to have weakness of both sternomastoids and general weakness of upper extremities, but no absolute paralysis; lower limbs and trunk muscles not involved.

A boy from the same school was admitted a few days later with bulbar signs and symptoms. He had a right facial paralysis, palate affected, weak sternomastoids, and within a few days developed various other pareses and paralyses involving both upper and lower limbs.

From a residential nursery for children under 5 a nursery trainee aged 17 was admitted on a provisional diagnosis of poliomyelitis. Two days before admission she had headache and some pain at back of eyes; on day before admission she had vomited. She was found to have a slight stiff neck, temperature 100° F. (37.8° C.), persisting for less than 24 hours; no other suggestive signs. Cerebrospinal fluid showed protein within normal limits, an increase in globulin, cells, mostly lymphocytes, 23 per c.mm.

Another young girl from the same school was admitted five days later with a history of 4 days' illness, beginning with sore throat, followed by vomiting, and accompanied by pain in the back and neck and diplopia. Slight left facial paralysis noted prior to admission. Temperature, 102° F. (38.9° C.), persisted for two days. Double facial palsy rapidly developed. Slight pharyngeal symptoms on admission developed almost to complete dysfunction, with considerable collection of mucus. Muscle weakness went on to complete flaccidity of right lower limb and left upper limb, and to a lesser degree right shoulder girdle and left lower limb.

<sup>1</sup> Poliomyelitis in the pregnant woman is not uncommon. One woman admitted to a London hospital this year was almost at full term, and rapidly developed a severe form of poliomyelitis. The child was born alive after caesarean section. The woman died of respiratory and cardiac failure.

From the same institution two other trainees have been admitted with suspicious symptoms, but to date it has been impossible to confirm or exclude the possibility of very mild abortive attacks.

Considering the number of cases in which there have been cranial nerve lesions—in other words, bulbar type of poliomyelitis—it is rather remarkable that we have not had more than eight cases of involvement of respiratory function. Three cases are still being treated in respiratory—an infant of 14 months, a child of 3 years, and a male adult.

## Need for Systematic Examination

A detailed examination for muscle weakness should never be omitted. A group of muscles or a single muscle may be singled out by the disease. Too frequently it happens that diagnosis is made only retrospectively, the child having been allowed to walk about for a week or two after the onset of illness until a limp or drop-foot was noticed, or, being stripped for the bath, his scapula was seen to be winged owing to muscle weakness. Not only are there cases which are obvious through the manifestation of a definite paralysis, even though of minor degree, for long after the onset of the initial symptom or symptoms, but there are others with only what amounts to a weakness or paresis of a muscle group. As these weaknesses may be rapidly recovered from, they may be entirely missed unless a systematic examination is made of every case in which there is a possibility of poliomyelitis, with suggestive onset, history of contacts, possibly even signs of meningeal irritation, pointing to an acute infection involving the central nervous system.

What are the symptoms and signs which may lead to suspicion of poliomyelitis infection, and at what stage after the infection has been contracted do they arise? Experimentally, where a virus has been transmitted to monkeys a period of from 5 to 10 days may elapse before the onset of definite paralytic disease. In the human it is difficult to be certain. Most authorities agree that the period between 7 and 14 or possibly up to 21 days; common it is between 10 and 12 days.

## Prodromal Illness

Initially the symptoms may in no way indicate a specific infectious disease of this nature. Those who have had the opportunity of observing large epidemics and studying family contacts have noticed an initial period of illness which may be described as prodromal or precursory, appearing within one to four days after exposure. Symptoms may be fever, general weakness, malaise, sore throat, diarrhoea, and general pains. Few practitioners in the absence of avowed cases in the neighbourhood or family would associate such a group of symptoms with the onset of poliomyelitis attack. Certain American observers<sup>1</sup> who have studied family and school contacts over a period after exposure and have based their diagnosis of an abortive "sub-clinical" attack on raised temperature, state that 22 children who had had intimate contacts with 14 had a febrile illness between 14 and 25 days after exposure. One of these 14 had frank poliomyelitis with paralytic paralysis; 2 had frank poliomyelitis without paralysis but with stiff neck, etc.; 4 had fever and mild symptoms but without stiff neck, stiff back, or paralysis; and the other 7, although they had axillary temperatures of 98.8 to 99.8° F. (37.1–37.7° C.), seemed to have no symptoms.

Measures to be taken in such cases are the isolation of the most intimate child contacts over a period of 5 to 10 days after exposure, and the taking of temperatures daily.

<sup>1</sup> Casey et al. "Sub-clinical Poliomyelitis," *Amer. J. Dis. Child.* 1946, 72, 661.

during that period. The determination of cerebrospinal fluid protein for 3 to 5 weeks after the onset of the fever is also recommended in suspected cases.

### The Pre-paralytic Phase

The prodromal illness may not be noted in every case in which poliomyelitis arises in a clinical form, and the case may proceed to the stage at which frank meningeal signs and symptoms are apparent, and these may be followed by paralysis. In this pre-paralytic phase of the disease, or in what may be called, in the cases in which paralysis does not afterwards develop, the meningitic or abortive form of poliomyelitis, the symptoms are usually considerable pyrexia, headache, vomiting, irritability, pain in the posterior cervical muscles, and, not uncommonly, exaggerated tendon and skin reflexes. Except in those rare instances in which the virus attacks the cells of the cortex, or where the patient is profoundly ill as a result of the attack of the virus on the vital centres in the medulla, the patients are conscious and alert.

In the presence of suggestive symptoms one of the earliest signs of involvement of the central nervous system is nuchal rigidity. This may be elicited in the usual fashion by placing the hand under the occiput and gently attempting flexion of the head; but a proportion of cases in which a minimal degree of nuchal rigidity is present may be missed when the examination is made in that fashion, and I have found it more useful to examine for rigidity in this group of muscles by pressure over the mid-cervical region rather than on the occiput. Occasionally the patient may suffer very little pain even when considerable stretching is caused to these muscles. When asked if it hurts, children more especially may indicate that the back of the thighs or knees is the area in which pain is produced.

In the absence of definite rigidity in the cervical region the patient may be directed to sit up in bed. The degree of weakness or rigidity that may be present—and it is important to remember that spasm of the muscle may also be responsible for dysfunction—may be estimated from the difficulty in performing this act. Where the stiffness is minimal it may be elicited by asking the patient who is sitting up in bed without apparent difficulty to attempt to kiss his bent knees.

A young man admitted to hospital with suspected poliomyelitis had had some of the group of symptoms I have described above as suggestive of the pre-paralytic or meningitic phase. He was a well-developed youth, conscious and alert, and probably a little apprehensive. There was no weakness of muscle or nuchal rigidity. Kernig's sign was absent. All reflexes were markedly exaggerated. On the following day there was slight neck stiffness, Kernig's sign was positive, and the patient could no longer kiss his bent knees in the sitting posture. Twenty-four hours later he was unable to lift his head from the bed as a result of weakness of the sternomastoid muscles, both of which appeared equally affected. The right masseter muscle was also found to be weak. Weakness of the elevators at the shoulders and of the left deltoid and right triceps was later noted. When transferred to the orthopaedic hospital a few weeks later he showed considerable improvement in the affected muscles.

Rigidity of spinal muscles may be marked, and no flexion may be possible. When the patient is raised from the supine position by a hand placed between the scapulae I have noted a sign which may be of value. As he approaches the sitting position considerable tension is thrown upon the hamstring muscles, which are obviously in spasm, and to relieve tension he will flex his knees and incline them to the side. A sign of moderate spinal rigidity may be elicited when the patient, even though able to get himself into the sitting posture, cannot support himself therein and places his hands on the bed behind him—the

so-called tripod position. Spasm of the muscles of the back of the thigh and knee may be shown in varying degrees by the reaction to attempts to elicit Kernig's sign.

Occasionally, even in this pre-paralytic phase of the disease, where there may be no obvious paralysis present, diminished tendon reflexes may be apparent; also there may be flushing of the skin, vasomotor disturbance, and pain and tenderness in certain muscle groups.

### The Paralytic Phase

The paralytic phase of the disease may develop within a few hours of the first symptom. The central nervous system should be systematically examined, bearing in mind minor degrees of involvement. Examination of cranial nerves may reveal a slight facial paralysis, unilateral or bilateral. Nystagmus may be noted, and I have come across a few cases of diplopia in the present series; more rarely there may be a recognizable squint. A not uncommon finding has been weakness of the pharyngeal muscles, with difficulty in swallowing and, with the palate affected, difficulty in phonation, due to some extent to involvement of the orbicularis oris combined with the pharyngeal weakness. Careful watch should be kept for any difficulty in swallowing buccal secretions. Paralysis here may develop rapidly and give rise to much distress and even to partial or complete asphyxiation. Prompt recognition of this complication and its correction by removal of the products either directly or by postural drainage is of great importance. Careful search must be made for any abnormality of respiratory function.

Weakness of sternomastoids is shown not uncommonly in patients with other cranial nerve weaknesses. It may be elicited by asking the patient to turn his head to either side against the resistance of the observer's hand, when weakness may be noted or contraction of the muscle be made visible, especially on comparing one side with the other. The deltoid is one of the most commonly affected muscles. The patient may be quite unable to abduct his arm, or the weakness may be appreciated only by comparison with the other side.

In the determination of the degree of involvement of a group of muscles the suspected limb must first be placed in the neutral position and the patient's power to move the limb when supported in that position be observed. Next the patient's ability to move the limb against gravity may be tested, and finally his ability to move it against resistance from pressure. The movement of elbow and wrist, not forgetting the intrinsic muscles of the hand, should be tested. A limb should not be pronounced free from disability until comparative tests have been made on the opposing limb. A mild degree of weakness of the triceps, for example, may only be elicited by placing the patient's arm in the fully flexed position and then asking him to extend it against resistance. No examination of the upper limb is complete without a test for the power of elevation of the shoulders and for weakness of the pectoral and scapular muscles.

In the lower limb the muscles most commonly involved in paralysis or paresis are the quadriceps and the dorsiflexors of the ankle. Initial tests should be made for gross weakness and then more detailed examination for comparative disabilities. Where the movement is present in all directions it is most important, particularly when estimating the power of dorsiflexion of the foot, to estimate the degree of weakness on resisting movement with various degrees of pressure.

No examination, of course, is complete without attention to the muscles of the trunk, especially the abdominal and spinal. Retention of urine, although very common with

extreme paralysis, particularly when respiratory muscles are involved, may also be met with in cases without extensive paralysis, especially when there is involvement of the lower limbs. The finding of a distended bladder should lead to detailed examination for other signs of poliomyelitis.

The response of tendon reflexes should never be omitted in any complete examination, and valuable information may thus be obtained. The absence of reflexes, although the rule in severely paralysed limbs, does not by any means necessarily imply that serious damage has occurred or will follow. Cases are not rare in which, for example, with a paralysis of one or both upper limbs there may be diminished or absent knee or ankle jerks and yet no sign of muscle weakness in the lower limbs. After a considerable time during which no obvious alteration in power in the legs occurs these reflexes become fully responsive.

The usual tests for muscle function in infants and young children may be difficult, and one may easily be misled into believing that no weakness is present. An alteration in reflex response, either absence or diminution, especially in comparison with the opposite limb, should help to direct attention to a possible weakness which may be found after a patient examination. In infants particularly, by the use of stimuli as in stroking the sole of the foot with a pencil-point, muscle action may be seen, such as flexion of the thigh or dorsiflexion of the foot, where other tests had led one to believe that no function was present.

#### Pseudo-poliomyelitis

The present publicity given to this disease may lead to an occasional case in which some paralysis or paresis may be a manifestation of a hysterical condition.

A male aged 19, on short leave from the Forces, was taken ill with headache and vomiting, and complained of a weak and tired feeling in legs and feet. He also complained of backache and general pains in the limbs. On the day preceding admission he was unable to move his arms and had stiff neck. On admission, four days after onset of initial symptoms, he had a temperature of 99° F. (37.2° C.). He looked remarkably well. There was no trace of neck or back stiffness, he could sit up in bed without difficulty, but he had apparently a profound symmetrical paralysis of both lower limbs; there was no sensory loss; tendon reflexes were normal. There were strong suspicions that the paralysis was of hysterical origin. Improvement at first was slow, but became rapid when arrangements were made for his transfer to a Service hospital, a decision which he received with distaste.

A recent admission was a young man whose illness was ushered in by headache, sore throat, malaise, and, on day of admission, apparent inability to use right leg. He was found to have a marked streptococcal angina and a high temperature; no sign of nuchal rigidity; Kernig's sign absent. Dorsiflexion of right foot was weak. Tendon reflexes were normal. Pseudo-paralysis or paresis was suspected, confirmed by complete recovery of limb on following day.

A very high percentage of cases may prove to be abortive attacks. The American observers already quoted state that perhaps 98% of poliomyelitis is a mild, widespread, highly communicable disease, mainly of young children, leaving no residual paralysis, and the fatality rate is mentioned as not exceeding 0.7%.

#### Prophylaxis

Drugs, sera, and vaccines are of no proved value. There is still a good deal of misconception about the value of a serum, but once the virus has made biological union with the cell it cannot be dissociated by a so-called specific antibody. There is no proof that serum given to patients after onset of symptoms, even preliminary and non-neurological, will prevent the development of paralysis. It is possible that serum given to a contact directly after exposure may be preventive—that is, that the virus may be inactivated

before it has reached the central nervous system, though as the vast majority of contacts escape the disease without any specific therapy it is impossible to judge the value of any method of preventing the disease among those exposed.

Prophylaxis can normally only take the form of avoidance of contacts, discouragement of crowding, avoidance of severe physical strain by contacts, care in the handling of food and its protection from flies, good chlorination of public swimming-pools, and like measures. There is undeniable evidence that recent tonsillectomy and perhaps tooth extraction increase the risk. Operations on ear, nose, and throat, and possibly, in view of the fact that the virus is present in the intestinal tract, gastro-intestinal operations, are better avoided, if this is practicable, during epidemic prevalence. An intact mucous membrane is the best barrier against the entrance of the virus. In two of the patients recently admitted to this hospital, one of whom died with a severe form of bulbar poliomyelitis, and the other had an attack involving the respiratory muscles, teeth had been extracted two or three weeks before the attack, and in another case appendectomy had been performed 12 days before onset.

#### General Treatment

The three essentials of treatment are muscular rest, maintenance of good posture, and re-educational measures for muscles. The treatment of the case in hospital, apart from symptomatic treatment for pain, tenderness, and so forth, is mainly the province of the orthopaedic surgeon. Concentration of cases in a special hospital with facilities for physiotherapy is of prime importance. During the acute stage there should be avoidance of stimuli; action and movement of a limb may set up spasm and pain. Rest, physical and mental, is indicated. Sedatives may be necessary where there is much irritability and pain and tenderness. The patient should lie on a firm mattress under which should be laid a fracture board. I will not here enter upon a discussion as to the value or otherwise of rigid splinting as against the complete absence of splinting practised by the followers of Sister Elizabeth Kenny. Undoubtedly much harm can be done by too rigid splinting, and there is a good deal to be said in support of the management which includes good limb posture with avoidance of rigid splinting; also for passive movements at an early stage after disappearance of pain and tenderness, and carefully graded active exercises under adequate supervision in due course. During the acute stage the limb should be kept at rest in a neutral position, the lower limbs being so placed as to correspond to the normal erect posture, slightly flexed at the knees, and supported by small pads in that position. The management of the upper limbs depends on the degree of involvement. On the question of suitable support and posture so as to prevent movement of the limbs during the painful stage and tension on the affected muscles the opinion of the orthopaedic surgeon should, of course, be obtained. Massage is most usefully employed in cases in which muscles are completely paralysed or where no other treatment is available, but massage is no adequate substitute for passive and active exercises. Electrical treatment is of doubtful value at any stage. Where meningeal symptoms are prominent lumbar puncture may be of value.

#### Treatment of Respiratory Paralysis

The detection of minor degrees of respiratory involvement is sometimes very difficult. Involvement of the diaphragm may be partial, unilateral, or complete. Help in the detection of diaphragmatic weakness may be gained by immobilizing the lower ribs by lateral pressure, in which case the excursion of the epigastrium during downward

movement of the diaphragm may be more easily detected, or an inverse movement of the epigastrium—that is, a sucking in by that area during inspiration—may be noted. In cases of doubt I have found it of assistance to place the patient on his side, the abdominal wall being then in a neutral position, when it is easy to detect lesser degrees of excursion. Relative weaknesses of intercostal movement may be difficult to assess, but it should be recognized that there may be involvement of upper or of lower intercostals only or of all intercostal muscles.

Minor degrees of weakness may not require any accessory mechanical aid. When insufficient pulmonary ventilation occurs, however, respiratory treatment should be instituted, and the earlier the better if the involvement is of any degree. It is remarkable how promptly, if the respiratory treatment is going to do any good, the patient responds to it, falling asleep almost at once. A large number of respirators of the "Both" Nuffield cabinet type are distributed in the country, and this is the type of machine which is likely to be used for these cases. Patients with severe bulbar paralysis, having great respiratory difficulty, inconvenienced by collections of mucus in the pharynx, are extremely bad subjects for respirator treatment; their condition may even be worsened by putting them in respirators. But when paralysis is due to involvement of the phrenic or to a dorsal lesion, causing respectively diaphragmatic or intercostal weakness or paralysis, the respirator is of considerable value. Cases with extreme forms of respiratory paralysis of the spinal type may, of course, be kept alive for long periods in a respirator, but the end-result is often very disappointing. The intercostal muscles in particular seem prone to permanent weakness, and diaphragmatic recovery is often only partial.

The management of the patient in the respirator is a matter of careful detail into which the present space will not allow me to go. Much of it is a matter of highly skilled nursing. When there is complete respiratory failure owing to lesions in the cord the problem may arise, as it has in some of our cases, of keeping the patient alive and conscious during the brief periods when the cabinet is opened for change of bedclothes, skin treatment, catheterization, etc. Some form of accessory artificial respiration has to be provided, and for this the McKesson resuscitator is of value. It rhythmically inflates and deflates the lungs through a face mask closely applied, as in an anaesthetic apparatus, using pure oxygen or a mixture of CO<sub>2</sub> and O<sub>2</sub>. The eventual weaning of the patient from the respirator may be a long and wearisome business, extending over months. When recovery is taking place he is allowed to breathe for gradually increasing periods without respirator aid, but sudden dyspnoea may occur and a rapid return to the machine may be necessary.

#### Statistical Summary

Of the 66 cases on which this article is based the age grouping is as follows:

Ages	Cases	Ages	Cases
0-5	22	26-30	5
6-10	15	31-35	4
11-15	11	36-40	0
16-20	6	41-45	1
21-25	2		

Cases showing disturbance of cranial nerves, 19; nuchal rigidity, 35; inability to sit up, 16; abortive attacks, 9.

Symptoms shown after onset and before paralysis (if any): vomiting, 37; headache, 46; sore throat, 11; catarrhal conditions, 11; rigor and shivering, 7; pain in limbs, 18; backache, 17; constipation, 6 cases.

Unusual manifestations: vertigo, 4; double vision, 3; nystagmus, 3; inequality of pupils, 2; facial paralysis, mostly unilateral, 5; diaphragm affected, 9; intercostal muscles affected, 7; masseter muscle weak or paralysed, 6; sternomastoid, one or both affected, 10; paralysis or paresis of pharynx, 9; retention of urine, 8 cases.

Of 42 cases with paralysis or paresis of limb or limbs: one upper extremity only affected, 9; one lower extremity only affected, 13; upper and lower extremities affected, 8; both upper extremities affected, 6; both lower extremities affected, 6 cases.

## ARTIFICIAL CIRCULATION PRODUCED BY ROCKING

### ITS USE IN DROWNING AND ANAESTHETIC EMERGENCIES

BY

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Valuable lessons can be learnt from the following case of drowning treated by manual rocking. In this method the victim, instead of being rocked on a stretcher resting on a trestle, is supported face downwards on the forearms of two operators, facing each other, who tilt the body 45 degrees each way alternately. This method I have fully described and illustrated in a booklet (Eve, 1946). There I had to admit that this new method was only on trial, because it had been tested in but one case—that of a drowned child, successfully revived but inadequately observed.

#### Case Report

The present case was treated by Mr. A. Akrill, a highly experienced first-aidier and an acute observer who has been most useful to me in working out this manual method of rocking. He tells me that, in the Beverley shipyard where he is employed, a boy of 14 fell into the swollen River Hull (temperature 45° F. (7.2° C.)) on a cold November day in 1946. He soon sank, and his body was dragged out by grapnels 15 to 20 minutes later, 100 yards downstream. Mr. Akrill, with two trained helpers, arrived in two to three minutes and at once started manual rocking. The first head-down tilt drained out water freely, but during rocking the face soon became congested and blue. Schäfer's method was therefore tried—then and for brief periods later. It stopped congestion but proved less effective than rocking for ventilation and in expelling mucus. (A curious feature was that the lower jaw was propped slightly open by the tongue but was rigid till forced open.)

After about 30 minutes of mainly rocking the face changed from cyanosis to a natural pink colour, showing that an artificial circulation of oxygenated blood had been created. The boy seemed warmer too, necessitating further precautions against heat-loss. Great hopes of success were thereby raised, and after 65 to 70 minutes from the start Dr. W. H. James arrived. He tells me he found the face pale but not cyanosed, the heart inaudible, the pupils widely dilated and inactive, the eyeballs flaccid, and there was no current in the distended jugulars. Hence further efforts were abandoned. The long submersion in such cold water would make recovery highly improbable. Mr. Akrill found that he could be more useful at the head end instead of at the feet—as pictured in my booklet. For there a third man could, by his two thumbs, hold the rubber hot-water bottle to the neck, wipe mucus from the nose frequently, and help rocking with his fingers under the armpits. The boy in his wet clothes would weigh about 7 st. (45 kg.); above 10 st. (63.5 kg.) a rocking stretcher would be needed, and would always be preferable. The new Akrill thigh-grip proved efficient and labour-saving, and also kept the legs straight. These new achievements may mark a mile-



stone in resuscitation. For if rocking can create a circulation in the hopelessly dead it should revive the more newly dead.

I submit that this unexplored aspect of resuscitation may be interpreted in the light of the careful experiments on drowned dogs at Toronto (1939). There the post-mortem examinations showed that the right heart and great veins were invariably engorged with blood and the left ventricle was empty. From this I infer that the final stoppage of the circulation was due to the fatal inability of the right heart to overcome the resistance of the pulmonary capillaries, perhaps increased by their spasm induced by cold. As we shall see later, rocking an adult will produce intermittently a hydrostatic pressure in the pulmonary artery double the normal 35 mm. Hg. Thus during rocking the head-down tilts would force by gravity venous blood from the trunk and legs into the lungs, congesting them further as shown by the pink frothy mucus observed in this case. In the feet-down tilts the overflow blood from the lungs would fill the empty left ventricle and pass on oxygenated to the feet and trunk; the right heart would fill from the head and extended arms. Thus an artificial circulation, shown by pink cheeks, was in fact produced by rocking.

The Toronto investigators also found that in drowned dogs the heart ceased to beat expulsively 11 to 17 seconds after respirations stopped—with auricular-ventricular block. Then the ventricles either fibrillated (incurable), or continued to make little beats or twitches up to 20 minutes (an hour in one dog). Since the head-down tilts produce a strong pressure urging the blood through the coronary arteries it seems reasonable to hope that rocking may induce some of these limping hearts to start pumping again when their muscle is fed—besides overcoming the fatal traffic jam in the lungs. The heart may be restarted so long as it is not overdistended—beyond the limits of Starling's law. If rocking was impracticable a few brief suspensions by the heels should be very valuable. Alternatively, Dr. A. Tindal (1945) succeeded in restoring pink cheeks to a drowned boy by chest compressions combined with inversion, but it was too late for revival. Sir Leonard Hill showed in dogs that repeated total inversions could maintain circulation. It seems to me that this full range of rocking could be applied with advantage in asphyxia neonatorum. In the Toronto experiments amyl nitrite inhalations saved several dogs in late asphyxia; no other drugs were helpful. This is a valuable hint that spasm of plain muscle, in the coronaries and perhaps in the lungs, contributes to death and that blood must be forced through them by head-down tilts aided by amyl nitrite.

### Hydrostatics of the Stopped Circulation

In an adult with a stationary circulation tilted head-down at an angle of 45 degrees the head of pressure in the pulmonary artery and the aorta for the first few moments will be

$$h \times \sin 45^\circ \times \frac{\text{specific gravity of blood}}{\text{specific gravity of Hg}} \times 25.4 \text{ mm. Hg.}$$

where  $h$  is the length of the column of blood—i.e., the distance between the heels and the lung root. In a subject of height 5 ft. 10 in. (1.78 m.) this distance is 56 in. (1.42 m.), which gives a head of pressure in the pulmonary artery under the above conditions of 78 mm. Hg. In life this pressure averages only 35 mm. Hg (Samson Wright).

Hence the head-down tilts of the rocking method, each lasting four seconds, should be adequate to force blood from the aorta through the coronary circulation, to force blood through the lungs into the left heart (oxygenated), and of course to fill the right heart. The head-up tilts of three seconds each pass on the newly acquired blood, oxygenated, along the aorta and refill the right heart from the reservoir of the extended arms and head. While all

blood currents are thus reversed, the valves in the heart and veins ensure that they all flow in the right direction.

If the patient is held up by the heels the above pressure is increased 43%, though this does not create a circulation. But unless quickly effective it should not be long sustained lest the congested devitalized capillaries in the lungs at head start to leak. And pressures soon diminish because the uppermost blood vessels empty.

### Resuscitation in Anaesthetic Emergencies

Drowning may, I think, be regarded as a swift anaesthesia by anoxia combined with some asphyxia; treatment of emergencies is similar in both. If breathing stops, the anaesthetist can pump oxygen into the lungs by rhythmical pressure on his rubber bag. But if the pulse stops too the heart needs much more help than this, and we have already shown how rocking can aid the circulation or create one artificially. Dr. Gordh (1945), the great Swedish anaesthetist, revives very bad cases by a 30-degrees head-down tilt (to fill the heart) and by giving oxygen. This is excellent, but it is a half-measure. It cannot maintain a circulation, and if prolonged would produce congestions: it does not renew the blood in the brain (essential) nor does it utilize the head and arms to refill the heart.

If, on the evidence now available, anaesthetists wish to avail themselves of the rocking method, the promptest service would be obtained with the 1945 model of the Riley rocking stretcher, made by Messrs. Siebe Gorman, of London, which could hang on the wall of the anaesthetic room. When lifted, the legs of this model drop and lock themselves into a trestle for instant rocking. In a few seconds could be placed in line with the operating table. For persons could then lift the patient his 6-ft. (1.8-m.) journey without bending him. The surgeon would guard the wound manually. Rocking could start at once, face up or down. As in boat-drill, the staff would need occasional practice. Some operating tables are made to rock but would need anti-slipping devices for safety. Ventilation of the lungs by rocking is so ample that oxygen may prove redundant and CO<sub>2</sub> more toxic than useful in late asphyxia; but there is provision in the Riley rocking stretcher to give both if desired. For a stopped circulation rocking may replace the desperate remedy of cardiac massage. In operating theatres in which a technician is employed he would be in his element in adapting local resources to the practical problem of swift resuscitation by rocking—aided by hints from my booklet.

To sum up: resuscitation in severe cases demands artificial circulation as well as artificial respiration: ventilation of the lungs alone may fail even with oxygen. With a newly stopped circulation our conscious aims—though we cannot see them working—are, by prompt rocking, (1) to force the dammed-up venous blood right through the lungs; (2) to force blood through the coronary circulation; (3) to fill both sides of the heart. Thus the stopped heart may be coaxed to pump again and the oxygenated circulation—artificial or restored—may be in time to revive the respiratory centre.

My cordial thanks for help are due to Dr. I. S. Eve, Mr. Hamilton Bailey, and Prof. A. Hemingway.

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## POISONING BY INOCYBE FASTIGIATA

BY

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this country, where the eating of fungi is much less common than on the Continent, outbreaks of poisoning due to fungi, though possibly not uncommon, are rarely reported in the papers. In 1945 three cases came under my care, all from the same household. The fungi were prepared similarly to fried mushrooms and served as a breakfast dish. They were collected by inexperienced mushroom-hunters whose criterion was based on a fallacy that the skin from the cap of the edible fungus peels readily.

## Description of Cases

**Case 1.**—A woman aged 25 had sudden onset of blurred vision occurring about one hour after having fried fungi for breakfast. Perspiration accompanied by profuse salivation rapidly followed the first symptom. She complained of giddiness and profuse sweating. On examination, within fifteen minutes of the onset of the first symptoms, the pupils were not dilated or constricted but were equal in size and had a sluggish reaction to light. There was profuse sweating and lacrimation. The abdomen was rigid, and generalized tenderness was present. The pulse was slow (56) and irregular, the blood pressure 90/50.

**Case 2.**—A man aged 56 first had symptoms one and a half hours after partaking of fungi, with profuse sweating and diarrhoea. No disturbance of vision was noted by the patient. Salivation and lacrimation were profuse. On examination there was profuse sweating, salivation, and lacrimation. The pupils were equal, neither constricted nor dilated, but there was a sluggish reaction to light. The abdomen showed generalized tenderness but no rigidity. The pulse was rapid (96) and regular and the blood pressure 132/90 owing to the presence of many extrasystoles.

**Case 3.**—A man aged 27 had initial symptoms of blurred vision an hour after eating fungi, followed by profuse sweating, lacrimation, and salivation. Slight nausea was noted by the patient. On examination there was profuse sweating. The pupils were equal, with a sluggish reaction to light. The heart rate was 100 and regular and the blood pressure 110/60. The abdomen showed generalized tenderness but no rigidity.

Treatment consisted in the immediate administration of 1/50 gr. (1.3 mg.) of atropine sulphate subcutaneously and gastric lavage until the fluid was returned clear, and 2 oz. (56 g.) of magnesium sulphate was left in the stomach. Within two hours all symptoms of poisoning had disappeared; convalescence was uneventful. Electrocardiograms twenty-four hours after recovery of these cases showed no abnormality beyond the presence of extrasystoles in Case 2.

## Discussion

Broadly speaking, severe symptoms after partaking of poisonous fungi can be divided into two main groups: (1) Those with symptoms appearing after a period of incubation of six to twelve hours, or even longer, when the probability is that the patient has eaten *Amanita phalloides* (death cup, deadly agaric). (2) Those with onset of symptoms within one to two hours after eating fungi: the symptoms are due to muscarine, which is contained in *Amanita muscaria* (fly agaric), *Amanita pantherina*, and many species of *Inocybe*. Owing to the rapid onset of symptoms after partaking of fungi it was thought probable that these victims had eaten fungi rich in muscarine. On inquiry it was found that Case 1 had eaten far more of the fungi than either Case 2 or 3, and her symptoms were correspondingly more severe.

Muscarine (Wright, 1937) acts upon the parasympathetic nerve endings in a similar manner to that of acetylcholine, producing profuse sweating, lacrimation, and bradycardia. These effects are abolished by atropine, which is advised as the specific antidote by Martin-Sans (1933) and Dujarric de la Rivière and Heim (1938) in the treatment of muscarine poisoning.

Similar fungi were collected from the same situation as those which had caused the symptoms, and were identified by the patients. These fungi were sent to Mr. A. A. Pearson, who identified them as *Inocybe fastigiata* (Linn.) Fr. This species of *Inocybe* is recognized by its conical straw-coloured fibrillose cap and olivaceous gills combined with the microscopical characters, which are cylindrical or clavate cells on the gill edge, and bean-shaped smooth spores. The fungus was found in a beech copse growing on chalk downs.

Previous fungus poisonings which have been brought to my notice were cases due to *I. incarnata* (Young, 1925) and *I. patouillardii*. In 1926 Prof. Wiki (Dujarric de la Rivière and Heim, 1938) divided the effects of *Inocybe* into four groups: (1) pronounced muscarine effect (*I. asterospora*, *I. brunnea*, *I. hirsuta*), (2) weak muscarine effect (*I. umbrina*), (3) unstable (*I. jirans*), and (4) without muscarine effect (*I. bongardii*, *I. fastigiata*).

Heim (1931) considers that *I. patouillardii* and *I. fastigiata* have muscarine effects, and this is confirmed by Henry (1931). Loup (1938) shows that *I. fastigiata* is rich in muscarine and that muscarine is stable and is able to remain active in dried specimens for several years. She also points out that Wiki admits a mistake in 1926 when he placed *I. fastigiata* in the group without muscarine effects. In a later work by Wiki and Loup (1938) they place *I. fastigiata* very high in the list of *Inocybe* containing muscarine, 0.2–0.3 g. per kg. being fatal to guinea-pigs; the figures for *I. patouillardii* are 0.2–0.25 g. per kg.

In a very interesting monograph Loup (1938) has examined the poisonous effects of thirty-three varieties of *Inocybe* which are found in Western Europe, and she comes to the conclusion that muscarine is present, in varying amounts, in twenty-two of them. All these twenty-two varieties may cause muscarine poisoning if eaten, but the severity of the symptoms depends upon the amount eaten. Of the three cases described above the most severe symptoms were present in the first, and this patient ate more of the fungi than the others: in the second case symptoms were caused after eating one small-sized fungus. From examination of these cases it is claimed that *I. fastigiata* is capable of causing severe symptoms similar to those of muscarine poisoning.

I am grateful to Mr. A. A. Pearson, of Hindhead, who not only identified the fungus but took great trouble in providing me with the correct references and much literature on this subject.

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The American Type Culture Collection (Georgetown University School of Medicine, 3900, Reservoir Road, N.W., Washington, 7, D.C.) has issued a list of the genera represented in its collection. The publication of a full and revised catalogue will be undertaken when the sixth edition of Bergey's *Manual* appears.

## Reviews

### FOLIC ACID

*Experiences with Folic Acid.* By Tom D. Spies, M.D. (Pp. 110; 34 figures. \$3.75 or 21s.) Chicago: Year Book Publishers. London: H. K. Lewis and Co. 1947.

The synthesis and clinical application of folic acid by Spies and his colleagues is the most important discovery in the field of nutrition in the last decade. Berry and Spies have already reviewed (*Blood*, 1946, 1, 271) the biological aspects of the subject, discussing the history of the development of folic acid and its relation to other vitamins. The present monograph is a description of the clinical investigations of it. Spies tried folic acid in the macrocytic anaemias because, when testing the effect of a folic acid concentrate on the leucocyte equilibrium in malnourished persons, the general clinical improvement was so marked. Moreover, it was known that some megalocytic anaemias which resist treatment by injections of highly purified liver extracts respond to large doses of yeast or liver by mouth, that yeast and liver contain folic acid, and that most of the folic acid in liver is rejected in the process of making liver extract. Most of the patients were treated in Alabama and Havana, where sprue and nutritional macrocytic anaemia are common, and he gives details of the elaborate schedules of investigations, diet, and forms used in the examination of these patients. Over 200 people with pernicious anaemia, sprue, nutritional macrocytic anaemia, macrocytic anaemia of pregnancy, and nutritional leucopenia have been treated with folic acid and have responded satisfactorily.

A tentative hypothesis is that the anti-anaemic factors are connected in some way with nucleic acid synthesis. Folic acid may function as part of an enzyme system, which is disturbed in the various macrocytic anaemias. Liver extract may contain substances capable of liberating folic acid conjugates stored in the body, so that they can act on the cells of the bone marrow. Folic acid checks the diarrhoea of pernicious anaemia and sprue, but it does not prevent or control the neural phenomena of pernicious anaemia. It is of no value in leukaemia, aplastic anaemia, or haemolytic anaemia. This little monograph is well written and produced and beautifully illustrated. It gives a very fair account of the present status of folic acid.

L. J. WITTS.

### CAUSE OF CANCER

*Le Problème Biologique du Cancer.* By Jacques Delarue. (Pp. 200; 31 figures. 300 francs.) Paris: Masson et Cie. 1947.

Like some other post-war French writings on cancer Delarue's book on the biological problem of cancer reveals a close acquaintance with the clinical manifestations of the disease and its morbid anatomy and histology, as well as a notable detachment from contemporary research in the English-speaking countries. Addressed to young doctors and senior students, it begins inauspiciously with a discussion on aetiology and a poor account of experimental cancer. The following chapters, which are of much higher quality, on pathological anatomy and physiology, general clinical characteristics, and choice and results of treatment, are the basis of the most distinctive feature of the book—namely, a long section on pathogenesis. Here Delarue considers many anomalies, familiar and less familiar, in the behaviour of human cancer, and discusses the limitations of the specificity of cell types, an apparently regional rather than strictly local determination of the occurrence and structure of cancers, the unexpectedly bad or good results of various forms of treatment, and the many unexplained peculiarities in the timing, localization, and extent of recurrence and metastasis. His insistence on the numerous features of tumour behaviour which orthodox pathology cannot account for is justified and timely.

Delarue proceeds, more dubiously, to reject what he calls the "cellular concept" of cancer and to substitute a rather nebulous hypothesis of his own. He regards the cellular proliferation of cancer as a reaction to metabolic disturbances in the "milieu interne." Cancer is a local manifestation of a functional disturbance of tissues, which may be regional or general; the local manifestation is determined by carcinogenic agents, which he

compares somewhat vaguely with the "organizers" of embryonic development. The metabolic disturbances persist throughout the course of the disease, and inciting stimuli recur; local extension occurs by progressive transformation of normal into malignant cells; and recurrent and metastatic tumours are new growths originated *in situ* by the concurrent action of the general tissue disturbance and local inciting stimuli.

The argument, though more interesting than a brief summary may suggest, is unconvincing. It stimulates disagreement, tinged, however, with uneasiness about the extent of the field left open to speculation by ignorance of even the more mechanical details of the growth and dissemination of cancers. Students of cancer who disagree with Delarue's interpretation of obscure phenomena might profitably exercise their wits in providing an acceptable alternative.

L. FOULDS.

### LABORATORY MEDICINE

*Recent Advances in Clinical Pathology.* By Various Authors. Produced under the auspices of the European Association of Clinical Pathologists. General Editor, S. C. Dyke, D.M., F.R.C.P. Section Editors: Bacteriology, R. Cruickshank, M.D., F.R.C.P. Biochemistry, E. N. Allott, B.M., B.Ch., F.R.C.P. Haematology and Cytology, B. L. Della Vida, M.D. Histology, A. H. T. Robb-Smith, M.D. (Pp. 468; 34 plates and 19 text figures. 25s.) London: J. and A. Churchill. 1947.

During the long war period no branch of medicine made advances more significant and numerous than did clinical pathology; moreover, for many previous years critical sifting had established the value of a number of unfamiliar methods. The younger pathologists in the Services contributed to these advances, but thousands of miles and interrupted communications separated many of them from the literature. Many of the available reference books are American and, if procurable, expensive. There is thus every need for this collection of recent work sponsored or written by acknowledged authorities, which is in a sense international, since the authors include valued guests from Central Europe. In the main it is the work of pathologists from this country—without doubt the leader in laboratory medicine.

The book, which is fully illustrated, is divided into several sections under the general editorship of S. C. Dyke; R. Cruickshank, E. N. Allott, B. L. Della Vida, and A. H. T. Robb-Smith direct the main subdivisions. Time will further sift the work presented, and some of it will not be of permanent significance. Many may think that aspiration biopsy is of less value than here suggested; some, with this reviewer, that Robb-Smith's classification of lymph-node changes seeks to classify too rigidly an organ which, by virtue of its developmental history, its wide and uncertain function, and its gross range of modification, continues to elude the pigeon-hole. However, this volume will prove to be a worthy member of the distinguished series of "Recent Advances," and no clinical pathologist should be without a copy.

R. J. V. PULVERTAFT.

### TEXTBOOK OF SKIN DISEASES

*Diseases of the Skin.* By James H. Sequeira, M.D., F.R.C.P., F.R.C.S., John T. Ingram, M.D., F.R.C.P., and Reginald T. Brain, M.D., F.R.C.P. Fifth edition. (Pp. 782; 63 coloured plates and 380 text-figures. 63s.) London: J. and A. Churchill. 1947.

To an old-timer the fifth edition of this book revives pleasant memories of the first in 1911, from which the reviewer and his contemporaries derived so much of their early nurture in dermatology. In the revision Dr. Sequeira has been joined by Drs. J. T. Ingram and R. T. Brain, both former pupils of the London Hospital, thus assuring the continuity of design so important in a revision of this kind.

There are, as would be expected, many new additions, for dermatology progresses fast. Skin diseases rarely kill; they disable a man rather than menace his life; their effects are often economic, as in the case of industrial dermatitis—a very important matter in a community such as ours. The two chapters on industrial dermatitis and its medico-legal significance are topical because of the impending changes in the law of compensation. This is one of the new features; among others are the accounts of tropical skin diseases, on which subject Dr. Sequeira's long residence in Kenya has made him an acknow-

ledged authority. A comprehensive section on the virus infections includes accounts of herpes, vaccinia, foot-and-mouth disease, warts, and lymphopathia venerea, for, as the authors point out, many of the established facts on the nature of viruses and their aetiological significance in disease are not generally known. This is a valuable contribution. In earlier editions syphilis was given a prominent place because both in Britain and abroad it was regarded as a branch of dermatology. The modern intensive treatment, necessarily brought into use during the war, and the discovery of the specific action of penicillin may seem to have revived the ideal of a "therapia sterilisans magna." Modern intensive treatment and penicillin can undoubtedly produce remarkable immediate effects. Those who remember the introduction of "606" in 1910-11 may wonder whether history is not repeating itself, and whether we are not once more expecting too much, for if some of the treponemata are left untouched tabes, aortitis, and other late manifestations may eventually develop. On this point the authors agree that at least five years must elapse before we can judge correctly.

Reviewers sometimes have a crack at some fad or whimsy of the author's, but the writer has no disposition to exercise this supposed privilege, for there are no grounds for doing so. We should draw attention particularly to the sections on vitamins, on endocrine affections of the skin, and especially to Appendix III, where the principles of physiotherapy are discussed. In 1898 France's greatest dermatologist, Louis Brocq, published his *Traitement des Dermatoses*, in which he described the minor surgery of the skin and the use of physical agents, including x-rays. Fifty years later the practitioner can again learn in detail from a reliable source the methods of treatment by diathermy, freezing with CO<sub>2</sub>, electrolysis, and radiations. This is an outstanding textbook.

HENRY MACCORMAC.

### A STUDENTS' HANDBOOK

*Diseases of the Heart and Kidney. A Handbook of Clinical Medicine.* Vol. I. By J. C. Banerjee, M.B., and P. K. Chatterjee, M.B. (Pp. 184; illustrated. Rs. 8.) Calcutta: U. N. Dhur and Sons. 1947.

This book is apparently the first volume of a handbook of clinical medicine. It is difficult to judge its value, for it is intended to be only an outline of the subjects of which it treats, and it is written in a condensed and tabular style which, though apt to irritate the advanced reader, is still demanded by a certain type of student who wants his subject-matter presented in a form easy to assimilate and reproduce for the purposes of examination. Regarding it in that light we may say that on the whole the information is concise, accurate, and up to date. The book's main defect is that it teaches fact rather than principle. Written, printed, and published in India, it will be largely read by Indian students, and, since most of them work under the handicap of having to learn in a language in which they have not been accustomed to do their thinking, there is more use for this kind of textbook there than in Britain.

The fact that we do not agree with the authors' classification of nephritis must be tempered by the admission that their description is essentially that found in most current textbooks of medicine. There is of course no pretence to originality in a book of this kind, and the authors cannot be blamed for not acknowledging the sources of their information. Individual paragraphs, and indeed chapters, could be criticized more seriously, but in brief we consider that the book will fulfil a need in Indian medical schools. The production is hardly elegant, but in view of difficulties of obtaining accurate English printing in India it is commendably free from misprints.

ROBERT PLATT.

*Lippincott's Quick Reference Book for Medicine and Surgery*, by George E. Rehberger, has now reached a thirteenth edition (Philadelphia and London: J. B. Lippincott Co.; 90s.). Like its predecessors this edition keeps in mind the clinical problems of the general practitioner. There are 1,461 pages of text printed in double columns, and many of the illustrations are in colour. Each of the eleven sections is arranged alphabetically and the index alone occupies 42 closely printed pages. The sections on obstetrics, the skin, eye, ear, nose, and throat have been rewritten, and like the other sections they include every possible detail of history-taking, investigation, and treatment.

### BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

*Survey and Field Treatment of Malaria in Mauritius.* By George Sippe, M.B., B.S., and May Twining, O.B.E., M.R.C.S., L.R.C.P., D.P.H. (Pp. 76. 25s. or Rs. 16.67.) Published on behalf of the Government of Mauritius by the Crown Agents for the Colonies. London: 1946.

An account of the distribution, effects, and treatment of malaria in Mauritius; with photographs.

*A General Course in Hygiene.* By A. E. Ikin, LL.D., and G. E. Oates, M.D. 3rd ed. revised by H. A. Nathan, M.R.C.S., L.R.C.P., D.P.H., M.R.San.I. (Pp. 404. 6s. 6d.) London: University Tutorial Press. 1947.

An introduction to hygiene intended primarily for medical students, sanitary inspectors, and health visitors.

*Certified.* By H. G. Woodley. (Pp. 224. 9s. 6d.) London: Gollancz. 1947.

An autobiography of a man confined to a mental asylum for a year.

*England's Green and Pleasant Land.* By J. W. Robertson-Scott. 3rd ed. (Pp. 183. 1s.) Harmondsworth, Middlesex: Penguin Books. 1947.

A collection of essays on various aspects of the countryside.

*Duncan of Liverpool.* By W. M. Frazer, O.B.E. M.D., M.Sc. D.P.H. (Pp. 163. 8s. 6d.) London: Hamish Hamilton 1947.

A short biography with illustrations commemorating the centenary of the appointment of the first medical officer of health.

*Nurse-Patient Relationships in Psychiatry.* By Helena Willis Render, R.N. (Pp. 346. 15s.) New York and London: McGraw-Hill Book Company. 1947.

Discusses the correct approach to the psychiatric patient, special problems of nursing, and the use of art in therapy.

*Pharmakologie.* By K. O. Möller. (Pp. 744. 48 Swiss francs.) Basle: Benno Schwabe and Co. 1947.

A textbook of pharmacology.

*The Integrative Action of the Nervous System.* By Sir Charles Sherrington, O.M. (Pp. 433. 25s.) Cambridge: University Press 1947.

This edition contains a full bibliography of the author's writings and a new preface.

*Diseases of the Gallbladder and Allied Structures.* By M. Behrend, M.D., F.A.C.S., F.I.C.S. (Pp. 290. \$7.00.) Philadelphia: F. A. Davis Company. 1947.

A profusely illustrated account of the gall-bladder, its diseases and the treatment of them.

*Diseases of the Chest.* By A. R. Judd, M.A., M.D., F.A.C.S. (Pp. 608. \$9.00.) Philadelphia: F. A. Davis Company. 1947.

A manual of chest diseases intended for the medical student and medical practitioner.

*A Practical Textbook of Leprosy.* By R. G. Cochrane, M.D., F.R.C.P., D.T.M.&H. (Pp. 283. 42s.) London: Geoffrey Cumberlege. Oxford University Press. 1947.

An account of the disease, its treatment and control, intended for the general practitioner as well as the specialist.

*Heredity and Variation in Microorganisms.* Cold Spring Harbor Symposia on Quantitative Biology. Vol. XI. (Pp. 314. \$6.00.) Cold Spring Harbor, L.I., New York: The Biological Laboratory. 1946.

Topics discussed include induced mutation in bacteria and fungi, the study of viruses in the infected cell, and cancer causation.

*If Your Child is Deaf.* By Irene R. Ewing, O.B.E., M.Sc., D.C.L., and Alex W. Ewing, M.A., Ph.D. (Pp. 15. No price.) London: The Deaf Children's Society. 1947.

A pamphlet of practical advice for parents with deaf children.

*The 1946 Year Book of Neurology, Psychiatry and Neurosurgery* (Pp. 732. 21s.) London: H. K. Lewis. 1947.

A summary of recent advances.

## BRITISH MEDICAL JOURNAL

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## THE END OF THE I.M.S.

At midnight on Thursday, Aug. 14, 1947, in common with the other great administrative Services of the Crown in India, the Indian Medical Service ceased to exist, and a period was thereby put to an association extending over 335 years, to a notable chapter of medical history, and to a Service which was unique in tradition and composition. Elsewhere in this issue (p. 309) Sir Alexander Hood pays tribute to its officers, past and present.

The Indian Medical Service had its beginnings in 1600, when there were barber-surgeons appointed to the four ships sent to the Indies by the Company of Merchant Adventurers; but it was fourteen years later, with the formation of the East India Company into a joint stock business, and with the appointment of John Woodall as its first "Chirurgion Generall," that the actual birth of the Service took place, and there began a connexion with the Company and, later, the Crown which has continued unbroken until the present month. In the earliest days these surgeons and surgeons' mates were charged with the medical care of the merchants and the staffs of the Company's factories, the ships' complements of the Company's vessels, and the native levies which were raised. Soon they established more or less flourishing practices among the surrounding Indian population. The progressive expansion of the East India Company produced a proportionate increase of these medical appointments and an increasing need for their organization, and in 1764 there were established the medical services of the three Presidencies. After a period in which these services were split into independent civil and military components the dual character of the Service was restored in 1773 and has remained inviolate, if not unassailed, ever since. In 1788 commissions were granted to its officers, and from 1858 onwards the latter have been servants of the Crown. The amalgamation of the three Presidency services into what has subsequently been known as the Indian Medical Service took place in 1896.

The expansion of British influence and territory in India involved a similar expansion of the areas depending on the I.M.S., until the Service, with a strength of some 780, found itself charged with the medical care of a sub-continent, and that at a period when medicine and surgery were rapidly advancing from dogma and empiricism to the established sciences that they are to-day. Inevitably the I.M.S. became a mirror in miniature of Western medicine in all its aspects, reflecting each change and development as it occurred, so that finally there was no major aspect of medical science unrepresented in the Service.

Primarily a military service, its officers have accompanied every expedition in which the troops of the Company and later the Crown have been engaged, including the two great wars. No fewer than five of its members have

been awarded the Victoria Cross in different campaigns. During the first world war temporary commissions were granted, raising the strength of the Service from 780 to some 1,900. In the second world war the Service rose in strength from 631 to 4,147. With the creation, on the recommendation of Souttar, Bradfield, and Hood, of the Indian Army Medical Corps and the consequent, and overdue, recognition of the Indian medical licentiate, the medical officer strength of the armed forces of India rose to 7,625. It is recalled that recruitment in India remained on a voluntary basis; the distinctions gained by officers, regular and emergency commissioned alike, bear testimony to the quality of the expanded service.

On the Civil side a high sense of responsibility to the people and territories which came under their control early characterized the Service. According to D. G. Crawford, the historian of the I.M.S., the first medical school for training native doctors was established in Calcutta in 1822. Similar medical schools were begun in Bombay in 1826 and in Madras in 1827. From these sprang the Calcutta Medical College, founded in 1835, the Madras Medical College, also founded in 1835, and the Grant Medical College, Bombay, founded in 1843. Preventive medicine was formally recognized in 1867 by the appointment of the Sanitary Commissioners, subsequently the Public Health Commissioner with the Government of India, and Directors of Public Health of the Provinces. The third important landmark was the creation, in the early years of this century, of the Bacteriological Department of the Government of India, the immediate forerunner of the Medical Research Department.

In the realm of medical education officers of the Service had for a considerable time been interested in the training of Indian doctors, mainly with the object of providing themselves with more or less skilled assistants; but the idea of training an independent medical profession may be said to have originated with the foundation in 1822 of the first of the three medical schools. Since then the development of educational institutes has continued until, at the time of handing over, India has been left with ten medical colleges training students for University degrees, and seventeen medical schools for licentiate education, most of which are being rapidly raised to the status of colleges with University affiliations.

Research has gone hand in hand with medical education, and on its achievements in the promotion of knowledge of tropical diseases the fame of the Indian Medical Service must principally rest. Striking examples are the work of Timothy Lewis on trypanosomes and filaria; of Vandyke Carter on spirilla, leprosy, and mycetoma; Macnamara, Rogers, and Taylor on cholera; Joseph Fayrer, Wall, and Russell on snakes and snake venoms. Best known of all is the work of Ronald Ross, who began his investigations on the malarial parasite and its transmission while still a regimental medical officer, and whose discoveries form the basis of all subsequent advances. The discovery of the parasite of kala-azar was started by Donovan and his colleague of the R.A.M.C., Leishman, whereas that of its vector and the final proof of its transmission is the achievement of the team of workers led by Shortt. Cholera was robbed of half its terror and three-quarters of its mortality, the treatment of amoebic dysentery was established, and the treatment of leprosy was rationalized and advanced by



the work of a single officer of the Service, Leonard Rogers. Later contributions to our knowledge of malaria by Christophers, James, Sinton, and Covell are acknowledged as outstanding by malariologists everywhere. The foundations of the surgery of the prostate gland and of modern plastic surgery were laid by officers of the Service, and their contributions to ophthalmology, notably those of Smith, Elliott, Wright, and Kirwan, are matters of common knowledge. Nor must we forget McCarrison's notable researches on goitre and disorders of nutrition. These are but the more outstanding achievements of officers of the I.M.S.—many more could be cited.

It is not only in the domain of medical science that this versatile body of men achieved distinction. Providing as they did the only source from which persons with a scientific background could readily be drawn, they were appointed to and achieved distinction in many posts connected with the natural sciences. David Prayne, of the Botanical Survey of India and later Director of Kew, Alcock and Seymour Sewell, of the Zoological Survey, are names that come readily to mind, while O'Shaughnessy will be remembered as the pioneer of the electric telegraph. The scientific status of the Service has been recognized by the award to no fewer than 45 of its members of the Fellowship of the Royal Society. The Service has also provided the Crown with an envoy plenipotentiary at Teheran and with a Master of the Mint.

What of the legacy that the I.M.S. bequeathes to India and Pakistan? In the first place it has two lineal descendants—the Provincial Civil Medical Services, in most provinces highly efficient, and the young and vigorous Indian Army Medical Corps. In addition, it leaves behind a highly organized independent medical profession of some 50,000 registered medical practitioners, of which the vast majority were directly taught by officers of the Service, and the remainder by teachers who had received their own professional education from that source. The creation and development of this independent profession has been, and is, a source of legitimate pride and pleasure to the whole Service; and the professional and ethical standards set by the I.M.S. will provide its successors—in the public services and in the independent profession alike—with an inspiring tradition and a yardstick by which their success or failure will be measured. Of all the great administrative Services of India, the I.M.S. was perhaps the most fully prepared for the coming-of-age of its ward; and it can now with a clear conscience take its leave and justly claim to share with Wren the proud epitaph *Si monumentum requiris, circumspice*.

## HYPERTENSION AND PREGNANCY

Prof. F. J. Browne has probably done more than anyone else in this country to focus attention on the importance of recording the blood pressure during pregnancy. He was one of the first to point out<sup>1</sup> that hypertension is an earlier and more constant sign of the toxæmias of late pregnancy than is albuminuria. It is now generally accepted that such conditions are characterized by a state of arteriolar spasm, and it is thought that albuminuria, when it occurs, is due to damage to the walls of the glomerular capillaries

resulting from anoxia. Mussey, Hunt, and Sluder<sup>2</sup> have gone so far as to suggest that the term "toxæmia of pregnancy" should be given up in favour of "hypertensive disease of pregnancy." They recognize two main types—the acute, of which the examples are pre-eclampsia and eclampsia; and the chronic, represented by pre-existing hypertension or chronic nephritis, with pregnancy superimposed. Hypertension has been the subject of much clinical and experimental study in recent years, and one of the aspects which has naturally attracted attention is the effect of pregnancy on chronic hypertension. Careful surveys have been reported recently by Chesley<sup>3</sup> in the U.S.A. and by Browne and his associates in this country, and the results of the valuable work carried out by his team at University College Hospital are summarized by Browne in his William Meredith Fletcher Shaw Lecture, published in the opening pages of this issue of the *Journal*.

In spite of one or two reports to the contrary—for example, that of Golden and others<sup>4</sup>—it seems fairly well established that pregnancy, even if complicated by pre-eclampsia or eclampsia, does not cause chronic hypertension, nor does it permanently aggravate the condition in a woman already suffering from the disease. According to Browne chronic hypertension accounts for about 25% of the cases of toxæmia of pregnancy; Mussey,<sup>2</sup> giving the ten-year (1932–41) figures from the Mayo Clinic, puts the figure at 33%. It was at one time suggested that an inherited predisposition to hypertension was an important aetiological factor in pre-eclampsia and eclampsia, but this has now been refuted by statistical evidence. On the other hand, pregnancy in the presence of established hypertension involves a much greater risk of pre-eclampsia and eclampsia, the incidence being seven to ten times greater than in normal pregnant women. Browne says that 15 to 17% of women with chronic hypertension develop pre-eclampsia or eclampsia during pregnancy, but Chesley and Annitto<sup>5</sup> put the figure at 34%, and Mussey as high as 51%. It is not easy to compare statistics on this point, because different standards are used for the diagnosis of hypertension, and, as most writers point out, it is difficult to know when to make a diagnosis of pre-eclampsia and when to regard the patient as suffering from exacerbation of hypertension.

One of the most interesting aspects of the subject is the effect of pregnancy on the blood pressure in these cases. In about 40% the blood pressure falls during the middle third of pregnancy, but tends to rise again later. By the end of pregnancy the blood pressure rises above its pre-pregnancy level in 50 to 60% of cases, according to Browne, but in only 30% in the series reported by Chesley. The hypertension remains unaffected in a considerable proportion of cases, and in a few it is reduced throughout the whole of pregnancy, returning to its former level after delivery. It is of interest to compare these observations with those made on rats, rabbits, and dogs suffering from hypertension induced by renal ischaemia. Pregnancy in these animals, and especially in the rat, almost invariably causes a fall in blood pressure,<sup>6, 7</sup> and this becomes mani-

<sup>2</sup> Mussey, R. D., Hunt, A. B., and Sluder, F. S. (1943). *Amer. J. Obstet. Gynec.*, 45, 223.

<sup>3</sup> Chesley, L. C., and Annitto, J. E. (1947). *Ibid.*, 53, 372.

<sup>4</sup> ——— and Jarvis, D. G. (1947). *Ibid.*, 53, 851.

<sup>5</sup> Golden, A., Dexter, L., and Weiss, S. (1943). *Arch. Intern. Med.*, 72, 301.

<sup>6</sup> Page, E. W., Patten, H. S., and Ogden, E. (1941). *Amer. J. Obstet. Gynec.*, 41, 53.

<sup>7</sup> ——— (1947). *Ibid.*, 53, 275.

<sup>8</sup> Dawson, J. R., Crossman, R. D., and Blacklock, A. (1941). *Amer. J. Path.*, 17, 31.

<sup>1</sup> Browne, F. J. (1932). *British Medical Journal*, 1, 320.

fest in the first trimester and persists until delivery. Page<sup>7,8</sup> found that pseudo-pregnancy in rats also reduced the hypertension, but only when there was a decidualoma in the uterus. The fall in blood pressure was prevented by abortion or complete removal of the pregnancy sacs, but it continued if the foetuses were removed and the placentae were left undisturbed in the uterus. He concluded that the agent responsible for the fall in blood pressure is the placenta. It may be that the large venous sinuses in the uterus act as a low-resistance shunt, an explanation previously put forward to account for the fall in blood pressure which may be observed during mid-pregnancy; but Page favours the view that the placenta may produce some antipressor substance. He points out that, if this is so, the difference in response noted in different species might be explained by differences in placental function, differences known to exist in other respects. This work gives no support to the theory that the fall in blood pressure is caused by a compensatory effect of the normal foetal kidneys. Indeed, Page states that the fall can occur before the foetal kidneys are completely developed and functioning.

Another problem is whether the rise in blood pressure which characterizes pregnancy toxæmia has an aetiology similar to that of hypertension occurring apart from pregnancy. Studies on renal blood flow and glomerular filtration rates lead most workers to believe it to be different. Nevertheless, the facts that pregnancy so often has an effect on established hypertension, and that pre-eclampsia appears so much more commonly in hypertensive subjects, do suggest some sort of connexion. Adson and Allen<sup>9</sup> reported an interesting case in which a woman suffering from chronic hypertension was treated by sympathectomy with good effect. She subsequently became pregnant, and the blood pressure then rose to its former level, falling again when the pregnancy was terminated.

The association of pregnancy and chronic hypertension must always cause the clinician some anxiety, although if cases of malignant hypertension are excluded the outlook is much less gloomy than was once believed. If the woman survives the immediate risks of pregnancy it is reasonably certain that she will not suffer any permanent aggravation of her condition. During pregnancy there are the dangers of pre-eclampsia and eclampsia, ante-partum haemorrhage, cerebral haemorrhage, and post-partum collapse, but with the great majority of women can be tided over one or even several pregnancies without ill effect. There remains the difficulty of deciding which patient will tolerate pregnancy well and which will develop one or other complication.

Browne now puts forward, as did Chesley,<sup>3,4</sup> certain criteria which can be regarded as indicative of a poor or favourable prognosis. Although clinical experience shows that these cannot be relied on in every case (even slight hypertension can sometimes be a forerunner to fatal concealed accidental haemorrhage), they may serve as useful general guides. Unless some reliable prognostic signs are available it means that large numbers of women must lead inactive lives and perhaps be confined to bed in hospital for many months of their pregnancy, thereby creating many domestic as well as hospital problems.

From the standpoint of both diagnosis and prognosis, blood-pressure readings must be carried out not only regularly throughout pregnancy but with far greater accuracy than is usual in crowded antenatal clinics. In some hospitals and clinics blood-pressure estimations are undertaken by inexperienced pupil midwives working with apparatus which is not always reliable. It is doubtful whether this practice is of any real value; indeed, it may only serve to give a false sense of security.

The risk to the foetus is far greater than that to the mother, and the decision when to terminate pregnancy in the interests of the foetus is always difficult. If induction of labour is delayed the foetus may die *in utero* from placental separation or infarction. If it is carried out too soon the foetus has to face the perils of prematurity and immaturity. Again Browne gives some useful indications by which the prognosis for the foetus can be assessed. He points out, moreover, a fact which is now well established but not sufficiently widely realized—that the small baby born of a mother suffering from hypertension, or indeed any type of toxæmia, is especially prone to asphyxia and injury during birth, even though the labour is rapid and easy. Special care is necessary in the delivery of these babies, and in some cases caesarean section may offer the best prospects, providing general anaesthesia is avoided. Not all are agreed that this operation gives better results; and it is not easy to be certain, because as a rule the operation is reserved for the most serious type of case, when the outlook for the foetus is inevitably poor. One point in its favour, however, is that it may avoid the onset of eclamptic fits, which are liable to be precipitated by the induction of labour in a woman with a high blood pressure.

### "MUSHROOM POISONING"

Where food is concerned we are a notoriously conservative race, and poisoning by fungi may seem improbable to those of us whose gastronomic activities are governed by an unimaginative cook or, more probably, an overworked wife. Poisoning by fungi, however, does occur in this country, as evidenced by Wilson's account elsewhere in this issue (p. 297) of three cases of poisoning by *Inocybe fastigiata*. Let it be said immediately that such cases invariably occur where the fungi are eaten in mistake for mushrooms, rather than when they are chosen by an enthusiast as edible fungi—of which, according to Ramsbottom there are some 300 varieties to be found in this country. In another part of this issue (p. 304) Mr. Ramsbottom, himself an enthusiast, provides some illustrated information on the diagnosis and culinary treatment of the more common species.

Of the other fungi native to the British Isles, some, while poisonous, are so offensive to smell or taste that they are obviously inedible. Others, including many of the dangerous *Inocybe* and *Amanita* types, are virtually tasteless. Furthermore, to the inexperienced eye, *Amanita phalloides* in particular and *Inocybe fastigiata* to a lesser degree bear some similarity to the common and eminently edible Field Mushroom, *Psalliota campestris*. The poisonous agent in *Inocybe fastigiata* is muscarine (which at least has given us one excellent detective story), whose action is similar to that of acetylcholine and opposed to that of atropine. The effects of muscarine poisoning are fortunately evident within one or two hours of ingestion, so steps may be taken by wash-outs and emetics to rid the stomach of the poison before

<sup>9</sup> Allen, E. V., and Adson, A. W. (1938). *Ann. intern. Med.*, 11, 2151.

<sup>1</sup> Ramsbottom, J., *Nature*, 1944, 153, 636.

a great deal of harm is done, and the physiological antidote—atropine—is, of course, specific.

*Amanita phalloides* does not give rise to symptoms until six to ten hours after ingestion, when the poisonous material has already left the stomach and is being absorbed by the small intestine.<sup>2</sup> Muscarine is found in even greater concentration in *Amanita muscaria*, *A. pantherinum*, and *Inocybe patouillardii*, while the poisonous effects of *Amanita phalloides* are shared by *A. verna* and *A. virosa*. Both muscarine and amanita toxin are resistant to heat, and in the case of *Inocybe* or *Amanita* poisoning it would appear that these poisons will remain active even after the heat of frying, which is about 140° C. The effect of amanita toxin, the only thermostable poison of the four found in *Amanita phalloides*, is comparable to that of phosphorus, and death, which occurs in approximately 40% of cases,<sup>3</sup> is associated with gross liver damage.

In countries where the edible fungi are more widely appreciated and more often eaten the intoxicating effects of certain of the many alkaloids produced by fungi are well known. One Siberian tribe is reported to hold agaric "parties," when large quantities of fungi of this genus are eaten in order to produce intoxication, and the urine passed by the addicts is preserved for future imbibition. These two most dangerous types of fungus, *Amanita* and *Inocybe*, tend to grow in wooded districts, where one would not normally look for the field mushroom, and they flourish on chalky soil, but both fulfil the criteria of "peeling" and neither will blacken a metal spoon. Unless, therefore, one is an expert on edible fungi it is unsafe to eat any fungus which is not very obviously a mushroom.

### POLIOMYELITIS FILM

We announced last week (Aug. 16, p. 260) that the shooting of a film, "The Early Diagnosis of Acute Anterior Poliomyelitis," had begun. Now it is complete except for the captions and the sound track of the commentary. By the end of the month there should be 100 copies of this Ministry of Health film for general practitioners. Information about how to obtain copies, projectors, screens, and operators is already in the hands of all Secretaries of Divisions and Branches of the British Medical Association. The film runs for well under 20 minutes, and it clings closely to a well-prepared brief. Early diagnosis is the theme, and all the cases shown are cases that appeared in the present epidemic. The film emphasizes those clinical features described in the article by Dr. W. H. Kelleher at page 291 of this week's *Journal*.

The chart of age-incidence at the start of the film relates to this epidemic. Symptoms come next, and one of the more effective scenes shows the early restlessness of a young adult. Signs, and how to elicit them, follow. One of the features of this epidemic has been the early involvement of cranial nerves. An outstanding close-up is of a larger-than-life palate with just enough weakness on the left for it to be pulled a fraction to the right. For the last few minutes only there are some visual notes on the mode of spread, with both commentary and camera determinedly non-committal and ranging impartially from flies to faeces and from mouths to masks.

This is not a perfect film, but it achieves its objective. It will recall signs that are easily overlooked and refresh the memory of medical men who have rarely had occasion to consider children and adolescents with ill-defined symptoms as exercises in neurological examination. It has the

merit, too, of being firmly related to this epidemic. The "actors" are patients and doctors.

If the film is to be of immediate practical use it should be on view as early as possible in the epidemic. Those sponsoring the film were in an obvious difficulty, because by the time medical men would have a chance of seeing it practical experience would have taught them the points the film seeks to bring out. Nevertheless this experiment in visual education was worth making, and those concerned are to be congratulated on the speed with which they have acted on the idea after it was conceived on Aug. 11. Divisions and Branches of the British Medical Association are already asking for copies and should start receiving them through the regional offices of the C.O.I. by Aug. 30.

### PENICILLIN IN EARLY SYPHILIS

It was mentioned by Dr. Joseph E. Moore, of Baltimore, at the recent International Congress for Microbiology in Copenhagen that the number of cases of syphilis treated with penicillin in the U.S.A. and available for the analysis of the effects of this treatment has now reached 40,000. One conclusion suggested by early results and fully confirmed since is that cure is more often achieved when treatment is begun before the Wassermann reaction is positive. How far does the operation of this time factor extend? This question has been studied experimentally by H. Eagle, H. J. Magnuson, and R. Fleischman<sup>1</sup> in a series of rabbit therapeutic tests designed to determine the effect of three variables. Two are of secondary interest: the dose of penicillin required varied with the size of the inoculum and was greater when inoculation was intratesticular instead of intracutaneous. The operation of the time factor was studied by giving a constant dose of 2,000 spirochaetes by either of these routes, and administering penicillin in five different doses at five different time intervals, varying from four hours to six weeks. The striking fact emerging from these experiments is that a very small dose of penicillin given as a single injection in oil and beeswax suffices to abort the disease, not only when given within four hours but also when given after four days. After fourteen days a dose seven times greater is necessary, and after six weeks a dose thirty times greater to suppress the disease. Moreover, among animals treated early 65 failures included only a single rabbit with asymptomatic infection revealed by lymph node transfer, whereas this condition was common among failures from treatment after six weeks.

It is of course uncertain whether the behaviour of *T. pallidum* in the human body—and in particular its rate of multiplication in the earliest stages of infection, which the authors regard as an important factor—is comparable to that in the rabbit. If the two conditions are parallel a single dose of penicillin given within four days of exposure to infection might serve to abort the disease. This possibility is seriously discussed, and the requisite dose in man by calculation from that required in rabbits is stated as from 15,000 to 50,000 units if given within four days; about ten times this amount should suffice if given within two weeks. The truth or otherwise of the second hypothesis could perhaps be ascertained from observations on syphilis developing after the treatment of gonorrhoea with penicillin. It does at least seem possible that one dose of penicillin in oil administered shortly after exposure to infection might absolutely prevent both syphilis and gonorrhoea. If such a conclusion were accepted should the medical services of armed Forces, for instance, provide facilities for such treatment?

<sup>2</sup> Dubash, J., and Teare, D., *British Medical Journal*, 1946, 1, 45.

<sup>3</sup> Ford, W. W., in Peterson, E., Haines, W. S., and Webster, R. W., *Lega Medicine and Toxicology*, 1923, 2, 517. Philadelphia.

## SOME EDIBLE FUNGI

BY

JOHN RAMSBOTTOM, O.B.E., Dr.Sc.

Keeper of Botany, British Museum  
(Natural History)

On the Continent there is widespread knowledge of, and interest in, edible fungi. In France pharmacists are trained in mycological chemistry and general practitioners in the treatment of fungus poisoning; both often write their theses for a doctorate on these subjects. Since, formerly, in this country the general public was accustomed to restrict its attentions to the cultivated and field mushrooms, there was no incentive for specialized knowledge. Occasional deaths were usually dismissed as "mushroom poisoning," for the victims had invariably believed that they had eaten mushrooms, being firm in the conviction that all toadstools were deadly poisonous.

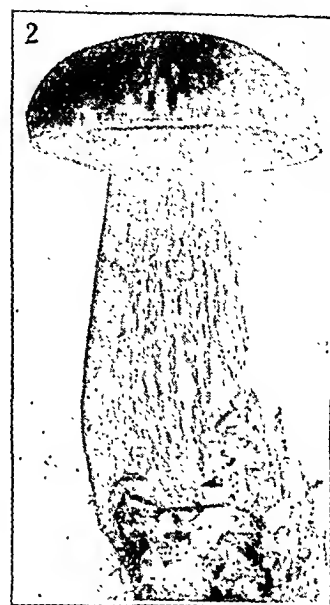
During the war, however, many people began to change their attitude towards edible fungi. There were several reasons for this, but the point may be stressed that there were no more than the usual number of accidents, like that described by Dr. Donald Wilson elsewhere in this issue (p. 297), and these were, with one exception, through eating not toadstools but what were thought to be mushrooms. The exception was a Polish Jewess at Hammersmith, who retrieved and consumed some specimens which had been rejected by her daughter. Whether with the likely spread of interest there will be carelessness, with a possible increase in accidents, remains to be seen, but medical practitioners in country towns should have the requisite acquaintance with up-to-date treatment and not rely on the "accumulated mass of clotted bosh" which has passed for knowledge.

The number of poisonous fungi is about a dozen, of which three—*Amanita phalloides*, the Death Cap, and the rare related forms *A. verna* and *A. virosa*—are deadly. Three or four others are strongly poisonous, about the same number slightly poisonous, and two or three are sufficiently indigestible to cause illness in some people. It is possible for a layman to know enough about the well-marked symptoms to be able to give a shrewd guess as to the identity of the fungus causing trouble and the probable prognosis.

There are several hundreds of toadstools that can be eaten with safety, though not all with pleasure or profit, because of unpleasant taste, leathery consistency, or small size. Three or four hundred are, however, sufficiently palatable and safe to have been used as food, and one would have no hesitation in sampling them. I have eaten, I suppose, well over a hundred different kinds with no discomfort whatever, and, apart from one or two cases of allergy, know of nothing untoward happening to any of the very many people who have accepted advice about these or other species.

## Puff-balls and Fairy Rings

From the point of view of the general public, it is the sounder plan to recommend only a small number of edible species, and these the best known, the most abundant, and the most characteristic. It must be admitted that toadstools, like negroes and Mongolians, may all be said to look alike until examined closely. However, everyone knows puff-balls, and these are edible while the flesh is still white and cheesy. *Lycoperdon giganteum*, the Giant Puff-ball, can be cut in slices, dipped in egg and bread-crumbs, and fried both sides in fat; all fungi of reasonable consistency can be cooked in this way. The Common Puff-ball, *L. perlatum* (Fig. 7), cannot be confused with any fungus in any way suspect.



The Fairy Ring Champignon, *Marasmius oreades* (Fig. 6), growing in circles in lawns, though differing much in appearance according to the weather, cannot readily be mistaken. It dries easily and can be used for flavouring soups or gravies, or the caps can be cooked à l'anglaise—more prosaically, fried with the bacon.

The parasol mushrooms again are easily recognized. The Parasol Mushroom, *Lepiota procera* (Fig. 5), with its large size, scaly cap, stem scaly below a large ring, and white gills, is delicate in flavour. The Ragged Parasol, *L. rhacodes* (Fig. 3), has a smooth stem, and the flesh turns reddish when cut; change in colour is of no alimentary significance. Both can be cooked in omelettes, or the cap can be fried in butter.

*Coprinus comatus*, the Shaggy Ink Cap, looks like a feathered egg when young, but becomes somewhat repulsive in appearance as the cap expands and begins to shed spores, and then by autolysis converts itself to a black ink. It should be cooked young; one way is in butter en casserole.

The Horse Mushroom, *Psalliota arvensis*, is avoided by many, presumably because it is not the Field Mushroom. It is perfectly wholesome, and, though perhaps a little coarser than *P. campestris*, is often preferred. It is larger than *P. campestris*, often occurring on the edges of fields rather than in the middle; the ring on the stem is double and the gills do not become fleshy pink but smoky red. It makes a good ketchup.

## Oysters and Beef Steak

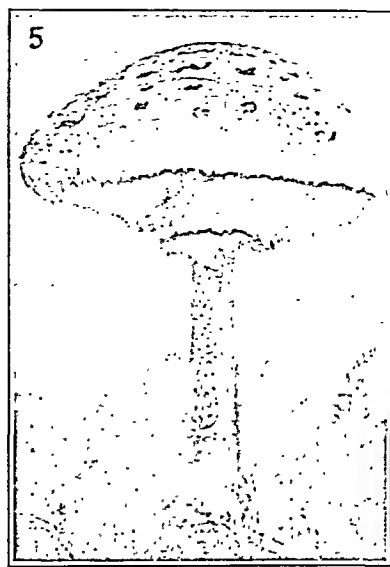
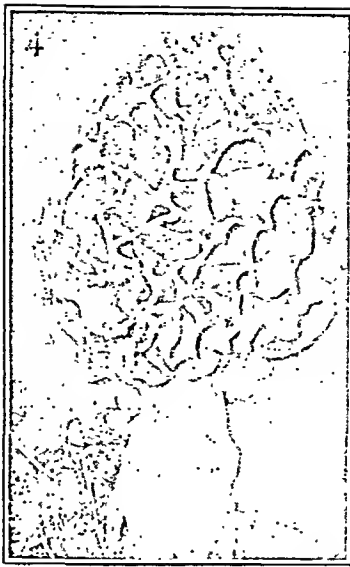
*Pleurotus ostreatus* (Fig. 8), the Oyster Mushroom, growing on trees, stumps, and logs, usually at first with a brownish cap which later becomes light blue or cream colour, has the shape indicated by its name.

*Fistulina hepatica*, the Beef Steak fungus, grows usually on oaks, but its Latin name better describes its appearance.

## LEGENDS

- FIG. 1.—*Craterellus cornucopioides*—Horn of Plenty.  
FIG. 2.—*Boletus edulis*—Cep.  
FIG. 3.—*Lepiota rhacodes*—Ragged Parasol Mushroom.  
FIG. 4.—*Morchella esculenta*—Morel.  
FIG. 5.—*Lepiota procera*—Parasol Mushroom.  
FIG. 6.—*Marasmius oreades*—Fairy Ring Champignon.  
FIG. 7.—*Lycoperdon perlatum*—Common Puff-ball.  
FIG. 8.—*Pleurotus ostreatus*—Oyster Mushroom.

These illustrations are from the A. E. Peck collection in the British Museum (Natural History).



Chopped up with shallots and fried it provides a dish which Canadian soldiers on war service here thought most excellent.

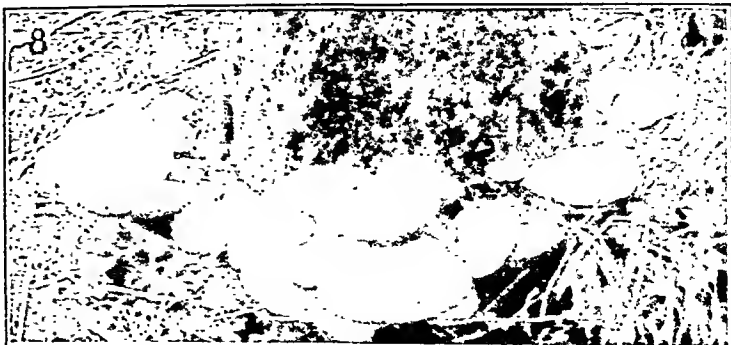
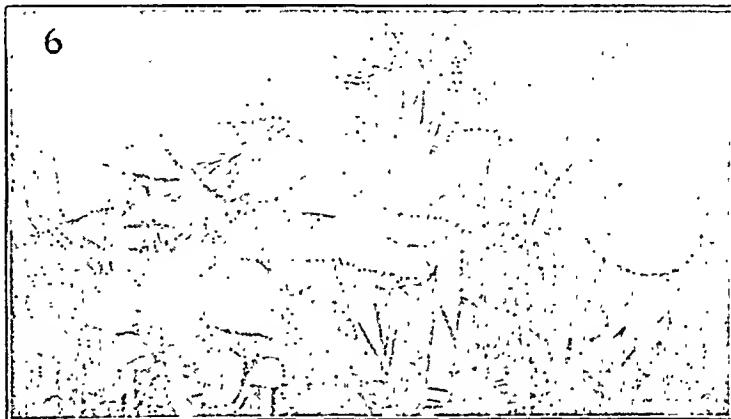
*Boletus edulis* (Fig. 2), the French *cèpe* is one of the most highly praised species. It figures largely in restaurants in France as *Cèpes à la Bordelaise*, *Cèpes frits*, *Cèpes aux tomates*. A brownish cap and a white network on the stem, together with the tubes, which are white at first, then yellow, and finally greenish, serve as distinguishing marks for this species.

The blackish-grey *Craterellus cornucopioides* (Fig. 1), Horn of Plenty, again has only to be seen to be recognized. It dries easily.

The Morel, *Morchella esculenta* (Fig. 4), has been prized since classical times. The fawn or dark-coloured honeycomb-like cap and white stem characterize this spring species. It is used dried for flavouring, or the hollow stem may be filled with a mince made of anything palatable.

Other common edible species are the egg-yellow *Cantharellus cibarius*, the Chanterelle, with vein-like gills; St. George's Mushroom, *Tricholoma gambosum*, growing in rings in spring, wholly cream-coloured; Blewits, *Tricholoma personatum*, with cream-coloured cap and gills and a purplish blue stem; Wood Blewits, *Tricholoma nudum*, wholly lilac-purplish; *Hydnum repandum*, cream-coloured and with spines in place of gills; *Sparassis crispa*, looking like a large sponge, at the base of pine trees; and *Lactarius deliciosus*, the Saffron Milk Cap, with orange-coloured milk.

From one point of view the safety of these species lies in the fact that except for the Horse Mushroom none is like the Common Mushroom, and hence is not liable to be confused with *Amanita phalloides*, though it would be well for all unable to recognize a mushroom to be content with purchase. The amount of nutriment in these fungi need not be considered here. Cooked fungi are probably more nutritious than most cooked vegetables. But whether this is accepted or not, their principal value is that they add a spice of variety to present-day diets, making them more palatable and presumably more beneficial.





## MEASURES AGAINST POLIOMYELITIS

The measures to be adopted or recommended during the present epidemic of poliomyelitis were discussed at a special meeting of some eighty medical officers of health, or their representatives, from the Home Counties, at the Central Public Health Laboratory, Colindale, on Aug. 8. The meeting was also attended by medical officers of the Ministry of Health.

It was stated that at the present rate of notification there might be expected some 5,000 notified cases before the end of the year, which was far in excess of the incidence in any previous year since the disease became notifiable in 1912 (following, as was pointed out, a high incidence in 1911, also a year with a hot dry summer). About one-third of the notified cases admitted to hospital were not confirmed as poliomyelitis, and although the proportion of patients with cranial nerve involvement was probably higher than usual, severely ill cases were not very numerous. The highest incidence was in the age group 8-16 years, with about equal numbers in children below this age and in young adults. The following procedures were generally considered to be acceptable.

### Preventive Measures

**Swimming-baths and Paddling-pools.**—Swimming-baths should not be closed unless there was some definite indication that cases had been or might be infected there. The number of children admitted on any day should be restricted and the children should be advised to stay only for a short period in the baths. It was probable that overcrowding was a more important factor than infection of the water in swimming-baths. It had been found that poliomyelitis virus was destroyed by exposure to 0.2 p.p.m. chlorine for ten minutes. Hired bathing suits and towels should be washed and laundered between use, and the floors of changing huts should be washed out and mopped with a disinfectant solution.

**Fresh-water paddling-pools** in areas where cases had occurred should be drained so as to discourage their use by crowds of young children, and a bacteriological check might be kept on natural bathing-pools to see that they did not become heavily polluted. There was no risk from river bathing unless a sewage effluent was entering the river near by.

**Schools and Nurseries.**—Schools should reopen as usual unless there were special indications to the contrary. Some attempt might be made to restrict the attendance at school of intimate contacts of cases for a period of three weeks after onset.

In regard to nursery schools and day nurseries, on the occurrence of the first case all parents should be informed, and if a second case occurred the nursery should be closed. The chances of spread of the virus among young children playing in close contact in nurseries were likely to be greater than in the ordinary schools.

**Cinemas.**—Cancellation of Saturday morning cinema shows for children was not generally recommended: it should not be advised unless it was quite certain that children would not go to a neighbouring cinema and so cause the overcrowding which it was desired to avoid.

**Household Contacts.**—The parents of children and adolescents who had been in contact with a case should be warned to keep them away from other children and young people for three weeks. If they showed any signs of illness the family doctor should be called in. Generally speaking, no action should be taken to restrict adult contacts, but those who were food-handlers should be warned to be particularly careful of personal hygiene. When a contact food-handler becomes ill an endeavour should be made to persuade him and his employer to arrange that he should not handle food for at least a fortnight.

**Flies.**—Although there was no evidence that flies were playing a part in the spread of infection in the present outbreak, efforts should be made to minimize the fly nuisance as a general public health measure. Salvage food bins should have tight-fitting lids and should be emptied frequently.

**Fruit, Milk, and Other Foods.**—Fresh fruit and milk had been suspected in the past as possible vehicles for the spread

of poliomyelitis, and suitable precautions might be taken—for example, by washing fruit and peeling the skins before serving, and by pasteurizing or boiling raw milk.

**Tonsillectomy, Dental Extractions, and E.N.T. Operation.**—These should be avoided in areas where cases were occurring.

**Press Publicity.**—It was suggested that the medical officer of health should deal personally with the local Press, supplying it with such factual information as was available. The Ministry of Health had tried to guide the national Press, particularly in avoiding alarming or sensational statements.

### Mode of Spread

Dr. R. Cruickshank mentioned that the virus was demonstrable in the oropharynx of 30-50% of cases for some days before and after the onset of typical symptoms, and it persisted in the stools of half the cases for three to four weeks after onset. Although the present tendency in America, as indicated by Sabin (*J. Amer. med. Ass.*, 1947, 134, 749), was to stress the intestinal mode of spread, epidemiological evidence suggested that the respiratory route was perhaps more common and that patients might be infectious in the prodromal stage. He asked his colleagues to record particularly any history of nasopharyngitis at this early stage. The great rarity of infection among those nursing paralytic poliomyelitis despite the presence of virus in the faeces was in contrast to the findings in typhoid and dysentery. Respiratory infections might spread in high summer, as witness the present prevalence of measles.

Infected dust might be a factor, although outbreaks in the U.S.A. had occurred in wet as well as in dry seasons. Another epidemiological feature of poliomyelitis was that outbreaks did not recur in the same area in consecutive years, which suggested a widespread latent immunization with the virus.

### Clinical Features

Dr. W. H. Kelleher described some of the clinical features of the cases admitted to the L.C.C. Western Hospital. One-quarter of the cases were under 5 years of age, the others ranging up to 32 years. As an example of the protean nature of the disease, of 3 adolescent girls who had been admitted from the same institution, one had no paralytic symptoms but showed some meningeal irritation and changes in the cerebrospinal fluid, the second had polio-encephalitis with late peripheral paralysis, while the third had only one group of muscle affected. Lumbar puncture might be a useful diagnostic aid in doubtful or abortive cases. It was suggested that cases of poliomyelitis should be brought together under expert nursing and medical care, since the handling of bulbar cases particularly needed experienced staff. Attention was drawn to the possible occurrence of anoxaemia from bulbar paralysis simulating encephalitis (*J. Amer. med. Ass.*, 1947, 134, 767). There was no shortage of "iron lungs." Any medical officer requiring one in a hurry should get in touch with the London Emergency Bed Service. Respirators not in use should be overhauled and made serviceable. There should be a close liaison between physician and orthopaedic surgeon so that paralytic cases could have remedial treatment as early as possible. The Supply Divisions of the Ministry of Health had been asked to make available through their regional organizations a supply of bed cradles, possibly to be lent out for use by patients in their own homes.

Dr. F. O. MacCallum, Virus Reference Laboratory, Colindale, said he had been receiving brain and cord tissue in 50% glycerol saline from different parts of the country. He was also collecting samples of serum from acute and convalescent cases for assay of the neutralizing antibody against the Lansing strain which had been adapted to rodents. He wished to discourage the sending of further specimens of cerebrospinal fluid, faeces, or urine, except by special arrangement.

The 8th (London) Field Hygiene Company, R.A.M.C. (T.A.), had vacancies for non-medical hygiene officers, N.C.O.s, and other ranks. The commanding officer would appreciate it if medical officers of health would draw the attention of members of their staffs to the existence of this unit. Sanitary inspectors would be particularly suitable for appointments in it. Full particulars may be obtained from the officer commanding the unit, at Duke of York's Headquarters, Chelsea, London, S.W.3.

## Reports of Societies

### TREATMENT OF SYPHILIS

The Medical Society of the L.C.C. Service held a meeting at Horton Hospital, Epsom, on July 2, to discuss the modern treatment of syphilis.

Dr. W. N. MASCALL said that there was at present no standard treatment of early syphilis; the dosage of penicillin appeared to vary between 2½ and 16 million units; in some cases this was supported by arsenic and bismuth, and in others it was not. He still preferred the seven-and-a-half-day course of 2,400,000 units by divided dosage, but if the patient could not stay in hospital he gave one daily injection of 500,000 units in ethyl oleate for ten days. Following either of these courses, ten weekly injections of neo-arsphenamine 0.6 g. and bismuth oxychloride 0.4 g. were given. Further treatment depended on the serological changes in the blood and cerebrospinal fluid.

Mr. A. J. KING opened the discussion on the treatment of late syphilis, excluding neurosyphilis and cardiovascular syphilis. Such cases were of two types—those with gummata and those termed "late latent syphilis," in which the diagnosis was based on positive serum reactions. The aims of treatment were to heal lesions, to render the patient non-infectious, and to prevent the development of fresh lesions. "Cure" in the sense of eliminating the last infecting organism was not a primary aim as it was in the treatment of early syphilis. Reversal of positive blood serum reactions was not an aim of treatment, for it had little or no bearing on ultimate prognosis. Given adequate treatment the "Wassermann-fast" patient had as much chance of remaining permanently free from the effects of syphilis as the patient whose serum test promptly became negative. In starting treatment the ground should be prepared by slow-acting remedies such as insoluble bismuth 0.2 g. intramuscularly once weekly, and potassium iodide by mouth 5 gr. (0.32 g.) three times a day, increasing to the limit of tolerance, or to the maximum of 90 gr. (6 g.) a day. After a month of this treatment more active remedies could be used. Penicillin produced rapid healing of gummata, but was no more effective than other remedies in reversing fixed positive serum tests. Its use in late latent syphilis was based on its known action in symptomatic syphilis, early or late. It should be supported by other drugs which had been shown to give a very high rate of protection when used in adequate dosage.

Little was to be gained by increasing the dosage of penicillin above 2.4 million units. This might be given as 60 injections, each of 40,000 units every three hours, day and night, for seven and a half days, or as 150,000 units of calcium penicillin in oil-wax mixture twice daily for eight days. Subject to age, tolerance, and general condition this should be followed by a minimum of two and a maximum of three full courses of neoarsphenamine and bismuth, each course lasting ten weeks, and with a four-week interval between courses. The maximum suggested dosage of neoarsphenamine in each course was 5.85 g., and of bismuth 4 g. After this, all treatment should be stopped irrespective of the results of serum reactions. If the patient was a woman and later became pregnant, further treatment would be necessary.

### Neurosyphilis

Dr. W. D. NICOL described the treatment of neurosyphilis. A complete examination of the cerebrospinal fluid was essential and should include a cell count, the total protein estimation, the colloidal gold test, and the Wassermann reaction. The great majority of fluids were completely negative within three years. When there had been at least two consecutive negative results it was safe to assume that any subsequent relapse was most unlikely.

For the active case of general paralysis of the insane decidedly better clinical and serological results were obtained in cases treated with both malaria and tryparsamide than in those treated with malaria alone. Tryparsamide had several disadvantages, particularly with regard to ocular complications. Penicillin was now being used as a routine either in combination with malaria or alone. For the more advanced case of general paralysis penicillin was of great value in that it fre-

quently improved the general physical condition and so enabled the patient to have a subsequent course of malaria. A striking feature of penicillin therapy which had been observed was the clinical improvement during a course of penicillin, which was rarely, if ever, seen during malaria therapy.

Dr. M. WHELEN said that in malaria therapy the important factor was the height of the fever and not the rigor. No rise of temperature below 103° F. (39.4° C.) was of real therapeutic value. At the Horton Centre the temperature was recorded every quarter of an hour so long as it was raised.

### CONFERENCE ON INFERTILITY

A Conference on Infertility, arranged by the Family Planning Association (which incorporates the National Birth Control Association) was held at the Nuffield Institute for Medical Research, Oxford, on July 26 and 27.

### Experiences of a Fertility Clinic

Dr. G. WYNN-WILLIAMS, who deputized for Dr. P. M. F. Bishop, gave an account of the experiences of the last two years in the fertility clinic attached to the Chelsea Women's Hospital. He said that of 372 couples questioned on the subject, 271 showed that they had no knowledge whatever of the fertility phase. Of the remainder who said that they had this knowledge, a number had only recently been told. Husbands seemed very diffident about coming to the clinic. Out of 253 who came, 53% showed apparently normal spermatogenesis; 23% showed a mildly defective spermatogenesis; 17% were grossly defective, and 7% had aspermia. It was insisted that the husbands produced by masturbation three specimens for examination. Other methods were not satisfactory. Sometimes the first sample might show gross defect, and the next might be normal, but generally the same pattern obtained in all three specimens.

Every patient was examined by insufflation and salpingography. The double procedure might be questioned, but they saw no reason for discontinuing it. Insufflation was done in the third week, from the 14th to about the 18th day. Both procedures were undertaken under anaesthesia. Air was generally used for insufflation; carbon dioxide occasionally. There were arguments against the use of air, but so far no untoward results had occurred. The salpingograms were obtained with the use of lipiodol, largely because none of the new radio-opaque substances which were being used in America could be obtained. In 224 double insufflations carried out during two years the tubes were found to be completely blocked in 36 cases. Of the patients insufflated, 11 became pregnant within two months after insufflation. There had been one or two cases of intravasation of uterine and ovarian veins following the making of salpingograms, but up to the present there had been no untoward results beyond a slight discomfort for twenty-four hours. The patients attending the fertility clinic were asked to keep a record of their morning temperatures. The temperature was taken by mouth, which was perfectly satisfactory, provided the patient took it before rising.

So far they had not been very successful in causing the patient who did not ovulate to do so. They were disappointed in the results with the woman with the non-ovulatory cycle. Every patient had a post-coital test, and out of a total of 117 cases a repeatedly negative post-coital test was found only in 10, with single negatives in 10 others. It was a valuable test in the investigation of these cases.

Dr. R. J. IRVING-BELL said that at the clinic in Bristol he dealt entirely with the men, and a woman doctor took the women's clinic. He had always found the husbands eager to be examined. Out of 250 couples the husband failed to turn up in only one case. Of the husbands referred to the clinic last year, 57% were referred from the female clinic, 22% from general practitioners, who realized that this was a useful service, about 9% from the marriage guidance clinic, and 9% came on the initiative of the husband himself. In 40% of cases the women had become pregnant following the advice given at the clinic, mainly as to the fertile period. He praised the use of methyl testosterone. When a small amount was given over a

period of six weeks a low sperm count rose to normal again and motility also became normal. It was a rule at his clinic never to carry out an investigation on a female, other than clinical examination, until the husband had been examined and the semen analysed. It was not fair to the wife to compel her to go through these manœuvres when in about 50% of cases the infertility was to be attributed to the husband.

Dr. RAYMOND GREENE said that with regard to temperature records his impression was that in a large number of patients, which might very well be the proportion of endocrinologically normal women, the oral temperature showed quite distinctly the time at which ovulation occurred. Dr. G. MACLEOD, of New York, said that American experience was that there was no difficulty at all in getting the husbands to the clinic. Dr. R. G. CROSS, of Dublin, thought that anybody who used lipiodol was "guilty of a criminal offence." There had been one death due to lipiodol in his experience, though not in his practice. There was no justification for exposing a woman to such a procedure. Dr. WYNN-WILLIAMS said that so far, at Chelsea, there had been no catastrophes with lipiodol.

### The Spastic Uterus

The spastic uterus was the subject of an address by Mr. JOHN STALLWORTHY, of Oxford. He said that he first became interested in this aspect of non-fertility fifteen years ago. It was difficult to see what reason there was for women normally married, with no history of ill-health, having tubes which were not patent, and he had tried to keep an open mind on the subject of tubal occlusion. Some published figures gave a proportion of something like 5% of spastic tubes in all cases examined, and this phenomenon of spasticity seemed as if it might furnish a clue. In his clinic much attention was paid to the radiological screening of patients as contrasted with the film. He had often pointed out that the radiograph might give quite a misleading appearance, whereas observation of the screen would reveal the true condition. In many patients the uterus on screening was observed to behave in a strange manner. The uterus showed spasm and irritability far more often than had been previously recognized. It was also shown on the x-ray screen that the common belief in the effect of atropine and anaesthesia was misplaced; in fact, anaesthesia itself would very quickly precipitate spasm. At present nitroglycerin was being used as an antispasmodic. In analysing 1,000 clinic cases the tubal occlusion rate was found to be 21%, but on becoming more interested in the subject of spasm and after using nitroglycerin there was a dramatic change in the picture and a re-examination of many of these people gave a corrected rate for the series of 12.8%. Going back over the last 171 cases, the rate up to date was 9%. It seemed possible that many women were suffering from a persistent spastic tendency, in the light of which the customary figures for tubal occlusion given by various workers seemed to need modification. He added that the recent tendency to become "hormone-minded" caused the action of the autonomic nervous system often to be forgotten. That system could act with great suddenness, and women who, like their husbands, were fertile and wanted a baby might find that because of their fears or desires their uterine function was so disorganized that they could not conceive.

### Factors in Habitual Abortion

Mr. LINTON SNAITH, of Newcastle-upon-Tyne, discussed some factors in habitual abortion. His paper was largely a statistical analysis. He refused to use the term "habitual abortion" unless there was a history of at least three miscarriages. He discussed the incidence of defective embryo due to primary male or female defect, the possibility of male sub-fertility as a cause of miscarriage, and the role of a psychic factor, particularly in the first pregnancy, an acute infection, and trauma. With regard to this last it was always possible that the effect of injury in causing miscarriage might be overestimated. An abnormal embryo was not infrequent in cases of abortion, especially in first pregnancies. He did not consider that defects in the male cell were responsible for habitual abortion; though there might be some other defect in the seminal fluid. As to the Rh factor, he considered this to have no influence at all. Its real importance was not in habitual abortion, but in the danger to the woman who was

Rh-negative and had a husband who was Rh-positive. A young woman in such a case was in the same position as an elderly primipara. It was important to preserve her first pregnancy at all costs, and the woman of 22 in such circumstances should be treated as if she were 42. If that patient had a stillbirth in the first pregnancy she might not have a successful pregnancy afterwards. After discussing the use of progesterone and of vitamin therapy, Mr. Linton Snaith concluded by saying that a very important part was played by chance in the spontaneous cure of habitual abortion.

### Observations on Spermatozoa

A team of workers brought forward observations on spermatozoa. Dr. C. W. EMMENS, speaking of the influence of pH and toxicity on the viability of spermatozoa, said that, above a pH value of about 6, spermatozoa were completely motile. In alkaline suspension the cells tended to remain motile for as long as they were alive; in acid suspensions the motility fell off before death. Dealing with the effect of temperature on viability, he said that in a suspension cooled from 37° to 20° C. (98.6° to 68° F.) the cells were motionless, whereas in a suspension brought up from 0° to 20° C. they were active showing that the effect of a drop in temperature as such was greater than the effect of the level of the temperature, whatever it might be. Dr. J. MACLEOD said that in some observations on human semen carried out in New York it had been found that spermatozoa in acid suspension were far more fragile than in alkaline; the latter could withstand much wider temperature variations. Dr. G. I. M. SWYER and Dr. G. KENNEDY followed with some observations on the activity of spermatozoa in relation to their density, and Mr. W. R. KELLY, a veterinary surgeon, brought forward some observations on the bacteriology of bovine semen, suggesting that bacterial growth did not influence the viability of sperm provided temperature conditions remained stable. Dr. T. MANN described the secretory functions of the seminal vesicles, and spoke in particular of fructose as a normal constituent of human semen. Fructose, and not glucose, was the physiological substance present for the metabolism of spermatozoa. The seminal vesicles acted as a reserve for this sugar. Fructose was present before the first of the spermatozoa made their appearance.

Artificial insemination was the subject of only one paper before the conference, and that only in its application to livestock improvement. Mr. R. CLARKE, a veterinary expert, said that the practice was now employed for cattle at twenty centres in this country. The average number of inseminations per pregnancy was 1.7 to 1.8. About 6 to 8% of the animals aborted.

Prof. H. H. COLE, of New York, spoke on the four or five hormones concerned in the control of the ovary, and touched slightly on the use of gonadotrophic hormones in clinical medicine. He described some experiments with the rat in which super-ovulation had followed gonadotrophic hormone administration.

Finally, Mr. A. F. CLIFT discussed the rheology of cervical mucus. He spoke of the difficulty of defining the consistency of this mucus, but said that certain useful objective measurements of this extraordinary material had been made. In a large number of samples the phenomenon of flow elasticity had been observed, a phenomenon affected to a remarkably slight extent by urine or water. He regarded the flow of the secretion as one of the best accessory tests for pregnancy. In the discussion the questions were raised whether it was possible by rheological observations to discover the woman who did not ovulate, and also whether the use of contraceptives had any harmful effects.

The discussions at the four sessions of the conference were eagerly sustained, and Dr. A. WALTON, Mr. JOHN STALLWORTHY and others acted as chairmen.

Mr. Bevan opened the Hospital Domestic Aids Exhibition in Regent Street, London, on July 14. Speaking of the supply of domestic workers, he said that over 2,500 women from displaced persons camps in Germany were brought to this country during the winter and were proving a great help in hospitals and sanatoria, particular enabling nurses to be relieved of general dusting and cleaning duties.



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## Correspondence

### The Indian Medical Service

SIR,—In the course of last week the Indian Medical Service as a service of the Crown passed away. With the other Indian Services it has received a vote of thanks from both Houses of Parliament. To the general public at home, the Indian Medical Service was a vague entity which had produced some famous men, but what it did for India is little realized even by medical men in this country.

Those of us who saw the work of that great service know that its credit rests not only on those of its members whose reputations were international, but on many others unknown in Britain whose names were household words in vast tracts of India. The debt India owes to the Indian Medical Service is beyond calculation, and we, whose medical schools produced so many of its members, should place on record some account of its achievements and the appreciation of the medical profession.—I am, etc.,

ALEXANDER HOOD,

Lieutenant-General,

Director-General, Army Medical Services

London, S.W.7.

### Intravenous Ergometrine for Retained Placenta

SIR,—“Removal of Placenta” receives a full and useful answer in the “Any Questions?” column (Aug. 2, p. 195). May I, however, comment on the use of intravenous ergometrine for placental expulsion?

When this substance was first isolated careful experiment was made to ascertain the optimum dosage. It was found that a dose of 0.25 mg. or more by intravenous injection produced, for a few minutes, undesirable side-effects. For that reason 0.125 mg. was recommended—a dose that appeared adequate for therapeutic purposes. Subsequent experience, however, has shown that no serious ill-effect is caused if, in an emergency, 0.25 mg. is given. This dosage now seems to have become well established; indeed, it is by this dose and by this route that ergometrine is most effectively administered. However, to double this already large dose by giving 0.5 mg., as advised in the answer, seems to be unnecessary; it will certainly result in side-effects such as dizziness, a feeling of weight and loss of power in the limbs, and possibly vomiting. The 0.5 mg. dose should be reserved for intramuscular injection.

With reference to the injection in retained placenta it is stated: “If, however, the placenta does not come away at once, manual removal has to be carried out without delay.” Elsewhere are the words: “Even if an hour-glass contraction should result it can be dealt with at leisure once the haemorrhage is controlled.” Of these conflicting statements I submit that it is the second that should be accepted, for clearly nothing is gained by a forceful removal of a placenta from a tightly contracted uterus. The chief benefit of ergometrine lies in its ability to convert a relaxed uterus into a contracted uterus; and with that change the post-partum haemorrhage (assuming the bleeding is from the uterus itself) is arrested. Thus, the opportunity is given for the obstetrician to attend to the patient's general condition, to give blood transfusion if necessary, and, if the placenta does not come away, to prepare for the anaesthetic later required for the operation of manual removal. If Cr  de expression is to succeed it must be performed as soon as the fundus becomes hard, and before the lower part of the body contracts down in front of the placenta. If the expression fails an hour should be allowed to elapse, after which the uterus will in all likelihood be relaxing at intervals; and the extraction of the placenta then becomes a relatively easy and safe operation.

It should be realized that neither ergometrine nor any other oxytocic will cause an abnormally adherent placenta to separate, although by making a soft or relaxed uterus contract it may render a Cr  de expression (correctly performed) possible for the first time.

Regarding the effect on the blood loss, it is a matter of opinion whether severe third-stage haemorrhage is best dealt

with by injection of an oxytocic drug, or by prompt manual removal of the placenta when simpler manipulative measures have failed. My own preference, if the uterus is relaxed, is for the first method; and here there are the alternatives of (a) intravenous ergometrine as described, or (b) injection of 5 units of pitocin directly into the uterine muscle via the abdominal wall (this necessitates the use of a carefully sterilized syringe and is, of course, possible only in cases in which the uterus can be easily manipulated against the abdominal wall).<sup>1</sup> With fundal injection of pitocin an immediate and very powerful effect is obtained which starts in the upper part of the uterus before it spreads elsewhere; the effect becomes quickly spent and disappears after a lapse of half an hour. These are both advantages for the purpose under consideration.

Finally, the custom in some clinics of routine administration of ergometrine in the third stage is mentioned. In certain American hospitals 0.2 mg. of ergonovine (ergometrine) is injected intravenously when the anterior shoulder of the foetus appears. By this method the lower pole of the uterus is held open by the breech of the baby, thus eliminating the possibility of an hour-glass contraction; expulsion of the placenta along with the foetus is then the rule. Even the exponents of this method admit, however, that it should be used only in hospital practice, for, despite theory, retained placentas do occasionally occur.—I am, etc.,

Nuffield Department of Obstetrics and  
Gynaecology, Oxford.

J. CHASSAR MOIR.

### REFERENCE

<sup>1</sup> J. Obstet. Gynec. Brit. Emp., 1944, 51, 247.

### Blood Transfusion in the War of 1939–45

SIR,—Major-General Philip H. Mitchiner in his review of “Surgery in Two Wars” (Aug. 9, p. 219) rightly stressed the excellent organization and widespread application of blood transfusion in the 1939–45 war. The wounded in 1939–45 were transfused earlier and in quantity by comparison with which that used in 1914–18 was almost negligible. It is this factor, I contend, which renders the table of comparative mortalities given on page 200 both fallacious and misleading.

Major-General Mitchiner stressed the mobility of the 1939–45 war but not the consequent lengthening of the lines of communication in comparison with those in 1914–18. Were it not for the fact that the wounded had often been transfused either at the R.A.P., F.D.S., or M.D.S., and perhaps had the benefit of a “travelling transfusion” in the ambulance as well, many of the wounded operated on in the advanced surgical centres in 1939–45 would have died *en route*. In short, the proportion of “bad risks” (often desperate risks) must have been greater in 1939–45 than in 1914–18.

It is my submission that if it were possible to apply the necessary correction to the 1939–45 figures the true mortality would demonstrate an even greater advance than that shown by the table on page 200. While not disputing the great benefits of female nursing mentioned by Major-General Mitchiner, he scarcely does justice to those highly skilled nursing orderlies, like Sergt. Scannell, M.M., R.A.M.C., who carried on in the Desert in 1941–2 when there were no female nurses further forward than Alexandria.—I am, etc.,

REN BINNING.

Hon. Major, R.A.M.C.

### Salaries of Specialists in N.H.S.

SIR,—Dr. Clifford Allen (Aug. 2, p. 189) has drawn attention to the lower salary offered psychiatrists than other specialists in Iraq. Such a danger appears a possibility nearer home. Some weeks ago you reported a comment from an important quarter that the question of relative payments of different types of specialists must soon be considered; a differentiation being made between physicians and surgeons, who were concerned with “matters of life and death,” and other less onerous specialties. For some reason—possibly a common greater penetrative ability?—psychiatrists and radiologists were classed together, and both relegated to the latter group.

I cannot speak for radiologists, but in regard to psychiatry this classification appears to be founded on a popular miscon-

ception that a psychiatrist has an innocuous job, dealing exclusively with "harmless" psychoneurotics. "On the contrary, psychiatrists have far-reaching decisions to make, both from the medical standpoint and in regard to the community, e.g.; whether to deprive a patient of his liberty by certification, or to allow certain psychotics to continue at work; whether a patient is fit to be safely discharged from hospital; advising how far he is responsible for his acts in case of crime; administering physical therapy by no means devoid of risk. Questions of life and death are acutely raised every time we have to assess the degree of suicidal risk in a depressed patient—a very frequent problem—or the danger of violence in a paranoiac or in a manic, with the possibility of assault or even being murdered as the penalty of mistaken judgment. And the latter risk even the surgeon does not have to run!

No, Sir, I submit there are no grounds for differentiating one specialty from another because of differing responsibility. The reason a specialist gets more pay is surely fundamentally because he has had a longer, and consequently more expensive, training than his non-specialist colleague. Dr. Clifford Allen invites the views of other psychiatrists. I think it would be of interest to hear the views of other specialists as well on what is a particularly important subject at the moment.—I am, etc.,

London, W.1.

W. LINDESAY NEUSTATTER.

### Negotiations with the Minister

SIR,—We are told in your issue of Aug. 2 (p. 178) that since the first formal meeting which the present Negotiating Committee had with the Minister it has never met him personally but has conducted the negotiations only with officials (Civil Servants), and that during this interval of six months, while complete secrecy has been observed by the Negotiating Committee, it has had to depend for its contacts with the Minister wholly upon what the officials reported.

One cannot but recall the experience of an earlier Committee called the "Representative Committee" of the medical profession, which had been created at the invitation of the Minister, Mr. Ernest Brown (1942-3). The Minister had promised that the negotiations would be "conducted from the ground," but at his very first meeting with the Committee (March 9, 1943) the Committee was informed by the Minister that "negotiations must be based on the acceptance of the decision by the Cabinet that a single unified health service, covering 100% of the population, would be instituted, the local administration of which would be in the hands of the local authorities, under the ultimate control of a Minister who would be responsible to Parliament," thus breaking his previous promise that the negotiations would be "conducted from the ground." (See my letter in *The Times* of Sept. 17, 1943.)

On April 12, 1943, *The Times*, apprised—not by the Committee—of this development, declared that "the medical profession must recognize that the settlement of the future of medical practice has been reached." This experience is not a good augury for the outcome of the present negotiations, conducted in the same atmosphere of secrecy enjoined by the Minister upon the Committee, but without any corresponding restriction of his own activity. Indeed, the Minister has been extremely assiduous in carrying on with his plans, while enforcing confidentiality upon the Negotiating Committee. He has been busy appointing the Regional Boards which are to govern the profession (his selection largely ignoring the B.M.A.), and his choice of his own partisans to serve thereon has been the subject of criticism in the House.

Still more recently he has given a new exhibition of autocracy in the creation of the wholly novel category of "general practitioner obstetricians," whom I think one can fairly describe as "pseudo-consultants," their selection being governed by the Minister who has the power under the Act of designating any registered medical practitioner as a specialist or consultant. His proposal is to issue a list of general practitioners so selected, whom registered medical practitioners not upon that list are enjoined to consult in midwifery cases. The necessary consequence of this creation must, as I see it, be a denial of the present right secured to every registered medical practitioner to practise medicine, surgery, and midwifery. This contemplated restriction affects at present midwifery only, but unless

now resisted successfully by the profession will, I submit, be extended to other basic branches of medical practice.—I am, etc.,

London, S.W.1.

E. GRAHAM-LITTLE.

### The Lazy Eye

SIR,—It is common to see young children wearing spectacles with one eye occluded, in order, it is intended, to "train a lazy eye." One hand, usually the right, is by nature more apt in learning to write, and one eye, usually on the same side as the hand, is more effective in the visual discrimination of the graphic symbol. If that eye is prevented from use, the result is equivalent to immobilizing the dominant hand, and, given equal bilateral vision, the "lazy" eye is never the master.

The general result of this procedure is educational backwardness, which should never be taken lightly, because it is the commonest associated symptom in behaviour disorders, and in predisposed subjects, it may even initiate neurosis. The backwardness depends on these specific disturbances of reading, spelling, composition, and written work generally, including arithmetic, which follow interference with the development of the natural dominance of hand and eye, and are described in detail in works on education such as Burt's *The Backward Child* and Schonell's *Backwardness in the Basic Subjects*. Disturbances of speech are not uncommon.

These effects are neuro-physiological, and follow only after the "treatment" has been continued for a considerable time but a "lazy" eye is not quickly trained. Since the condition is nearly always optical in origin, often a hypermetropia, surely the rational treatment should be optical too.—I am, etc.,

London, W.1.

WILLIAM MOODIE.

### Manifestations of Malnutrition

SIR,—Dr. R. G. S. Whitfield in his interesting article (Aug. 2, p. 164) mentions the fact that the classical conceptions of beriberi and pellagra fail to illustrate the clinical pictures presented by malnourished or starved populations. This was further emphasized, for those who worked in the prisoner-of-war hospital camps in Singapore from 1942 to 1945, by the fact that among many hundreds of cases of malnutrition and deficiency disease scarcely a single clear-cut case of beriberi, and probably no clear-cut case of pellagra, was seen. In fact, these terms were not used after the first few months' captivity, and instead a diagnosis was stated as "avitaminosis B," followed by the principal symptom, such as "avitaminosis B, peripheral neuritis."

The list of conditions thus recognized as clinical entities was

Avitaminosis B,	oedema and dyspnoea
	abnormality of heart rate, bradycardia
	abnormality of heart rhythm, multiple premature systoles
	abnormality of blood pressure, hypotension, rising diastolic pressure
	abnormality of digestive tract, anorexia
Avitaminosis B,	abnormality of cerebral function, Wernicke's encephalopathy
	peripheral neuritis
	serotol dermatitis
	angular stomatitis with marginal glossitis
	ulcerative stomatitis
"	pellagroid skin changes with ulcerative stomatitis and permanent skin discoloration
	pellagroid dermatitis
	seborrhoeic dermatitis of face
	corneal degeneration
	retrobulbar neuritis
"	"painful-feet" syndrome
	spastic paraplegia

These conditions occurred either alone or in combination with one another, and a notable feature of their occurrence was the epidemic nature of their appearance. Thus at one time the most urgent problem was the pellagroid dermatitis with ulcerative stomatitis; at another, retrobulbar neuritis; and at another, the "painful-feet" syndrome. Although the "epidemics" overlapped, and although some conditions, especially angular

stomatitis with glossitis, were endemic rather than epidemic, nevertheless it was possible to recognize that certain of these clinical entities were more common at one time than at another, and that an increase of one condition did not necessarily herald or accompany an increase of the others.

Of course many more conditions could be added to this list by those whose practice led them into contact with different climatic or environmental conditions, as, for example, the "human-milk intoxication" of Fehily.<sup>1</sup> Similar observations have suggested to several workers that the symptoms of vitamin-B deficiency depend not so much on the lack of some specific component of the now large list of vitamins but upon the upset of that fine balance of chemical reactions that constitute the "internal milieu" of the organism, and that this upset of balance can be caused not only by deficient intake of certain components but also by abnormal proportions of such components in the diet.<sup>2</sup>

If the terms "beriberi" and "pellagra" were abandoned and some terminology such as the one described above were adopted we should probably be in a position to understand the vagaries of vitamin deficiency better than we do at present, and also to recognize them more often than we do in the course of normal clinical practice. The term "dietary imbalance" would probably be preferable to "avitaminosis," however, as being more inclusive and more non-committal.—I am, etc.,

Dublin.

B. MAYNE.

## REFERENCES

- <sup>1</sup> Fehily, L. (1944). *British Medical Journal*, 2, 592.
- <sup>2</sup> Sydenstricker, V. P. (1941). *Ann. intern. Med.*, 2, 1499.

SIR,—I was very interested in Dr. R. G. S. Whitfield's article (Aug. 2, p. 164) on anomalous manifestations of malnutrition in Japanese prison camps, especially with reference to "Fits." I saw a case in Nakom Paton Allied P.O.W. hospital in Siam which corresponds; it was the only one of its kind I encountered.

The patient, a British sergeant from a Malayan volunteer force, aged 40, was of pyknic build and in relatively good condition. He had been lucky, as he was employed as a medical orderly for the whole of his captivity at the base camp of the Siam-Burma railway. He only came to Nakom Paton near the end of the war as a member of the running staff. Without warning one day everything went blank and he fell with a crash, damaging his face. He was not doing any physical work at the time. I did not, unfortunately, see the fit, but onlookers gave a typical epileptical description. He was carefully examined by an eminent Australian physician, who decided on epilepsy. As I had known the patient personally since University days I knew he had no history or suggestion of this, and found myself unable to agree with the diagnosis. I finally decided it was a psychoneurotic manifestation, more especially as I knew he had been worrying about his wife, who had not been heard of since she left Singapore on a ship shortly before capitulation, and who finally was located after the war in a Japanese internment camp in the Dutch East Indies.

Such a suggestion seems also to have been thrown out by Dr. Whitfield with regards to his four "fits" patients in Mitsushima.—I am, etc.,

LENEX MACFARLANE.  
Lieut.-Col., R.A.M.C.

## Blood Gravity and Haemoglobin

SIR,—I would like to add a more critical opinion as to the value of the estimation of plasma and serum protein by the copper sulphate specific gravity technique than that expressed in the annotation (Aug. 9, p. 217). To the repeated assertion that this is an accurate method of estimating protein my findings in a large series of tests make it impossible to agree.

In 450 tests where duplicate estimations of the protein content of plasma and serum were made by the falling-drop specific gravity technique of Barbour and Hamilton<sup>1</sup> and by an accurate micro-Kjeldahl technique,<sup>2</sup> in 12.4% of these tests there was a difference of 0.5 g. per 100 ml. or over; in one instance this difference was no less than 1.76 g. The changes in the non-protein nitrogen were insufficient to explain these differences. No test was found by which to foretell whether the correlation of the results by the two methods would be close or widely divergent. Later experience with the copper sulphate method of estimating the specific gravity has been no more satisfactory than the Barbour and Hamilton technique.

Criticism of the specific gravity technique of estimating protein has been made by Looney<sup>3</sup> and by Zozaya.<sup>4</sup> The latter found that the test could not be used even to follow the protein changes in an individual patient where the non-protein factors which affect the specific gravity might be expected to be fairly constant. Contrary to the statement in the annotation, the specific gravity of plasma and serum is markedly affected by factors other than the proteins.

A more detailed report of our results will appear elsewhere.<sup>5</sup>—I am, etc.,

Biochemical Department,  
Royal Infirmary, Sunderland.

JOHN HARKNESS.

## REFERENCES

- <sup>1</sup> Barbour, H. G., and Hamilton, W. F. (1926). *J. biol. Chem.*, 69, 625.
- <sup>2</sup> Harkness, J., and Whittington, R. B. (1947). *Anal. chim. Acta* 1 153.
- <sup>3</sup> Looney, J. M. (1941-2). *J. Lab. clin. Med.*, 27, 1463.
- <sup>4</sup> Zozaya, J. (1935). *J. biol. Chem.*, 110, 599.
- <sup>5</sup> — (1938). *J. phys. Chem.*, 42, 657.
- <sup>6</sup> Harkness J. and Whittington R. B. *Anal. chim. Acta* (in press).

## Transport of Patients to Voluntary Hospitals

SIR,—In these days of strenuous work is it necessary that general practitioners should be obliged to undertake the duty of arranging with voluntary hospitals for the transport of patients who are to be admitted to the general wards? The present ambulance organization in London is deplorable except for patients going to municipal hospitals. County Hall now refers us to the voluntary hospital concerned. The hospital telephonist has no idea whose department is responsible. The secretary's office is no better informed. The almoners are anxious to be helpful, but take a long time to discover which administrative rope should be pulled. When their department is shut our plight is indeed desperate. I have frequently spent a half to three-quarters of an hour on this job, which formerly was completed in less than five minutes when it was done by direct contact with County Hall.

Who benefits by this new scheme? What disadvantages lay with the old scheme, which appeared from the doctor's angle to be a model of convenience and efficiency? The new scheme is time-consuming and infuriating to all concerned.—I am, etc.,

London, S.W.10.

A. E. B. HARDING.

## POINTS FROM LETTERS

## Clond Cuckoo Land

Dr. G. C. PETHER (Colchester) writes: Mr. Wilfrid Adams's commentary (Aug. 2, p. 190) on my letter to you is perfectly fair, and I should be the last to suggest that before the war all was perfect in the medical world. But I do suggest very strongly that the public and the politicians have seized upon our imaginary shortcomings to save their own consciences. I think it is true that medicine is distinguished by a complete absence of secrecy about recent and proven advances. Its outlook is humane and international, and it is particularly well informed of progress in other countries. Can we say the same of those who build our houses, grow and merchant our food, provide our daily papers, and spread hatred and distrust from the political platform? It is surely these people who can make or mar our physical and mental health. Our contribution must ever be small relative to that of the non-medical groups.

Concerning his last point I think it is true that we have made no secret of our views about proprietary medicines and patent foods. With a few exceptions others in the public eye seem neither to know nor care. . . . I still think that our professional contribution to health is creditable and that standards in many other occupations fall far below our own. . . .

## Treatment of Hydrocele by Injection

Dr. R. M. S. MCCONAGHEY (Dartmouth) writes: Dr. J. W. Nicolson (Aug. 2, p. 158) states that for many years several sclerosing substances have been used for the treatment of hydrocele. James Syme, of Edinburgh, in a clinical lecture dated 1851, said that "he had long since ceased to employ port wine for injection into the tunica vaginalis, on account of its proving very uncertain; and that during the last five years he had always injected the tincture of iodine alone and without a single case of failure. . . . The quantity required was about a teaspoonful, or as much as filled a common powder syringe, which was the most convenient instrument for the operation." (*Memorials of the Life of James Syme*, by Robert Paterson, Edinburgh, 1874.) One is at liberty to ponder whether the uncertainty of action of the port wine was dependent on the vintage.

## Obituary

ELLIOTT C. CUTLER, M.D., F.A.C.S., F.R.C.S.

We announce with regret the death of Elliott C. Cutler, Surgeon-in-Chief of the Peter Bent Brigham Hospital, Boston, Mass., and formerly Chief Consulting Surgeon to the United States Army in Europe. Only a few weeks ago (Aug. 2, p. 182) we recorded his election as President of the American Surgical Association. The U.S.A. War Department recently conferred on him a second Distinguished Service Medal, and the Boston Surgical Society had awarded him the Honorary Jacob Bigelow Gold Medal.

We are much indebted to Sir Gordon Gordon-Taylor for the following appreciation:

Elliott Carr Cutler came of a Puritan stock which migrated from Norfolk to the shores of America in the days of the *Mayflower* and in the early years of the seventeenth century. Alongside his forebears came men with names like Saltonstall, Winthrop, and others—distinguished families with whom the Cutlers are related by marriage ties to this day. His background was therefore no ordinary one; his father had earned the regard of all men, and to-day the name of Cutler commands respect and esteem not only in Massachusetts but along the whole Eastern seaboard of the United States. The calibre of the modern Cutler stock may be gauged by the fact that in the recent war two of the brothers attained the rank of brigadier-general, while a third became a rear-admiral in the United States Navy; each one of Elliott's sons served in the United States forces, and his eldest boy was wounded in Northern France.

Elliott Cutler was educated at Boston and was proud to have graduated from Harvard University. His surgical apprenticeships were served with Halsted at Johns Hopkins, Czerny at Heidelberg, Perthes at Tübingen, and others. During the first world war he had experience of war surgery, visiting Europe at two separate periods under the aegis of Harvey Cushing, who frequently referred to the energy, ability, and enthusiasm of his young colleague in the pages of his story of the first great conflict. After the war Elliott returned to Boston, and subsequently he became professor of surgery at Cleveland, Ohio. Thence he returned to his native city, on the retirement of Harvey Cushing, to become Moseley Professor of Surgery at Harvard University and surgeon-in-chief of the Peter Bent Brigham Hospital.

Many of our readers and those of the *British Journal of Surgery*, on the Editorial Committee of which he served, and most present-day British surgeons will remember Elliott Cutler as the chief consulting surgeon to the E.T.O.U.S.A. No more happy choice of a consulting surgeon for an army that was to fight shoulder to shoulder with an ally, training in the land of that ally, and fighting alongside that ally on the battlefields of Europe, can ever have been made. By the autumn of 1941 he already possessed the vision or knowledge that the time was not far distant when the United States of America were to be immersed in the conflict that was threatening to extinguish freedom and civilization. With indefatigable energy he had already planned in fullest detail the medical arrangements for the city in the event of air attack on Boston. But when war actually came to North America he was not satisfied with any prosaic, comfortable post at home; his old uniform of the first world war still fitted him, he appropriated his officer son's army waterproof coat, buckled on his belt, and he was ready for any part of the world to which authority might direct him.

The long period of training and preparation in Britain happily introduced him to many British surgeons, especially to those who wore a uniform, but he was a frequent and always-welcome visitor at the Royal College of Surgeons of England and the Royal Society of Medicine, and both bodies made him an Honorary Fellow before the war was over. With Sir Henry Tidy and L. R. Broster he instituted the successful monthly Inter-Ally Meetings which were held within the precincts of the Royal Society of Medicine, where medical and surgical problems of Service interest were discussed in camera. The slight, erect, soldierly figure, immaculately dressed, perfectly groomed, the unvarying bonhomie, the attractive voice, the

charming smile seemed to make Elliott Cutler a veritable paladin. His knowledge of history and of the world's best literature, with which his library was stocked, gave him mastery of words and lucidity of expression. While jealously loyal to his own colleagues and juniors, Elliott was ready to admire all that was best in the practice of his British brother officers, and he was not oblivious of the fact that experience in war surgery counts for much.

These attributes made Elliott Cutler one of the most wonderful ambassadors in surgery that the world has known. He may not have possessed the surgical stature of another great surgical ambassador, Lord Moynihan; he may not have attained the same flights of oratory, he may not even have enjoyed that supreme power of the pen; but Elliott's were gifts of the heart, and to him belonged a real genius for friendship and a wondrous and charming hospitality that drew all men to him. Not a few from this land have enjoyed the hospitality of that home in Brookline which was his father's before him, where his own sons were born, where, with his charming wife, Carol, he spent all the happy days of his Boston surgical appointments, and where he drew his last breath.

His membership of a surgical mission to the U.S.S.R. in 1943 evoked in him an intense admiration of Soviet achievement, and no surgeon worked harder to strengthen an *entente* between his own land and Stalin's great country. He was delighted to bestow the Honorary Fellowship of the American College of Surgeons upon Judin and Burdenko.

Elliott had always driven the chariot of his busy, feverish life with rein unchecked; not one moment of the day wasted, no evenings "steeped in honied indolence." Even when the truth of his mortal illness came "naked and sabre-like" against his great heart the pace of life never slackened. There was no neglect of the surgical direction of his hospital; he travelled all over the wide acres of the United States of America in his supreme desire that the surgical arrangements and the surgery for the veterans of the recent war should be the very best. The term "deputy" found no place in his vocabulary. He was the central, supreme, joyous figure at the marriages of his sons; he flew up from Georgia to present his commander-in-chief, General Eisenhower, for an Honorary Degree at Harvard; he changed his wedding garment for his uniform in his car *coram publico* in a traffic "jam" near Boston harbour! Despite his malady he flew down to the yacht races at "The Vineyard" because he was the commodore; drove his car back at break-neck speed to attend the memorial service to a relative, prepared discourses in acknowledgment of the Honorary Degrees that universities jostled with each other to confer upon him. No complaint of the unkind blow of Fate ever passed his lips; the courage of the man evoked admiration on every hand.

In the art of surgery he did pioneer work in the operative treatment of valvular disease of the heart. Men who were his pupils, like "Bobby" Gross and Dwight Harken, each in his own province of cardiologic surgery, have carried on the work which he started and have made world-wide reputations while still young.

Elliott's own technique was careful, deliberate, if slow; the Brigham tradition perhaps prevented any display of brilliance of which he himself was indubitably capable. His industry showed itself in the training of disciples rather than in the writing of books; his literary output consisted mainly of contributions to surgical journals, although a book on operative surgery, under the joint authorship of Robert Zollinger and himself, came from his pencil and pen.

His name will live on in that great galaxy of young surgeons whom he trained and inspired, who adored him, who accompanied him across the seas to the hospitals in Britain and France, and who are now in increasing numbers filling important surgical posts, carrying on the "Cutler tradition." Not less will "Elliott" be mourned by that host of men and women on this side of the Atlantic to whom he brought friendship, encouragement, and affection in the dark days of the war.

Dr. ALLAN CHILCOTT PARSONS died suddenly on March 29 at the age of 74. Dr. Parsons was well known in the West African medical service. Born at Portland, Dorset, the eldest son of Dr. F. J. Parsons, he was educated at Dorchester Grammar School and at the Royal Medical College, Epsom. A student of St. Thomas's and King's College, he qualified in 1898, and

took the certificate in tropical medicine of the London School of Tropical Medicine in 1903. He had served in the Artists' Rifles during the South African War, and in 1903 he went out to Northern Nigeria as the first medical officer to be posted to the area bordering on Lake Chad. After ten years in Nigeria he was transferred to the Gold Coast, where he became chief sanitary officer of the capital and port of Accra. He was out there during the 1914-18 war and served as a medical officer in the Togoland campaign. In 1916, while on leave in this country, he was seconded to the R.A.M.C. and served for the rest of the war in the Western, Northern, and Aldershot Commands with the rank of major. After the war he left the Colonial Service and joined the staff of the newly formed Ministry of Health. On his retirement from the Ministry he became a member of the South Eastern Area Guardians Committee, for which he did much valuable work. In the recent war he joined the Emergency Medical Service, and was on the staff of Redhill County Hospital, where he continued to work up to the time of his death, acting for the last few years as medical officer in charge of records. Apart from his public and professional activities he found time and energy for many other interests, and was well known as a naturalist, a tennis player, and a horticulturist. Among his publications were the *Hausa Phrase Book* and a chapter on malaria in Byam's *Practical Medicine in the Tropics*, and he was also responsible for one of the Ministry of Health Reports on encephalitis lethargica.

Dr. JOSEPH EDWARD JUDSON died at his home in Bourne-mouth on July 27. Dr. Judson was a student at Owens College, Manchester, and qualified in 1900. He was assistant demonstrator in anatomy for a time, and later house-surgeon at the Manchester Royal Infirmary and then at Ashton-under-Lyne Infirmary. He settled in Ashton-under-Lyne and was in general practice there for many years, entering into partnership with Dr. J. Bissitt Smith. He served with the rank of captain in the R.A.M.C. in the 1914-18 war, and he was on the consulting staff of the District Infirmary and Children's Hospital. Although he had been living in retirement for some years, his passing will be regretted by many friends and colleagues in Ashton.

Dr. WILLIAM STEWART STALKER died in Southport on July 29. A student of Glasgow University and King's College, London, he qualified in 1899, took the D.P.H. in 1909, and proceeded M.D. in 1912. On April 21, 1913, Dr. Stalker was appointed the first whole-time medical officer of health to the borough of Swinton, Lancs, then an urban district. Dr. Stalker resigned this position in August, 1921, to take up a similar post with the borough of Bromley in Kent.

A. E. W. writes: There are several officials who worked with Dr. Stalker who are still serving in Swinton, and without exception they remember and speak highly of his achievements during the period of his office here, and are deeply grieved at his passing. Swinton had no medical service as we know it to-day when Dr. Stalker took up his duties, and it required a keen and energetic person with vision for future planning. He laid the foundations of an efficient public health service, embracing the school medical and maternity and child welfare clinics. Closely associated with the school medical service was his work as a certifying factory surgeon, which was advantageous to the child leaving school and entering the factory or workshop. One of the monuments to Dr. Stalker's foresight and planning was the erection of an open-air school, one of the finest of its kind in the country, to replace the Army hut which served this purpose originally.

Mr. H. W. S. Wright (London, W.1) writes: I have just read with dismay, and more than regret, the notice of the death of Mr. J. Scouler Buchanan (Aug. 16, p. 275). It was only about six weeks ago that I had the privilege of spending a day with him, watching him operate, and going round his wards. One could not but be impressed by the wide range of his surgical interest, his patient judgment, and his clinical ability. The quality of the men he trained, their affectionate loyalty and esteem, and his own surgical ability had the hall-mark of a fine surgeon. One had the impression that he was the sort of person that one would like to operate on oneself, if ever it were necessary. He was a member of the Council of the Association of Surgeons, and we all looked forward to his meeting him once or twice a year for an hour or two; and his wise, unselfish advice was always valuable because, although he was devoted to Glasgow and its reputation, he had a wide and kindly outlook on the rest of the world and its problems. He will be missed and regretted by friends and colleagues all over the country, and his wife and children may be assured of all our understanding and sympathy.

## Universities and Colleges

### UNIVERSITY OF OXFORD

In a Congregation held on July 27 the following degrees were conferred:

D.M.—\*A. R. Norton.  
M.Ch.—E. E. Taylor.  
B.M.—B. V. McEvedy, R. Harvard-Davis, M. S. Kay, R. A. M. Oliver, J. M. Workman, A. L. Turnbull, L. J. Cawley, A. G. Parks, R. Alhadeff, M. L. H. Lee, Mary P. S. Dalton, Unity R. Allen, Olive P. Frodsham, Jessie F. Robertson, S. Wolff, \*R. A. Griffiths, \*C. B. Wynn-Parry, \*R. A. Chambers, \*C. Pallis, \*G. E. Honey, \*C. C. Kennedy, \*H. M. Lloyd, \*R. H. Balme, \*R. Scidelin, \*J. H. B. Yule, \*J. Slator, \*Isabel H. Burn, \*Jean Dutton.  
\* In absence

### UNIVERSITY OF LONDON

The following candidates have been approved at the examinations indicated:

M.D.—Branch I (Medicine): R. F. Butterworth, J. Colover, J. D. Craig, P. E. Dipple, D. G. Evans, P. R. C. Evans, F. S. Gorrill, E. R. Gubbay, G. R. Handy, J. Jacobs, A. M. Jelliffe, D. Lawrence, P. M. C. Mark, A. N. T. Meneses, L. Nancekivill, D. P. Nicholson, J. H. Paterson, A. B. Pollard, G. S. C. Sowry, A. G. Spencer, P. Stradling, D. J. Thomas, K. B. Thornton, W. G. Tillmann, S. D. V. Weller, M. Zoob. Branch II (Pathology): Isobel P. Bewick, F. A. Denz, A. W. Grace, R. E. B. Hudson, D. Long, K. J. Randall, B. A. D. Stocker. Branch IV (Midwifery and Diseases of Women): I. Donald. Branch V (Hygiene): Margaret E. R. Balfour, B. W. Davy, J. P. Fox, W. E. Greenwood, J. P. W. Hughes, H. I. H. Porcher, M. H. Rotman, C. A. Royde, R. S. F. Schilling, C. H. Shaw, Beatrice M. Thompson, K. O. A. Vickery, J. H. Whittles. Branch VI (Tropical Medicine): D. A. Andersen, J. I. Lesh, H. M. Rice, W. F. Townsend-Coles.

### LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE

The following candidates have been approved at the examination indicated:

D.T.M.&H.—G. M. Abraham, J. F. Britto, J. H. Cater, K. H. Cheung, S. Childs, L. M. B. Copland, M. A. C. Dowling, A. J. F. Eberle, E. N. Emmerson, Z. A. Fazelbhoj, S. K. Ganguli, V. T. H. Gunaratne, M. T. Gyi, V. W. D. Hall, W. D. Hughes, J. P. F. Hummel, M. P. Hutchinson, F. C. Kerr, S. Khayatt, S. N. Kothare, N. W. Low, P. C. Mahanty, B. K. Naik, A. A. Odier, A. H. A. R. Omar, C. P. Patel, D. N. Patel, A. J. Patterson, R. A. O'G. Pearson, J. G. Salter, J. P. Satterwhite, R. S. Saxton, J. C. Shee, R. P. Shields, K. G. B. Stork, R. Symons, S. W. W. Terry, W. F. J. M. Thom, E. Tuckman, H. W. Wheathe, H. H. Wozniak, G. B. Wright. Successful in Part B under old regulations: K. P. Hare.

The Lalceca Medal and the William Simpson Prize, awarded to the best student in the D.T.M.&H. class during the year, have been won by Dr. Henry S. Fuller of the first course of the academic year, 1946-7.

G. L. W. Bonney has been approved in the Branch I (Surgery) examination for the degree of M.S.

### UNIVERSITY OF MANCHESTER

The following appointments have been made: *Clinical Director of the Research Centre for Chronic Rheumatism*, J. H. Keilgren, F.R.C.S.; *Lecturer in Cardiology and Deputy Director of the Department*, A. Morgan Jones, M.B., Ch.B., M.R.C.P.; *Lecturer in Surgery*, J. Loewenthal, M.S., F.R.C.S.; *Lecturer in Ophthalmology*, A. Stanworth, M.B., Ch.B., D.O.M.S.; *Lecturer in Diseases of the Ear, Nose, and Throat*, N. A. J. Young, F.R.C.S.Ed.; *Lecturer in Medical Neurology*, G. S. Graveson, M.D., M.R.C.P.

### UNIVERSITY OF DURHAM

Dr. Frank H. Lahey will deliver the second Rutherford Morison Lecture in the Royal Victoria Infirmary, Newcastle-upon-Tyne, on Sept. 25, at 5 p.m. His subject is "Thyrotoxicosis, Thyroidectomy, Thiouracil."

### ROYAL COLLEGE OF SURGEONS OF ENGLAND

The following candidates were successful in the recent Primary Fellowship examination conducted by the College:

N. H. Antia, D. Banerjee, D. Bartlett, P. H. Beales, J. Block, D. E. Bolt, J. F. Bolton Carter, T. Burke, T. G. Cameron, T. O. Candler, H. Chaudhuri, C. D. Clark, R. I. Cohen, P. W. Cotter, R. P. Crick, P. I. Cromack, P. J. Damato, O. Daniel, T. C. H. Davies, B. H. Egerton, T. Fenwick, V. S. Van V. Fernand, T. H. Fisher, D. W. Fleming, N. A. Fowler, E. K. Gardner, E. Griffiths, M. Hershman, A. C. Hicks, N. S. Hooton, E. W. Ilanagantileke, P. H. Jayes, D. H. Jenkins, E. Jones, K. V. J. Kearney, A. U. Khan, J. M. Large, G. H. Leyien, J. S. A. Linton, W. C. Lyon, A. B. Mackenzie, R. A. Megally, J. W. Montgomery, T. P. Morley, A. O. A. Ohannessian, B. M. Omar, E. N. Owen, E. H. Paterson, V. T. Pearse, M. F. Pilcher, D. W. Purer, M. A. Radwan, A. J. H. Rains, D. G. Reinold, J. P. I. Rose, D. T. Rowlands, E. P. Samuel, N. J. Shah, I. M. Shulman, J. H. Smart, H. G. Slack, D. H. Teasdale, C. L. Tucker, A. R. Wakefield, B. W. Wells, H. G. Williams, A. M. E. A. Zikry.



INFECTION DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Aug. 2:

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

*Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are far : (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.*

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1947					1946 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	48	11	17	2	1	44	5	15	—	3
Deaths .. ..	—	—	2	—	—	—	—	—	—	—
Diphtheria .. ..	200	20	29	16	6	246	18	69	23	15
Deaths .. ..	2	—	—	—	1	1	—	—	—	—
Dysentery .. ..	53	5	10	—	—	59	8	28	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Encephalitis lethargica, acute .. ..	2	—	—	—	—	1	—	1	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Erysipelas .. ..	—	—	22	8	2	—	—	25	6	6
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Infective enteritis or diarrhoea under 2 years .. ..	—	—	—	52	—	—	—	—	48	—
Deaths .. ..	52	4	17	—	1	36	6	7	30	1
Measles* .. ..	6,954	366	61	336	8	3,540	376	98	34	15
Deaths .. ..	1	—	—	—	—	1	—	1	—	—
Ophthalmia neonatorum .. ..	80	7	19	3	1	72	7	15	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Paratyphoid fever .. ..	19	—	1(A)	1(B)	—	7	—	1(B)	—	2(B)
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal .. ..	271	17	1	—	3	356	26	1	1	3
Deaths (from influenza)† .. ..	3	—	—	—	—	4	1	—	—	—
Pneumonia, primary .. ..	—	—	79	17	—	—	—	138	12	—
Deaths .. ..	—	20	—	6	—	—	19	3	9	—
Polio-encephalitis, acute .. ..	39	7	—	—	—	1	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Pollomyelitis, acute .. ..	448	53	37	5	11	23	1	—	3	1
Deaths .. ..	—	3	—	—	—	—	—	—	—	—
Puerperal fever .. ..	—	—	9	—	—	—	5	20	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Puerperal pyrexia‡ .. ..	145	14	6	—	3	146	10	14	1	—
Deaths .. ..	—	—	—	—	—	1	—	—	—	—
Relapsing fever .. ..	—	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Scarlet fever .. ..	803	80	98	32	20	940	82	134	20	14
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Smallpox .. ..	—	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Typhoid fever .. ..	6	—	4	3	2	60	1	7	4	1
Deaths .. ..	—	—	—	—	—	—	—	1	—	—
Typhus fever .. ..	—	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Whooping-cough* .. ..	1,737	195	29	71	5	2,092	159	35	41	27
Deaths .. ..	8	2	—	—	3	7	—	1	1	1
Deaths (0-1 year) .. ..	320	45	67	—	7	357	50	51	45	10
Infant mortality rate (per 1,000 live births) .. ..	—	—	—	—	—	—	—	—	—	—
Deaths (excluding stillbirths) .. ..	3,900	609	530	—	101	3,802	587	517	166	99
Annual death rate (per 1,000 persons living) .. ..	—	—	11.0	—	—	—	—	11.4	10.6	—
Live births .. ..	8,972	1404	1073	—	251	8,367	1250	1004	506	238
Annual rate per 1,000 persons living .. ..	—	—	21.6	—	—	—	—	20.2	32.4	—
Stillbirths .. ..	252	32	40	—	—	265	37	28	—	—

\* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

It is still not possible to publish the return of births and deaths for Eire for the weeks ended July 26 and Aug. 2.

## Poliomyelitis

The notifications of poliomyelitis in England and Wales the week ending Aug. 9 numbered 568, compared with 448, and 177 in the three preceding weeks. The rate of incidence from week to week is therefore 27% now, as against some of the order of 50% in the previous weeks. This may be of little or no significance, or it may mean that the curve of incidence will now begin to flatten out.

There were increases in notifications in the following co-areas (the figures for the previous week are shown in parentheses): London 84 (53); Lancashire 71 (36); Middlesex 20 (1); Kent 21 (13).

There were decreases in notifications in the following co areas (again the figures for the previous week are shown in parentheses): Yorkshire W.R. 57 (70); Durham 36 (Surrey 24 (32); Yorkshire E.R. 5 (16).

Notifications of polio-encephalitis have shown an abrupt rise to 56 in the week ending Aug. 9. The figures for the last 5 weeks were: 9, 16, 16, 34, 39, and now 56. This rise may be more apparent than real. In a few areas cases of poliomyelitis with some bulbar involvement may have been notified as cases of polio-encephalitis.



FIG. 1.—Scotland

The two maps show the distribution of cases of poliomyelitis in Scotland and in London. They should be compared with the map showing the distribution in England and Wales which we published in our issue of Aug. 9 (p. 23). The map of Scotland (Fig. 1) gives the distribution by count of 63 cases of poliomyelitis notified during the five weeks ending July 26. The areas shown in black had no cases. Ringed figures indicate the notifications by counties, and the

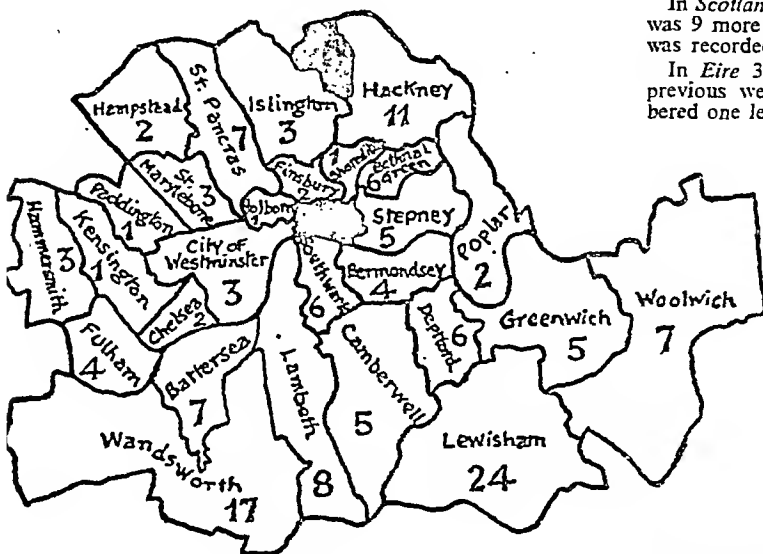


FIG. 2.—London

include the figures given in squares, which show the incidence in particular towns. Thus all 5 cases in Aberdeenshire were in the city of Aberdeen; of the 4 cases in Fife 3 were notified in Kirkcaldy. Glasgow continues to have the highest incidence of cases, and by Aug. 15 there had been 84 cases admitted to the Glasgow fever hospitals since the beginning of June. There were in addition about 20 suspected cases. Of the first 64 cases (34 males, 30 females) 5 have already made a complete recovery, and there have been 4 deaths.

The map of London (Fig. 2) shows the distribution by Metropolitan Boroughs of the County of London of 146 cases of poliomyelitis notified during the six weeks ending Aug. 2. The two areas which are shown in black and which had no cases were the City of London and the Borough of Stoke Newington. Over this six-week period the three boroughs which showed the highest incidence were Lewisham 24, Wandsworth 17, and Hackney 11.

We announced last week (Aug. 16, p. 260) that the Emergency Bed Service was responsible for allocating the beds set aside for cases of poliomyelitis in the London teaching hospitals. The telephone number of the Emergency Bed Service was then incorrectly given as Clerkenwell 6571; this should have been Monarch 8515.

#### Discussion of Table

In England and Wales notifications of measles decreased by 390 as compared with the previous week; other decreases included whooping-cough 187, scarlet fever 184, and pneumonia 40. There were increases in the incidence of acute poliomyelitis 146, diphtheria 26, cerebrospinal fever 17, and acute poliomyelitis 5.

The largest decreases in the notifications of measles occurred in Northamptonshire 115, where an abnormally large number of cases were notified in the previous week, Staffordshire 96, Cheshire 64, and seven other counties in which the decrease was between 50 and 60 cases. From Glamorganshire 97 more cases were reported than in the previous week, while other increases included Devon 66, Southampton 64, and Durham 56.

Differences between the notifications from individual counties for the two weeks were generally small in respect of whooping-cough and scarlet fever. The largest decrease in the notifications of whooping-cough was reported from Warwickshire 58.

There was an increase of 146 in notifications of acute poliomyelitis. The number of counties now involved in England and Wales is 43, and six of these reported fresh cases for the first time during the eight weeks in which the number of notifications has been increasing: Huntingdonshire 1, Cambridgeshire 2, Soke of Peterborough 1, Norfolk 1, Shropshire 1, and Montgomeryshire 1. The largest increases over the figures for the previous week were Durham 25, Lancashire 19, Yorkshire West Riding 18, Surrey 17, Yorkshire East Riding 13, and Staffordshire 11.

In Scotland the number of notifications of acute poliomyelitis was 9 more than in the previous week, while a decrease of 13 was recorded for dysentery and 63 for pneumonia.

In Eire 32 cases of scarlet fever, an increase of 7 on the previous week, were recorded. Cases of poliomyelitis numbered one less than the week ending July 26.

In Northern Ireland the number of cases of poliomyelitis reported was 4 more than in the previous week.

#### Quarterly Returns for Northern Ireland

The birth rate for the quarter ended Mar. 31, 1947, was 24.9 per 1,000 population, compared with 21.9 for the corresponding quarter of the previous year; this is the highest rate recorded for the first quarter of any year since Northern Ireland became a separate administrative unit. The infant mortality rate of 60 per 1,000 registered births is the lowest recorded for a March quarter. A maternal mortality rate of 1.7 per 1,000 births was recorded, compared with 3.3, the average for the corresponding quarters of the previous five years. The death rate from all causes was 17.7 per 1,000 of the estimated population and exceeded that of the first quarter of 1946 by 1.3. The death rate from all forms of tuberculosis was 0.94 per 1,000, as in the March quarter of the previous year, while that from cancer was 1.55 per 1,000, compared with 1.48.

#### Week Ending August 9

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 680, whooping-cough 1,508, diphtheria 138, measles 5,488, acute pneumonia 225, cerebrospinal fever 66, acute poliomyelitis 568, acute poliomyelitis 56, dysentery 78, paratyphoid 7, and typhoid 9.

## Medical News

#### Medical Education in India

Lord Moran presided at a luncheon at Brown's Hotel, Dover Street, on Aug. 14, when members of the medical profession in London were invited to meet Dr. R. G. Cochrane, director of the Christian Medical College, South India. Introducing Dr. Cochrane, Lord Moran referred to his work in the field of leprosy and to the importance of his present post in medical education in India, about which he invited him to speak. Dr. Cochrane mentioned the special significance of the day in the history of India. He told of the improvement in the relations and feeling between Indians and British which took place immediately after the date for Indian independence was fixed, and said that there was at the present time a great opportunity for co-operation and mutual help between the three countries. In the realm of medicine a special field for such service existed in the Christian Medical College at Vellore in South India, about 90 miles west of the city of Madras. This College was training men and women students for the M.B., B.S. degree of the University of Madras and was the only institution of its grade in the country under Christian control and direction, being both interdenominational and international in its support. He specially emphasized the need for setting and maintaining a high standard of medical practice and conduct in India where there was an ever-present tendency to praise and use the old Ayurvedic system.

#### Electroencephalography

An international meeting of electro-encephalographers sponsored by the Electroencephalographic Society was held at the National Hospital, Queen Square, London, on July 14-16, over 50 representatives from Europe and America being present. The opening discussion was on E.E.G. technique, including electrode material and electrode placements, and it was stated that the recommendations for the performance of apparatus issued by the American Society of Electroencephalographers conformed very closely with the existing British practice. A committee was formed to examine the possibilities of an international journal of electroencephalography. On the second and third days the physiological and clinical aspects of the E.E.G. were discussed, and an account of a new method of spatial analysis was given by W. Grey Walter (Burden Neurological Institute). The meetings concluded with a review of twenty years of electroencephalography, opened by Dr. E. A. Carmichael (National Hospital). During the proceedings Dr. H. H. Jasper (President, American Society of Electroencephalographers) expressed the view that, from what he had seen, Great Britain was in advance of the rest of the world in E.E.G. technique.

**Medical Sickness Society**

A year of outstanding progress was reported at the annual general meeting of the Medical Sickness, Annuity, and Life Assurance Society, Ltd., held at 7, Cavendish Square, W.1, on July 15. Mr. R. J. McNeill Love, M.S., F.R.C.S., Chairman of Directors, said that during the year the new business, amounting to well over half a million pounds, had substantially exceeded the previous record in 1938, and had more than doubled—in the Sickness Fund had almost trebled—the figure for 1945. The total membership of the Society now exceeded 10,000 doctors and dental surgeons. The Life Assurance Fund had passed the two million mark, with an annual premium income of over £185,000. The Sickness Fund also had attracted a large number of new contracts, owing partly to the demand for insurance by those who had been in the Forces and partly to the need felt by existing members to increase their frequently inadequate pre-war insurances. The total invested funds stood at £3,448,000. The Society's experience in respect of policies for sickness and accident insurance (Mr. Love continued) had been extremely favourable, and it was now possible not only to restore the pre-war rate of bonus but slightly to improve upon it. A reversionary bonus on the principal types of policy was now proposed at the record rate of 16s. for each guinea per week insured, meaning that a policy for 10 guineas per week which had been in force for five years would receive an allotment of £40 bonus to be paid at its termination or at the previous death of the insured. The Directors' Report and Accounts and the Valuation Report were adopted, and the recommendations for reversionary and interim bonuses on the various policies were agreed to. The Valuation Report revealed a total surplus on the sickness and life assurance funds of £393,332. Mr. McNeill Love and Dr. A. H. Douthwaite, who retired by rotation, were re-elected directors, and Messrs. Sturges, Fraser, Cace and Co., auditors.

The proceedings closed with a vote of thanks to the chairman, moved by Mr. Lancelot Bromley, and seconded by Sir Cecil Wakeley.

**British Institute of Radiology**

Sir Ian Fraser, M.P., proposed the toast of Radiologists, coupled with the name of Dr. Richard Fawcitt, President of the Northern Branch of the British Institute of Radiology, at a dinner held at Newby Bridge, Lancs, after the annual conference. Remarking that making a speech was not dissimilar from having a baby—it was easier to conceive than to deliver—he briefly reviewed the developments of radiology, and mentioned in particular its services to the Armed Forces, where mass radiology was becoming commonplace. It should be universal. He concluded by paying a tribute to Dr. Fawcitt for his work in radiology in general and for the help he had rendered to the citizens in that part of England, notably the submarine crews that had sailed from Barrow.

**Cytological Congress**

The Sixth International Congress of Experimental Cytology was held in Stockholm on July 10-17 under the presidency of Prof. Johan Runnström. The American biochemist Prof. A. Mirsky described his methods of isolating chromosomes and of investigating their chemical composition, emphasizing that his researches confirmed the results obtained by Prof. T. Caspersson. Prof. Astbury surveyed the possibility of explaining biological processes in the cells with the aid of x-ray spectrography and the electron microscope. Prof. P. de Fonbrune, of France, showed by means of a film how he removed the nucleus from a living cell and inserted it into another, and Dr. A. F. W. Hughes lectured on new methods for measuring the viscosity of the cell liquid. A large cyclotron is being constructed at the Physico-Chemical Institute, Uppsala.

**Condensed Milk**

A circular from the Ministry of Food announces that those receiving household milk powder on medical grounds may be supplied instead with equivalent quantities of machine-skimmed sweetened condensed milk, applications for which should be made to the local Food Office.

**Knight of the Order of St. Olav**

The decoration of Knight (First Class) of the Royal Norwegian Order of St. Olav has been conferred upon Dr. C. Bowdler Henry in recognition of services rendered during the war.

**Mental Health Service**

A circular from the Ministry of Health points out that under the National Health Service the administrative functions of the Mental Health Service will be transferred to the Minister, leaving to the Board of Control the quasi-judicial functions relating to the liberty of the subject. A Mental Health Division of the Ministry of Health has been established and the members and staff of the Board of Control have been assigned to it.

**Royal Free Hospital School of Medicine**

The name of the London (Royal Free Hospital) School of Medicine for Women has been changed to the Royal Free Hospital School of Medicine, by which title the School will be known henceforth.

**N.H.S. Executive Councils**

Executive Councils to administer locally the general medical services under the National Health Service are being set up—normally one for each county or county borough. A chairman appointed by the Minister of Health will preside over each Council and of the 24 other members 8 are appointed by the local authority 4 by the Minister, 7 by the local medical committee, 3 by the local dental committee, and 2 by the local pharmaceutical committee. Doctors and others taking part in the family practitioner arrangements under the Act will be in a contractual relationship with these Councils. An ophthalmic service committee, which will include members appointed by the Executive Councils, will run the ophthalmic service.

**Wills**

Dr. Brice Collyer, of South Croydon, who died on Jan. 13, left £33,613. Dr. Arthur Mantell Daldy, of Hove, left £37,187. Dr. Edward Tyson, of Ulverston, Lancs, left £17,746.

**COMING EVENTS****R.C.P. Dinner**

In connexion with the International Conference of Physicians, the programme of which was printed in the *Journal* of June 21 (p. 895), the Royal College of Physicians of London has arranged a dinner to be held at the Guildhall on Wednesday, Sept. 10, at 7 p.m. for 7.30 p.m.

**APPOINTMENTS**

The Minister of Health has approved the appointment of Mr. J. E. Pater to be an Under Secretary.

Harold Davis, Ph.D., F.R.I.C., who has been chief pharmacist at University College Hospital since 1929, has been appointed Chief Pharmacist to the Ministry of Health.

Geoffrey Commeline Williams, O.B.E., M.R.C.S., L.R.C.P., medical officer of health for the County Borough of Oxford, has been appointed Senior Administrative Medical Officer of the Oxford Regional Hospital Board, and Mr. George Watts, secretary of the Berks, Bucks, and Oxon Regional Hospitals Council of the Nuffield Provincial Hospitals Trust, has been appointed secretary of the Board.

William Patterson Forrest, L.R.C.P.&S.Ed., D.P.H., has been appointed assistant director of the headquarters office of the World Health Organization Interim Commission in New York City.

Dr. Forrest was formerly chief medical officer with the United Nations Relief and Rehabilitation Administration's Ukrainian mission.

DRUMMOND, J. C., M.Ch.Orth., F.R.C.S.Ed., Temporary Surgeon, No. Middlesex County Hospital.

RUGBY: HOSPITAL OF ST. CROSS.—Ophthalmic Surgeon, T. J. P. Kervil M.B., B.Ch., D.O.M.S. Dermatologist, J. Overton, M.D., M.R.C.P. Surg. Registrar, F. J. C. Matthews, F.R.C.S. Orthopaedic Registrar, K. L. Mai F.R.C.S.

**BIRTHS, MARRIAGES, AND DEATHS**

The charge for an insertion under this head is 10s. 6d. for 18 words or 18 Extra words 3s. 6d. for each six or less. Payment should be forwarded with the notice, authenticated by the name and permanent address of the sender and should reach the Advertisement Manager not later than first post Monday morning.

**BIRTHS**

HAMILTON.—Women's Hospital, to Margaret (née Baker), son—Stephen Fraser.  
HEATH.—On July 13, 1947, to Michael (née Mason) and Christopher Heath, St. Day, Cornwall, a daughter.  
MANNING.—On Aug. 12, 1947, at Wilmar Lodge, to Mary (née Ford), wife Dr. F. R. C. Manning, of Epsom, a son.  
MOLL.—On Aug. 15, 1947, to Dr. and Mrs. F. C. Moll, 84, Andover St. Sheffield, 3, at the Jessop Hospital, a son—John Graeme Francis.  
TWEEDIE.—On July 27, 1947, at Liverpool, to Gladys Blatchcliffe (née Telford) wife of George Carrick Tweedie, a daughter.

**MARRIAGES**

JEFFERSON—HUGHES.—On Aug. 16, 1947, at Oswestry, Dr. A. A. Jefferson Dr. M. Eirlys Hughes, M.R.C.P.  
SMITH—MACBRIAR.—On Aug. 16, 1947, at Glasgow Cathedral, Dr. Alastair William Smith, M.B.E., to Sheila Mary Macbriar.  
WHITE—MITCHELL.—On Aug. 11, 1947, at Whitley Bay, Northumberland, Lieut. Albert Edward White, R.A.M.C., to Lieut. Jean Haddow Mitchell, R.A.M.C.

**DEATH**

CAMPBELL.—On July 31, 1947, at Glenmore, Lochs, Stornoway, Donald Campbell M.B., Ch.B., J.P., husband of Mary Campbell and father of Evelyn, Nan, and Catlum, aged 59.

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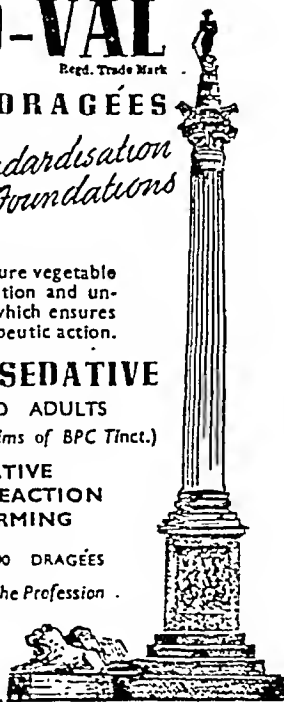


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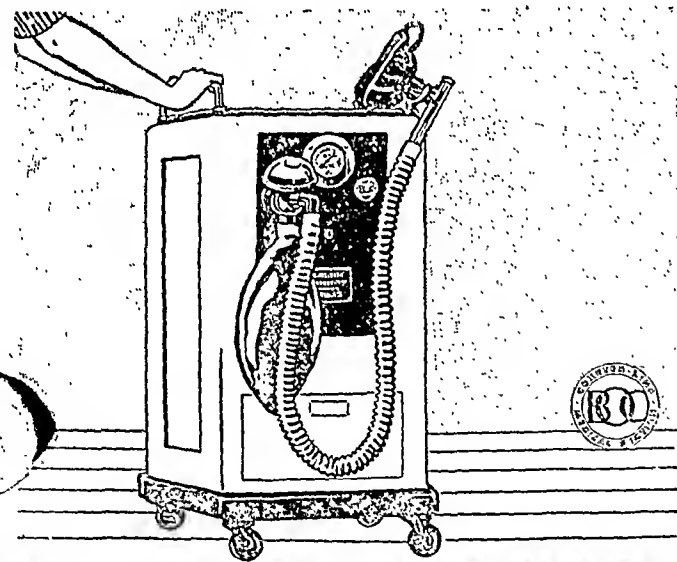
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## Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

### Poliomyelitis and Swimming-baths

**Q.**—What is the precise position as to swimming-baths and anterior poliomyelitis? Should a swimming-bath be closed in an area in which there have been cases and, if so, why?

**A.**—There is no concrete evidence that swimming-baths have contributed to the spread of poliomyelitis. Whether they are likely to do so or not depends to some extent on the mode of spread of the infection. If spread is mostly by the respiratory route, close contact among children in an overcrowded pool may facilitate the transfer of infection. Bath superintendents should therefore limit the number of children admitted to the baths in areas where poliomyelitis has occurred. Further, since exhausting exercise may predispose to the paralytic stage in an infected child, the time for which children stay in the swimming-bath should be strictly limited. If, on the other hand, the intestinal mode of spread is the more important, chlorination of the water to maintain 0.2–0.5 p.p.m. free chlorine will at least minimize the risk of infection, since approximately 0.2 p.p.m. chlorine destroys poliomyelitis virus in ten minutes. Frequent bacteriological examinations will reveal whether or not the chlorination is being efficiently done. Hired swimming suits and towels should be washed in hot water and laundered between use; changing-cubicles should be kept clean. If these conditions are observed, the swimming-bath is unlikely to be more dangerous than the street where children play together. Non-chlorinated stagnant bathing-pools and children's paddling-pools may be more likely to spread infection by becoming grossly polluted. They should be avoided or closed in an infected area.

### Abortifacient Pastes

**Q.**—I have a patient who I suspect is six weeks pregnant; if so, a therapeutic abortion is indicated. Can you tell me how this may be obtained with the least trouble to the patient; she is terrified of having an anaesthetic? Are abortifacient pastes effective?

**A.**—The reply to this question depends to some extent on the indications for terminating the pregnancy, and on other factors such as the parity of the patient and whether the cervix is tightly closed. Induction of abortion is never such a simple procedure as might be expected, and methods which involve the least trouble for the patient are often inefficient or dangerous, or both. Could not this patient's objection to general anaesthesia be overcome by use of an intravenous anaesthetic? If not, the insertion of laminaria without anaesthesia should be considered. Dilatation of the cervix and evacuation of the uterus, using local analgesia, is also a possibility.

Mention of abortifacient pastes deserves comment at some length. Several of these pastes have been marketed on the Continent, in the U.S.A., and in this country since about 1930. They consist essentially of alkaline soaps medicated with iodine and astringents. They have a strong haemolytic and cytolytic action and act by chemical rather than mechanical irritation of the uterine wall. The paste is injected (through the special cannula supplied with the tubes) into the lower part of the uterus, outside the membranes, the amount depending on the duration of pregnancy. Expulsion of the ovum generally takes place twenty-four to thirty-six hours after injection. Anaesthesia is not required, but the injection should be made slowly, without pressure and with due regard to asepsis. If there is any pain or bleeding the injection should be stopped at once. The method should never be used during the first six weeks of pregnancy, otherwise the paste may escape past the small ovum and enter the Fallopian tubes and peritoneal cavity. The above instructions are based on those issued by manufacturers of these pastes.

The advantages of inducing abortion by this means are simplicity in technique and avoidance of anaesthesia.

Although the method is often successful, however, reports indicate that the process of expulsion of the ovum is sometimes protracted for as long as five or six days, and operative intervention to complete the abortion is required in 10 to 20% of cases. It is claimed that this method avoids the danger of rupture of the uterus and laceration of the cervix which attends other procedures. Nevertheless, such risks are not excluded and cases of perforation of the uterus by the cannula are recorded. In early pregnancy at least, the paste may pass through the tubes, giving rise to pain and collapse, and even peritonitis. At any time during pregnancy there is a real risk of endometritis and salpingitis, which are sometimes associated with extensive necrosis of the uterine wall and neighbouring tissues. Apart from post-mortem findings, animal experiments confirm that these pastes can cause necrosis of the uterus. They have been shown to penetrate the myometrium and can enter the chorio-decidual space and the maternal blood sinuses. In the blood stream they may produce general and severe haemolysis, resulting in jaundice and sometimes death. Fatal multiple micro-emboli are recorded, and so are pulmonary embolism, septicaemia, systemic poisoning, and kidney and liver lesions. Other sequelae mentioned in the literature are chronic pelvic infections and sterility. Even when major complications are avoided, the bleeding following the abortion tends to be unusually heavy and prolonged.

Cases illustrating all these types of ill effects are described by R. W. Weilenstein (*J. Amer. med. Ass.*, 1944, 125, 205), who also gives many references to the Continental medical literature, all of which indicate the dangers of abortifacient pastes. By 1932 there were already reports of at least twenty-five fatalities in the German literature alone. In that year the American Medical Association published a report (*J. Amer. med. Ass.*, 1932, 98, 215) calling the attention of the medical profession to the dangers of this method of inducing abortion, and the same journal has since given repeated warnings in its editorials. It is only in recent years that the use of abortifacient pastes has received much attention in this country, but they now appear to be obtaining adherents who are naturally attracted by the simplicity of the method and do not always appreciate the risks.

### Starting a Mental Home

**Q.**—Could you give me any information on starting a small home for mild mental cases not requiring certification? Are there any statutory requirements for nursing staff, and is a licence needed? What would be the probable position under the new health service? Can you tell me the prospects of filling such a home for, say, 12 patients where the charges are moderate? What is the position as regards certified patients?

**A.**—Such a home is in law a nursing home and must be licensed by the local authority. This is the county or county borough council, or the borough or district council if powers have been delegated to it. The authority may refuse a licence on account of unfitness in the applicant, employees, situation, construction, state of repair, accommodation, staffing, or equipment. The home must be in charge of a resident doctor or qualified nurse, and there must be a proper proportion of qualified nurses on the staff. What proportion is "proper" is left to the judgment of the licensing authority, and depends on circumstances. If any patient is potentially dangerous to himself or to others the Board of Control is interested: its approval is necessary, and the formidable Mental Health Rules must be observed. The new health service will not affect small nursing homes run for profit. If the food was good and the patients were happy, such a home would probably be besieged in these days. The Lunacy Act, 1890, stopped the licensing of new homes for certified patients.

### Death Certificates

**Q.**—On a death certificate are the words: "Last seen alive by me." What is the legal maximum time that can intervene between the last time a person is seen alive and the date of issuing the death certificate?

**A.**—There is no legal maximum, but if the certificate shows that the practitioner did not see the deceased within fourteen days of death the registrar will report the case to the coroner.

**Vitamin C Content of Fruit Squash Concentrates**

**Q.**—What is the vitamin C content in 1 fluid oz. of the fruit squash concentrates available to the public?

**A.**—The vitamin C content of fruit squash concentrates will depend on the kind of fruit. Concentrates contain approximately 25% fruit juice with a preservative that is stated not to destroy the vitamin C. The vitamin C content of 1 fluid oz. (28.4 ml.) of any fruit squash concentrate should therefore be approximately one-quarter of what would be present in the fresh fruit juice. The following are the average figures for the vitamin C content of the fresh juice expressed in milligrammes per fluid oz. of juice: orange, 14; lemon, 14; grapefruit, 12; lime, 16. Deterioration of vitamin C occurs on storage, particularly if the fruit juice is exposed to the air.

**Vital Statistics**

**Q.**—Where may I obtain vital statistics relating to the incidence and mortality of the commoner diseases during the last half-century? I should also like to consult figures concerning the application of modern chemotherapy to such diseases.

**A.**—Deaths by causes are published in the Annual Reports and Statistical Reviews of the Registrar-General. No statistics are available for morbidity, and with the exception of the notifiable diseases nothing is known about the incidence of various diseases. Although some information as to the amount of sickness has been published in the *Monthly Bulletin of the Ministry of Health and the Public Health Laboratory Service*, these data were collected by the Social Survey. Except for articles in the medical press there are no data relating to chemotherapy and its application to disease. Chemotherapy is now generally employed for many conditions, and the comparison usually made is between mortality now and before the introduction of chemotherapy.

**Silicates and Pneumoconiosis**

**Q.**—There is conclusive evidence that free silica causes silicosis and that asbestos causes asbestosis. Is there any clear evidence that silicates apart from asbestos cause either pneumoconiosis or fibrosis?

**A.**—There is no clear unequivocal evidence that pneumoconiosis or fibrosis of the lung is caused by silicates apart from asbestos. Claims have been made that silicates do act in this way, but investigations have been inadequate either to substantiate or to refute completely such claims. It is true that certain pulmonary changes have been produced by silicates, and individual cases of fatal disease have been recorded in which silicates other than asbestos appeared to have been the cause, although the radiological and pathological signs which characterize silicosis were not found. Such were described by Mavrogordato in workers in a norite quarry and by Badham in workers in orthoclase basalt and the miners of Broken Hill. Pulmonary changes, both clinical and radiographic, have been found among workers exposed to dusts of talc, china clay, sillimanite, and mica, but in experimental studies Gardner found no support for a belief in the capacity of silicates other than asbestos to provoke progressive fibrosis. In considering this question regard must be had to possible influences such as the presence of infection, the importance of the time factor, and the incompleteness of factual data on the effects of mixed dusts.

**Examination of Saliva**

**Q.**—In a healthy girl of 16 many carious cavities continue to form in spite of her taking plenty of milk and a sufficient dosage of calcium and vitamin D in addition for the last two years. Her teeth are said to be soft and crumbling, and the dentist suggests a test of the saliva for acidity. What, if any, examination of saliva should be asked for, and what further constitutional treatment is possible?

**A.**—The examination of saliva to test the pH is extremely fallacious. The only true method of ascertaining the salivary pH is to pass cannulae into the orifices of the ducts under oil. Samples of saliva taken from the mouth in the ordinary way vary greatly in pH in relation to the amount of carbon dioxide dissolved; any variation in pH merely reflects, therefore, the

carbon-dioxide content at that particular time. Treatment should be directed towards local hygiene in the mouth, with a diet as high as possible in roughage and cleansing foods, particularly at the finish of meals. Evidence that constitutional treatment is of benefit after the teeth have erupted is very inconclusive.

**Stability of Penicillin in Oil**

**Q.**—What is the best method of using penicillin when only about two injections are possible daily? What are the keeping properties of penicillin in wax and oil?

**A.**—A large dose can be given twice daily in ordinary solution; the merits of this proceeding have been discussed in answers to several recent questions (Jan. 25, p. 167; Feb. 1, p. 207; April 19, p. 551). A more prolonged effect, as judged by blood levels, can be obtained by the same dose given in suspension in oil. The best preparation of this kind is calcium penicillin suspended in beeswax-peanut oil, as recommended by Romansky and Rittman. This material is one of the most stable of all penicillin preparations; there is no fear of its deterioration within any reasonable time. The suspension in ethyl oleate which has recently been manufactured in this country does not exert so prolonged an effect.

**NOTES AND COMMENTS**

**Removal of Placenta.**—Mr. ARTHUR CLIFT, F.R.C.S. (Croydon Obstetric Unit), writes: Referring to the excellent answer on this subject (Aug. 2, p. 195), the last paragraph, dealing with the modern treatment of retained placenta by the intravenous administration of ergometrine, states: "If, however, the placenta does not come away at once, manual removal has to be carried out *without delay*." It should be stressed that an attempt should be made to expel the placenta about 45 seconds after the administration of the ergometrine (this may be given intravenously or, as Prof. Moir has suggested, into the uterine muscle through the abdominal wall) i.e., as soon as the uterus firmly contracts; otherwise the uterus may so firmly contract on to the placenta that its expulsion is rendered impossible. It is not usually possible to remove the placenta manually for up to some thirty minutes after the injection of ergometrine, as the uterus is so firmly contracted as to prevent introduction of the hand. During the period of awaiting relaxation (half an hour) after the injection has been given (in cases where the expulsion of the placenta has failed) there need be no cause for anxiety, as no further bleeding or additional shock occurs. Prompt use of this modern method of treatment can greatly reduce the incidence of post-partum haemorrhage with all its worrying sequelae. (See also Prof. Chassar Moir's letter at p. 309.)

**Fissured Lip.**—Dr. H. R. VICKERS (Sheffield) writes: I agree with Dr. F. F. Hellier (July 19, p. 120) that ill-fitting dentures are a common cause of fissured lip, but in a few of these cases the patients have a definite sensitization to the material of which the denture is made. During the last two years I have had three such patients referred to me. The presenting symptom in each was persistent fissuring at the angles of the mouth, present in all for several years, and all types of local treatment and vitamin therapy had failed. On examination, in addition to the fissuring, the buccal mucous membrane in contact with the denture was markedly red and engorged. Patch-testing, using the denture material applied to the upper arm, was in each case strongly positive after 48 hours. Two patients had vulcanite dentures, the other had the acrylic type. They each now have dentures of material to which they gave a negative patch test, and they are all cured. A fuller account of these cases is in the course of preparation.

**Second Childhood.**—Dr. B. DAMER MERRIN (Stockport) writes: A patient of mine, a male, aged 82, has just cut a wisdom tooth. Is this a record?

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Atiology, Western, London*. ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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# SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY AUGUST 23 1947

## HEARD AT HEADQUARTERS

### Shortage of Dentists

The White Paper which preceded the introduction of the National Health Service Bill said that a full dental service must be a temporary exception to "comprehensiveness" because there were not enough dentists in the country to provide it. The shortage of dentists continues. For the second year in succession the total number of names on the *Dentists Register* has declined, and in 1946 the fresh intake of graduates and licentiates was the lowest during the twenty-six years' history of the Dental Board. The only relief is that there has recently been a high level of entries into the dental schools, which promises to bring about a change in the right direction by the beginning of the next decade, although with existing limitations of accommodation and staff in the schools it can hardly be on the scale desired and may indeed, according to the chairman of the Dental Board, fail to check the decline in the total number of names on the *Register*. In the medical profession the recruitment position is less gloomy. It is true that the number of doctors registered last year was the lowest since 1937, but the total number of names on the *Medical Register* is higher, by over a thousand than it was a year ago, and higher by nearly 15,000 than in the last pre-war year.

### Tuberculosis

The National Association for the Prevention of Tuberculosis, following their highly successful international conference, have issued an annual report which, unlike a good many annual reports which come our way, is an extremely readable and attractively produced booklet. The frontispiece is a photograph of the Duchess of Kent, president of the Association, with other prominent figures, taken in the courtyard of B.M.A. House. One point stressed in the report is that under the National Health Service Act the individual patient will be handled at different stages in his illness by different authorities. His medical treatment will come under the specialists of the Regional Board; his family and home circumstances will be the responsibility of the local health authority, and aspects of his rehabilitation connected with employment in special industries will come under the Ministry of Labour. The whole principle of the unity and continuity of care and welfare in the different stages of tuberculosis will go by the board unless great care is taken. The need for education, propaganda, and research remains as great as ever, and that is the answer to the question whether a voluntary organization like the N.A.P.T. will be necessary when the new health service comes in.

### Part-time Nurses

A good deal of discussion has been taking place on the value of the part-time nurse. Some of it has been highly favourable to her, but the criticism has been made in some quarters that the part-time nurse is liable to be more at the mercy of her own domestic emergencies and therefore not to be as regular in her attendance as hospital nursing demands. Moreover,

she is inclined to opt for service later in the day, and not in the early morning hours when nursing duties are heaviest. Early in the year the Ministries of Health and of Labour and National Service started a campaign to encourage more women to take up employment as part-time nurses and midwives, and the Middlesex County Council approved some expenditure on publicity arrangements in the county for that purpose. It is now stated that up to date 191 part-time nurses have been engaged for duty at Middlesex county hospitals, and the time which they have devoted to their part-time duties is equivalent to that of 72 full-time nurses.

### ROBOT TELEPHONE

This apparatus has been designed primarily for doctors. The "robot telephone" is contained in a small black metal case; it operates from standard domestic power supplies and is also connected to the telephone network. The controls are simple. There are three switches clearly marked "Record," "Re-wind," and "Reproduce." When the telephone is left unattended, the "Record" switch is placed in the "on" position and when the telephone rings a stereotyped announcement is made—for example:

"This is Dr. Blank's residence. Any message for him will be recorded and reproduced on his return. When you hear the pips will you please state your message, give your name, address, and telephone number if you have one. Kindly state if urgent attention is required. You will have one minute for your message and when you hear the second group of pips, please end your message immediately."

This announcement can, of course, be modified in accordance with special requirements. A full minute is allowed for the incoming call to be recorded on an indestructible steel wire which is used over and over again and does not wear out. Up to thirty messages can be recorded and stored until the doctor's return. To reproduce the actual recordings, the apparatus is set to "Re-wind," which brings the recording medium back to the start. Then, by the operation of the "Reproduce" key, the text of the messages will be delivered from a small built-in loud-speaker.

Great care has been taken to render the instrument foolproof and reliable in operation, and all unnecessary "frills" have been removed in order that it can be produced in quantity at a reasonable cost. The manufacturers do not want to become involved in voluminous correspondence in the early stages of production. The British Medical Association is, therefore, acting for its members in this matter until the manufacturers feel that they can usefully issue publicity matter.

In the first instance 100 of these instruments will be made and they will be installed so far as possible in selected areas and under conditions such that the manufacturers can maintain careful observation on their performance over a period. They will thus be in a position to make any small improvements which experience may indicate as being desirable. The price of the instrument has been set at £80 plus a small charge covering the cost of installation by approved electrical contractors. Negotiations with the General Post Office Engineering Department are taking place. Inquiries should be addressed to the Secretary, British Medical Association.

## ECONOMY IN PETROL

In common with all other users of private cars who receive supplementary allowances of petrol, medical practitioners will find their allowances reduced by 10% for the six-months period beginning on October 1. It may not be possible for all doctors to achieve this saving, and the Association has been assured that the regional petroleum officers will deal sympathetically and expeditiously with appeals from members of the profession who find, later in the rationing period, that they cannot manage on the reduced allowances. It is important, however, that all car users who receive supplementary allowances should do their utmost to co-operate in securing the necessary economy in petrol consumption.

## SPENS COMMITTEE FOR DENTISTS

The Interdepartmental Committee set up by the Minister of Health and the Secretary of State for Scotland, under the chairmanship of Sir Will Spens, C.B.E., to advise on the range of total professional income of a registered dental practitioner in any publicly organized service of general dental practice are inviting evidence from the organizations directly interested. The Committee will, however, be prepared to receive evidence from interested bodies or persons other than those specially invited. It is requested that those wishing to place their views before the Committee should submit memoranda to the Joint Secretaries of the Committee, Ministry of Health, Whitehall, London, S.W.1, before the end of October next.

## Correspondence

## Long and Loyal Service

SIR,—Not the least pleasure afforded me by the recent honour I received at the Annual Representative Meeting has been the number of congratulations showered on me by so many old colleagues and friends. One in particular I should like to have read to the meeting (but time forbade), because it would have recalled to old members of the Council and Representative Body memories of a great man, and many great moments during our discussions. Perhaps, Sir, you will deem it not unworthy of reproduction.

Congratulations and a cordial welcome to the "glorious company" of the Vice-Presidents. A recognition of long and loyal service and carrying memories of much good comradeship. With best wishes and regards,

Yours,

C. O. H.

It is hardly necessary to say that the initials C. O. H. represent C. O. Hawthorne.—I am, etc.,

Ashover, Derbyshire.

H. W. POOLER.

## Regional Hospital Boards

SIR,—Following Dr. G. Jamieson Meikle's letter (*Supplement*, Aug. 2, p. 47) on the absence of certain names of chosen representatives of Birmingham Regional Area on their Regional Hospital Board, I should like to mention that the Health Minister has not appointed a single member nominated for Wales by our profession on the Welsh Regional Hospital Board. This matter should be carefully noted by our Negotiating Committee as it indicates defiance.—I am, etc.,

Old Colwyn.

A. NORMAN LEEMING,  
Past President, N. Wales Branch.

## Nursing Shortage

SIR,—May a nurse venture to suggest that perhaps a key to the shortage of nurses discussed at the Annual Representative Meeting of the British Medical Association as reported in the *Supplement* of Aug. 2 is to be found in a remark attributed to Dr. J. B. W. Rowe (p. 37). It was the shortage of *student nurses, who did the real hard work of the wards*, he said, which was the real difficulty (*italics mine*). "Student" nurses and "pupil" assistant nurses enter hospital expecting to receive professional training and not to bear the burden of the real hard

work of the hospital, a great part of which they themselves do not consider to be nursing at all. It is hardly surprising that wastage rates reach 40 to 60% and even higher figures. Nor can we think with complacency of our hospitals staffed by an ever-changing population of untrained persons called by courtesy "nurses."

Perhaps I am wrong—I hope I am—but reading the debate I seemed to catch no hint of the idea of doctors and nurses as colleagues, each indispensable for the cure of the patient. I heard rather the echo of Dr. La Garde's dictum, "A nurse is a confidential servant; but still only a servant." It is true we seem to have left the rest of his prescription behind, "She should be middle-aged when she begins nursing; and if somewhat tamed by marriage, and the troubles of a family, so much the better."—I am, etc.,

London, W.2.

G. B. CARTER.

## Association Notices

ELECTION OF MEMBER OF THE COUNCIL BY THE  
GROUPED INDIAN BRANCHES

Notice is hereby given that, owing to the resignation of Col. J. J. Harper Nelson, there is a vacancy in the Council of the Association. Nominations of candidates for election as a member of Council by the Grouped Indian Branches for the remainder of the period ending July, 1949, must be forwarded in writing so as to reach the Secretary not later than Nov. 1, 1947.

The Branches in the Group are: Aden, Assam, Baluchistan, Bihar, Bombay, Burma, Calcutta, Central Provinces, Ceylon, Delhi, Hyderabad, Mesopotamia, North-West Frontier, Punjab, Sind, South Indian and Madras, United Provinces.

Nominations must be signed by not fewer than three members of any Branch in the Group, and should be in the following form:

We, the undersigned, hereby nominate.....  
of.....(full name and address to be given) for election by the.....(state the name of the Branch in the Group) Branch as a member of the Council of the Association for the period ending July, 1949.

Signatures and addresses of three nominators.....

Branch.....

If a contest occurs voting papers will be issued from the Head Office, British Medical Association, Tavistock Square, London, W.C.1, to each member in the Group.

By Order,

CHARLES HILL,  
Secretary.

## TUBERCULOSIS CARE COMMITTEES

The National Association for the Prevention of Tuberculosis has recently issued to all affiliated Tuberculosis Care Committees a statement as to their legal position under the new National Health Service Act when it comes into force in 1948. (1) Voluntary bodies not running actual medical services may continue as in the past. (2) Where a Tuberculosis Care Committee runs a service, the local health authority may approve this service and continue it. A local health authority may, subject to the approval of the Minister of Health, contribute to a voluntary organization whose purpose is the prevention of illness, care, and after-care, but may not pay money direct to patients. (3) Local health authorities must submit proposals for "the prevention of illness, care, and after-care" to the Minister before Aug. 31, 1947, and publish in the local Press the date on which they do so. A copy of the proposals will be served on all voluntary organizations, including Tuberculosis Care Committees, which will have two months in which to make representations and objections, if any, to the Minister. Mr. Bevan has asked that, where possible, prior consultations between local health authorities and such bodies should be held to devise an agreed scheme, and so save time by avoiding requests for subsequent modification. The Secretary-General of the N.A.P.T. will be glad to advise any Care Committee on this matter.

# BRITISH MEDICAL JOURNAL

LONDON SATURDAY AUGUST 30 1947

## THE EARLY TREATMENT OF POLIOMYELITIS

BY

H. J. SEDDON, D.M., F.R.C.S.

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The present and quite exceptional prevalence of acute poliomyelitis has stimulated interest in two questions that concern medical administrators and clinicians alike: At what stage should the orthopaedic treatment of the disease begin, and what are the essential features of that treatment? In this short paper an attempt is made to answer these questions in the light of our present limited knowledge of the disease. Difficulties in diagnosis will not be considered, nor the treatment of what might be called the visceral manifestations of poliomyelitis, such as pharyngeal and respiratory paralysis and disorders of micturition, the treatment of which is a matter of urgency and is, or should be, reasonably well understood. The problem is what should be done for paralysed skeletal muscles.

### The Period of Isolation

The choice of three weeks as the period of isolation is arbitrary. It cannot be otherwise, since the duration of infectivity is very variable; it may last only a few days after the onset of paralysis so far as the oropharynx is concerned, whereas the patient may continue to excrete virus in the faeces for as long as ten weeks after the disease has declared itself. However, the choice of three weeks as the isolation period seems to be justified by experience, though it may be rather too long. The ideal arrangement would, no doubt, be to admit the patient immediately to a hospital, generally an orthopaedic or children's hospital, in which he could remain for the duration of his treatment; complete continuity of management would then be possible. But there are certain practical objections. Many orthopaedic and children's hospitals have long waiting-lists, and in some places their difficulties are now aggravated by a shortage of nurses. Conditions, particularly in orthopaedic hospitals, are often unfavourable for nursing infectious cases, and in some hospitals young probationer nurses are employed on the understanding that they will not come into contact with cases of infectious disease. At least one-third of all cases of poliomyelitis either fail to develop significant paralysis, or such paralysis as appears is transient and clears up within a week or two: these fortunate patients require no special treatment, and to that extent the beds they occupy in a special hospital would be beds wasted. On the whole, therefore, it seems best to admit cases of poliomyelitis to a fever hospital in the first place, on the clear understanding that someone skilled in the treatment of the disease—which generally means an orthopaedic

surgeon—is asked to see the patient within twenty-four hours of admission and is given a free hand to order such treatment as he deems necessary.

### The Clinician's Duty

There is still no proven specific treatment for poliomyelitis. Recovery depends on the spontaneous return of function in such of the anterior horn cells of the spinal cord and brain stem as have not been completely destroyed by the virus. The clinician has a twofold duty. First, he must maintain the peripheral parts in the best possible condition, so that when voluntary control is returning recovery will not be vitiated by contractures and other harmful changes that have taken place in muscles, tendons, and joints during the period of paralysis. Secondly, if recovery is not early and complete the patient must be taught to make the best possible use of such return of power as is vouchsafed to him. All the arts of physiotherapy and, at a later stage, brace-making and reconstructive surgery may be required to assist the patient in his return to something like useful activity. But it cannot be too strongly emphasized that no one has ever cured a case of poliomyelitis. All that we can do is to help or hinder a process of recovery that is quite outside our control.

There has been and still is an idea abroad that paralysed muscles, especially those whose nerve supply has undergone Wallerian degeneration, are in a peculiarly delicate state. No less an authority than Sir Arthur Keith (1919) has written:

"What are the best means of maintaining in health a muscle which has just become paralysed . . . ? Let us look at the condition of such a muscle: . . . the vital contents of every cylinder begin to break up, degenerate, and be absorbed. . . . We wish, as far as possible, to prevent the breaking-up of the muscle cylinders and to maintain intact their original condition so far as we may. Massage applied to the delicate and broken organization of a crippled muscle seems to me calculated to help in the work of destruction. If in any crisis of surgical treatment rest is necessary, it is in the early stages of degeneration of a paralysed muscle."

Splints are applied with almost religious fervour; the limb is handled with great tenderness, stretching of the paralysed muscles being avoided at all costs. The fact is that even a denervated muscle does not degenerate; the changes so graphically described by Keith do not occur. A paralysed muscle retains its essential structure and some electrical



excitability for a number of years after all voluntary power has been lost. There is a progressive loss of bulk, which is very rapid at first, but this is due to a true atrophy; even this shrinkage can be partially prevented by appropriate electrical stimulation, provided that one uses strong enough stimuli of long duration and treats the muscle at least daily (Jackson, 1945). What is needed to keep a paralysed muscle in good condition is not rest but controlled activity. Immobilization is harmful; activity is beneficial. The revolt against rigid splinting has been such that a number of authorities, of whom Miss Kenny is the chief, have condemned splinting outright. This seems to be going a little too far, for there is a place for splinting; it may be needed to prevent persistent stretching of a muscle beyond its normal resting length. Even normal muscle becomes seriously weakened if it is maintained in an overstretched position; how much more, then, is it necessary to protect a muscle which has lost its power of voluntary contraction?

### On What Does Recovery Depend?

In poliomyelitis the situation is more complex than after injury of a peripheral nerve. Where there has been extensive destruction of anterior horn cells the muscles supplied by the affected segments of the cord are completely and permanently denervated; there is no hope of recovery, and no treatment is of any avail. But when we consider the state of muscles in which partial or complete recovery subsequently occurs it must at once be confessed that we are not fully seized of the exact nature of the changes that take place. There is, however, no doubt that recovery does not depend to any great extent on axonal regeneration such as occurs after repair of a divided nerve. In the first place, the really worth-while recovery takes place within six months of the onset of the disease, though some further and perhaps useful return of power may be observed between the sixth and eighteenth months. From what is known of the rate of axonal regeneration (1 to 2 mm. a day) it is obvious that at any rate the more distal muscles could not possibly be re-innervated in so short a time—if regeneration had to take place from the cord all the way out to the periphery. Furthermore, most of the muscles that recover well retain throughout the electrical excitability characteristic of innervated muscle. We may, therefore, conclude that those anterior horn cells that are capable of recovery are not usually damaged to such an extent as to cause axonal degeneration. Thus there is no basis for using electrotherapy.

At present our only course is to follow a procedure that long experience has shown to be sound. When the patient is first seen a chart should be made indicating the power of all affected muscles. The paralysis will be maximal within a week of the onset of the disease, and a chart made at this time will give a reliable picture of the extent of the damage. Most orthopaedic hospitals are now supplied with muscle charts, and there is general acceptance of the system of recording recommended by the Peripheral Nerve Injuries Committee of the Medical Research Council:

- 5 = Contraction against powerful resistance
- 4 = Contraction against gravity and some resistance
- 3 = Contraction against gravity only
- 2 = Movement only with gravity eliminated
- 1 = Flicker of contraction
- 0 = Complete paralysis

It has been suggested that the disturbance of the patient involved in making a complete muscle examination is harmful, but unless the paralysis is accompanied by severe pain (see below) so that the actual handling of the patient causes him distress there is no valid reason why the exami-

nation should not be made. It is, indeed, a necessary diagnostic procedure.

### Splinting

The clinician is now in a position to determine what splinting, if any, is required. The aim is not immobilization but simply the avoidance of vicious postures and the overstretching of paralysed muscles. Let us consider the various parts of the body in turn.

(a) *Spinal and Abdominal Muscles.*—Unless the patient is an unruly little child a firm mattress is all that is necessary. A lively infant will need a plaster bed or a gas-pipe frame covered with canvas, and some sort of retentive harness may also be required.

(b) *Shoulder.*—The shoulder is largely dependent on muscles for its stability, and there is therefore much to be said for maintaining it in abduction if the abductors are paralysed, either with a pillow or, in the case of an unruly child, with a plaster or metal abduction splint. Contracture of the adductor muscles can develop very rapidly, which is another reason for maintaining the limb in abduction; 60° is sufficient, and neutral as to rotation.

(c) *Elbow.*—There are those who regard relaxation of a paralysed biceps as unnecessary, the patient being nursed with the affected arm lying alongside the body. Yet in this position the biceps is maintained at what is very nearly its greatest length, and it is therefore preferable to keep the joint in a position of 60° to 90° flexion when paralysis of the flexors is present.

(d) *Wrist.*—The long extensors of the wrist and digits are the only muscles that run any risk of being overstretched by improper posture, and a simple cock-up splint, which must not extend beyond the transverse palmar crease, will give all the support that is required.

(e) *Thumb.*—The metacarpo-phalangeal joint of the thumb, like the shoulder, is largely dependent for its stability on the short muscles that control it. A small plaster-of-Paris splint, like a shoe-horn, with its broad end lying over the lateral surface of the lower end of the radius and its narrow end curved round into the web between the thumb and index finger, will prevent overstretching of the paralysed thenar muscles.

(f) *Intrinsic Muscles of the Hand.*—From experience in the treatment of ulnar-nerve injuries I am convinced of the need for preventing overstretching of the intrinsic muscles, and there is no very obvious reason why they should not also be protected in cases of poliomyelitis where the long flexors are strong and therefore capable of producing a *main-en-griffe* contracture. All splints for the intrinsic muscles of the fingers are based on the "lumbricales cuff" first described by Kendall and Kendall (1939). A bar of plaster-of-Paris or metal crosses the palm at the level of the transverse crease and is joined to two transverse dorsal bars which lie parallel across the metacarpals and the proximal phalanges, the knuckles being exposed between them; the metacarpo-phalangeal joints are held in a position of about 45° flexion.

(g) *Hip.*—The hip should be maintained in the neutral position as in standing, though in small children it may be found more convenient to abduct both joints about 15°, in order to simplify nursing.

(h) *Knee.*—The chief danger here is stretching of the posterior capsule of the joint, and the knee should therefore be maintained in a few degrees of flexion.

(i) *Foot.*—The neutral position is correct.

In adults and older children the lower limbs are easily maintained in a proper position by small pads under the knees and a board to support the feet at right-angles, provided that the patient is not allowed to slip up the bed. The limbs should be protected from the weight of the bed-clothes by means of a cradle. Infants must be splinted; it may even be necessary to splint both lower limbs, when

only one is abnormal, in order to prevent the child from assuming a bad position. Plaster-of-Paris is not very satisfactory, since it disintegrates rapidly when wetted with urine. The best material is duralumin, and details for the manufacture of simple splints are given in full in a recent paper by Seddon, Hawes, and Raffray (1946).

### Maintenance of Mobility

As soon as the patient is afebrile and free from pain the affected part should be put through a full range of movement at least daily, and if possible twice a day; in this way contractures will be completely prevented. Oedema of a grossly paralysed part is seen occasionally and is due to sluggishness of the lymph flow, which, in turn, is dependent on muscular activity. There is no more potent cause of stiffness; and there should, therefore, be no hesitation in elevating the swollen limb and persevering with frequent passive movements until the oedema has gone.

### Irritative Phenomena

So far poliomyelitis has been discussed simply as a paralytic disorder. In recent years attention has been drawn, especially by Miss Kenny, to irritative phenomena which, at any rate in America, seem to be fairly common. These manifestations of poliomyelitis, to which it is believed by some that peculiar significance attaches, may be described briefly as pain and muscle spasm. Pain as an early symptom of poliomyelitis is commonplace, but persistent pain either in the spine or in the limbs is rare in this country, and was found in very few cases in two of the Colonies—Malta and Mauritius—where grave epidemics of poliomyelitis have occurred in recent years. Apart from the purely subjective sensory disturbances that so frequently mark the acute phase of the disease, one may distinguish three kinds of pain which can be elicited by the examiner: (a) a muscle which may or may not be paralysed is sometimes found to be tender; (b) a muscle may be painful when stretched; and (c) a muscle may be in a state of spasm which is accompanied by more or less pain. Spasm of the spinal muscles is universally recognized as an early feature of the disease, and is undoubtedly a manifestation of meningeal irritation, disappearing rapidly as the inflammatory process in the cord subsides. Spasm in the muscles of the affected limbs is, however, a very different affair and exceedingly hard to explain. By some it is held to be an essential feature of the disease; I have seen persistent painful shortening of a muscle in fewer than 10 out of 1,500 cases, although we were on the look-out for it, and in none was there unequivocal spasm in the muscles of the limb. However, we cannot altogether ignore the few cases in which muscles remain tender or are painful on movement, since treatment of these patients is beset with peculiar difficulties. If regular mobilization of the joints and muscles is withheld until pain has subsided it may then be found that contractures have developed which are exceedingly difficult to correct. Yet if mobilization is attempted early, pain will be provoked as the extremes of movement are approached and the mobilization will be ineffective. For these reasons active steps should be taken to relieve severe pain of whatever origin, even moderate pain if it persists for more than ten days. The frequent application of heat is valuable; immersion in a warm bath is an old and reliable remedy, and encasing the part in hot moist packs is useful, though it involves considerable disturbance of the patient and is messy and time-consuming. At any rate, no effort should be spared to relieve the pain so that early mobilization of the limbs may be carried out.

An entirely different approach, for which Ransahoff, of New York, makes considerable claims, is the relief of pain associated with muscle spasm by the injection of curare. It is believed that muscle spasm or the slight shortening of muscles that causes pain when the muscle is stretched is due to irregular activity of the muscle, which in turn is caused by disordered activity of certain of the affected anterior horn cells. However, it is very doubtful whether curare is completely effective in relieving these painful muscle disorders, for in order to obtain full range of movement a certain lengthening of the muscles is necessary, and the method has not commenced to those who have seen Ransahoff's patients under treatment. There is still much to be found out about the nature of the sensory disturbances in poliomyelitis and of disorders of nerve function other than simple paralysis.

### Essential Features of Treatment

The essential features in the early treatment of poliomyelitis and paralysed muscles in poliomyelitis are as follows:

1. Early determination of the extent and degree of paralysis. The extent of the paralysis should always be ascertained at about one week after its onset and then at intervals of two weeks until two months after the onset. Careful examinations at intervals of a month will then be sufficient, and six months at intervals of two months.
2. Maintenance of the paralysed part in what one may call a sensible position—the term "physiological position" is hardly apposite—should be undertaken from the first. This is the reason for the application of splints.
3. In order to prevent stiffness of joints and contractures of muscles the affected part should be put through a full range of movement at least once a day, this treatment being started as soon as pain has subsided or 10 to 14 days after the onset of paralysis, whichever period is the shorter.
4. If pain—either muscle tenderness, pain on stretching the muscle, or true muscle spasm—persists beyond this time, it is very severe in the early stages of the disease, relief sometimes be obtained by the application of heat; and it is then be considerably easier to carry out the movements that are so essential for the maintenance of the limb in a healthy condition.

Re-education of muscles during recovery is outside the scope of this article.

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The Third Conference of Tuberculosis Workers, recorded in *Transactions of the Third Tuberculosis Workers' Conference in New Delhi, March, 1945* (New Delhi: Tuberculosis Association of India, 20, Talkatora Road; Rs. 4), was sponsored by the Tuberculosis Association of India. Lieut.-Gen. Hance, D.G.I.M.S., quoted the estimated tuberculosis death rate in Indian cities as 200-450 per 100,000 population. Dr. P. V. Benjamin proposed a five-year plan to provide each three-million unit of population with a clinic, a subclinic, and a 50-bed hospital, and each Province or major city with a large hospital, clinic, and training centre—accessibility to the programme to influence the siting of institutions. A long programme was also outlined. Speakers discussed tuberculosis experience in wartime, mass radiography, chest surgery, and teaching of tuberculosis work. The proceedings emphasize the size of the tuberculosis problem in this subcontinent; estimate the number of active cases among its 400 million inhabitants variously given as 24 and 20 million. The smallest long-term plan of 500,000 beds for tuberculosis should be considered against present 75,000 hospital beds of all kinds. However, one speaker felt that the most powerful factors in bringing about a decline in tuberculosis rates in the new India would be a general rising and nutritional standards resulting from radical changes in industrial and agricultural economy, the liquidation of ill-health, and the training of increasing numbers of doctors.

# PENICILLIN THERAPY IN OPHTHALMIA NEONATORUM

BY

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In an earlier communication (Sorsby and Hoffa, 1945) it was shown that penicillin locally is highly efficacious in ophthalmia neonatorum. Consistent results could be obtained when drops in a concentration of 2,500 units per ml. were used, lower concentrations being rather erratic in their effect. The frequency of application was also shown to be of significance (Sorsby, 1945a, 1945b). Clinical cure was obtained more readily when drops were used at half-hourly instead of at hourly intervals, and readier still when the intervals were reduced to five minutes. Any tendency to pus formation was then generally suppressed within half an hour to three hours (by the instillation of six to 30 applications). When there was no longer any discharge, instillation of penicillin drops was continued at half-hourly intervals for six to 12 hours. At the end of this time a clinical cure was usually obtained, and penicillin was continued hourly for 12 hours and two-hourly for a further 24 hours. It was found that all the common causal organisms of ophthalmia neonatorum, including the virus of inclusion blennorrhoea, responded to penicillin, though there appeared to be a varying degree of susceptibility of the different exciting organisms.

The present series of 232 cases were observed at the ophthalmia neonatorum unit at White Oak Hospital from May 8, 1945, to March 10, 1947.

## Local Treatment with Penicillin in Watery Solution at Five-minute Intervals

To the 25 previously reported cases treated at five-minute intervals 30 more can now be added. Table I sets out

TABLE I.—Commercial Penicillin 2,500 Units per ml. at Five-minute Intervals Initially. Time taken for Clinical Cure: in Relation to Severity and Distribution of the Affection

	No. of Cases	Clinical Cure in Hours for Each Case
Mild { Unilateral ..	2	2, 1
Bilateral ..	5	1*, 2, 1, 7½, 17†
Moderate { Unilateral ..	6	2, 12, 35, 45, 21, 2½
Bilateral ..	10	1, 68†, 2, 61†, 68, 115, 61*, 9, 6, X
Severe { Unilateral ..	4	45, 82†, 4½*, 44
Bilateral ..	3	67, 6, 40

\* Relapsed. Cured by sulphamezathine.

† Relapsed. Cured by a further course of penicillin.

X=Poor response. Cured by sulphamezathine.

these 30 cases in relation to severity and the time taken to obtain a clinical cure. It will be seen that four of the 30 failed to give a satisfactory response to penicillin, and treatment had to be completed by a course of oral sulphamezathine. Four other cases showed a mild relapse necessitating a further course of local penicillin therapy. A primary cure was thus obtained in 22 (73%) out of 30 cases, the time taken extending from 15 minutes to 115 hours, with an average of 24 hours for clinical cure and an additional 36 hours' treatment to consolidate the cure, or a total of 60 hours' treatment in all.

## at One-minute Intervals

(a) Penicillin in a Concentration of 2,500 Units per ml.

—As penicillin drops are rapidly washed out from the conjunctival sac a further series of cases were treated more

intensively. Drops in the same concentration (2,500 units per ml.) were instilled at intervals of one minute. It became apparent that such intensive treatment gave a quick response and had to be maintained for only a relatively short time, as any tendency to pus formation was rapidly suppressed. In most cases there was no pus within minutes, though the lids remained swollen and the eye was still moist. A series of 71 cases were treated by drops instilled at intervals of one minute for half an hour; subsequently six applications were made at five-minute intervals, half-hourly, hourly, and, finally, two-hourly intervals. The time for clinical cure varied considerably in the different cases, but in no instance was there any anxiety about the state of the eye after the first 20 minutes of treatment. Some eyes became completely dry within a matter of two to three hours; others remained moist or showed stickiness of the lid margins for a much longer time. Table

TABLE II.—Commercial Penicillin 2,500 Units per ml. at One-minute Intervals Initially. Total Time of Treatment in Hours (for Clinical Cure and for the Subsequent Treatment to Consolidate the Cure): in Relation to Severity and Distribution of the Affection

	No. of Cases	Total Time of Treatment in Hours for Each Case
Mild { Unilateral ..	9	35, 6, 21, 12, 21, 36, 36, 14, 62
Bilateral ..	9	16, 29, 25, 12, X, 40, 16, 17, X
Moderate { Unilateral ..	12	22, X, 72, 31, X, 16, 21, 30, 24, X, X,
Bilateral ..	23	21, 96, 21, 22, 36, 19, X, X, 29, X, 10,
Severe { Unilateral ..	5	22, 52, 31, 21, X, 21, 22, X, X, X,
Bilateral ..	13	39, 20, 44, 92, 47
		12, 24, 108, 40, X, X, 44, X, X, X, X,
		25, 29

X=Poor response. Cured by sulphamezathine.

sets out the total number of hours each case was actually treated. The time of treatment included at least 12 hours during which the eye was apparently normal. It will be seen that in 19 cases the response was not good, necessitating the use of sulphonamides to clear the condition. In the remaining 52 cases (73%) a primary cure was obtained, the total time of treatment ranging from six to 96 hours, with an average of 33 hours.

(b) Penicillin in a Concentration of 10,000 Units per ml.—As this work was proceeding pure (crystalline) penicillin became available. In view of the fact that the proportion of failures (27%) was still not insignificant, and that the eye tolerates pure penicillin in higher concentrations than previously employed (the highest tolerated concentration of commercial penicillin being 2,500 units per ml.), a further series of cases were treated at one-minute intervals with drops in a concentration of 10,000 units per ml. using white crystalline penicillin dissolved in sterile water. Table III shows the results obtained. It will be seen that

TABLE III.—Pure Penicillin 10,000 Units per ml. at One-minute Intervals Initially. Total Time of Treatment in Hours: in Relation to Severity and Distribution of Affection

	No. of Cases	Total Time of Treatment in Hours for Each Case
Mild { Unilateral ..	2	45, 72
Bilateral ..	9	X, X, 46, 45, 48, 24, 45, X, 38
Moderate { Unilateral ..	8	48, 93, 48, 45, R, R, X, 72
Bilateral ..	12	20, 46, 72, 48, 44, X, 48, X, 14, 50, 42, 5
Severe { Unilateral ..	2	57, 34

X=Poor response. Cured by sulphamezathine.

R=Relapse. Cured by a second course of penicillin locally.

in this series of 33 cases six still required sulphonamide by mouth, and that two further cases showed a relapse, which necessitated a second course of penicillin therapy. The time taken over treatment in the 25 cases (76%) of primary cure ranged from 20 to 72 hours, with an average of 48 hours.

Considered in relation to the number of hours taken over treatment in those cases of primary cure, treatment with penicillin 10,000 units per ml. gave apparently less satisfactory results than treatment with drops of 2,500 units per ml., the comparative figures being 48 and 33 hours respectively. The significant fact is, however, that there were rather fewer poor responses or relapses in the series treated with the more concentrated drops—and this, as will be seen below, in spite of the high percentage of cases with inclusion bodies in this series (15 out of 33 treated with 10,000 units per ml. as against 16 out of 11 treated with 2,500 units per ml.).

#### Clinical Cure in Relation to Organism

The causal organisms seen in the 30 cases treated at five-minute intervals are shown in Table IV. Of the four

TABLE IV.—Commercial Penicillin 2,500 Units per ml. at Five-minute Intervals Initially. Time Taken for Clinical Cure: in Relation to Causal Organism and Severity of the Affection

	No. of Cases	Clinical Cure in Hours for Each Case
<i>Gonococcus</i> :		
Mild .. ..	1	1*
Moderate ..	4	1, 2, 6†, 2†
<i>Staph. aureus</i> :		
Mild .. ..	4	1, 7‡, 17†, 1
Moderate ..	3	12, 2, 3§
Severe .. ..	1	45
<i>Staph. albus</i> :		
Moderate ..	1	9
<i>Str. viridans</i> :		
Moderate ..	1	6
Diphtheroids:		
Moderate ..	1	6†
Severe .. ..	1	8†
<i>Morax-Axenfeld</i> :		
Mild .. ..	2	2, 2
Virus presumed from presence of inclusion bodies:		
Moderate ..	6	68, 45‡, 115‡, X, 61*†, 21‡
Severe .. ..	5	67‡, 61, 40‡, 4‡*, 44

\* Relapsed. Cured by sulphamezathine.

† Relapsed. Cured by a further course of penicillin.

‡ *Staph. aureus* also present.

§ *Staph. albus* also present.

X = Poor response. Cured by sulphamezathine.

cases requiring sulphonamides to complete treatment three were cases of inclusion bodies, which numbered 11: the fourth case was one of the five cases due to the gonococcus. All the cases due to *Staph. aureus*, *Staph. albus*, diphtheroids, *Str. viridans*, and *Morax-Axenfeld* bacillus—the remaining causative organisms in this series—responded to penicillin, though three (out of a total of 14) required a second course of treatment. These results are not dissimilar to those observed in the 25 cases previously recorded. Here there was one failure in the gonococcal cases, and one in the diphtheroid group. Three relapses were noted in the eight cases due to *Staph. aureus*, and one relapse in the three diphtheroid cases. Taking this group as a whole there were 55 cases, which included 15 cases due to virus and five due to diphtheroids. Of the 15 virus cases three gave a poor response to penicillin, and of the five diphtheroid cases three relapsed and required a second course of penicillin.

The 104 cases treated intensively at intervals of one minute (71 cases with drops in a concentration of 2,500 units per ml. and 33 with drops of 10,000 units per ml.) show a total of 25 cases that required sulphonamide treatment because of a poor response to penicillin (Table V). The distribution of these 25 cases and of two further cases that relapsed is shown in Table VI. It will be seen that all cases due to *Staph. aureus* responded well, as did the three cases due to the Koch-Weeks bacillus. The two failures with gonococcus occurred with drops in the lower concentrations, as did three of the four failures with *Staph. albus*. Unsatisfactory response to diphtheroids appears to be

TABLE V.—Commercial Penicillin 2,500 Units per ml., Pure Penicillin 10,000 Units per ml., at One-minute Intervals Initially: Total Time of Treatment in Hours in Each Case in Relation to Causal Organism and Severity of the Affection

	No. of Cases	Commercial Penicillin 2,500 Units per ml.	No. of Cases	Pure Penicillin 10,000 Units per ml.
<i>Gonococcus</i> :				
Mild .. ..	1	X	—	—
Moderate ..	2	31, X	5	45‡, 45‡, 46, 72, 48
Severe .. ..	6	20, 25, 29, 39, 20, 40	1	57
<i>Staph. aureus</i> :				
Mild .. ..	5	29, 25, 6, 21, 12	—	—
Moderate ..	5	72, 21, 22, 36, 19	2	48, 20
Severe .. ..	2	24, 10§	—	—
<i>Staph. albus</i> :				
Mild .. ..	4	12, 21, 36, 36	3	X, 46, 45
Moderate ..	5	X, X, 16, 29, X	1	93
<i>Streptococcus</i> :				
Mild .. ..	1	16	—	—
<i>Pneumococcus</i> :				
Mild .. ..	—	—	1	X
Diphtheroids:				
Mild .. ..	3	40, 16, 62	1	45
Moderate ..	8	10, X, 22, 52, 31, 21, 21, 30	4	44, X, 48, X
Severe .. ..	6	44, 92, X, X, 44, X	—	—
<i>Koch-Weeks</i> :				
Mild .. ..	1	35	—	—
Moderate ..	2	21, 96	—	—
No organisms or inclusion bodies present:				
Moderate ..	2	22, X	—	—
Severe .. ..	2	12, 47	—	—
Virus presumed from presence of inclusion bodies:				
Mild .. ..	3	17‡, X‡, 14‡	6	48, 24, 45‡, 72‡, X, 35
Moderate ..	11	24, X‡, X‡, 96, X‡, 21‡, 22‡, X‡, X‡, X‡, 53	8	40*, 46*, X, 72, 14, 50‡, 42‡, 54‡
Severe .. ..	2	X, X	1	34

\* Relapsed. Cured by a further course of penicillin.

† *Staph. aureus* also present.

‡ *Staph. albus* also present.

§ Diphtheroids also present.

|| *Gonococcus* also present.

X = Poor response. Cured by sulphamezathine.

equally distributed in the two series, four of the six cases falling in the 2,500 units per ml. group and two in the 10,000 units per ml. group. The most suggestive finding refers to the inclusion bodies. Of the total of 13 unsatisfactory responses nine occurred in the 16 cases treated by

TABLE VI.—Summary of Table V. Treatment at One-minute Intervals Initially: in Relation to Causal Organisms

Organism	Total No.	Poor Response. Sulphonamides Needed	Relapse. Further Course of Penicillin Needed	Primary Cure by Local Penicillin	Average Total Time Treated (in 77 cases with primary cure)
<i>Gonococcus</i> ..	15	2	—	13	40 hours
<i>Staph. aureus</i> ..	14	—	—	14	33 "
<i>Staph. albus</i> ..	13	4	—	9	37 "
<i>Streptococcus</i> ..	1	—	—	1	—
<i>Pneumococcus</i> ..	1	1	—	—	—
Diphtheroids ..	22	6	—	16	39 "
<i>Koch-Weeks</i> ..	3	—	—	3	51 "
No organisms ..	4	1	—	3	27 "
Virus presumed from presence of inclusion bodies ..	31	11	2	18	41 ..
	104	25	2	77	38 ..

drops of a concentration of 2,500 units per ml., while only four were observed in the 15 cases treated with drops in a concentration of 10,000 units per ml.

#### Penicillin in Vehicles other than Water

In an attempt to overcome the tediousness of intensive penicillin therapy at one-minute intervals other vehicles than water were tried in the hope that the penicillin so instilled would not be washed out from the eye as rapidly as is watery solution. The detailed results are shown in Table VII.

*Lamellae*.—In 14 cases lamellae were used containing 400 to 1,000 units of commercial penicillin. The excipient employed

TABLE VII.—Distribution of Causal Organisms and Incidence of Primary Cure in 51 Cases Treated with Penicillin Locally in a Vehicle Other than Water

Organism	Lamellae of Commercial Penicillin (400-1,000 U./g.)	Ointment with Commercial Penicillin (800-2,000 U./g.)	Ointment with Pure Penicillin (8,000-25,000 U./g.)	Pure Penicillin in Oily Suspension (10,000 U./ml.)	Pure Penicillin in 2% Methyl Cellulose Solution (10,000 U./ml.)
Gonococcus		1‡		2	
Staph. aureus	3			3	
Staph. albus	3			2	
Pneumococcus					1
Diphtheroids		4	2	1	1
No organisms	1				1
Virus presumed from presence of inclusion bodies	5		5*‡	5‡	8§
Total	14	5	7	13	12
Primary cure:	0	0	0	7	6¶

\* Staph. aureus also present in one case.

‡ Staph. albus also present in one case.

‡ Diphtheroids also present in one case.

§ Staph. albus also present in three cases, diphtheroids in one, and Str. viridans in one.

|| Three cases of inclusion bodies, one of diphtheroids, two of Staph. albus, and one of gonococcus.

¶ Four cases of inclusion bodies, one with no organisms, and one with pneumococcus.

was either lactose or a base specially prepared by Parke, Davis and Co. It was found that the instillation of lamellae in a baby with swollen lids was not particularly easy. Moreover, the lamellae either proved so readily soluble as to have no advantage over watery drops or were rather insoluble. The insoluble lamellae were often extruded from the conjunctival sac by the constant squeezing of the lids. Not a single clinical cure was obtained, and these babies all had to be treated with sulphamezathine.

**Ointment.**—In five cases commercial penicillin in watery solution containing 800 to 2,000 units per gramme were incorporated in "eucerin L.M." ointment base and used at two-hourly intervals. Here again instillation proved difficult; the ointment was frequently extruded and not a single cure was obtained. In seven further cases pure penicillin in a concentration of 8,000 to 25,000 units per gramme was used at two-hourly intervals. Only one cure was obtained, and this patient relapsed and had to be readmitted for sulphonamide treatment.

**Oily Suspension.**—Thirteen cases were treated with pure penicillin, 10,000 units per ml. in suspension of castor oil or liquid paraffin, instilled at five-minute intervals. Seven of these cases responded to treatment. One of the cases that did not respond did well when watery drops were instilled. The high incidence of poor response and the protracted course in the seven cases that responded to treatment led to the discontinuance of this experimental method.

**Methyl Cellulose.**—In 12 cases 2% methyl cellulose solution was employed as a vehicle for pure penicillin 10,000 units per ml. instilled at five-minute intervals. Six of these cases gave a poor response, necessitating sulphonamide treatment in five and watery penicillin in the other. Two of the six successfully treated cases remained irritable and subsided only when all treatment was discontinued. It appeared that 2% methyl cellulose is not free from irritation, though it has advantages over watery solution and might conceivably be developed to modify the one-minute treatment by watery drops.

### Systemic Injection of Penicillin

As no suitable substitute for watery penicillin which would diminish the frequency of instillation seems as yet to be available, a series of cases were treated by massive systemic injections of penicillin. An empirical dose of 200,000 units, dissolved in 0.5 ml of water, was injected into the buttock, the dose being repeated three times at three-hourly intervals, giving a total of 12 hours' treatment by systemic injection. This was followed by the instillation of drops of pure penicillin 10,000 units per ml. in 1% methyl cellulose solution, instilled at two-hourly intervals as long as the eye remained sticky. In most of

the 39 cases so treated a tangible improvement in the state of the eye was seen within 15 minutes, pus formation being suppressed exceptionally within half an hour generally within two to three hours, and occasionally no for five to six hours or even longer. Table VIII shows

TABLE VIII.—Systemic Injections of Penicillin 800,000 Units, Four Injections of 200,000 Units each at Three-hourly Intervals. Total Time taken over Systemic Treatment and Follow-up Local Treatment: in Relation to Severity of the Affection

	No. of Cases	Total Time of Treatment in Hours for Each Case
Mild { Unilateral ..	4	36, 38*, 33, 24
{ Bilateral ..	7	24, 23, 12*, 60, 18, 52, 21*
Moderate { Unilateral ..	7	12, 6, 12, 24, 24, 48, X
{ Bilateral ..	5	40, X, 48, X, 120
Severe { Unilateral ..	6	24, 46, 48, 30, 12, 21
{ Bilateral ..	10	58, 40, 22, 48, 52, 42, 30, 40, 30, 54

\* Relapsed. Cured by a course of local penicillin.

X=Poor response. Cured by sulphamezathine.

the distribution of the cases according to severity. It will be seen that three cases in this series required sulphonamide treatment, and three more a course of local penicillin treatment—10,000 units per ml. instilled at intervals of one minute. The significant findings are (1) the low incidence of cases giving a poor response—requiring sulphonamide—three (7.7%) out of 39; (2) the low incidence of cases showing relapses—three (7.7%); (3) primary cure in 33 (84.6%) out of 39 cases; (4) the excellent response in five cases in this series—the response being so good that treatment was completed within 1 hour of intramuscular injection, so that subsequent penicillin drops were unnecessary; (5) the total duration of treatment in the 33 cases with primary cure was from six to 120 hours, with an average of 46 hours.

As can be seen from Table IX this series of 39 cases contained 17 that showed inclusion bodies and only two

TABLE IX.—Systemic Injections of Penicillin 800,000 Units (Four Injections of 200,000 Units each at Three-hourly Intervals). Total Time taken over Systemic Treatment and Follow-up Local Treatment: in Relation to Causal Organism and Severity of the Affection

	No. of Cases	Total Time of Treatment in Hours for Each Case
Gonococcus:		
Mild .. ..	1	24
Moderate ..	1	24
Severe .. ..	2	48, 30
Staph. aureus:		
Mild .. ..	1	23
Staph. albus:		
Mild .. ..	1	12*
Severe .. ..	1	58
Str. viridans:		
Mild .. ..	1	36
Moderate ..	1	40
Diphtheroids:		
Moderate ..	2	X, 12
Severe .. ..	3	46, 22, 48
Koch-Weeks:		
Mild .. ..	1	38*
Severe .. ..	1	24
Friedländer:		
Mild .. ..		24
No organisms:		
Mild .. ..	2	60, 33
Moderate ..	2	12, 6
Severe .. ..	1	40
Virus presumed from presence of inclusion bodies:		
Mild .. ..	3	18, 52, 21*
Moderate ..	6	24, 48, X, 48, X, 120
Severe .. ..	8	12, 21, 52, 42, 30, 40, 30, 54

\* Relapsed. Cured by a course of local penicillin.

X=Poor response. Cured by sulphamezathine.

these 17 cases required sulphonamide treatment, while only one relapsed requiring local penicillin therapy. Likewise of the five cases due to diphtheroids only one required sulphonamide treatment and none relapsed.



## Discussion

## Course of Affection in Primary Cure

The course of the affection varies somewhat with the different modes of application. With commercial penicillin, 2,500 units per ml. instilled at five-minute intervals, pus may be suppressed within half an hour, but generally up to three hours is required. Subsequently the eye does not become completely dry for a variable number of hours, while stickiness of the lid margin may persist for one or two days. With instillations at one-minute intervals pus is invariably suppressed within half an hour, while the eye remains moist and the lid margins may remain sticky for as long as two days, though recovery generally is rapid. It would appear that persistence of moistness and of stickiness of the lid margin is not altogether due to the infection, for occasionally suspension of all treatment has led rapidly to the clearing of these residual reactions. In individual cases it is often difficult to decide whether these reactions are the remains of an infection or the result of irritation from commercial penicillin. One of the advantages of pure penicillin has been that fewer cases present these residual symptoms. When intramuscular injections are used suppression of pus is not so rapid, but substantially fewer moist and sticky eyes are seen at the end of 24 hours. In all probability commercial penicillin in a concentration of 2,500 units per ml. is not devoid of irritative reactions in some infants, and it is possible that irritative reactions seen with pure penicillin may well be due not to the penicillin itself but to the constant handling of the lids that local therapy involves.

## Relapses and Unsatisfactory Response

When relapses occur it is only exceptionally that the condition is as severe as it was initially: generally an eye that had shown clinical cure becomes either moist or shows sticky lid margins. In such cases a further course of local penicillin usually clears the condition, suggesting an activated latent infection rather than a condition which is the result of mechanical handling. The possibility of reinfection also arises. In two cases with unilateral infection satisfactorily treated by systemic administration the second eye became involved on the second and third days after cessation of treatment. Both these infants were nursed by their mothers, so that extragenital infection is not unlikely.

In contrast to relapses there are the cases that have initially shown an unsatisfactory response. It must be understood that this does not mean that the condition is not brought under control. In no single instance was there any failure in that sense. An unsatisfactory response means little more than persistent moistness of the conjunctiva and sticky lid margins with occasionally some oedema of the fornices. In no case did any complications develop after admission, and occasional cases admitted with a hazy cornea rapidly returned to normal. There was, however, one exception which is not included in the tables:

A baby aged 6 weeks was admitted with an ophthalmia neonatorum of four weeks' standing with both corneae heavily involved. One cornea perforated within two hours after admission, with extrusion of the lens. Intensive penicillin therapy rapidly brought the conjunctival infection under control, but appeared to have little effect on either of the heavily infiltrated corneae. After a protracted course of combined carbolicization, penicillin, sulphonamide, and Kilon fast green V treatment the baby was ultimately discharged with a shrinking right eye and an extensively opalescent left cornea. No causal organism could be found in this infant, nor were inclusion bodies obtained.

As can be seen from Table X if relapses and unsatisfactory responses are counted as failures there were 15 failures out of 55 cases treated at five-minute intervals with penicillin 2,500 units per ml.—that is, the 30 cases recorded here and the 25 cases recorded previously. When

TABLE X.—Summary Table Showing Results Obtained with Commercial Penicillin and Pure Penicillin Locally, and Systemic Penicillin in Relation to Causal Organism

Mode of Treatment:	Drops at 5-minute Intervals (2,500 U./ml.)		Drops at 1-minute Intervals				Systemic		Total	
	+	-	+	-	+	-	+	-	+	-
Organism	+	-	+	-	+	-	+	-	+	-
<i>Gonococcus</i> .. .. .	7	3	7	2	6	2	4	—	24	5
<i>Staph. aureus</i> .. .. .	12	4	12	2	2	3	1	—	27	4
<i>Staph. albus</i> .. .. .	1	7	2	3	1	1	1	—	12	4
Diphtheroids .. .. .	1	4	13	4	3	2	4	1	21	11
<i>Str. haemolyticus</i> .. .. .	1	—	1	—	—	—	—	—	2	—
<i>Str. viridans</i> .. .. .	—	—	—	—	—	—	2	—	3	—
<i>Pneumococcus</i> .. .. .	—	—	—	—	—	1	—	—	—	1
Gram-negative diplococci .. .. .	—	1	—	—	—	—	—	—	—	1
Friedländer .. .. .	1	—	—	—	—	—	1	—	2	—
Koch-Weeks .. .. .	—	—	3	—	—	—	1	1	4	1
Morax-Axenfeld .. .. .	3	—	—	—	—	—	—	—	3	—
.. .. .	1	—	3	1	—	—	5	—	9	1
.. .. .	12	3	7	9	11	4	14	3	44	19
	40	15	53	18	25	8	33	6	151	47

+ = Successful treatment.

- = Unsatisfactory response or relapse necessitating sulphonamide or further penicillin treatment.

treatment was instituted at one-minute intervals there were 26 failures out of a total of 104. The number of failures declined somewhat to six out of 39 when intramuscular treatment was instituted. Taking the series as a whole there were 47 failures in a total of 198 cases.

## Response in Relation to Causal Organism

From Table X it can be seen that the response with the less frequent exciting organisms, such as *Str. haemolyticus*, *Str. viridans*, Friedländer's bacillus, Koch-Weeks bacillus, and Morax-Axenfeld bacillus, was almost uniformly good, as was response in cases where no organisms could be established. In gonococcal infection response was distinctly better with drops of 10,000 units per ml. and with intramuscular injection than with drops of 2,500 units, whether instilled at five-minute or one-minute intervals. *Staph. aureus* gave uniformly good results with the one-minute treatment and intramuscular injection; there were four failures out of 16 treated at five-minute intervals. The most significant findings are with diphtheroids and virus infections. With each of the four different methods of treatment diphtheroids gave some failures: four out of five with the five-minute treatment; four out of 17 with one-minute treatment of 2,500 units per ml.; two out of five treated with drops 10,000 units per ml.; and one out of five with systemic treatment. Likewise there were 12 failures out of 31 cases of virus infection treated with penicillin in a concentration of 2,500 units per ml., but only four out of 15 when the concentration was 10,000 units per ml. and three out of 17 when systemic treatment was applied. It is clear from Table X that the two most resistant groups are infections due to diphtheroids and to virus, the incidence of failures for diphtheroids in the series as a whole being 11 out of 32 and for virus infections 19 out of 63. The failures were, however, largely concentrated in the groups treated by penicillin of 2,500 units per ml. The higher concentration of 10,000 units of pure penicillin and systemic injections considerably reduced the incidence of failures. As clinically there is nothing to distinguish one aetiological type of ophthalmia neonatorum from another, standard treatment must aim at overcoming

the most resistant organisms. For this reason penicillin drops in a concentration of 10,000 units per ml. are more desirable than lower concentrations, and it is possible that systemic injections are even preferable.

#### Choice of Method

For the present the choice of method in the treatment of ophthalmia neonatorum therefore lies between intensive local applications and massive systemic injections. So far as duration of treatment is concerned there is little to choose between the two methods. Intensive local treatment has the gratifying feature that pus is suppressed within 20 to 30 minutes; massive systemic therapy, though the suppression of pus is not so dramatically rapid, has the advantage of greater simplicity and perhaps greater efficacy.

#### Mode of Use

(a) *Intensive Local Therapy*.—(1) On admission a swab is taken for smear and culture, and the eye is irrigated with half-normal saline at room temperature. A drop of adrenaline, 1 in 1,000, is instilled, and a scraping is taken from the palpebral conjunctiva for examination for the presence of inclusion bodies. Atropine sulphate 1% is instilled if the cornea is involved. (2) Any pus that may have accumulated is wiped away with moist pledgets of cotton-wool, and two drops of pure penicillin in a concentration of 10,000 units per ml. are instilled. (3) The baby is now placed on the nurse's lap, while another nurse sitting near by instils one drop of penicillin solution every minute for 30 minutes. Irrigation is not needed, as pus does not form to any extent; such thin mucoid discharge as is present can be ignored, or, if it clings to the lid margin, wiped away with moist pledgets of cotton-wool. (4) At the end of this time there is invariably no pus and generally little or no discharge. The eye, however, is still moist, the lids still swollen, and the lid margins tend to be sticky. The baby is returned to its cot and instillation of penicillin drops is continued six times at five-minute intervals, followed by a similar number of instillations at half-hourly, hourly, and two-hourly intervals. This gives a total of 22 hours' treatment. Many cases require still further attention. (5) In some babies the lid margins still tend to be sticky. It is advisable in such cases to continue with penicillin at two-hourly intervals until the eye is dry, when treatment is continued for a further 12 hours.

(b) *Massive Systemic Injection*.—(1) Stage 1 is as with local therapy. (2) Any pus that may have accumulated during this preliminary procedure is wiped away with moist pledgets of cotton-wool. (3) An injection of 200,000 units of high-potency penicillin dissolved in 0.5 ml. of sterile water is made deep into the buttock, and the baby returned to its cot. (4) The injection is repeated after three, six, and nine hours. (5) At the end of this 12-hour treatment, during which time no local measures of any kind are carried out, most eyes are dry, though some babies still show sticky lid margins. Where there is any doubt as to a fully consolidated cure, pure penicillin 10,000 units per ml. in 1% methyl cellulose solution is instilled as drops into the eye at two-hourly intervals, and continued for 12 hours after clinical cure.

#### Comparison of Penicillin with "Marfanil" and "Gramicidin S"

Three cases were treated with marfanil locally and four cases with gramicidin S. Some improvement was obtained with both these agents but no cure, and treatment by a sulphonamide was necessary. The distribution of organisms and the mode of use in these seven cases are shown in Table XI.

TABLE XI.—Distribution of Organisms in Cases Treated Unsuccessfully with Marfanil and Gramicidin S

TABLE XI.—Distribution of Organisms Fully with Marfanil and Gramicidin			
	Marfanil Drops at 1-minute Intervals for 10 Minutes		Gramicidin S., 4% Solution. Drops at 5-minute Intervals for 30 Minutes
	10%	25%	No. of Cases
<i>Staph. albus</i> .. .. .	—	—	—
<i>Diphtheroids</i> .. .. .	—	—	3
<i>Staph. aureus</i> .. .. .	—	—	1
Virus presumed from presence of inclusion bodies	—	—	

#### Comparison with General Sulphonamide Therapy

As a standard method of treatment general sulphonamide therapy (Sorsby, 1945b) must now be regarded as obsolete, the results of penicillin therapy, whether by local or by systemic administration, being as strikingly superior to the sulphonamides as these in turn were to the classical methods. The sulphonamides are, however, invaluable as an alternative method of treatment when the response to penicillin is unsatisfactory. Moreover, for the present the sulphonamides still have the advantage of simplicity in administration over either of the two methods used with penicillin. Further simplifications of penicillin therapy and a reduction in the proportion of unsatisfactory responses do not, however, appear to be impossible.

#### Summary

1. In a series of 232 cases of ophthalmia neonatorum 224 were treated by penicillin in several different modes of applications. (a) Thirty cases were treated by instillation of watery drops of commercial penicillin in a concentration of 2,500 unit per ml. at five-minute intervals initially. The good results recorded previously with a similar series of 25 cases were confirmed. (b) Seventy-one cases were treated with the same concentration of penicillin drops instilled at intervals of one minute for half an hour, and subsequently at less frequent intervals. In 19 cases the response to treatment was not good, or there was a relapse; the remaining 52 (73%) cleared rapidly, the total time of treatment needed being six to 96 hours, with an average of 33 hours. (c) Thirty-three cases were treated with more concentrated drops—10,000 units of pure penicillin per ml. Six cases gave an unsatisfactory response or relapsed, the remaining 27 (76%) cleared rapidly, requiring treatment for from 20 to 72 hours, with an average of 48 hours. (d) To obviate the need for frequent applications, oily or solid vehicles containing penicillin were tried out in 51 cases (lamellae in 13 cases, ointment in 12, oily suspensions in 13, and methyl cellulose in 12 cases). The results were unsatisfactory. (e) In a final series of 39 cases the initial local treatment was replaced by massive systemic injection (800,000 units in doses of 200,000 units at three-hourly intervals), followed on completion of the course by the instillation of pure penicillin 10,000 units per ml. in 1% methyl cellulose solution at two-hourly intervals. In 33 cases (84.6%) the response was good; in five of these the condition was cleared up by the systemic injections exclusively. The total duration of treatment in these 33 cases was from six to 120 hours, with an average of 46 hours.

2. Assessed against the causal organism the 30 cases treated by drops of commercial penicillin 2,500 units per ml. instilled initially at five-minute intervals gave four cases that required sulphonamide treatment. Of these four cases three showed inclusion bodies, of which there were a total of 11 cases. Both the cases in this series showing diphtheroids relapsed and required a further course of penicillin.

The 104 cases treated intensively at intervals of one minute showed a total of 25 cases that required sulphonamide treatment because of a poor response. Of these 25 cases 11 showed inclusion bodies, and six showed diphtheroids; the remaining eight cases were distributed haphazardly among other organisms, though no failures were observed with *Staph. aureus*, streptococcus, and Koch-Weeks bacilli. There is nothing to suggest that the incidence of failures with diphtheroids could

reduced by an increase in concentration of the drops, but a striking difference was noted in the case of inclusion bodies. Of the 16 cases of inclusion bodies treated by penicillin, 2,500 units per ml., nine gave an unsatisfactory response, while only one out of 15 failed to respond when the concentration was increased to 10,000 units per ml. Only one of the five cases with diphtheroids treated by systemic injection gave an unsatisfactory response; there were three cases with unsatisfactory response out of a total of 17 with inclusion bodies.

3. The poor responses and relapses recorded in this series are to be understood in a relative sense. A total failure to respond to penicillin treatment has not been observed, and in no case as penicillin treatment failed to influence the condition sufficiently to remove all anxiety within a matter of hours, or less. The optimum mode of use of penicillin is still to be determined, though even now the results obtainable are as great an advance on those of the sulphonamides as these in turn were over the classical methods of treatment.

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## A FATAL CASE OF ACUTE PORPHYRIA WITH UNUSUAL FEATURES

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The following case is worthy of record because of the difficulty in diagnosis and the possible relationship to drug therapy. The type of porphyria was also atypical, and here were signs suggestive of adrenal insufficiency.

#### Case Report

A woman teacher aged 34 was admitted to hospital on the 4th day of a febrile illness which began with hoarseness and intermittent severe pains and weakness in all limbs. Except for appendicectomy some years ago and sinusitis a month before, she had been active and well until the onset of the present illness. She was an only child of parents, now dead, of whom she knew little. The limb pains subsided in two days, but on the 6th day she had lower abdominal pain with slight tenderness in the right lumbar area. No relief was obtained from an enema. A second was given with some success, but soon the abdominal pain increased with vomiting. Morphine, 1/4 gr. (16 mg.), had been given a few hours before admission.

On admission she was drowsy. The temperature was 100.5° F. (38.05° C.), the pulse 120, and the respirations 28. Pallor was evident but her general nutrition was good. The tongue was furred and dry. Slight tenderness was elicited in the right iliac fossa and hypogastrium. Rectal examination was negative. The lungs and heart were normal except for an aortic murmur at the mitral area. The blood pressure was 120/80. The central nervous system was normal, though the tendon reflexes were sluggish. The urine—specific gravity 1.020—was red, evidently from admixture with menstrual blood; albumin was present, sugar absent. Pus and *B. coli*

were found in a catheter specimen. She had no frequency of micturition, but the urinary findings, coupled with abdominal tenderness, suggested pyelo-cystitis. On the 11th day sulphamezathine was given, 2 g. at once followed by 1 g. four-hourly, together with potassium citrate, 30 gr. (2 g.) four-hourly. The temperature fell to normal after 24 hours, she felt and looked better, and the dose of sulphamezathine was reduced to 1 g. thrice daily. She received "soneryl," 1½ gr. (0.1 g.), and tab. codein. co. on several occasions.

On the 12th day of the disease there was mental confusion, with marked nocturnal restlessness and recurrence of severe pain and tenderness in the hypogastrium. Similar symptoms were present during the following night, and on the 15th day she had a fit, during which she bit and chewed her tongue. Her temperature was 98° F. (36.7° C.), pulse 104, and blood pressure 130/80. She could with difficulty be roused. Sulphamezathine was suspended after a total of 20 g. had been given, and potassium citrate was also stopped, half-normal saline being administered by mouth on account of suspected salt deficiency. Improvement rapidly followed and she became coherent and co-operative. The tongue was much swollen; cervical adenitis was present, and for this penicillin, 30,000 units three-hourly, was given intramuscularly. The abdomen was distended but not tender. The knee-jerks were sluggish, but other tendon reflexes were normal and weakness or sensory loss was not apparent. A skiagram of the chest and abdomen was normal. The C.S.F. showed: a pressure of 114 mm. of fluid, with less than 1 cell per c.mm.; protein 25 mg. per 100 ml.; globulin nil; colloidal gold test, 000000. A blood count showed: white cells, 30,000 per c.mm. (polymorphs, 89%; lymphocytes, 10%; eosinophils, 1%); plasma chlorides, 416 mg. per 100 ml.; serum sodium, 253 mg. per 100 ml.; urea, 25 mg. per 100 ml.; alkali reserve, 64 vols. CO<sub>2</sub> %. On the 17th day the blood chemistry was: chlorides, 470 mg.; sodium, 272 mg.; potassium, 14.9 mg.; alkali reserve, 61 vols. CO<sub>2</sub> %. It is of interest to note that the urine contained chlorides in spite of the low plasma chloride level.

On the 18th day porphyria was discovered in the urine. Some general clinical improvement was apparent: the blood pressure was 110/80. The knee-jerks were now absent, but the ankle-jerks remained brisk and there was no weakness of the legs. Complaint was made of numbness of the lower abdomen, buttocks, and thighs, and objectively there was some loss of sensation to cotton-wool over the abdomen, but pin-prick was felt normally here and elsewhere. No postural or vibratory loss was noted at any time during the illness. Blood culture was negative. The white cells numbered 11,550 per c.mm. (polymorphs 80%). The urine contained a few pus cells only, and culture was sterile.

20th Day.—There was sudden deterioration during the preceding night. Her temperature was 101.5° F. (38.6° C.), and pulse 130; there were abdominal and limb pains, and mental confusion with phobias and delusions; a toxic appearance; a false rigor; and loss of all limb reflexes. The right kidney was palpable and tender and the exocardiac murmur was more pronounced. Half-strength saline was administered by mouth. Blood chemistry: chlorides, 494 mg.; sodium, 298 mg.; potassium, 14.7 mg.; urea, 24 mg.; calcium, 9.1 mg.

21st Day.—The temperature was 101° F. (38.3° C.) and the pulse 110. She was cyanosed and drowsy but co-operative. Diminished movement and breath sounds at the right base were believed to be due to a high diaphragm, as shown by a skiagram. The right kidney was tender.

22nd Day.—She was less cyanosed and more rational and co-operative. Temperature had fallen to 99° F. (37.2° C.). Examination revealed the following: weak abduction of shoulders; weakness of extensors of wrist and fingers; tendon jerks absent but sensation normal; weakness of legs, especially quadriceps; ankle- and knee-jerks absent but no more pain; abdominal reflexes absent; plantar reflexes flexor; analgesia to pin-prick over lower limbs and lower trunk, and anaesthesia to cotton-wool over trunk.

23rd Day.—Kaolin, 1½ oz. (14 g.) three-hourly, was administered in the hope of its adsorbing porphyrin. On sternal puncture no abnormal cells were seen, but the marrow was very active, with a high count of neutral polymorphs and large

numbers of reticulocytes; 88% of normoblasts showed a cytoplasmic reticulum—a possible source of porphyrins. Ultra-violet light, applied to the skin and to the teeth, showed no fluorescence.

**25th Day.**—Now felt and looked well. Ankle-jerks brisk, but knee-jerks still absent. No sensory loss; no urinary symptoms or signs; B.P. 120/80.

**31st Day.**—She had gradually improved during the past few days, but her temperature was 100° F. (37.8° C.), for which no explanation was forthcoming; in particular there were no urinary symptoms or signs. The urinary output was good—3 to 5 pints (1.7 to 2.8 litres) per 24 hours. She received soneryl, 1½ gr. (0.1 g.), nightly until the 32nd and 33rd days, when "nembutal," 1½ gr. (0.1 g.), was given each night.

**35th Day.**—The patient complained of nausea with vomiting on one occasion, but she was able to sit up unaided. There was moderate weakness of the limbs, mainly proximal, but no demonstrable weakness at the ankles. The ankle-jerks had become sluggish once more and the knee-jerks were still absent. The upper-limb and the abdominal reflexes were not obtained. Though she was febrile—temperature 99° F. (37.2° C.) and pulse 116—the clinical impression was favourable. A few hours later she complained of an intolerable desire to bite her tongue, and she did so while lapsing into semi-consciousness, which deepened during the night.

**36th Day.**—At 6.30 a.m. chewing movements recurred and she remained comatose, with dilated but active pupils which showed hippus. The plantar reflexes were flexor. The pulse quickened to 140; the blood pressure fell to 80/60, and by 6 p.m. was 75/50. Her clinical state now suggested adrenal failure, especially in view of the blood chemistry, tachycardia, and hypotension. Serum sodium 248 mg.; potassium 18.8 mg.; urica 41 mg.; alkali reserve 60 vol. CO<sub>2</sub> %; chlorides 380 mg. Treatment by intravenous "eucortone" and 1.8% saline was given.

**38th Day.**—During the next 36 hours she received 4½ pints (2.6 litres) of double-strength saline and a total of 50 ml. of eucortone. After 16 hours' treatment the blood pressure began to rise a little to 80/55, and she very gradually improved and could be roused to answer "Yes" and "No." The highest blood pressure was 90/60 after 36 hours. Blood urea, 127 mg.; plasma chlorides, 576 mg.; blood sugar, 123 mg. Urine: albumin present, alkaline. *B. coli* present.

**42nd Day.**—Unable to cough (diaphragmatic paralysis), but intercostal muscles active. Voice weak, otherwise normal. Neck muscles unable to support head. Hand movements slight. Incontinent. Temperature 100° F. (37.8° C.), pulse 150/60. Blood urea, 277 mg.; chlorides, 680 mg.; alkali reserve, 57 vols. CO<sub>2</sub> %.

**43rd Day.**—Patient was cyanosed, with difficult respiration. She was put into an artificial respirator on account of intercostal and diaphragmatic paralysis. B.P. 75/60.

**45th Day.**—There was progressive paralysis of trunk and limbs but no cranial nerve paralysis; she was semi-conscious until death.

#### Post-mortem Examination (abstract)

The external appearances were not remarkable. The positive findings were: striking bluish-black discoloration of both rectus abdominis muscles, a few streaks in the psoas, and dark flecks on the parietal and visceral peritoneum of the lower abdomen and great omentum; distended discoloured sigmoid and rectum, containing greasy faeces. The liver was normal in appearance and weighed 51 oz. (1.45 kg.). The engorged kidneys were normal in size, the capsule stripped easily, and the right showed mild dilatation of the pelvis and pyelonephritis. There were purulent cystitis, oedema of mucosa obstructing the right ureteric orifice, and right hydro-ureter. The adrenals were normal. The right ovary contained a dermoid cyst with pale hair; other abdominal viscera were normal. The thyroid was atrophic, weighing only 9 g. No thymus was found. The lungs showed no effusion. The right lower lobe was almost completely consolidated, and section revealed a chequered pattern with alternating dark-red and dark-grey patches. The left lower lobe showed patchy collapse. The heart showed mild brown atrophy and slight irregularity of the mitral valve. The aorta was hypoplastic, with a diameter of only 1.5 cm.

at the level of the coeliac axis. No coarctation was present. The brain and spinal cord were normal.

Red fluorescence under ultra-violet light was seen in specimens of costal cartilages which showed concentric rings, in sternal marrow, in the blackened portions of the rectus abdominis, in the posterior cusp of the mitral valve, in the septal endocardium, in the small intestine, in the medulla of the kidneys, and to a slight extent also in the adrenal glands.

**Histology.**—Detailed examination of the central nervous system disclosed nothing abnormal except vacuolation of the anterior horn cells. Some excess of lipoid pigment was present in ganglionic cells of the sympathetic, as well as oedema between nerve fibres and perineural sheaths and mild degeneration in the myelin sheaths. The lower lobe of the right lung showed infarcts at least one week old surrounded by supervening bronchopneumonia. Arterial thrombi were present but otherwise no disease of the vessels was found. The liver showed mild fatty degeneration; the right kidney was in state of low-grade pyelonephritis, there was complete necrosis of the whole thickness of the wall of the rectum, with only scanty leucocytic infiltration; and the adrenals exhibited slight degenerative changes, more marked in the deeper cortex. Microscopy of the other organs revealed nothing of importance.

#### Chemical Findings

The initial observation of porphyria was made by spectroscopic examination of a faintly pink specimen of urine on the 18th day of the disease. The two-banded spectrum of a metallic porphyrin complex was easily seen in a 1/2-in. (1.27-cm.) layer, the wavelengths being 577 and 541 mμ (Hartridge reversal spectroscopy). On treatment with concentrated HCl the acid porphyrin spectrum was obtained (594 and 551 mμ) and after neutralization with sodium acetate all the porphyrin was readily extractable by ether, giving a four-banded spectrum (623, 597, 575, 569 mμ). These wavelengths correspond closely to those given by Chandler, Harrison and Rimington (1935) for coproporphyrin derivatives measured with the same type of instrument. Subsequent specimens were collected into Winchester bottles containing HCl as preservative. It was noted that they were often normal in colour when passed but darkened to a reddish brown on standing.

The total daily urine porphyrin excretion, estimated by the method of Rimington (1943) on eleven 24-hourly specimens, is shown in the accompanying Chart. It will be seen that the

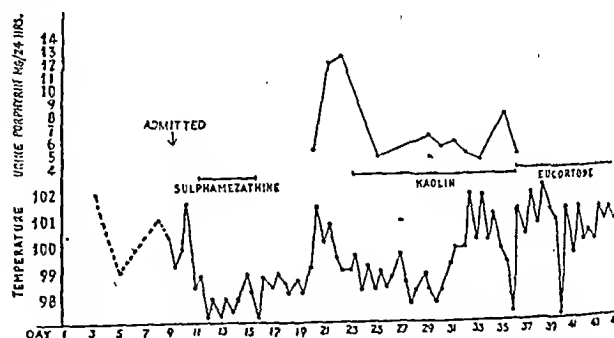


Chart showing total daily urine porphyrin excretion.

values fall between 4.7 and 12.5 mg. per day (normal up to 0.1 mg.), with some suggestion of a fall during the period of kaolin administration. No marked increase was noted at the onset of the fatal termination, but collection of complete 24-hour specimens became impossible at this time. The faecal excretion of coproporphyrin was determined fluorimetrically on a pooled 10-day specimen of stool collected from the 22nd to the 32nd day of the disease, and gave an average value of 50 mg. per day (normal up to 0.3 mg.). In this estimation the stool was first dried with acetone and then extracted with a mixture of ethyl acetate 10 parts to acetic acid 1 part. Extraction from ether into 0.25% w/v HCl was used to avoid the inclusion of protoporphyrin and deuteroporphyrin, which were present in small amounts.

Qualitative examination of the porphyrins by the methods of Dobriner (1937), supplemented by chromatography on alumina

howed that the urine porphyrins consisted of about 99% of uroporphyrin III (methyl ester, melting point 142° C., melt 177° C.), and 1% of coproporphyrin I (methyl ester, melting point 254° C. corrected), with only traces of uroporphyrin. The stool coproporphyrin consisted of approximately 5% of coproporphyrin III (methyl ester, melting point 44° C., remelt 177° C.) and 45% of a coproporphyrin whose methyl ester melted at 163° C. This porphyrin could not be identified with any previously described, and is being further investigated.

The low serum sodium, potassium, and chloride levels and the terminal uraemia have been referred to above. The urinary 7-ketosteroid excretion was estimated on the 36th day of the disease and gave a normal result (12 mg. per 24 hours). The acid content of a 24-hour urine specimen was also within normal limits (0.11 mg. per litre). Liver function tests gave normal results—that is, serum bilirubin, 0.8 mg. per 100 ml.; serum alkaline phosphatase, 12 units; thymol turbidity test and serum colloidal gold reaction, negative.

### Discussion

The principal difficulty in the diagnosis of porphyria lies in the comparative rarity of the condition, which therefore tends to be overlooked; in the present case the diagnosis was made more or less accidentally on the 18th day of the disease while the urine was being examined for another purpose. It would seem to be advisable to look specifically for porphyrinuria in any case of obscure abdominal pain associated with constipation, especially if accompanied by mental or neurological symptoms. The literature on porphyria will not be considered here in detail as it has been well reviewed by Chandler, Harrison, and Rimington (1939), Dobriner and Rhoads (1940), and Welcker (1945).

With regard to aetiology, the post-mortem finding of a hypoplastic aorta and an ovarian dermoid suggests the possibility of an inherited defect, but no useful family history was obtainable. The relationship of the porphyrin to drugs is by no means clear in this case. Porphyrinuria due to drugs (with the exception of the sulphonal group) usually produces less than 1 mg. per day of urinary *coproporphyrin* without symptoms directly attributable to the porphyrinuria except in lead-poisoning (Dobriner and Rhoads, 1940; Rimington and Hemmings, 1938). Acute idiopathic porphyria, on the other hand, usually produces an excretion of many milligrams of *uroporphyrin* per day with typical symptoms, and the porphyria of sulphonal poisoning is closely similar (Dobriner and Rhoads, 1940). The present case is therefore different from both these types, as there was a heavy excretion of *coproporphyrin* with typical symptomatology. It seems likely that the porphyria preceded the administration of any of the various drugs used, but the red colour of the urine noted on the ninth and tenth days of the disease was ascribed to menstrual blood, and no tests for porphyrin were made at this time.

The possibility of lead-poisoning seems to be ruled out by the normal urinary lead values and the absence of any history of exposure to lead. This case therefore appears to be intermediate between the drug porphyrinurias on the one hand and acute idiopathic porphyria on the other, having certain features in common with both groups.

In retrospect there is a distinct suggestion that the condition was aggravated by some of the drugs used, and the fatal termination followed closely on the administration of "nembutal," given to control the marked nocturnal restlessness. In this connexion the advice of Waldenström (1940) to restrict sedative drugs to opiates in this condition needs renewed emphasis, and it may perhaps be worth while to give the following list of drugs which are known to produce porphyrinuria and which should be particularly avoided. These are: sulphonal, trional, sulphonamides, bar-

biturates, arsenicals, alcohol, phosphorus, selenium, and lead (Dobriner and Rhoads, 1939). Kaolin was given in full doses for twelve days in an attempt to immobilize the porphyrin in the bowel, *in-vitro* experiments having shown that the urinary porphyrin in this case was well absorbed by kaolin. There was some clinical improvement, with a slight fall in urinary porphyrin excretion during this period, but the effect was not very definite. However, this line of treatment might be worth a trial in other cases.

The low serum sodium and chloride values found on three occasions are of interest, as these estimations do not appear to have been carried out previously in cases of porphyria. These changes were associated with tachycardia, hypotension, and collapse, and suggested adrenal involvement; but large doses of eucortone and sodium chloride failed to avert the fatal outcome, and no significant lesions were found in the adrenals at necropsy. During the exacerbations the resemblance to adrenal failure was, however, a striking feature, and the possibility of a purely functional adrenal disturbance should be considered as a contributory cause of death in porphyria. In this connexion it may be mentioned that the exact cause of death is not obvious in this condition, and that respiratory paralysis may not be the sole explanation in cases where efficient mechanical respiration is available.

### Summary

The case is reported of a woman aged 34 who suffered from an illness lasting six weeks, characterized by four main exacerbations. The principal symptoms were fever, limb pain, weakness, abdominal pain, constipation, mental confusion, and epileptiform attacks. A urinary infection was present, and there were two episodes suggesting adrenal involvement. Death was preceded by progressive polyneuritis and respiratory failure.

The urine contained from 4.7 to 12 mg. of coproporphyrin a day, which was mainly coproporphyrin III. The stools also contained an excess of coproporphyrin III and an unidentified coproporphyrin.

The dangers of administration of certain drugs in this condition are discussed.

We are indebted to Dr. Alan Morgan for the necropsy findings, to Dr. J. G. Humble for the haematological details, and to Prof. C. R. Rimington for a sample of pure coproporphyrin I methyl ester. Mr. V. R. Wheatley gave valuable technical assistance.

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*Practical Physiological Chemistry* (twelfth edition), by Philip B. Hawk, Ph.D., Bernard L. Osier, Ph.D., and William H. Summerson, Ph.D. (J. and A. Churchill; 50s.), requires no introduction to British readers, but during the ten years that have elapsed since the last edition great advances have been made in biochemistry. The authors have produced a well-balanced, up-to-date, and comprehensive book without increasing the size unduly. They achieved more than the title suggests. There is a sound theoretical discussion of the subject matter of each chapter, followed by illustrative practical procedures, including a wealth of useful technical detail. New material includes accounts of electrophoresis, the use of isotopes and antibiotics, and metabolic antagonists. The chapter on vitamins has been extensively revised and expanded. The sections dealing with blood and urine analysis and energy metabolism are particularly useful to the clinical biochemist, for they include well-chosen descriptions of modern analytical techniques. The interpretations of pathological findings are brief but useful. The authors have wisely deleted obsolete material and included a chapter describing in detail the principles of colorimetry and photometry. This work will continue to retain its place in the laboratory as a practical manual and in the library as a valuable reference book.



# HYPOGLYCAEMIA FOLLOWING PARTIAL GASTRECTOMY

BY

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During a routine follow-up of 45 consecutive patients on whom a partial gastrectomy had been performed for peptic ulcer we noted symptoms of dizziness, palpitation, sweating, epigastric discomfort, and a feeling of weakness—progressing in several instances to complete loss of consciousness—in 17. These symptoms, coming on in from one-half to one and a half hours after food, were rapidly relieved by taking sugar or other easily assimilated carbohydrate. In this series they were far the commonest complication of partial gastrectomy, being greatly in excess of stomal ulcer and anaemia, which receive such a prominent place in the literature on the subject. Five of the patients were in consequence so severely disabled that they had become totally unfit for employment. Many of them, however, did not associate their symptoms with their operation, as their sensations seemed to be quite unconnected with the previous dyspepsia. In a follow-up of patients who have had a partial gastrectomy this syndrome may therefore be overlooked unless leading questions are asked.

Such symptoms have been noted previously, chiefly in the German literature by Lapp and Dibold (1933); Beckermann (1933), Koranyi (1936), and Wöhrlé (1936). Evensen (1942) found that in 34 out of 95 cases of partial gastrectomy the blood sugar fell on occasion to less than 65 mg. per 100 ml. Adlersberg and Hammerschlag (1947), investigating the "post-gastrectomy syndrome," demonstrated a hypoglycaemic type of blood-sugar curve in all their 14 cases. There is a curious absence of reference in British literature to post-gastrectomy hypoglycaemia; the "dumping syndrome," however, is often mentioned, but is usually attributed to vagotonia, the result of jejunal distension from precipitate gastric evacuation.

TABLE I.—Incidence of Hypoglycaemic Symptoms

	Hypoglycaemic Symptoms		Asymptomatic		Total
	Male	Female	Male	Female	
No. of cases .. .. .	12	5	24	4	45
Site of lesion:					
Duodenal ulcer .. ..	7	2	16	0	25
Gastric ulcer .. .. .	5	3	8	4	20
Operation:					
Polya .. .. .	12		18		30
Hofmeister .. .. .	5		10		15
Free acid in post-operative test meal	7		10		17
Age (years) .. .. .	30-65 (average, 45.58)		32-65 (average, 42.61)		
Post-operative period (months)	4-84 (average, 33.29)		9-121 (average, 48.5)		

Table I shows the incidence of hypoglycaemic symptoms among our patients. It will be noted that their presence or absence bore no relation to the site of the previous ulcer, to the type of operation performed, to the presence or absence of free acid in the post-operative test meal, or to the age of the patient. On the whole the symptoms were more pronounced during the earlier months of the post-operative period.

Glucose tolerance tests were performed on all 45 patients. On the morning of the test a sample of fasting venous blood was withdrawn. The patient was then given 50 g. of glucose in 180 ml. of water orally, and samples of venous blood were withdrawn at 30, 60, 120, 180, and 240 minutes. In the latter half of the series an additional specimen was taken at 15 minutes. The sugar content of the blood specimens was estimated by the Hagedorn-Jensen method. Concomitant with the taking of the specimens the bladder was emptied and the urine was examined for sugar.

## Illustrative Cases

Case 1.—The patient, a man aged 60, had been employed as a gardener until his operation (Polya) for a gastric ulcer eighteen months previously. For four or five years immediately

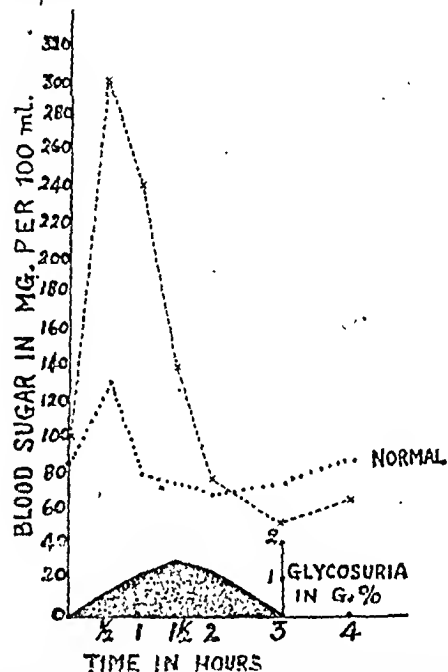


FIG. 1.—Case 1. Glucose tolerance curve. Note the sharp rise in blood sugar to 301 mg. and the fall to 53 mg., also a glycosuria of 1.6 g. during the peak of the blood-sugar curve.

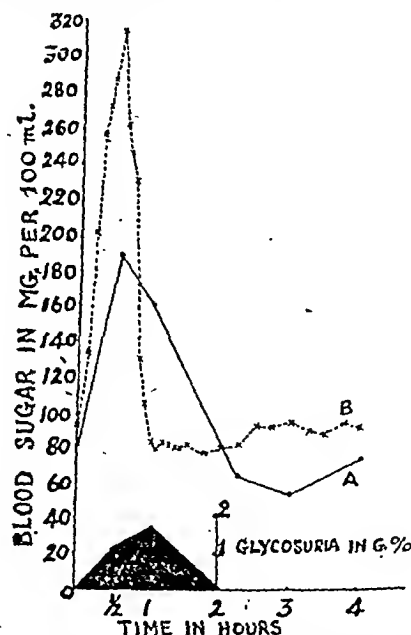


FIG. 2.—Case 2. Glucose tolerance curves. A=first specimen taken at 30-minute intervals; maximum level, 190 mg.; glycosuria 1.8 g. B=specimen taken at five-minute intervals. The peak was missed in A.

before the operation he had lost one to two months' work each year because of pain and vomiting. Since the operation he has suffered from attacks of weakness, sweating, and dizziness one hour after food; these were intensified by taking exercise. Twice during such attacks he lost consciousness. He felt so weak and unsteady that he had not been able to return to work since his operation. A glucose tolerance curve is shown in Fig. 1.

**Case 2.**—A man aged 24 had had a Polya resection for duodenal ulcer nine months previously. Since the operation he had had severe attacks of hypoglycaemia half to one hour after meals. These were most pronounced after his afternoon tea, which consisted of tea with sugar, buns, and cakes. On one occasion, following a large carbohydrate tea, he boarded a bus, and instead of disembarking at his destination found himself at the terminus being wakened by the conductor. He was bathed in perspiration, felt very dizzy, and had extreme tachycardia. During a glucose tolerance test (Fig. 2, A) the highest reading was found to be only 190 mg. per 100 ml. in spite of a glycosuria of 1.8 g. %. It was therefore presumed that by taking specimens at 30 and 60 minutes the peak of the curve had been missed. On repeating this test, taking five-minute specimens, the peak was found to be 312 mg. (Fig. 2, B).

### Discussion

**Factors in the Production of Hypoglycaemia.**—Three factors determine the production of hypoglycaemic symptoms—the maximum fall in blood sugar, the minimum level to which it falls, and the maximum rate at which it falls. These facts are illustrated in Table II, in which the figures

TABLE II.—Average Readings of the Glucose Tolerance Curves

	Hypoglycaemic Symptoms	Asymptomatic
No. of cases .. ..	17	28
Maximum fall .. ..	118.53 mg.	79.57 mg.
Minimum level .. ..	54.24 mg.	62.5 mg.
Maximum fall per minute ..	2.69 mg.	1.92 mg.
Maximum level .. ..	171.53 mg.	138.82 mg.
Glycosuria .. ..	52.82%	17.86%
Postprandial diuresis ..	47.05%	29.26%

given have been found to be statistically significant. It will be noted that the symptomatic cases show: (1) greater maximum fall, (2) lower minimum level, (3) greater maximum rate of fall, and (4) greater incidence of glycosuria and postprandial diuresis.

### Physiological Basis for Post-gastrectomy Hypoglycaemia.

—It is a well-established fact that the gastric remnant after partial gastrectomy empties very quickly. This precipitous gastric evacuation is particularly marked following a meal rich in carbohydrate. Such food is rapidly absorbed from the jejunum, causing an abnormally brisk rise in blood sugar, sometimes to the extent of producing glycosuria. This in turn provokes an excessive secretion of endogenous insulin and a subsequent rapid fall in sugar concentration to an unusually low level. In nine of the cases showing symptoms of hypoglycaemia concentrations below 60 mg. per 100 ml. were noted. In the normal subject the stomach takes about three hours to empty. During this period food in small quantities is continually entering the jejunum, so that a less pronounced initial rise in blood sugar occurs. It must be confessed, however, that this theory does not explain the absence of hypoglycaemic symptoms following the rapid intravenous injection of glucose. Kalk and Meyer (1932) simulated post-gastrectomy conditions by intrajejunal intubation in a normal subject, and were able, by the administration of glucose through the tube, to produce the typical hypoglycaemic blood-sugar curve. A further observation by Evensen confirms short-circuiting to be the basis of the hypoglycaemia. He observed a high incidence of hypoglycaemia after gastro-enterostomy. In one such case the reconstitution of the normal alimentary

tract immediately removed this abnormality from the glucose tolerance curve. A normal difference of the blood-sugar concentration in the capillaries and veins eliminates excessive tissue utilization or storage of carbohydrate as the cause of the hypoglycaemia. Further, in our cases a normal fasting blood sugar (average, 91 mg. per 100 ml.) and normal insulin tolerance curves rule out respectively excessive activity of the pancreatic islet tissue and undue sensitivity to insulin as causative factors.

**The "Dumping" Syndrome (Dumping Stomach).**—The symptoms of the so-called "dumping" syndrome are indistinguishable from those of postprandial hypoglycaemia, and it is probable that the two conditions are identical. There is no reason to believe that excessive vagotonia causes the syndrome, as is commonly held, since vagal stimulation would decrease the pulse rate, whereas tachycardia is present during the "dumping" syndrome. Again, atropine in full doses should inhibit the vagus, but it actually produces no alleviation of the symptoms. Lastly, Moore (1947) has recently reported a case of "dumping" following vagotomy in a patient with a subtotal gastrectomy. Upper abdominal discomfort and occasional vomiting, which have been reported as characteristic of the dumping syndrome, have been noted in some of our hypoglycaemic cases. It is well known that hypoglycaemia produces increased peristalsis; and a fall in blood sugar of sufficient magnitude to produce sweating, tachycardia, and faintness might produce not only increased peristalsis of the gastric remnant but actual spasm. Further, it is known that symptoms of the dumping syndrome often improve with time, and many of our hypoglycaemic patients gave a history of gradual improvement in spite of the persistence of hypoglycaemic blood-sugar curves, due no doubt to the gradual development of tolerance to low blood-sugar concentrations. We therefore believe that it is unnecessary to differentiate the two conditions, which are identical. If our theory is correct, that excessively rapid emptying of the gastric remnant into the jejunum is the primary cause of the dumping syndrome or postprandial hypoglycaemia, treatment should be directed to delaying the rate of gastric evacuation and jejunal absorption of sugar. We have in consequence, and with

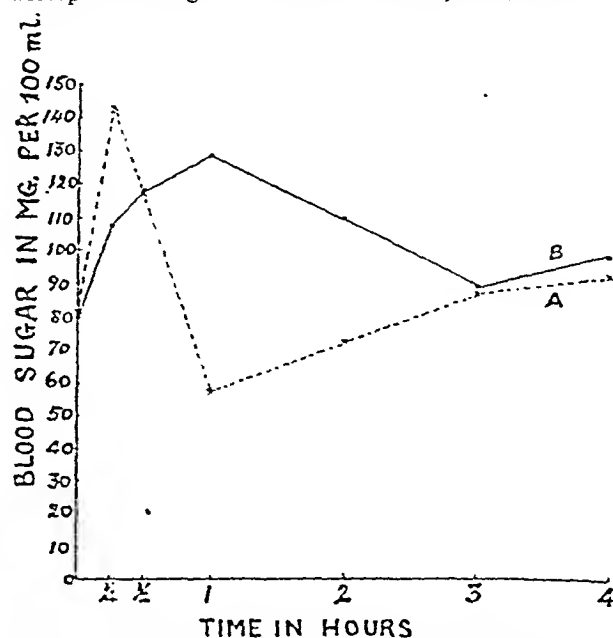


FIG. 3.—A=glucose tolerance curve without ephedrine. B=curve after 1/2 gr. (32 mg.) of ephedrine had been taken half an hour before the glucose.

some success, used high-fat diets or given 1 oz. (28 ml.) of olive oil before meals in the treatment of our hypoglycaemic cases. Ephedrine by its sympatheticomimetic action raises the blood sugar and has also proved useful in preventing reactive hypoglycaemia. It has been given in  $\frac{1}{2}$ -gr. (32-mg.) doses half an hour before the three main meals. Fig. 3 shows its effect in a patient with moderately severe hypoglycaemia. Owing to their reduced gastric capacity these patients often feel better having six small meals a day instead of the usual three large ones.

### Summary

Postprandial hypoglycaemia occurred in 17 out of 45 consecutive patients on whom a partial gastrectomy had been performed for peptic ulcer, and constituted the commonest complication of the operation in this series.

The symptoms produced were severe enough in five patients to preclude them from earning a livelihood.

It is suggested that rapid gastric evacuation is the basis of this hypoglycaemia, and that the "dumping" syndrome has identical clinical manifestations and an identical aetiology, so that the two conditions need not be distinguished.

The most effective method of treatment has proved to be a high-fat diet, six small meals a day instead of three large ones, and  $\frac{1}{2}$  gr. (32 mg.) of ephedrine before the three main meals.

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## STATUS EPILEPTICUS COMPLICATING PREGNANCY

BY

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Status epilepticus in pregnancy is uncommon, but a few cases have been reported, most of them fatal. The effect of pregnancy on idiopathic epilepsy is variable, increasing the frequency and severity of the fits in some cases, ameliorating them in others, and in many instances producing no change whatever. Status epilepticus may occur at any time during pregnancy, labour, or the puerperium. It may even be the first intimation that an epileptic tendency exists. Often, however, the condition is preceded by more violent and more frequent fits, in spite of adequate anticonvulsant therapy.

A fatal termination is almost the rule, though very occasionally patients recover. Sachs (1910) reported two cases in sisters, both fatal. DeLee (1938), Greenhill (1934), and Sachs all state that death is inevitable unless the uterus can be emptied, a procedure which offers a very slender chance of recovery. Jardine records a case in which pregnancy was terminated by manual dilatation of the os, but to no avail. Sachs has packed the uterus before dilating the os, with a similar result. Bachmann (1930) states that, as in eclampsia, improvement is likely to occur immediately the pregnancy is terminated, but there can be

no doubt that status epilepticus, though much rarer, is far more deadly.

Burnett (1946), in an excellent survey of the literature, has summed up the relation between epilepsy and pregnancy and the prognosis in status epilepticus in the pregnant woman. He reports a case which recovered after induction of labour by low rupture of the membranes under thiopentone anaesthesia in the thirty-third week of pregnancy. Although the child was not born for a further five days, complete recovery of the mother resulted and a live child was obtained. Two months after delivery the patient was having fits at her normal frequency.

Bachmann advises sterilization for any patient who has once suffered from status epilepticus in pregnancy, on the grounds that the chances of recovery are negligible should an attack be repeated in a subsequent pregnancy. Having regard to the rarity of the condition and the high mortality rate it is not possible to forecast the chances of a recurrence, but there would appear to be good reasons for supporting his view.

The following case is of interest, since recovery took place without interruption of pregnancy.

### Case History

The patient, a married woman of 23, was admitted to the Royal Infirmary under the care of Prof. E. J. Wayne on Dec. 29, 1946, in status epilepticus; she was then three months pregnant with her first child. At the age of 21 she began to have major epileptic fits, and after full investigation idiopathic epilepsy was diagnosed. There was no family history of convulsive phenomena. She continued to have occasional fits, which were controlled with phenobarbitone. After one year's treatment, however, she ceased to take the drug, with the result that she went into status epilepticus for a few hours eighteen months before the present admission. She had taken no phenobarbitone during pregnancy, which so far had been uneventful and free from fits. Three days before admission she was married to the father of her child. Continuous convulsions began at 1 p.m. on the day of admission.

On examination she was seen to be a well-developed young woman, comatose, with stertorous respiration and slight cyanosis. The pulse was rapid (120) and of good volume, the blood pressure 130/70. There were no localizing signs in the central nervous system; the reflexes were absent, the plantar responses extensor. There was no oedema. The optic fundi, heart, lungs, and abdomen were normal. Vaginal examination revealed pregnancy of approximately three months' duration. The urine contained a trace of albumin but no sugar or acetone. The temperature was 98.8° F. (37.1° C.). She was incontinent of faeces and urine; there was no urinary retention.

Further generalized epileptiform fits followed in rapid succession at intervals of ten to fifteen minutes and lasted one to three minutes. No response was obtained to intramuscular sodium phenobarbitone, and it became necessary to give intravenous thiopentone to prevent a continuous succession of fits. Oxygen was administered continuously.

Sodium phenobarbitone, 3 gr. (0.2 g.), was injected intramuscularly twice daily and 0.25 g. of thiopentone was given intravenously as required. A lumbar puncture was performed and 10 ml. of clear fluid at a pressure of 160 mm. of water was removed. This manoeuvre produced little relief, but it is probable that the increased intervals between fits were due to the barbiturates. On Dec. 29 she had seventeen major fits, and remained unconscious. Next day she had only four fits, but still remained unconscious. To control dehydration fluids were administered per rectum, and into the stomach through a transnasal tube. There were no other physical signs and no evidence of rising intracranial pressure. A further lumbar puncture was normal in all respects. On the 31st her general condition was much the same, but the temperature rose suddenly to 103° F. (39.4° C.) and the pulse to 130 at 2 p.m. She was still unconscious. During the day she had

twelve fits. Her lungs were clear. The blood urea was 41 mg. per 100 ml., the blood sugar 85 mg. per 100 ml., and the blood calcium 9 mg. per 100 ml. The cerebrospinal fluid contained 30 red cells per c.mm. but was otherwise normal.

On Jan. 1, 1947, she was still comatose and had 60 fits; the temperature was 101° F. (38.3° C.), and the respirations 22. Towards evening cough with sputum developed, moist sounds appeared at the bases of the lungs, and the respirations increased to 32. Penicillin, 30,000 units three-hourly, by intramuscular injection was started, and sulphamezathine, 2 g. at once and 1 g. four-hourly, was given through the gastric tube. Paraldehyde, 4 dr. (14 ml.), four-hourly per rectum was started. Phenobarbitone and thiopentone were discontinued. The white blood cells numbered 21,000 (81% polymorphs). Blood culture was sterile. The sputum showed *Staphylococcus aureus* and pneumococci. A catheter specimen of urine was sterile, and contained red cells and pus cells, a trace of albumin and sugar, but no casts. A skiagram of the chest was normal. On the 2nd her condition was deteriorating. Rectal paraldehyde was not retained; 3 dr. (11.5 ml.) was given four-hourly through a gastric tube. The temperature was 104° F. (40° C.), pulse 130, and respirations 40. During the day she had 25 fits. She was still comatose, and rales at the lung bases had increased. Mr. Glyn Davies advised against emptying the uterus.

On Jan. 3 her condition was slightly improved: there were no further fits and the coma was not so deep; the temperature was 100° F. (37.8° C.), pulse 130, and respirations 30. Paraldehyde was continued. A blood count showed: white cells, 9,200 (polymorphs 80%); haemoglobin, 73%; urea, 54 mg. per 100 ml. Next day her condition was steadily improving. She could be roused and was no longer incontinent. The temperature was 100° F., pulse 110, and respirations 30. There were no fits. On the 5th she was conscious and co-operative, but cerebraation was slow. The temperature and respirations were normal, the pulse 110. She took fluids by mouth normally. Paraldehyde was reduced to 3 dr. six-hourly. On the 6th sulphamezathine was discontinued. She had no fits or symptoms and was fully conscious and sensible. The temperature, pulse, and respirations were normal. A catheter specimen of urine was sterile, and contained red cells and pus cells, a trace of albumin and sugar, but no casts.

On Jan. 9 the paraldehyde was discontinued. Phenobarbitone, 1 gr. (65 mg.), was given by mouth, three times a day. She had no fits. Skiagrams of the chest and skull were normal. On Jan. 16 the penicillin was discontinued. The patient was asymptomatic, and there were no abnormal physical signs and no fits. Next day her physical condition was excellent, but she became tearful and uncooperative. Clonic twitchings of the legs developed in the presence of any audience. She asserted that she could not walk. The character of these phenomena strongly suggested hysteria, and this diagnosis was confirmed by Dr. A. G. Yates. On Jan. 20 she was physically normal but grossly hysterical. She was discharged from hospital, under observation, on phenobarbitone, 1 gr. thrice daily. The pregnancy had remained undisturbed throughout in spite of continuous coma for six days and a total of 128 fits in hospital and an unknown number before admission.

#### Subsequent Progress

On June 6 the patient was feeling perfectly well, walking normally, with no signs of hysteria. She was taking phenobarbitone as instructed, and there had been no further fits.

On July 21 she was delivered of a normal female child weighing 8 lb. 2 oz. (3.7 kg.) by spontaneous delivery at term. There were no fits during labour, and both mother and child are progressing satisfactorily.

#### Discussion

This case differs in several important respects from the one described by Burnett. In our patient status epilepticus had occurred previously, when the patient was not pregnant and had omitted her phenobarbitone; it occurred at the end of the first three months of pregnancy, during which period she had taken no anticonvulsant drugs whatever. Burnett's patient had never previously had status epilepticus, which developed in the last three months of

pregnancy in spite of regular anticonvulsant therapy. There does not seem to have been any question of eclampsia. Finally, termination of the pregnancy was not required in our case.

These differences suggest that the prognosis may be better when omission of specific therapy is a complicating factor than when status epilepticus intervenes in pregnancy despite previous adequate therapy. In our case it may well be that failure to take the necessary amount of phenobarbitone was alone responsible for the condition, but it would appear that the pregnancy exerted an additional malign influence, since this attack was far more severe than the previous one.

It is probable that the profound changes in hormonal balance with intracellular fluid retention which occur in pregnancy may lead to a slight degree of cerebral oedema sufficient to "fire-off" an excitable cortical focus. It is a well-known fact that some epileptics experience more fits at the menstrual periods than at other times, or may have fits only at those times.

In future cases of status epilepticus in pregnancy careful inquiry should be made concerning previous anticonvulsant treatment, as this point may prove an aid to prognosis and therapy. It is possible that onset in the early months of pregnancy may indicate a better chance of recovery than onset in the later months, when latent toxæmia of pregnancy may be an additional factor.

We wish to express our thanks to Prof. E. J. Wayne for permission to publish this case and for helpful criticism. We would also like to thank Mr. Glyn Davies and Dr. A. G. Yates for their help.

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## DISCONTINUOUS INTRAVENOUS INFUSION AND TRANSFUSION ADVANTAGES AND TECHNIQUE

BY

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Working as I do to a large extent in small hospitals and nursing homes without a resident medical officer, I have found the following expedient a godsend. The principle is founded on Edwards's vein-seeker. The outfit (Fig. 1), improvised with materials that are not difficult to obtain, was evolved with the assistance of Sister Pauline, C.B.E. It is of cardinal importance that the tubing be latex or other really good rubber. Most rubber tubing supplied to-day, particularly that made from synthetic rubber, has been found to be useless and dangerous for this purpose. Another essential point is that the rubber tubing must be renewed each time the apparatus is sterilized by boiling, and each time it is renewed the tubing must be tied securely

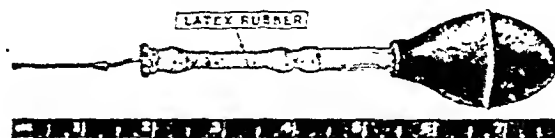


FIG. 1.—Showing the relative sizes of the components.

on to the glass connexion. The cannula is my pattern gold-plated cannula, preferably but not necessarily the child's model. I use a cannula because it can indubitably be tied into a vein, and it withstands the hazards of displacement to which experience shows it may be subjected; in short, it is almost foolproof. The bulb, tubing, and cannula are filled *completely* with 3.8% citrate solution. The cannula is tied into a vein in the usual way. The bulb is slightly compressed and released, and blood appears in the glass window (Fig. 2). Every four to six

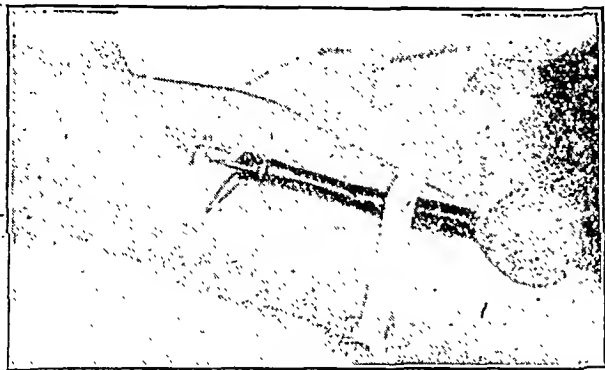


FIG. 2.—The apparatus in place. Especially when inserted into a vein of the forearm or the saphenous vein above the ankle, it can remain in position for four or five days without discomfort or the occurrence of thrombosis.

hours the bulb is *slightly* squeezed and released by the nurse in charge, and through the window it is noted whether the blood moves to and fro. It is possible to keep the cannula *in situ* for days, ready for immediate use when required. Any State-registered nurse can gently wipe the latex tube with alcohol and insert a hollow needle into the lumen of the rubber tube (Fig. 3). So it comes about

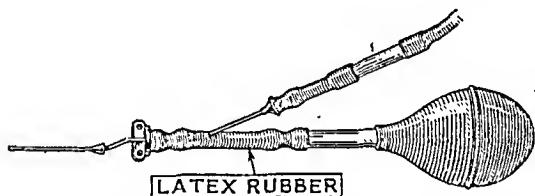


FIG. 3.—A hollow needle linked to an infusion or transfusion set can be inserted, withdrawn, and reinserted by the nurse in charge according to the orders she has received.

that saline solution, glucose solution, plasma; matched blood (if left in readiness), isotonic sodium sulphate solution, heparin, or any intravenous medication can be ordered at any hour on the telephone by the surgeon or physician, who may be miles away. This is the first advantage, and one that many will appreciate.

What I believe is a more important consideration is that if only this method of vein cannulization could be adopted in all cases where it is judged that the patient may need parenteral fluid for more than a period of six hours, I am sure many lives would be saved, for orders could be given to stop the infusion at a stated time. Patients would therefore be given a chance of disposing of fluid. Should they need more in a matter of one, four, or six hours, they can have it at once by simply inserting a hollow needle through the tubing.

What a safeguard this is! Instead of, through some mischance, the drips running for days without due checking as to whether the patient is in need of fluid, he would receive only such parenteral fluid as had been specifically ordered by the physician or surgeon in charge of the case.

In all seriousness I suggest that if hospital authorities gave orders that this simple apparatus must be employed in every case of intravenous infusion and transfusion, that it must be withdrawn at the end of 24 hours, and that it should be reinserted only after the house officer has consulted his chief, the registrar, or the resident medical officer, a great blessing would be conferred on the community.

## Medical Memoranda

### Epithelioma Complicating Lupus Erythematosus

Cases of epithelioma complicating lupus erythematosus are still rare enough to warrant being placed on record. According to Pringle (1900) the condition was first mentioned by Riesmayer, of St. Louis, in the *St. Louis (U.S.A.) Courier* of 1886. This



FIG. 1.—Photograph taken in March, 1946, showing keratinized warty growths.

original article is untraceable, but the title "Epithelial Cancer on Lupus Erythematosus," which Pringle quotes, appears convincing in its correctness. Pringle's own case was first seen by him in 1890—a woman aged 36 suffering from lupus erythematosus of the face and scalp. Seven years later a new feature in the case presented itself: "a raised, nodular, hard, irregularly outlined growth, with elevated, punched out, underlined margins and ulcerating centre, situated in the posterior parietal region and about the size of a five-shilling piece." This was freely excised, and histologically was found to consist of a squamous-celled carcinoma. The next fifty years brought to light further cases, and in 1929 Durand made a most exhaustive review of the subject. This was brought up to date by Beeson and Ehrt.

Clinically the cancer appears most often as a vegetating or ulcerative lesion. Histologically the prickle-celled group is



nearly always involved. The fixed type of lupus erythematosus is the one most frequently complicated by epithelioma, the fleeting subacute or acute type generally escaping. It tends to appear in the scar tissue, and this dense, sclerotic, resistant tissue walls it off and accounts for the slow course of the disease. Adenopathy is usually late. Durand states that it is more common in males than in females, roughly in the proportion of 3 to 1. He also states that the average age of onset is 51 years, the average interval before its appearance 19 years, and the most favourable period between 30 and 60 years.

Keutzer has considered the aetiology of the disease from three standpoints: (1) that the combination of lupus erythematosus and cancer is accidental; (2) that the many treatments for such a chronic disease as lupus erythematosus (x rays, radium, CO<sub>2</sub> snow) provoke the cancer; and (3) lupus erythematosus itself may give rise to the degeneration. The first of these cannot altogether be eliminated. Durand considers that x rays and radium can be incriminated in only 35%. Since over 100 cases have been described in which neither of these agents was used, it is a reasonable theory that the inflammatory changes which precede the atrophy of lupus erythematosus may lead unaided

applied to all areas. In March, 1938, the lesions were improved, and the improvement was maintained until June, 1943, when a few fresh lesions appeared on the nose. All lesions were treated with CO<sub>2</sub> snow. A series of fifteen injections of bismostab given by his own doctor was completed in April, 1944. In the August there was no change, and three months later he had a course of "myocristin" injections. In April, 1945, a small wart appeared on the lobule of the right ear, and was treated with 10% salicylic acid ointment. Next month podophyllin in oil, 25%, was applied to the wart. In March, 1946, four keratinized warty growths appeared over the region of the lobe of the right ear and on to the adjoining skin of the cheek and neck—clinically squamous carcinoma type (Fig. 1). The patient was referred to the radiotherapy department of the London Hospital, where the diagnosis was confirmed and the epithelioma was treated with x rays. On June 5, 1946, the area was quite healed and there was no sign of epithelioma (Fig. 2).

CHARLES RYAN, M.D.

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### Status Epilepticus after Electric Convulsion Therapy

The following report of a rare complication of electric convulsion therapy is worthy of record.

#### CASE HISTORY

A married woman aged 60 was admitted to hospital on Sept. 25, 1946, in a state of reactive depression. She was retarded, was not eating her food, and was confused, apathetic, and fidgety. She gradually improved, and at the time of her discharge on Nov. 23 (made at the request of a relative) she was able to take part in the activities of the ward. She was due to have E.C.T., but the machine was out of action during her stay in hospital. Her heart had been examined by a specialist and considered sound. With a change in the domestic circumstances she relapsed, and her consultant advised E.C.T. as an out-patient.

Treatment began on Jan. 24, 1947, and was given twice weekly. It was on a subconvulsive basis, as a number of cases had been successfully treated in this manner. The first application was 0.2 second, 80 volts. The voltage and time were gradually increased each week. Her improvement was not as one could have wished; therefore with the eighth and ninth treatments (0.4 second, 100 volts) convulsions were produced. A definite improvement in her mental state was noted by her relatives. The tenth treatment, on Feb. 25 (0.4 second, 100 volts), did not cause a convulsion. She lost consciousness, recovered rapidly, and was very alert afterwards.

Just over an hour later, while on her way home, she felt faint, and on alighting from a bus collapsed and had a convulsion. She was moved into a house near by and four more convulsions followed. She recovered consciousness about two hours later, at 8 p.m., and was removed home by ambulance at 8.30 p.m., remaining drowsy. The convulsions began again at 9.30 p.m., and after being seen by her consultant she was admitted to hospital at midnight in a comatose condition, having had eight convulsions. A ninth occurred on admission. Pethidine, 50 mg., was given intramuscularly and the convulsions ceased for just over two hours. They then started again, and 35 convulsions followed at approximately ten-minute intervals. Hyoscine, 1/200 gr. (0.52 mg.), was given at 3 a.m., 4 a.m., and 6 a.m., with little benefit. At 8.45 a.m. an amyl nitrite capsule was broken under the nostrils; this was followed shortly by 3 gr. (0.2 g.) of soluble phenobarbitone intravenously. No further convulsions occurred from this time until her death in coma about thirty-six hours later. Her pupils remained fixed and dilated, acetone was detected in her breath, and air hunger was prominent at times. The temperature, pulse, and respirations were all raised, the temperature mounting to 104° F. (40° C.) on three occasions. Glucose and saline were given intravenously during the thirty-six hour comatose state preceding death, and for a time she improved. Digitalis was given hypodermically. However, her condition deteriorated and she died at 11.25 p.m. on Feb. 27.

A post-mortem examination was made by Dr. Jones at the Royal Sussex County Hospital, Brighton, on March 1. He detected multiple minute haemorrhages confined to the right side of the brain. Purulent bronchitis and terminal hypostasis were also present.

I am indebted to Dr. Alexander Watt for help in the preparation of this report and for permission to publish.

A. FOLESON, M.B., B.S.

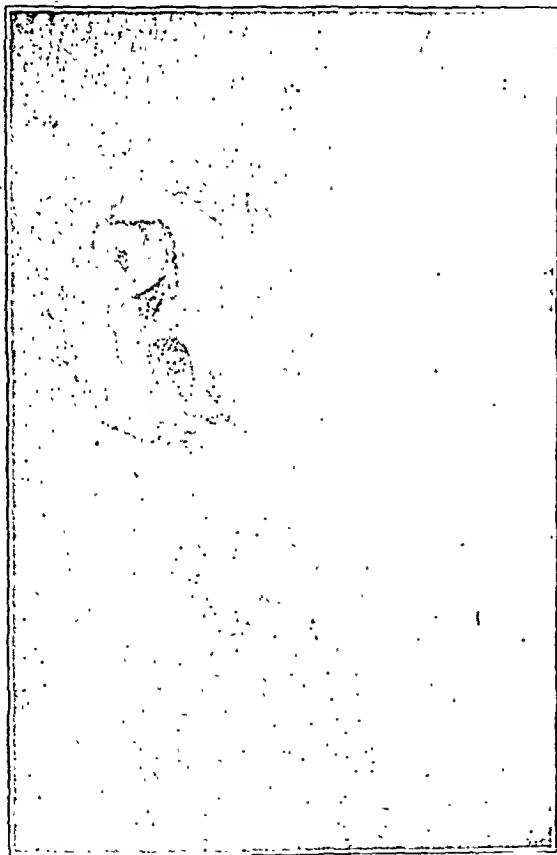


FIG. 2.—Photograph of the patient taken on June 5, 1946.

to epithelioma. The prognosis in these cases is not good, and Beeson and Ehert consider that wide excision is best. Alternatively, x rays and radium can be combined with surgery.

#### REPORT OF A CASE

In November, 1926, a man aged 22 first attended the skin department of the London Hospital, under the care of Dr. O'Donovan. His family history revealed nothing of value. On examination a fixed erythema with superficial white scaling of the nose and orbits was seen. Treatment consisted of CO<sub>2</sub> snow, calamine lotion, and 1 gr. (65 mg.) of quinine sulphate thrice daily. In July, 1927, slight scarring of the left lobule occurred, and treatment was continued until July, 1928. In March, 1930, he had butterfly extension over the face, with both ears involved. This was treated by radium plate to all areas, piece by piece. In September, 1934, his own doctor began a series of fortnightly injections of "bismostab." From December, 1934, to January, 1936, the radium plate was

## Reviews

### CRIMINOLOGY

*Introduction à la Criminologie.* Volume I. Second edition: By Dr. Etienne De Greeff. (Pp. 416. No price given.) Brussels: Joseph Vandenplas, 73, Rue de la Croix de Fer. 1946.

The first edition of this work, published in 1937, was intended to meet the requirements of the elementary course at the School of Criminal Science at Louvain. The present edition is enlarged and is written for those who are concerned with criminological problems but have neither the time nor opportunity to obtain the material for themselves. The author has revised many chapters, and added to others. We are also led to expect in Vol. II a chapter by Mlle. J. Tuerlinckx, welfare worker for 10 years to the Louvain prisons, on the social rehabilitation of offenders, and a copious bibliography by Mlle De Clerck for those who wish to obtain first-hand knowledge of particular aspects of the subject.

The introduction presents a general outline of criminology and refers to the earlier writers—Lavater, Gall, Esquirol, Pritchard, Lauvergne, Lombroso, and others. The author pays tribute to the late Dr. L. Vervaeck, who will be remembered in Britain by those who attended the IXth International Penitentiary Congress in London in 1925, for his emphasizing the importance of the methodical study of the causes of crime and of the offender's individual reaction. The author considers at some length the correlations and rhythms of criminality associated with illiteracy, economic factors, social changes, alcohol, divorce, the Press, and the cinema, and reviews them statistically. He discusses locality, family life, and grouping in an interesting chapter and the modification of the environment. He presents the comparative anatomy of the criminal on the usual lines as well as the effect of age, sex, race, hybridization, and drug addiction. The Belgian figures relating to age show that in 1907 the highest number of male offenders were in the age group 21–25 years. Perhaps recent figures would compare more closely with those found in England and Wales thirty years later when the number of male offenders per 100,000 of the population was highest in the age group 12–16 years (see *Criminal Statistics*, 1937). The author briefly refers to the difficult, important, and much neglected study of the effect of religion on crime, and in an important chapter discusses the mentally unbalanced offender. The final chapter, on homicide, occupies more than a quarter of the volume.

This book is an authoritative presentation of the work of the Louvain School. The Belgian criminologists have long been respected in Britain for their earnest and enthusiastic studies. Dr. De Greeff's book increases our admiration.

W. NORWOOD EAST.

### SPLENIC PUNCTURE

*Die Milzpunktion.* By Dr. Sven Moeschlin. (Pp. 205; illustrated, 30 Swiss francs.) Basle: Benno Schwabe. 1947.

After the first world war biochemical and quantitative techniques came to displace cytology in the study of diseases of the blood. The stream of researches which flowed from Ehrlich's discovery of tri-acid staining had finally ended in a morass of controversy. The methods of vital staining and tissue culture proved less fruitful than had been anticipated. The death of Naegeli and the emergence of the American school of haematology marked the end of an epoch. Looking back, we can see two reasons at least for the impasse of cytology. Professional haematologists had concentrated their attention too exclusively on the peripheral blood, and they were prone to rely on observation rather than experiment, on the single picture rather than the sequence of disease. There are now signs of a revival of interest in cytology and of a reunion of cytology and biochemistry in the intimate study of the blood cells. Sternal puncture has become an indispensable method of diagnosis. Biological researches on the nucleus and the chromosomes, on the effects of x-rays and radio-active materials, and on the chemotherapy of cancer and leukaemia have focused attention once more on the cell and have suggested that the blood cells in man are still a proper object of study with the microscope.

We have previously reviewed (Feb. 2, 1946, p. 165) Leitner's extensive work on sternal puncture. A companion volume on splenic puncture has now arrived from Zürich. Moeschlin describes his technique in detail and records 180 punctures without a mishap. The operation is carried out under local analgesia with a modified lumbar puncture needle. The main precautions are that the spleen should be enlarged, there should be no haemorrhagic tendency, and the operation should be carried out with the patient in full inspiration. Splenic puncture smears include material from the splenic pulp, the Malpighian follicles, and the blood. The lymphatic tissue of the follicles spreads less uniformly than the other material, and the smears are therefore less homogeneous than films of the peripheral blood or sternal marrow. The cells of the spleen can be classified into mature blood cells and cells of the reticulo-endothelial series, the lymphatic series, and the developing myeloid series. It is the opportunity of studying the reticulo-endothelial and lymphatic series which makes splenic puncture specially useful, and Moeschlin describes these cells in considerable detail. The proportion of reticulo-endothelial cells is small, and, though it is possible to define a normal splenogram in the same terms as a normal differential white blood cell count or even a normal differential marrow count, it is desirable to examine the whole of one or two films to get an idea of the cell constituents.

Moeschlin's material is entirely non-tropical, but within its range it is complete. He fully describes the splenogram in health and in the various groups of blood disorders. He recommends that splenic puncture should always be supplemented by sternal puncture. In diagnosis the method is most useful in the obscure leukaemias and reticulososes. Perhaps the most interesting section is that on the splenogram in leukaemia and the different effects of x-rays, arsenic, and urethane on the spleen and the bone marrow. It is probable that in temperate zones splenic puncture will be most used in investigations of this type. There are two coloured plates and 119 clear illustrations, mainly photomicrographs. The text is detailed but well organized and not particularly heavy reading. The book is well produced and not unduly expensive. It is a credit to the Swiss school of haematology. Some of us who drew our first inspiration from Naegeli will be stimulated by Moeschlin's book to increase the range of our observations on the blood-forming organs.

L. J. WITTS.

### TEXTBOOK OF FORENSIC MEDICINE

*Forensic Medicine.* By Keith Simpson, M.D. (Pp. 335; 114 figures. 16s.) London: Edward Arnold. 1947.

This is a textbook for medical students by the lecturer in forensic medicine at Guy's Hospital. A brief introduction is followed by chapters on the signs of death, post-mortem changes, identification, and blood stains; six chapters on injury; and one chapter on each of the following subjects: infanticide, abortion, sexual offences, legal procedure, the medico-legal necropsy, the general legal obligations of the doctor, and insanity from the forensic standpoint. In the last twelve chapters—about a third of the book—he discusses toxicology. The author is a medico-legal specialist of wide experience and took the advice of other experts; his book is therefore accurate and up to date. Medical students will find it more than sufficient for examination purposes.

It is the author's aim "to give the subject its vivid colours in life," and he succeeds in doing so—indeed, some readers may find the colours too bright and the smells too strong. The author's style is vigorous and pungent and his book has the directness and informality of oral teaching. More care might with advantage have been taken with the preparation of the text, and the size of objects illustrated might have been indicated where it is not obvious. The author thinks that he has reduced the amount of purely technical detail to a minimum, but even so he has probably included too much. The time available for the study of forensic medicine in the undergraduate curriculum is so short that it would be best to concentrate on general principles and on those aspects of the subject that are of importance in everyday practice.

R. WHITEHEAD.

## ADVANCES IN UROLOGY

*The 1945 Year Book of Urology.* By Oswald S. Lowsley, M.D., F.A.C.S. (Pp. 392; illustrated. \$3.75 or 21s.) Chicago: The Year Book Publishers. London: H. K. Lewis and Co. 1947.

This book is by now well known and needs no description. What the publishers call the "urologic practice quiz"—a number of conundrums printed on the wrapper—is still an unusual feature of it. Even a reader with special knowledge of urology will have to admit that many of the questions are so difficult that he is compelled to turn to the page to which he is referred for the correct solution. But quite apart from this novelty in salesmanship the book is a most useful publication, presenting new advances in urology in a clear and easily assimilable manner.

Although the 1946 volume records no dramatic advances there have been many improvements in surgical technique and in methods of diagnosis. In Britain and elsewhere genito-urinary surgeons are giving more and more attention to the investigation of male fertility and to the treatment of sterility or subfertility when this is found. We must confess, nevertheless, that the treatment of male infertility still remains disappointing. In an excellent article on this subject Norvell Belt records that at present there is only a 46% chance of bringing about improvement. An analysis of the 327 patients unsuccessfully treated showed that a large number of them gave a history of having previously suffered from some protracted febrile disease such as malaria. Harry Benjamin, in a contribution on the same subject, discusses more particularly those cases in which the sexual incapacity of the husband is an obstacle to his wife's conceiving. He found that one-third to one-half of such cases could be improved by testosterone therapy. As large amounts of this hormone may suppress pituitary function and thus aggravate sexual inadequacy, he does not consider it advisable to give more than 10 mg. of testosterone propionate two or three times a week. Transurethral operations on the prostate increase in popularity, and there is an article on prostatic resection in cases of advanced renal insufficiency. From a study of fifty-four patients suffering from this complication and treated at a clinic G. J. Thompson concludes that transurethral prostatic resection in patients with advanced renal insufficiency is justified by the improvement in renal function that follows. In this series one death occurred from coronary occlusion and only two as the direct result of uraemia. The book maintains its high standard and should be of great service to all genito-urinary surgeons.

KENNETH WALKER.

## APPENDIX AND URINARY TRACT

*Appendicite et Urologie. Etude Médico-Chirurgicale Clinique et Thérapeutique.* By L. Strominger. Preface by M. le Professeur Lepoutre. (Pp. 168. 240 francs.) Paris: Masson and Cie. 1946.

The author's intention is to show how frequently the symptoms of appendicitis and diseases of the urinary tract are confused with one another and how they may be differentiated, and he tries to present his case in such a manner that it may interest both the general surgeon and the urologist. The book is in two parts—the first on the appendix and appendicitis, the second and larger part on the urinary tract and the differential diagnosis of the diseases of that tract from appendicitis.

He concisely describes the development, anatomy, and physiology of the appendix and then gives an account of the symptoms of acute and chronic appendicitis, the complications, diagnosis, and treatment. In the second part he emphasizes the intimate relations of the appendix with the organs of the urinary tract and the importance of the intercommunication of the nerve supplies of the intestine and the urinary tract, whereby a painful stimulus in the renal pelvis or ureter may cause spasm or paralysis of the gut. His account of the radiological findings in appendicitis and in diseases of the urinary tract, which simulate each other, is interesting. Finally he discusses in detail those problems of differential diagnosis which 38 years of urological practice have proved to be the most common. The author accomplishes his object admirably and has written a book which is instructive and easy to read.

J. E. SEMPLE.

## BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

*Treatment by Ion Transfer.* By D. Abramowitsch, M.D., and B. Neoussikine, M.D. (Pp. 186. 30s.) London: Staples Press. 1947.

Discusses treatment by ion transfer in a wide variety of disorders; with bibliography.

*Hobday's Surgical Diseases of the Dog and Cat.* Edited by James McCunn, M.R.C.V.S., M.R.C.S., L.R.C.P. 5th ed. (Pp. 422. 21s.) London: Baillière, Tindall and Cox. 1947.

Includes new material on nursing small animals.

*Dying, Apparent-Death and Resuscitation.* By S. Jellinek, M.D. (Pp. 263. 10s. 6d.) London: Baillière, Tindall and Cox. 1947.

Intended as a textbook for medical students and practitioners.

*Supplement to Lewis's Library Catalogue, 1944-1946.* (Pp. 176 5s.; to subscribers to the library, 2s. 6d.) London: Lewis's Library. 1947.

*L'Infiltration Stelloire.* By G. Arnulf. (Pp. 234. 400 francs.) Paris: Masson et Cie. 1947.

A monograph on infiltration of the inferior cervical sympathetic ganglion with analgesics.

*The Essentials of Obstetrics and Gynecology.* By W. A. Scott, F.R.C.S.(Can.), F.R.C.O.G.(Eng.), and H. B. Van Wyck, F.R.C.S.(Can.), F.R.C.O.G.(Eng.). (Pp. 390. 27s. 6d.) London: Henry Kimpton. 1946.

An introductory manual for medical students and practitioners.

*A History of the American Medical Association.* By Morris Fishbein, M.D. (Pp. 1,226. 50s.) London: W. B. Saunders Co. 1947.

Records the history of the first hundred years of the A.M.A., and includes biographies of its presidents by Walter L. Bierring.

*Aging Successfully.* By George Lawton. (Pp. 266. 15s.) New York: Columbia University Press. 1946.

Discusses how the ageing can retain their mental flexibility and continue to enjoy life.

*Rhinoplasty and Restoration of Facial Contour.* By J. W. Maliniac, M.D. (Pp. 327. \$7.50.) Philadelphia: F. A. Davis Company. 1947.

Includes sections of skin grafting, fractures, anaesthesia, and the use of photographs.

*Light, Vision and Seeing.* By Matthew Luckiesh, D.Sc., D.E. (Pp. 224. 12s. 6d.) London: William Heinemann. 1947.

A general account of vision and light and their importance to industry.

*Mankind So Far.* By William Howells. (Pp. 319. 16s.) London: Sigma Books. 1947.

The story of the evolution of man from mammals.

*Die Immunitätsforschung.* Vol. I. "Antikörper" Part I. By R. Doerr. (Pp. 259. 24 Swiss francs.) Vol. II. "Das Komplement." By R. Doerr. (Pp. 74. 7.50 Swiss francs.) Vienna: Springer Verlag. 1947.

Investigations into antibodies and complement.

*The Case of Rudolf Hess.* Edited by J. R. Rees, M.D., F.R.C.P. (Pp. 224. 12s. 6d.) London: William Heinemann. 1947.

An account of Rudolf Hess by the physicians who were in charge of him from 1941 to 1946.

*New Ways of Treating Uraemia.* By W. J. Kolff, M.D. (Pp. 112. 10s. 6d.) London: J. and A. Churchill. 1947.

Discusses the artificial kidney, peritoneal lavage, and intestinal lavage.

*Magic and Healing.* By C. J. S. Thompson, M.B.E., Ph.D. (Pp. 176. 15s.) London: Rider and Co. 1946.

An account of magic in medicine throughout the ages.

## BRITISH MEDICAL JOURNAL

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## THE MANAGEMENT OF POLIOMYELITIS

The worst epidemic of poliomyelitis yet encountered in Great Britain is occurring this summer. Medical men are being asked, "What can I do to prevent myself, my children, and others becoming infected? What is the best treatment and what is the outlook when infection does occur?" Some of the answers to these questions were provided by Dr. Howlett Kelleher in last week's *Journal*. Others are given elsewhere in this week's issue by Prof. H. J. Seddon, whose experience of poliomyelitis in its acute stage must be unique, certainly among British surgeons. It may be helpful to consider some of these modern views on the disease in its two main phases—i.e., before and after the onset of paralysis.

In the pre-paralytic phase it must be admitted at once that nothing can yet be done to prevent paralysis. This is not by any means to say that everyone infected with the virus of poliomyelitis develops paralysis. As Seddon says, it is probably true that at least one-third of all cases fail to develop paralysis or have a paresis so transient as to be of no consequence. And according to reliable American observations as many as 50% of cases recover completely. (The description of poliomyelitis as infantile "paralysis" is therefore misleading.) Bearing this in mind, there seems little or no argument in favour of admitting suspected cases in the pre-paralytic stage to an orthopaedic hospital, the demands on which are already numerous and the facilities of which are to-day seriously curtailed by shortage of nurses. It would appear sounder policy to make use of the fever or isolation hospitals, the staffs of which are specially trained in the management of infectious diseases. If the patient is kept at home the smallest number of people compatible with adequate attention should be allowed in contact; attendants should wear masks and gowns on entering the room, wash their hands thoroughly on leaving, arrange for isolation of the patient's eating utensils, and see that his excreta are destroyed. Even though direct infection from a patient is seemingly rare, these precautions are generally considered advisable.

If paralysees develop orthopaedic facilities become necessary. They can be obtained most effectively by transferring the patient to a hospital, and especially to a country orthopaedic hospital. Seddon has underlined some of the difficulties associated with putting this plan into action, but these should be overcome, for the advantages to the patient of being able to remain in the competent care of the same team for what may prove to be a long and tedious convalescence are enormous. It is lamentable that this segregation of paralysis patients, with all its economy in attendant personnel and with all its other advantages, is being frustrated in many places not so much by shortage of beds as by lack of nurses.

In the paralytic phase three stages, each of somewhat arbitrary duration, can be recognized—the acute, the stage of recovery, and the chronic stage. These are convenient sub-divisions because they are related to treatment. In the acute stage the extent and degree of paralysis are determined and recorded according to a simple plan. The emphasis of treatment in this stage is on rest, just as in the acute stage of any other febrile illness. Joints are supported by simple devices which do not allow deformities to develop either because of gravity or because of the deforming action of unparalysed muscles. Heat is the only physiotherapeutic aid of value at this stage; it relieves muscle tenderness and spasm and is best employed in its simplest form—the hot pack or the hot bath. This early stage of paralysis lasts only a few weeks. None the less, it is important that adequate but simple splinting should be begun without delay, because deformities due to overaction of unparalysed muscles may develop rapidly and if neglected be difficult to overcome subsequently. When muscle tenderness disappears, which is usually within a few weeks of the onset of paralysis, a more active regime of treatment is started. This is the stage of recovery. During it a careful balance must be held between splinting to prevent deformity and overstretching of paralysed or recovering muscles and between controlled activity and the preservation of joint movement. Throughout the history of poliomyelitis undue emphasis has been laid at times on one or other of these apparently conflicting objectives. Some find it difficult to understand how a muscle can be overstretched when the joint which it activates is still capable only of an excursion to which the muscle has always been accustomed. It is, of course, the prolonged maintenance of a joint in one of its extremes of movement which results in overstretching a paralysed muscle. The passive movement of a joint through its full range two or three times a day does not produce a harmful stretching effect. On the contrary it is beneficial, because free joint movement is maintained and contracture of unparalysed muscles prevented. Its advocacy by Miss Kenny and others is a notable advance on the times when the principle of "rest enforced, uninterrupted, and prolonged," rightly advocated by a great pioneer of orthopaedics for the treatment of acute inflammatory condition of joints, was misapplied in the therapeutics of paralysed muscles. Thus we have moved to the sensible view that *uninterrupted immobilization*, whether in a so-called neutral position (by surgeons) or in a deformed position (by neglect or ignorance), is wrong.

It is clear then that joint movement can be preserved. But joint movement is of limited value if it cannot be reproduced actively by the patient. At once we are faced with the question, Can anything be done to restore muscle power, apart from preventing undue stretching while the muscles are paralysed? If the anterior horn cells are totally destroyed, clearly the muscles supplied by those cells cannot recover. It takes at least six months, however, before it can be said with certainty that paralysis is permanent. Consequently every helpful form of physiotherapy should be employed during the stage of recovery. What measures are useful in maintaining the nutrition of the life

ss muscle? On this topic there are wide differences of opinion. All are agreed that for the partially paralysed recovering muscle the best treatment of all is controlled activity—gradually increasing the active muscle effort but without producing fatigue. All sorts of devices to lessen the load for the weakly muscles are employed—e.g., exercises in the bath to counteract gravity. Carefully graduated exercise and the proper application of splints are the chief measures of the physiotherapist working under orthopaedic supervision. With strict adherence to scientific accuracy Seddon argues, and no doubt rightly, that there is no basis for using electrotherapy. Yet it is difficult to believe that electrotherapy administered by an expert is of no help in maintaining the nutrition of the completely paralysed muscle and in “giving a boost” to the recovering muscle.

How long does the stage of recovery last? It is probably true to say that no new recovery of any moment in a partially or completely paralysed muscle begins after a lapse of six months from the onset of the paralysis. It is important to appreciate that this does not mean that the patient remains for ever as disabled as he may be at the end of six months. During the following eighteen months very effort must be made to build up the strength of the muscles which have recovered and to re-educate the patient in the use of the total muscle power left to him. The extent to which the paralysed individual, and especially the young, can readapt is a never-ending source of amazement. Many will require the help of surgical appliances during this period of re-education. Two years after the onset of disease the patient enters on the chronic stage—more aptly and less pessimistically called the stage of reconstruction. From now onwards the orthopaedic surgeon can supply further help if it is required. The procedures available cover the whole range of reconstructive surgery of the locomotor system—tendon-lengthening and transplantations, bone and joint operations, and the like.

“No one has ever cured a case of poliomyelitis.” In these words Seddon expresses a chastening truth. It will be salutary if it stimulates the urge to learn more about this disease, which remains a most serious challenge to the clinician, the laboratory worker, and the administrator alike. Many must feel disappointed that the memorial to be erected to one of the most illustrious victims of poliomyelitis will not be in the form of an endowment for research into acute anterior poliomyelitis.

## OURSELVES AND THE RUSSIANS

An article attacking the *British Medical Journal* appeared in the Russian medical newspaper *Meditsinsky Rabotnik* (Medical Worker) for July 3, 1947. It is written by someone who signs himself O. Radbil, and entitled “The Sham Political Neutrality of the *British Medical Journal*.” The article is so naïvely absurd that it would be hardly worth taking notice of were it not for the fact that it appears in the official organ of the Ministry of Health of the Soviet Union and of the Ministry of Medical Industry. We may therefore assume that the article does not merely provide an outlet for the spleen of a man who for some reason or

other dislikes the *B.M.J.* but represents the official view of the Soviet Ministry of Health. We may even make a shrewd guess that the inquiring and ill-informed Mr. Radbil was told what to write and like an obedient servant of his State wrote what he did. The *B.M.J.* is accused of a “tendency to preserve silence on and ignore the achievements of Soviet medical science (and likewise that of the other democratic countries of Eastern Europe) and to publish mendacious information.” Mr. Radbil, in reading the *B.M.J.*, finds it difficult to decide whether some of what he reads is “malicious slander or limitless ignorance.” “Such is the journal,” he writes, “which does not hesitate to slander the Soviet Union.”

What, we may ask, has upset Mr. Radbil—and presumably the Soviet Ministry of Health? The first item of offence is the leading article in the *Journal* of Mar. 30, 1946, on the Health Service Bill (as it then was), and objection is taken to the statement that medicine should “keep itself clear from the influence of prevailing ideologies founded on less exact knowledge.” Further objection is taken to a leading article on “Principle and Unity” which appeared in the *Journal* of Feb. 2, 1946, and to this passage in it: “Nothing can do greater disservice to the real interests of medicine than the use of emotive words and phrases, and indulgence in the language of the hustings. To bandy words like ‘Fascist’ and ‘Communist,’ ‘reactionary’ and ‘revolutionary,’ or to indulge in vituperation against persons, institutions, or parties, will belie our claim, and our just claim, to be considered as a learned and liberal profession whose thought and way of life are based upon science and the humanities.” We regret that these suggestions have apparently been without effect on Mr. Radbil himself. In the same leading article we stated: “But probably the mass of doctors are non-political in attitude and want only to get on with their work in their own way with the least possible interference from anyone else.” Mr. Radbil considers that this observation has the effect of “elevating political neutrality to a principle.” He accuses us of “putting a sign of equality between Fascists and Communists” when in fact we did no such thing. Then he goes on to write: “In the last year and a half there has not appeared in the journal a single article devoted to Soviet medical science, despite the well-known fact that it has won world recognition.” A year and a half back from the date of Mr. Radbil’s article takes us to February, 1946. If Mr. Radbil had carried his researches into the *British Medical Journal* a little further he would have found that during 1945 we published the following articles on various aspects of Russian medicine:

“The Medical Corps in Red Army Operations, Its Tasks and their Fulfilment,” by Prof. Yefim Smirnov (Feb. 10, 1945); “Treatment of Gunshot Fractures of the Extremities in Evacuation Hospitals of the U.S.S.R.,” by Prof. Nikolai N. Priorov (Feb. 10, 1945); “Amputation of the Extremities, and Prostheses, in the U.S.S.R.,” by Prof. Nikolai N. Priorov (Feb. 10, 1945); “Osteoplastic Re-amputation of the Thigh,” by Dr. Alexander Kotov (Feb. 10, 1945); “Some New Developments in the Morphophysiology of the Cerebral Cortex,” by Prof. S. Sarkisov, M.D. (July 14, 1945); “Leningrad Surgeons,” by Prof. Nikolai Blinov (July 21, 1945); “Medical Science in



Russia"—an account of a session of the Academy of Medical Sciences, U.S.S.R., sent by Academician V. Parin (Dec. 8, 1945).

It will be noticed that in the *Journal* of Feb. 10, 1945, out of seven original articles we published no fewer than four by Soviet medical men. So that Mr. Radbil may be more fully documented when he next refers to the "malicious" tendency of the *B.M.J.* we list the other articles on Russian medicine published since 1938:

"Medical Advances in Soviet Russia" (Dec. 24, 1938).

"Some Contributions to War Surgery from the U.S.S.R." By Ruscoe Clarke, M.B., F.R.C.S. (Sept. 13, 1941).

"Blood Transfusion in the U.S.S.R." By Prof. A. Bagdasarov, Director of the Central Blood Transfusion Institute, Moscow (Oct. 17, 1942).

"Work of the Medical Corps in the U.S.S.R." By a Soviet Doctor (Dec. 19, 1942).

"Surgeons and Surgery in Leningrad," by Prof. N. Blinoff, Leningrad Postgraduate Institute and Blood Transfusion Institute (Jan. 30, 1943).

"Gas Infection of the Brain as One Form of the Serious Complications of Cerebro-cranial Injuries." Report by a Committee of Soviet Scientists (June 26, 1943).

"British Surgeons' Visit to U.S.S.R. Impressions of Soviet Medical Organization" (Aug. 14, 1943).

"Antitreticular Cytotoxic Serum." By Alexander Bogomol'tz, Member of the Academy of Sciences of the U.S.S.R. (Aug. 14, 1943).

"Russian Surgeons and Russian Surgery." By R. Watson-Jones, F.R.C.S. (Aug. 28, 1943).

"Treatment of Gunshot Fractures of the Limbs." By Prof. Sergei S. Yudin, F.R.C.S.(Hon.), Surgeon to the Sklifassovski Hospital for Traumatic Diseases, Moscow (Nov. 6, 1943).

"Employment of the Tuberculous in Industry in the U.S.S.R." From a special correspondent (Nov. 20, 1943).

"Results of External Prophylactic Version." By M. V. Trubkowitz, M.D., Second Obstetric-Gynaecological Clinic of the Second Moscow Medical Institute, and Prof. B. A. Archangelsky, M.D., Director of the Clinic (Feb. 12, 1944).

In fact, between 1938 and December, 1945, at a time of severe paper shortage, we gave more space to articles by Russian doctors than to those written by doctors of any other country. In addition we have for some years now made repeated requests for an article, or articles, on the organization of Russian medicine, but these requests have been ignored.

Mr. Radbil, doing his best to prove his case, then turns his attention to *Abstracts of World Medicine* and *Abstracts of World Surgery, Obstetrics and Gynaecology*, the first issues of which were published by the B.M.A. in January of this year. "Maybe," he writes, "room is found for the works of Soviet scientists in the special abstracting publications of the British Medical Association?" At the time of his search he found only one abstract from Russian periodicals in the March issues of each journal. And this is why. We have had the greatest difficulty in obtaining Russian medical periodicals. In August, 1946, we wrote to the State Central Medical Library, Moscow, informing them of the proposed publication of the abstracting journals and saying that we were most anxious to include in them abstracts of Russian medical literature. In exchange for Russian medical journals we offered the *British Medical Journal* and the nine quarterly journals published by the B.M.A. We received from the State Central Medical Library a list of twenty-four journals, with an assurance that we should receive them in exchange for our publica-

tions. But the Russian medical journals never arrived. We tried again to obtain these journals by appealing to U.S.S.R. medical representatives in London, but again failed to obtain what we asked for. Finally, while continuing for a time to send our journals to Moscow, we subscribed through a London agency and are now receiving in the abstracting service 11 of the 24 U.S.S.R. medical periodicals considered by the State Central Medical Library to represent the best of Russian medicine. It should be added that, of these, three are now being obtained by exchange with our own periodicals. In addition, three other journals are being received in exchange.

So that the last burden of his complaint may be known to British readers we refer to his indignation at the "impartial, cold selection of 'cases'" in the articles by P. L. Mollison entitled "Observations on Cases of Starvation at Belsen" (Jan. 5, 1946), and by W. R. F. C. and P. C. MacClancy entitled "Some Paediatric Problems presented at Belsen Camp—A Clinical Survey" (Feb. 1946). He is also very cross with Dr. Lydia Fehily because of her observations in the article entitled "What Russians Eat," published in the *Journal* of May 18, 1946, and particularly with her remark that "the peasant himself secure from hunger so long as he has a cow." In these days when fact and fiction are so inextricably mixed in the unholy name of propaganda we think it right to place the above facts on record, and can assure Mr. Radbil, and through him the U.S.S.R. Ministry of Health, that in the limited space still at the disposal of the *British Medical Journal* we have a sincere desire to inform British readers of the advances and contributions of Russian medicine.

### BRITISH ASSOCIATION

With the Edinburgh Music Festival and the Meeting of the British Association at Dundee, Scotland reminds the rest of the world of its traditional love of learning and Arts. The British Association opened its eight-day proceedings on Wednesday of this week with the President's Address on "Science in War and Peace" by Sir Henry Dale, in which he once more showed his great gift as expositor of a general theme. He illustrated by many examples how war had acted as an accelerator of discovery. "How many decades of research," he asked, "do you suppose, undertaken in response to no stimulus stronger than the desire to add to the resources of peace, would have been required for those developments of radiolocation and radar which were achieved in a few years under imminent threat and the realized peril of war?" He touched, too, upon the contributions of physiology and experimental psychology to the adaptation of man to the machine, observing that "war has thus enforced a lesson which surely should not be forgotten in peace, that machinery was made for man and not man for machinery. Much of what was discovered during the war had obvious peacetime applications. An exception to the obvious which Sir Henry mentioned was di-isopropylfluoro-phosphonate—D.F.P.—the subject of an annotation in the *Journal* of July 19. This substance was one of a series of substances developed as poisons to be used if necessary in chemical warfare. The power of D.F.P. in annulling the action of cholinesterase has been used medically in combating illness and in reducing intra-ocular tension in glaucoma.

Sir Henry devoted much of his address to the attitude of scientists to research work and the effect of the war

on this. During six years or more the majority of scientists in this country had had to devote the greater part of their thoughts and energy to seeking rapid solutions for practical problems. "Does anyone doubt," Sir Henry said, that, to enable science now to render its best service to mankind, we need to take a long-range view and to give our first care to the extension of fundamental knowledge, unconstrained by aim at any practical objective?" He added that scientists might find it difficult to shake off the spendthrift habit in research, the policy of trading for quick returns." He hoped that men with the rare creative ability needed by science would not readily be persuaded that "their best service to science can still be rendered by planning and organizing, or by bringing scientific ideas to bear upon policy." He urged "a resolute watchfulness against any encroachment, on activities proper to peace, of a secrecy which we accepted as an abnormal condition in war." Science sought a progressive revelation of the truth of material nature, and in fulfilling its mission for freedom could make its own contribution to the cultural and moral equipment of mankind. Sir Henry ended a memorable address by stating his belief that there might yet be need to be on guard "lest some new and extraneous philosophy or political system, invoking, perhaps, the authority of Science to bolster its pretensions, may seek again to limit and to compromise, with a new orthodoxy, the freedom of Science to seek and to proclaim such truth as it can discover. . . ."

#### UGANDA JUBILEE

In 1893 Mr. Gladstone's Cabinet had decided to evacuate Uganda, when his Scottish agent informed him that if he did so he would certainly find that he had to evacuate Downing Street also. Uganda was not evacuated." Thus Lord Elton<sup>1</sup> sums up the effect of popular opinion in compelling a reluctant Government to consolidate the notable achievements of Capt. F. D. Lugard in East Africa. Capt. Lugard had entered Mengo, then the capital of Buganda, on Dec. 18, 1890, with a force of 50 Sudanese soldiers.<sup>2</sup> Dr. Albert R. Cook entered Mengo on Feb. 19, 1897, with a small party which included a nursing sister, Miss Katharine Timpson. On May 14 they opened the first hospital which East Africa had ever known. Elsewhere in this issue (p. 342) Dr. R. T. S. Goodchild, the present medical superintendent of Mengo Hospital, describes how two grass-thatched huts with reed walls and mud floors grew in fifty years into a modern hospital and training school for midwives.

The same story has been told in detail by Sir Albert Cook himself in his *Uganda Memories*.<sup>3</sup> In a foreword Lord Lugard, five years after he had left it, describes the doctor who entered Mengo as "one of the first and greatest pioneers of medical work" in Africa, and says that "he was privileged to live and work during the forty years when British policy in East Africa was in the making, and these *Memories* show how great his contribution was to the results in Uganda." Lord Lugard also pays tribute to the work of the late Lady Cook, formerly Miss Timpson, who was matron of the main hospital for 21 years, and the founder of the Maternity Training School. In 1923 she and her husband published an illustrated handbook of midwifery, *Amagezi Agokuzalisa*, for the use of the native students in the Uganda Protectorate.

The Uganda Branch of the B.M.A. had its inaugural meeting on Dec. 23, 1913, and elected Dr. Cook the first president. His brother, Dr. Jack Cook, and his nephew,

Dr. Ernest Cook, were among the ten founder members. Sir Albert was knighted in 1932 and was president of the Uganda Branch for the third time in 1936. To mark his jubilee and that of the start of regular medical work in Uganda the Branch has arranged at Kampala a three-day interterritorial meeting which begins next week. There will be a reception in honour of Sir Albert Cook, and an appeal is being made for funds to continue the work which he and Lady Cook began fifty years ago. A programme of rebuilding is being undertaken at an estimated cost of £30,000.<sup>4</sup> Donations should be sent to the Secretary of the Jubilee Appeal, Box 161, Kampala, Uganda.

#### TREATMENT OF BASAL-CELL EPITHELIOMA

Basal-cell epithelioma, still more familiar under its old name of rodent ulcer, is well known as a "locally malignant" tumour which invades slowly and does not metastasize. Unless, through neglect, the local invasion is unusually serious, the results of treatment are good. Paterson, Tod, and Russell<sup>5</sup> irradiated a series of about 1,000 cases at the Holt Radium Institute, Manchester, during the period 1934-8 and recorded 5-year survival rates of 99% for minor growths and 86% for major growths. Most of the patients who died with tumour still present were killed by intercurrent disease, not by the tumour. Amersbach, Walter, and Sperti<sup>6</sup> used a small series of rodent ulcers to test the action on malignant tumours of extracts of human liver and spleen. They injected the extracts repeatedly in and around small tumours in 21 patients. One patient failed to respond to treatment, 6 were still under treatment but the tumours had diminished, and 14 patients had continued treatment until the tumour had completely regressed. No recurrences had been observed during one to two years' observation after treatment. Paterson and his colleagues remark that the usual progress is so slow that even 5-year survival rates are of little value. They describe rodent ulcer as comparatively trivial and easily treated, but add warnings that if the opportunity to cure by correct treatment is missed when the tumour is first recognized much greater difficulty may be encountered later and inappropriate treatment may encourage extension. Their conclusion, based on wide experience, that rodent ulcer should always be taken seriously and treated fully will be generally endorsed.

The use of rodent ulcers for "screening" tests of cancer treatments entails a possible risk to the patient with little probable gain to the investigator. Amersbach, Walter, and Sperti base their treatment on numerous reports of beneficial effects of extracts of liver and spleen on transplanted tumours of animals. Most of these experiments ignore the limitations of transplanted tumours, and no experienced laboratory worker would accept the evidence as convincing or relevant to the treatment of human cancer. Amersbach and his colleagues chose these localized, easily accessible tumours of low malignancy to make sure that any beneficial action of the extracts could be readily observed. These favourable circumstances for observing an effect unfortunately reduce the probability that the effect would be reproducible on less amenable cancers. Finally, tests which involve direct infiltration of the tumour and its surroundings by the supposed therapeutic agent are of little value. It is not particularly difficult to destroy a superficial lesion by chemical or physical agents, but local destruction is not synonymous with cure. Further reports on this treatment may be awaited without enthusiasm.

<sup>4</sup> *British Medical Journal*, 1947, 1, 424.

<sup>5</sup> *The Results of Radium and X-ray Therapy in Malignant Disease. Being the Second Statistical Report from the Holt Radium Institute, Manchester.* E. and S. Livingston, Edinburgh, 1946.

<sup>6</sup> *Arch. Derm. Syph.*, 1946, 54, 119.

<sup>1</sup> *Imperial Commonwealth*, 1945, p. 370, Collins, London.

<sup>2</sup> *Encyclopædia Britannica*, 1929, 22, 665.

<sup>3</sup> *Uganda Memories (1897-1940)*, 1945, The Uganda Society, Kampala.



FIG. 1.—Sir Albert Cook, circa 1937.

## A MEDICAL JUBILEE IN CENTRAL AFRICA

BY

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East Africa

Medical men have always been prominent in pioneering expeditions, and the early story of East Africa is no exception to the rule. Livingstone's journeys never brought him as far north as Uganda, but his contemporary Stanley made more than one visit. He was much impressed with the country and the people, and in 1875 sent a dispatch to the *Daily Telegraph* describing them and appealing to Christian missions to send out pioneers to open up the country; he stressed the importance of sending a medical man by saying, "But oh, that some practical missionary would come here. . . . It is not a mere preacher that is wanted . . . it is the practical Christian tutor, who can teach people how to become Christians, cure their diseases." The response to this appeal came shortly afterwards from the Church Missionary Society, which included among the first party not only a practical engineer, Alexander Mackay, but also a doctor, John Smith. The story of these early pioneers is a matter of history. Unfortunately, the doctor never survived to reach Uganda, and although one or two other medical men followed they either failed to reach the country or were invalided home after a short stay.

It was not until 1897 that the "practical man who could cure diseases" finally started the systematic practice of medicine in Uganda; and this year Sir Albert Cook, C.M.G., O.B.E., M.D., celebrates the jubilee of his arrival in the country. The work which he established was not the first medical work, as military garrisons had medical officers, but his was the earliest attempt at treatment of natives in that part of Africa. The hospital which he opened—Mengo Hospital—celebrates this year also the jubilee of its foundation.

## The First Hospital

Sir Albert describes his early experiences graphically in his recently published autobiography, *Uganda Memories*. He

arrived at the east coast port, Mombasa, in September, 1896, with a party of missionaries, including the first nursing sister to be sent out—Miss Katharine Timpson. She became the matron of Mengo Hospital and later married Dr. Cook, and for many years was his very able assistant in the work. There was no way into the interior in those days other than on foot, and the preparations for the three-months journey took a great deal of time at the coast before the "safari" started out. Hundreds of porters had to be collected and all the baggage divided into suitable loads for head carriage. Food for the journey for such a large number, travelling for long periods over barren waterless wastes, was a major problem, and it was some time before a start could be made. Dr. Cook began his medical work on the journey, and his memoirs tell of many interesting experiences.

At last, in February, 1897, the party arrived at Mengo, the capital of the native ruler of Uganda. They were greeted by the small European community, consisting of a handful of Government officials and a few missionaries. The doctor wasted no time in getting down to work, and in a few days he was already conducting a clinic and treating numerous African patients. It is interesting to read that at first the missionary authorities were doubtful of the wisdom of starting medical work and wished to send Dr. Cook up-country to pioneer. Ultimately wiser counsels prevailed, and the first hospital in the interior of East Africa was opened at Mengo in May, 1897. Conditions were exceedingly primitive in those early days. The buildings were constructed of reeds with a grass thatch, but patients were admitted and lay on locally made wooden beds. Operations were performed in a separate small reed hut. The cost of drugs and equipment was fantastically high, and the difficulties of obtaining supplies, which had to be brought up by head-porterage for a three-months journey from the coast, can only be imagined to-day. A four-gallon tin of paraffin oil cost £4, and often arrived half empty, as the porters did not take long to discover that a small hole punctured in the case helped to lighten the load considerably as the days wore on. We read that this difficulty was overcome by packing bars of soap round the tin of oil in the case. Epsom salts cost three shillings a pound.

But Dr. Cook has always believed in doing thoroughly whatever he did, and the work was founded on a firm basis. In the library of the hospital to-day there are shelves containing bound copies of the *British Medical Journal* from the early years of the century and the *Medical Annual* from the year of the doctor's arrival. Another feature is the rows of neatly bound volumes of case sheets with detailed histories and treatment of every patient admitted from the start. The first sheet gives an account of a patient treated on the journey up—a European who died of osteomyelitis of the iliac bone following a gunshot wound. The care taken with these records is clearly shown in one of the earlier volumes, where many of the temperature charts are ruled by hand, as a consignment of charts had failed to arrive from home.

## The Present Building

Two years after his arrival Dr. Albert Cook was joined by his brother, Dr. Jack Cook. The former had completed his medical course at St. Bartholomew's Hospital, but his brother came from University College Hospital, and, with his qualifications of M.S., F.R.C.S., might have had a brilliant career in London if he had not decided to devote his surgical skill to missionary work in the heart of Africa. The partnership of the two brothers has become classical in the annals of medical missions, and their reputation reached over wide areas of Africa.

The first hospital was soon replaced by a much more ambitious building in mud and wattle. Unfortunately this was struck by lightning and burned to the ground soon after it was completed. Hundreds of pounds' worth of surgical instruments and equipment were lost. It is amusing to read of the fate of recently arrived glass-fronted instrument cupboards. Over enthusiastic helpers, with no conception of the nature of glass, hurled these cupboards out of the burning operating theatre, and the roar of the flames was augmented by the crash of breaking glass. The present main hospital block was constructed in its place and, although built only of sun-dried bricks, this building has now stood up to the rigours of a

ropical climate for over forty years. Other structures were erected from time to time, but in the main all the buildings are over twenty-five years old.

The practice of medicine and surgery was carried out on virgin soil, and opportunities for original work were numerous. Epidemics of appalling severity constantly swept the country. Smallpox was one of the earlier problems met with. Dr. Jack Cook had brought out with him one small tube of lymph, and with this four or five youths were vaccinated. Unfortunately, the "follow-up" department is one of the last features of an African hospital to be successful and all the boys disappeared. By a coincidence, a few days later the doctor's wife saw in the native market one of the lads with the unmistakable scab of a successful vaccination on his arm. He was brought back to the hospital and a few precious drops of lymph obtained and other direct vaccinations performed. Before long the obvious immunity conferred brought other natives along, and soon hundreds were being vaccinated daily. In the early years of the century another deadly and mysterious malady made its appearance and a great number of natives died. Dr. Jack Cook had read an article with a description of the recently recognized disease trypanosomiasis. He soon realized that they were dealing with an outbreak of what was subsequently to prove such an appalling scourge to Uganda. Reports which he sent home led to the sending out of the Commission which did such yeoman service towards eradicating the disease.

By 1910 the hospital was lit by electricity obtained from a charging plant, and this made it possible at that early date to install the first x-ray apparatus. For many years this was the only plant in the country and it proved a very valuable asset.

The hospital had grown until, by the time of the outbreak of the war of 1914-18, it was in a position to become at once the main base hospital for Uganda during the East African campaign. The European staff at that time consisted of five or six doctors and eight sisters, with a dispenser, an electrical engineer, and others. Convoys of sick and wounded began to arrive and the hospital was filled to capacity. Extra wards were quickly erected, and at one time there were as many as 530 patients. The hospital has special blocks for European and Indian patients, so that all comers can be dealt with.

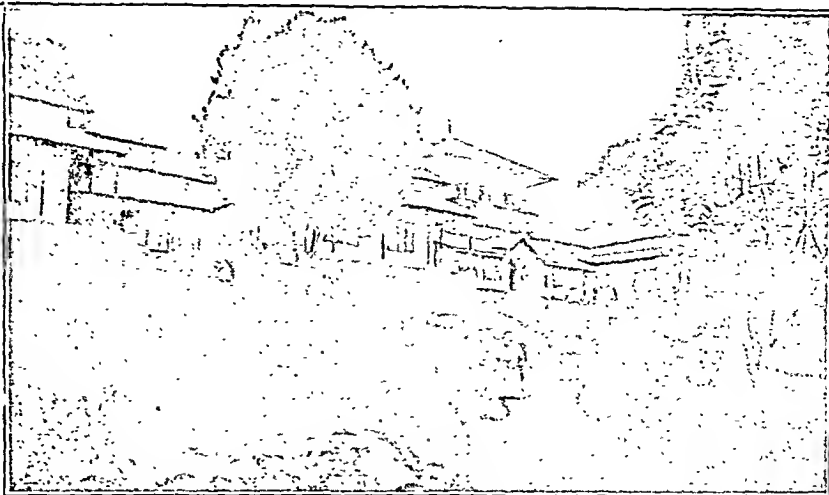


FIG. 3.—Mengo Hospital central block to-day (built 1904).

#### Foundation of Medical School

After the war a medical school was started. Educated young Africans were enrolled and given a three-years course which fitted them to work as senior orderlies or medical assistants. This school was carried on until 1934, when, at the request of the Government, the training of medical students was left to the newly formed medical school attached to the rapidly expanding Government hospital at Mulago, in Kampala. Mengo Hospital's part was the training of nurses and midwives. This work, again, was pioneered by Dr. and Mrs. Cook. The Midwives' Training School was started in 1918, and after a two-years course the girls entered for a Government qualifying examination. The need for African midwives became greater as maternity centres, each with ten or a dozen beds and an antenatal clinic, were rapidly opened up all over Uganda. Each centre was staffed by two or more trained midwives and was visited regularly by European doctors and sisters from Mengo Hospital. Other trained girls also started passing into Government service. This enterprise soon began to have a profound effect on the appalling maternal and infant mortality rates prevalent in Uganda, and much credit is due to the late Lady Cook, by whom the whole scheme was developed. A similar school for nurses was established in 1928 with a three-years course. Many of these girls after qualification proceed to the midwifery course and become registered by the Uganda Midwives Board as well as holding the nursing diploma. For a number of years now these girls have been drawn from all the East African territories, and have afterwards gone back to work in Government or mission hospitals in Kenya and Tanganyika as well as Uganda, and some into the Belgian Congo. There are to-day about 120 girls in training for one or other of these diplomas.

Space forbids the detailing of more of the enterprises in therapeutic and prophylactic medicine and training initiated at this hospital by the Cook family. Their name became a household word in Uganda and the surrounding territories, and Dr. Cook himself and his wife were repeatedly afforded public recognition of their services to the country. Sir Albert and Lady Cook retired from active work in 1934. Throughout their long career both were inspired by a simple faith; they saw that Uganda could never fully benefit from the health services they initiated without also being given the gospel from which had sprung the same spirit of care for suffering in Europe hundreds of years before.

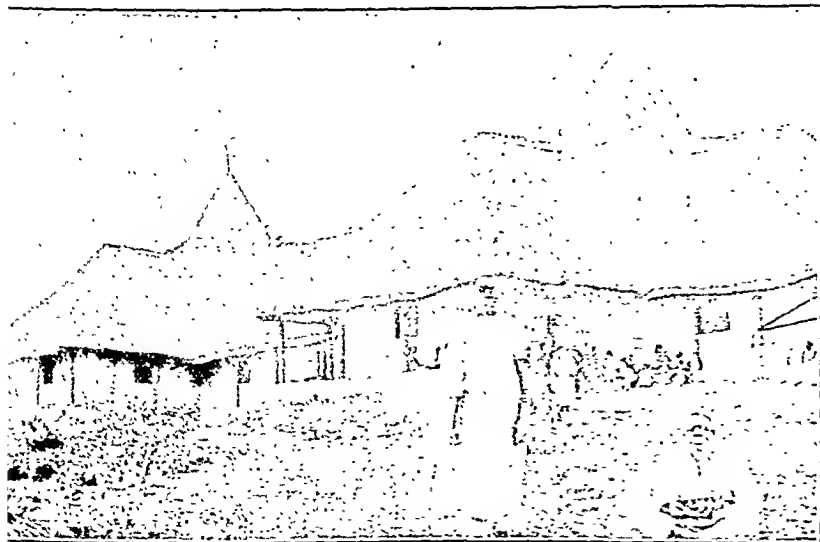


FIG. 2.—Second Mengo Hospital building, 1900. Destroyed by fire in 1904.

### The B.M.A. in Uganda

In 1913 the small group of medical men in Kampala, the capital of Uganda, felt that the time had come to form a branch of the British Medical Association. The first meeting took place at Dr. Cook's house and he was elected the first president of the Uganda Branch. Ever since that time the B.M.A. has been an active organization in Uganda. A great deal of the inspiration has come from the enthusiasm of the staff of the Government hospital at Mulago with its medical school. The B.M.A. has been instrumental in building up the very close co-operation that exists to-day among all branches of the profession in Uganda, whether Government, mission, or private practice. Regular meetings are held at one or other hospital, when papers are read, lectures given, and cases shown. To mark the jubilee of its first president and of the commencement of regular medical work in the country the Branch is organizing an interterritorial meeting of the East African Branches to be held in Kampala in September this year. A series of meetings will take place over a period of three days, and papers will be read by delegates from the various Branches. A reception is planned in honour of Sir Albert Cook, who still lives in retirement in his lovely house, with its priceless library, overlooking the blue waters of Lake Victoria.

The story of these fifty years comes from a generation that is rapidly passing. There are few if any parts of the world to-day where there remain such opportunities of building up the structure of modern medicine on virgin soil. But so long as the tradition that these pioneers founded is preserved, there need be no fear for the future. It is a tradition which includes the acceptance of nothing shoddy or second-best in medical practice or teaching; attention to detail; constant endeavour to improve on what has already been started; and a determination that only the best in Western medicine and nursing shall be handed on to the indigenous professions being built up. But in addition emphasis must be laid on that essential part of medical mission work—the handing on of the spirit of self-sacrifice so perfectly exemplified in the life of the Good Physician.

### THE NUTRITIOUS LOAF

The nutritional value of bread was the subject selected by Sir Jack Drummond for his Sanderson-Wells lecture delivered at the Middlesex Hospital on June 24. He pointed out the close relation of bread to the standard of living. When the standard rose the tendency was for bread and flour consumption to fall and for sugar consumption to increase. During the war the consumption of bread rose by 17%.

The search for a white loaf could be traced far back in history. The people of an earlier period, like many to-day, associated a dark loaf with adulterated or inferior flour. In the middle of the nineteenth century the development of roller milling enabled the millers to mill far more wheat and to produce a much whiter flour. It was not then suspected that the production of the more attractive flour might be at the expense of nutritional value. Later it was suggested that white flour was not as nutritious as it should be, but there was lack of evidence on the point until about the twenties of the present century, when it was demonstrated that certain dietary factors were missing. Had the war not come, with consequent shortage of shipping space, Sir Jack Drummond was convinced that this country would have taken the same course as the United States in reinforcing the flour by various elements considered appropriate.

The question of the use of the wheat berry was one of balanced economy. The optimum point was 82 to 85% extraction; beyond that point digestibility was reduced because of the bran. Colour confused the problem. A compromise was reached with 80% extraction, which assured a loaf of acceptable appearance, texture, and colour, and of a nutritional value which, taking into account the rest of the diet available, should afford adequate nutrition. Medical and scientific opinion was strongly in favour of the retention of the various ingredients in the process of milling.

It was quite wrong to assume that bread was a starchy food. It did indeed contain a good deal of starch, but it was one of the chief sources of good and cheap protein. Bread was important, along with potatoes, as an energy-giving food and because of this it was desirable that both these foods should be unrationed. As soon as it was necessary to ration bread or potatoes the nutritional programme was jeopardized. Bread, of course, was now rationed, and the only "buff" source of energy was potatoes, the supply of which was notoriously unreliable. When there was not a free supply of energy available in the form of these two staple foods the vulnerable groups of heavy energy expenders were liable to suffer. Adolescents failed to gain weight, and so forth. This would not be put right until bread rationing could be called off.

### IMMUNIZATION AND VACCINATION

#### L.C.C. PROPOSALS

Proposals on immunization and vaccination have been submitted to the Minister of Health by the London County Council as the local authority for carrying out certain duties under the National Health Service Act. At present diphtheria immunization in London is undertaken by whole-time and part-time medical officers of the metropolitan boroughs, and also general practitioners at sessional rates at maternity and child welfare centres, and by general practitioners on a fee basis. The Council regards these arrangements as satisfactory for the general plan and proposes to continue and to expand them where necessary.

Special efforts will be made to increase the number of immunizations in areas where at present the proportion of children immunized is below 50%. In only seven metropolitan boroughs are more than 50% of the children under 5 immunized. The state of affairs is more satisfactory with children of between 5 and 15, over 50% of whom have been immunized in 18 of 29 boroughs (in Kensington the proportion in the middle of 1946 was over 86%). It is hoped to bring the percentage immunized children in London to 75 or 80%. Parents are to be given the choice of having their children immunized either by a clinic doctor or under the general practitioner scheme. General practitioners are to be encouraged to advise parents of the importance of post-Schick testing, and to arrange, if they carry out the tests themselves, to send a record of the results to the Council, or, if they prefer, to send the child to the Council clinic for test. Special measures are to be taken through health visitors to encourage the acceptance of immunization.

For children of school age the immunization facilities are to be available at clinics and child welfare centres and, from the "appointed day," special immunization sessions at day residential schools. At these sessions the services of whole-time part-time medical officers and of general practitioners on a sessional basis are to be utilized, and parents who so desire may have their children immunized by a general practitioner at his own surgery or at home. Here again there will be arrangements for post-Schick testing after primary immunization (but not for children given reinforcing doses). All medical officers or general practitioners taking part in the immunization arrangements will be required to provide records in the form determined by the Minister, and all general practitioners in the county, whether or not they intend to provide general medical services under the Act, will be invited to participate in the immunization scheme.

Infant vaccination against smallpox will be encouraged to ensure that at least as many children are vaccinated as immunized. Parents will be asked to indicate whether they wish to take their children to a vaccination session at a convenient centre or to have vaccination carried out by the family doctor. Similar arrangements will be made to those outlined for diphtheria immunization concerning the keeping of records and the payment of fees to general practitioners. With regard to whooping-cough, until the value of inoculation has been fully established the question of a comprehensive scheme for the county is to be left in abeyance. Eleven boroughs at present provide for such inoculation. A scheme for inoculation, at



et to parental consent, for children under 2 in the Council's sidential nurseries has recently been inaugurated. The antigen sed is A.P.T. combined with pertussis vaccine of the dosage applied to the M.R.C., the course consisting of three doses : monthly intervals. It is proposed to continue the existing rangements and to expand and develop them if the results of urther investigations justify that course.

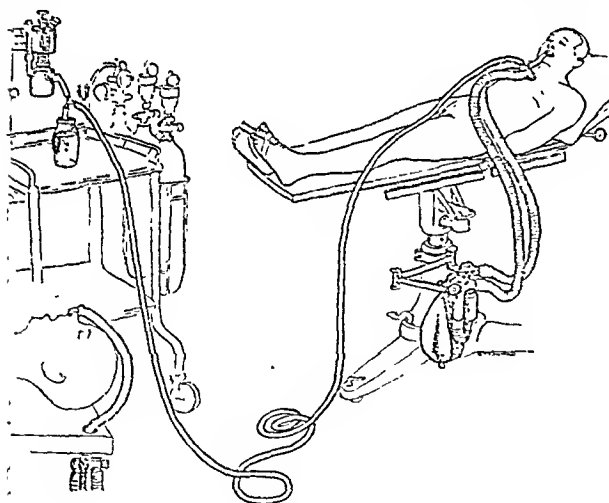
The estimated number of immunizations against diphtheria f children up to 15 for the year ending March 31 next is 7,000, and of vaccinations against smallpox, 36,000. The cost f the immunizations is provisionally estimated at £15,550, and f the vaccinations £7,000. In making the latter estimate it : supposed that general practitioners will perform some 10,000 accinations on a fee basis, leaving some 26,000 for clinic ssions.

## Preparations and Appliances

### REMOTE CONTROL OF CLOSED CIRCUITS IN ANAESTHESIA

Dr. NORMAN R. JAMES, Anaesthetist, Plastic and Jaw Unit, Rookdown House, Park Prewett Hospital, Basingstoke, writes:

The control of the gases supplied to a closed circuit has often proved difficult under circumstances peculiar to maxillofacial urgery, owing to the proximity of the anaesthetic machine with its carbon-dioxide absorber) to the field of operation. This interferes with the work of the surgeon and his assistants, and with the maintenance of sterility. A system of remote control which has proved useful has been devised by my colleagues, Dr. Shackleton and Dr. Enderby, and myself. The M.I.E. absorber has been attached to a jointed swivel



arm clamped to the central column of the operating table. The tubing supplying the gas to the endotracheal connexion of the circuit has been lengthened to 20 ft. (6 metres) so that the anaesthetic table with its flowmeters can be placed at the other side of the operating theatre, completely out of the way of the operating team.

We have found by experiment that the circuit tubing can be extended only a little without increasing resistance to breathing, but the supply tubing can be extended to any length. An added safety device is a water manometer standing on the anaesthetic control table and connected to the supply tubing by a "Y" piece. This manometer "blows off" with a bubbling sound if the supply tubing is obstructed, as by somebody standing on it. It also prevents a dangerous accumulation of pressure in the closed circuit should an excess supply of gas be delivered via the flowmeters or by-pass. The manometer's pulsations also provide an exact guide to the frequency and amplitude of the respirations and, in a lesser degree, to the pulse. In practice

the patient is not connected to this remotely controlled carbon-dioxide absorber unit until the endotracheal tube has been passed and the nasopharynx packed off.

Induction is by thiopentone plus cyclopropane and oxygen delivered through an ordinary Magill rebreathing unit with the expiratory valve closed. We find the slight build-up of carbon dioxide in the Magill unit an added advantage in the process of intubation. Once the remotely controlled carbon-dioxide absorber unit is connected the anaesthetic is usually maintained by nitrous oxide and oxygen supplemented by intermittent small doses of thiopentone from a syringe strapped to the patient's foot. This method tends to minimize the capillary oozing so prevalent when cyclopropane and oxygen is used for maintenance.

Another innovation has been the punching of holes in the operating table at selected points near where the patient's head usually lies, so that the tube connecting the patient to the absorber circuit cannot be interfered with by the surgeon and his assistants pressing against the edge of the operating table. Contrary to theory, we have found that a long endotracheal mount works in practice provided the connecting tube is the right bore, with connexions streamlined, and does not contain any of the dangerous constrictions which characterize most of the endotracheal connexions used in this country at the present time. The principle propounded by Thornton (*Journal*, 1945, 2, 534) in the design of his endotracheal connexion should be given more recognition. Finally we have tried not to forget the dictum that "observation of the patient is more important than that of the apparatus" when using this very satisfactory method of remote control.

## Nova et Vetera

### NATIONAL HEALTH INSURANCE IN THE SEVENTEENTH CENTURY

Dr. Hugh Chamberlen, who was born in London about 1630 and who died in Holland early in the following century, the exact dates being unknown, was a distinguished member of the famous family in which the secret of the first obstetric forceps was carefully guarded for more than 125 years. The medical members of the dynasty included three Peters and two Hughs, the subject of the present note being Hugh senior, grand-nephew of Peter Chamberlen the elder, who invented the forceps. This Hugh was physician to King James II, whose queen he attended at the birth of Prince Charles Edward, later known as the "Old Pretender," but his activities were not limited to medicine. He proposed various schemes for public welfare, including a Land Bank, a plan for the union of the English and Scottish Parliaments, and, most interesting of all to us to-day, a "Proposal for the better securing of health," which he submitted for consideration in 1689.

"It is humbly proposed that a more compleat Constitution of Physick may be established, whereby all sick, poor or rich, shall be advised and visited by approved, skilful, Physicians and Surgeons; for all diseases except the Pox, Midwifery, and cutting for the stone, for which three last calamities some additional allowance may be settled: because the Pox may not be hereby encouraged, and Deliveries require mighty pains, and unseasonable hours; and the Stone is not only a particular dexterity but requires much attendance. And all this (except as before excepted) for a small yearly certain sum assessed upon each house . . . which sum will not be the third part of what is now spent in Apothecaries' Bills in a healthy year. . . . Whereas many at present miserably perish for want of timely and skilful assistance.

"And it is further humbly offered that the laws already in being may be revised, which provide against the sale of unwholesome food; that bread may be well baked; beer well brewed; and houses and streets well cleansed from dirt and filth; all these being common causes of diseases and death."

The proposal does not seem to have been considered by the Parliament of that day, but it is interesting to recall the effort of this enlightened reformer, in our own time when similar legislation is under discussion.

D. G.

## Correspondence

### The Indian Medical Service

SIR,—Enclosed is an advance copy of a letter of retrospect and farewell which I propose posting to all officers of the Indian Medical Service on the eve of its dissolution. I shall be grateful if this can be published in the next issue of your Journal:

Office of the Director-General,  
Indian Medical Service,  
New Delhi.

Aug. 14, 1947.

Our Service dissolves on Aug. 14, 1947, and I send you this letter of retrospect and farewell.

Our history as a Service dates back to 1612, when, on the formation of the East India Company into a joint stock business, John Woodall was appointed the first Surgeon General of the Company. He held this office for nearly thirty years, and for many years was the only Surgeon General of the Company. Until 1763, when the surgeons employed by the East India Company were combined into a regular establishment, with fixed grades for promotion, medical officers were recruited more or less on individual contracts. Though occasionally involved in the desultory fighting which took place from time to time, they were essentially civilians and engaged in purely civil duties. From 1745 onwards, however, the Company's wars in various parts of India necessitated the formation and maintenance of regular bodies of troops, and in consequence the employment of military surgeons. In 1766, therefore, little more than two years after its first formal constitution, the Medical Service in India was divided into two branches—military and civil. It was combined into one Service soon afterwards, but in 1796 was again split up. The separation was once more found impracticable and the two Services were speedily reunited.

The professional activities of our early predecessors in the Service were most varied. They were eligible for practically any post in which scientific knowledge was required. They were regularly employed, for example, in the Assay Department and in botanical gardens, and not infrequently went further afield. Among those extra-professionally employed, a Commission appointed in 1866 noticed a postmaster, a cotton agent, a superintendent of a school of arts, a naturalist, a political agent, a commissioner, and a conservator of forests. Members of the Service played an important part in the organization of both the Forest and the Veterinary Departments.

A professor of chemistry in the Calcutta Medical College conducted the first experiments for the introduction of the electric telegraph in India and became the first Director-General of Telegraphs in 1852. Later a physician-general, Madras, introduced cochineal into India and had a large share in the introduction of silk, sugar-cane, coffee, and American cotton.

With the increasing specialization of Government Departments and the recruitment by them of their own experts, the call on our Service to fill posts outside our strictly professional sphere gradually diminished, the variety of our activities was curtailed, and we concentrated increasingly on our medical work. In 1896 the medical establishments of Bengal, Madras, and Bombay were amalgamated into one Service under the direct control of the Government of India, and the designation "Surgeon-General to the Government of India" was altered to that of "Director-General, Indian Medical Service."

Until the first great war the I.M.S., in spite of its basic military nature, was, in fact, predominantly civil in character. The Royal Commission on the Public Services (1912-15) found that out of 748 officers 475 were engaged in civil duties. Thereafter, though from time to time the monopoly of superior civil appointments enjoyed by the Service was substantially reduced, it retained its dual character, the last reorganization in 1937 fixing the military strength at 364 and the civil at 220. From 1915 the percentage of Indian recruitment steadily increased. In this regard we can claim that we have contributed at least as much as any other branch of the Defence Services to enable

this country to shoulder the responsibilities devolving on it under the new Constitution. A feature of the Service's history in these latter years was the creation from its ranks, on the separation of Burma, of a civil medical service for that country.

By 1939 many thoughtful members of the Service had arrived at the conclusion that in order to meet the political and administrative requirements of modern India a fundamental reorganization of the Service was overdue. A suitable reorganization would, they felt, include the creation by the Defence Services of their own medical corps. In 1943 the creation of the Indian Army Medical Corps made the abolition of the I.M.S. in its present form merely a matter of time. The far-reaching constitutional changes of 1947 have made it immediate.

As I pen these words to you, the Service is being wound up and its members are dispersing. Some of us will find new careers in the service of the Crown, in the health services at home, and elsewhere in the British Commonwealth. We know that their service here has fitted them to contribute generously to their new tasks. Our Indian members will be completely absorbed, with some of their British colleagues, in the two new Dominions. To them in their new sphere, and to those who will work with them, we hand on our torch. Its flame has burned brightly through nearly three centuries of distinguished and devoted service. It is our cherished hope—nay, rather, our firm conviction—that in their hands its light will not fade. *Fate ave atque vale!*

—I am, etc.,

R. HAY,  
Lieut.-General,  
Director-General, I.M.S.

### R.A.M.C. War Memorial Fund

SIR,—May I use your correspondence columns to invite the attention of the profession to the Royal Army Medical Corps War Memorial Fund and to the Army Medical Exhibition at Stanley Park, Blackpool, which opened on Aug. 20 and remains open, Saturdays and Sundays included, until Sept. 6.

The Memorial Fund has been formed under the patronage of H.M. the Queen to relieve distress and help in the education of the families of the two thousand officers and men of the R.A.M.C. who were killed, and of the many more who were disabled, in the war. The Exhibition has the double object of recruiting and raising money for the Memorial Fund. It is of some interest to the medical profession as well as to the lay public, and includes demonstrations of the evacuation of casualties, water purification, and preventive medicine in the field. A small historical section includes, among other things, Florence Nightingale's coach and famous lamp. The band of the R.A.M.C. will play, and there will be P.T. displays by the boys of the R.A.M.C. Depot.

I would like to enlist the support of the profession, in particular those who have served in the R.A.M.C., for the fund, and will be grateful if those who are willing to do so will send me their cheques made out to "R.A.M.C. War Memorial Fund." Any doctors and their families who are near Blackpool will, I am sure, be interested by a visit to the Exhibition.—I am, etc.,

Chester.

R. W. GALLOWAY,  
Deputy Director of Medical Services  
Western Command.

### Limits of Certification

SIR,—If I have understood Dr. Desmond Curran's letter (Aug. 2, p. 187), he makes two quite separate points. The first is that it lies within our province to say whether a man is fit to do a particular type of work from either a psychiatric or a physical point of view. That is to say, we can assess his intelligence and stability; and we can say whether he is fit or if he has suffered from recurrent illness of such periodicity that it is likely he will become ill again. But no doctor or doctor should be asked to go further and select from those who pass as fit. Clearly, when, as in this case, he is asked not only to announce fitness but to give a detailed report as to whether he is being utilized in a selection procedure of very doubtful validity. As Dr. Edward Glover has emphasized (Aug. 1, p. 269), there is danger in failing to distinguish two things: on the one hand legitimate clinical observations which can be at least as precise as those obtained from examining a

heart; and on the other hand the general impressions of an intelligent man, of which doctors hold no monopoly. Indeed, there is remarkably little evidence that doctors can select their own staffs with any more wisdom than is to be found in any other profession or trade. It is still usual, even among psychiatrists, to select men on the basis of their records and behaviour during interview, and one hopes this will continue to be the case and that employment in future will not be restricted to those who can pass unscathed through a searching psychiatric interrogation. In this particular case, selection from among the medically fit should be undertaken by the Civil Service Commissioners themselves or their lay agents in the traditional way; the responsibility should not be accepted by medical men and the choice invested with a spurious authority that will not stand the test of time.

The second point, and separate from the question of our capacity to select, is the rightness of providing such a report for the perusal of a lay body. If the candidate knew exactly how full the report was to be and to whom it was to be transmitted, no question would arise, since communication would be with his consent; but clearly such a report could have little value, for few candidates would be so unwise as to disclose information which would prejudice their chances. It seems improbable, too, that the Commissioners would desire the candidate to be in possession of such information. If he were not, then to me it seems clear that communicating such a report would certainly be wrong, and possibly unlawful, though perhaps there is no judicial decision on this point. Certainly the matter should be clarified, and since your annotation (Aug. 16, p. 260) suggests a doubt as to who would make such a ruling, I would submit with respect that there are at least two possibilities. One is that the Royal College of Physicians should pass a resolution similar to that passed to guide the practitioner faced with a case of criminal abortion. This resolution, even if it has not the force of law, carries a weight of authority that has even earned judicial recognition and acceptance. Secondly, I think it is true that the General Medical Council has jurisdiction conferred upon it by the Medical Act of 1858 which covers certificates or reports which are untrue, misleading, or improper. It is difficult to imagine anything more improper than this.

It is perhaps unnecessary to dwell on the fundamental unpleasantness of the whole business—the searching investigation, the furtive “confidential” report, the secret filing, and possibly the interruption of a career by misinterpretation or overweighing of technical terms by those not equipped to understand them. Perhaps the words of Jeremy Bentham, used in a slightly different context, are relevant:

“In the darkness of secrecy interest and evil in every shape have full swing. Only in proportion as publicity has place can any of the checks applicable to judicial injustice operate. Where there is no publicity there is no justice. The security of securities is publicity.”

It is to be hoped that in this matter the lead which Dr. Curran has given will be widely followed, and that what Lord Hewart several years ago spoke of as departmental aggression and bureaucratic pretension will not cause us to forget that we have professional responsibilities as well as privileges.—I am, etc.,

Bristol.

GERALD GARMANY.

SIR,—All will agree with Dr. Desmond Curran (Aug. 2, p. 187) and Dr. Edward Glover (Aug. 16, p. 269) in their objection to submitting full psychiatric reports to laymen. Dr. Glover, however, objects to the application of wartime selection methods to civilian life, and implies that betrayal of confidence is a necessary part of the method. In my experience this is not so.

Having been busily concerned with the application of these methods in Army Selection Centres during the last three years of the war I missed Dr. Glover's earlier warnings, so am perhaps at a disadvantage. However, I found nothing to offend the professional code. Psychiatric reports were confidential documents addressed to the senior medical officer, as were the reports of medical, orthopaedic, or any other specialists. Advice to the laymen concerned with the soldier's employment was limited to a brief positive or negative recommendation.

There seems no reason why some such method, applied without compulsion, should not be used to make the most of the nation's manpower during the present crisis. Most of those who have had experience of the method and have been able to study the results objectively are convinced of their value. Many who have benefited from its application in their own cases are of the same opinion.—I am, etc.,

St. Albans, Herts

C. GUY MILLMAN.

### The B.M.A. and World Organizations

SIR,—In his letter (Aug. 9, p. 228) Dr. W. H. Spoor asks several questions about the World Medical Association and its relationship with the B.M.A. He is afraid that the W.M.A. will establish a dictatorship to which the B.M.A. will be subordinate. This is a travesty of the facts. The W.M.A. will be a means for the various national medical associations to exchange information, to confer, and to endeavour to bring the opinion of doctors all over the world into a focus and to present that opinion to the World Health Organization and to Unesco, which are organs of U.N.O. on the Government level.

The W.M.A. will have no powers whatever over its constituent bodies other than those of persuasion. Its power in the world will be commensurate with the degree of unity it can influence amongst the doctors of the world, and here its possibilities are great. In view of the long-established ethical standards of our noble, learned, and liberal profession, that power, if attained, should work wholly for the good of humanity.—I am, etc.,

Weymouth

J. A. PRIDHAM.

### Leprosy and its Problems

SIR,—The leading article under the above title (June 7, p. 813), in which my name (misspelt as Moisir) was mentioned in connexion with a new theory that cockroaches carry lepra bacilli, suggests that an exposition of this theory may be of use not only to the medical profession but also to the public through professional influence.

Leprosy is indeed a mysterious disease, but all are agreed that an acid-fast bacillus (*Mycobacterium leprae*, or Hansen's bacillus) is the causal agent, though it does not comply with a single one of Koch's postulates. May the mystery not be due to the fact that we have taken for granted that the disease is directly infective from man to man, most probably by contagion? I submit that this is mere supposition. There has never been any proof of the contagion theory. All along opinion has been divided between the contagionists and the non-contagionists—and there is no doubt that at present the former are in possession of the ball. But even they have to admit that the actual mode of transmission is still unknown, so that their theory is not founded on proved facts.

First, the rarity of conjugal infections in leprosy must have struck every worker, and seems to negative the transmission theory. Secondly, if the disease is directly contagious, and is caused by Hansen's bacillus, how can we account for the failure of almost all inoculation experiments? Surely this suggests that the bacillus is not infective when passed from man to man, but that an intermediate host is necessary, in which development must take place in order to render the bacilli infective. Thirdly, if the disease is contagious, how is it that so few doctors, nurses, and orderlies in hospitals have become infected? Few precautions are as a rule taken. Fourthly, how can we explain that so few patients can give a history of contact? In my own experience, no less than 60% of native patients come into this category.

I have become more and more convinced that the mode of transmission must be sought elsewhere—namely, by insects. Cockroaches seemed the most likely, as they exist everywhere and are of ancient origin. My investigations apply only to Southern Rhodesia, Kenya, and Uganda, but I think the results should be widely known, and others induced to carry out their own investigations in other parts of the world, so that we may be enabled to take the correct precautions against spread of the disease, and even to eliminate it altogether. Isolation of the patient, whether voluntary or compulsory, has not hitherto been effective, and cannot be claimed to have eliminated the disease from any part of the world at any time.

But suppose we can pin the blame to the cockroach. That would explain the failure, for we have left the infection behind in the

house of the patient, and leprosy is so obviously a house disease, especially in poor squalid overcrowded huts, where in warm climates cockroaches abound. From one African hut no fewer than 2,500 cockroaches were caught in one night! It is not generally known that cockroaches bite man, and in doing so remove a piece of skin, which they swallow, leaving a small bleeding wound which later becomes a characteristic whitish depressed scar lasting for many months. Neither my African assistants nor I have ever actually seen a cockroach in the act of biting, but there is not the slightest doubt about it. The natives have reason to know the bites well.

In my leprosy hospital these wounds and scars have repeatedly been found to contain Hansen's bacilli, even when the organism could not be demonstrated elsewhere. Children are much more commonly bitten than adults, which probably explains why the disease generally develops in them.

Within the hospital about 23% of cockroaches taken from huts occupied by lepromatous patients are found to contain masses of Hansen's bacilli. Outside the hospital it is not usual to find acid-fast bacilli in cockroaches, though they have been found at times. The bacilli occur in large numbers in the faeces of cockroaches, and can pass from roach to roach by this means, since they feed on anything, from paper, clothing, and blacking to flesh and the dead bodies of other cockroaches. The feeding propensities would explain why, in one kraal from which nine patients had been admitted at various times, the last one five years earlier, acid-fast bacilli indistinguishable from Hansen's were found in a roach caught in a hut. The infection must have remained in that kraal in the shape of infected cockroaches and faeces. Hansen's bacilli have been demonstrated in faeces kept in a stoppered tube for 29 months, and were found to stain as deeply as when fresh.

Now, experimental inoculations of laboratory animals have failed to be of value, as have attempts at cultivation, so that man remains as the only object of experimentation. African natives do not fear the disease, but volunteers should be sought in other parts of the world, and should be inoculated (1) by allowing infected cockroaches to bite them, and (2) with infected faeces. One such experiment has produced suggestive though not conclusive results.

—I am, etc.,

Kenya.

BERNARD MOISER.

### Prognosis of Pleural Effusion

SIR,—May I at this late date reply to Dr. J. D. L. Reinhold's letter (June 7, p. 824) relating to my paper on this subject published in an earlier issue. The 190 patients concerned were, almost without exception, treated initially with prolonged bed-rest and a convalescent or sanatorium regime, and there was no evidence that differences in treatment of the original pleurisy affected the subsequent incidence of pulmonary tuberculosis. Although I continue to keep such cases in bed at least until their blood sedimentation rate becomes normal, I have the uneasy feeling that in this, as in other manifestations of the evolution of a primary tuberculous infection, its fate depends on factors probably outside of medical control. The essential thing is close observation during the ensuing 12 to 18 months, when most of the phthisis (i.e., tuberculosis that we can treat) occurs.

Dr. Reinhold and anyone else who is interested will find a much fuller account of this work, with details of the intra-thoracic lesions encountered before and after the onset of pleurisy with effusion, in the *American Review of Tuberculosis* of October, 1946.—I am, etc.,

Dunedin Hospital.  
Dunedin, New Zealand.

BRIAN C. THOMPSON,  
Medical Director, Tuberculosis Service.

### "The Thalamic Syndrome"

SIR,—I was careful in my previous letter (July 19, p. 109) to limit my criticism of Dr. G. Tayleur Stockings's article to the statements with which he prefaces the account of his work on a cuphoriant drug. Work of this type is always valuable if only for the light which it may throw on the mechanism of mental disorder.

My main criticism of Dr. Stockings's article is that he advances his theory that neurotic depression can be equated with thalamic dysfunction as though it were a clearly demonstrable fact. This criticism also applies to his claim that psychotic and neurotic depression can be differentiated by a specific response to "anoxic" therapy. I do not think the evidence so far adduced in support of this claim justifies its being presented to the readers of the *Journal* as though it were a well-recognized fact. Theories are useful where they lead to further research and

enable predictions which can be checked to be made. If, however, they are advanced as assertions they will not serve this purpose but will merely serve to confuse the interested reader who has no specialist knowledge of the subject.

In my simplicity I was unable to see any difference between "thalamic syndrome" and "thalamic dysfunction syndrome." I must confess that even after reading Dr. Stockings's explanation (Aug. 2, p. 187) I would still draw the inference if I saw the name of an organ attached to a syndrome (e.g., pituitary syndrome) that the symptoms which compose the syndrome were being attributed to dysfunction of that organ.

I think that the true role of cortex, basal ganglia, thalamus, and other parts of the brain and the relative importance of constitutional defects and external stimuli in the production of mental disorder can only be established as a result of very extensive research in which chemical agents will no doubt play a very important part. Meantime, in order to assess results accurately I believe it is very necessary to maintain clearly the distinction between experimentally proven fact and theories with little experimental support.—I am, etc.,

St. Mary Cray, Kent.

BRIAN H. KIRMAN.

### "Mushroom" Poisoning

SIR,—The advice given by your annotator (Aug. 23, p. 36) that, unless we are experts, we should not eat any fungus which is not obviously a mushroom is sound, even if it deprives us of the edible fungi described by Mr. John Ramsbottom (p. 304). But unfortunately the really deadly fungi *Amanita phalloides* (the Death Cap), may be easily mistaken for the edible mushroom and passes the popular (fallacious) tests of edibility. I think, therefore, that emphasis should be given to the fact that the gills of the Death Cap are permanently white, while those of the edible mushroom never are, and that the public should be told, "Never eat a 'mushroom' with white gills."

I have met only two cases of Death Cap poisoning in both patients were moribund when seen. Details of possible treatment were hard to find among the "accumulated mass of clotted bosh" which Mr. Ramsbottom rightly condemns. As "mushroom" poisoning may prove to be a very serious emergency, I suggest the following scheme for any future case:

- 1.—If symptoms began within five hours of ingestion, wash out the stomach and leave in it 2 fl. oz. (57 ml.) of "white mixture."
- 2.—If there are blurred vision, sweating, salivation, or other symptoms suggestive of muscarine poisoning, give atropine gr. 1/10 (1.3 mg.) subcutaneously to an adult.

- 3.—If the onset of symptoms is delayed over five hours, the doctor should ask himself, "Is it Death Cap poisoning?" In deciding this point, have an expert opinion on any uneaten fungi and on the spores in the vomit. Failing this evidence, a delayed onset of symptoms should make the doctor decide in favour of Death Cap poisoning. There are three possible main lines of treatment, which should be given promptly: (a) Obtain and administer anti-phalloidin serum: Apply to the Director, Central Public Health Laboratory, London, N.W.9. (Telephone Colindale 6041). The dose will be indicated on the amount sent. (b) Commence treatment for failure of liver function (glucose, calcium, vitamin B<sub>1</sub>, vitamin K, etc. and possibly blood transfusion). (c) The rabbit stomach-brain treatment of Limousin and Petit. This is based on the fact that while cats die after eating *Amanita phalloides*, rabbits do not. But the juice of *Amanita phalloides* injected subcutaneously into rabbits is fatal, suggesting that the toxin is destroyed or neutralized in the rabbit's stomach. Cats fed on *Amanita phalloides* plus rabbit stomach survive several days. If the rabbit's brain is given also they recover completely. The treatment recommended is to give up to 5 uncooked rabbits' brains and stomachs minced up, daily for several days. Its practicability in a vomiting patient seems questionable, but the emergency is so desperate that it should be tried.—I am, etc.,

Enfield, Middlesex.

C. ALLAN BIRCH.

### Tuberculosis and Malnutrition

SIR,—Dr. Agnes C. Clark (Aug. 9, p. 226) raises a very interesting point regarding tuberculosis and malnutrition. The usual teaching is that pulmonary tuberculosis occurs more frequently in an undernourished population and tends to be more severe. In her D.P. camp the exact incidence is not stated, but recovery appears to be very quick with the minimum treatment

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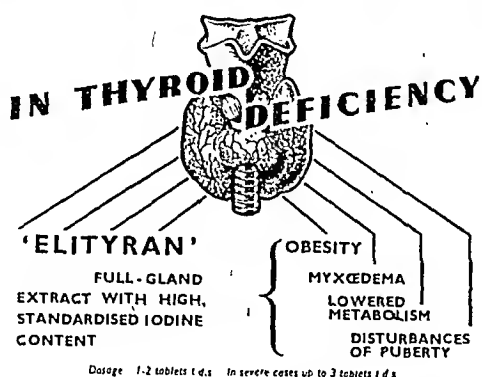
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The obvious explanation is that the Poles and Ukrainians have some racial immunity to tuberculosis. This, however, has never been proved, and an epidemic of tuberculosis in a Siberian P.O.W. camp reported by Planner-Wildinghof (1921)<sup>1</sup> affected all races equally and was not influenced by any racial difference or any other form of selection.

The other probability is that an undernourished patient, contrary to the usual teaching, is not a suitable host for the tubercle bacillus. Study of the latest Austrian statistics recently acquired in Vienna seems to confirm this.

#### Pulmonary Tuberculosis in Austria

Year	Notification of Pulmonary Tb.	Deaths from Pulmonary Tb.
1940 .. .. .	8,611	6,086
1941 .. .. .	9,461	5,789
1942 .. .. .	11,777	6,179
1943 .. .. .	13,475	6,204
1944 .. .. .	11,775	7,027
1945 .. .. .	8,916	5,043
1946 .. .. .	12,467	4,900
1947 (first half) ..	6,759	2,118

The notification of cases is, I think, not sufficiently accurate for comparison each year, as cases are now more readily notified in order to obtain the dietary extras for such patients. The numbers of deaths are much more interesting. Until the end of 1944, Austria was presumably one of the better-fed countries of Europe. With the chaos in Austria before and after the cessation of hostilities in 1945 there was mass hunger for the first time, yet the deaths from pulmonary tuberculosis dropped by nearly 2,000 to just over 5,000. Another bad year nutritionally for Austria was 1946, yet the deaths from pulmonary tuberculosis dropped to under 5,000. This was in spite of gross overcrowding in the towns and a shortage of sanatorium and hospital beds. In 1947, after two years of severe malnutrition and a very hard winter, the deaths from pulmonary tuberculosis in the first six months were just over 2,000.

These figures, taken with Dr. Clark's experiences in D.P. camps, suggest that there may be something in the state of malnutrition which prevents the more serious and fulminating types of pulmonary tuberculosis from developing. It is known that by culturing the tubercle bacillus in unsuitable media an attenuated form of the bacillus will be produced (c.f. B.C.G.). The bacillus, for its optimal development and proliferation, requires an adequate supply of oxygen, glycogen, glycerol, and some amino-acids. Could there be some mechanism which interferes with the acquisition of these or other essentials from the depleted supply in the undernourished host? I feel that this subject has so many interesting aspects that it might well be profitable to carry out some intensive investigation in Austria into the problems of resistance to and recovery from tuberculosis, especially as the present conditions in that country will probably never recur.—I am, etc.,

A. MACFARLANE.

#### REFERENCE

<sup>1</sup> Quoted by Kayne, G. G., Paget, W., and O'Shaughnessy, L. (1939). *Pulmonary Tuberculosis*, p. 57.

#### Alkaline Haematin Method for Haemoglobin Determination

SIR.—An alkaline haematin method for the determination of haemoglobin was described by Dr. J. W. Clegg and myself in this *Journal* (1942, 2, 329). The standard recommended in this procedure consisted of a solution of crystalline haemin in sodium hydroxide. The colour of this solution was closely similar to, although not identical with, that of the alkaline haematin solution prepared from blood treated with sodium hydroxide. It suffered from the disadvantage of not being a permanent standard, and it was recommended that new standard solutions be made up at intervals of a few months.

The alkaline haematin method for haemoglobin has recently been re-investigated in the U.S.A. and has been recommended by B. L. Horecker (*J. Lab. clin. Med.*, 1946, 31, 589). The standard employed is a solution of crystalline haemin in borate buffer pH 9.4, which is claimed to be much more permanent than the Clegg and King standard of haemin in sodium hydroxide. The haematin standard in borate has the additional advantage of being more closely similar in colour to the alkaline

haematin solution formed when haemoglobin is treated with sodium hydroxide. I have investigated the Horecker standard and find the claims to be fully substantiated. Alkaline haematin standards prepared in borate buffer appear to remain unaltered for nine months, whereas those in sodium hydroxide are much less permanent (they appear now to be less permanent than we had originally found). The spectral curve of the alkaline haematin standard in borate is closely parallel to that of the alkaline haematin solution made from haemoglobin in sodium hydroxide. There is a quantitative difference in the depth of colour, similar to that found with the Clegg and King standard (1.3 times as much haemin is required to give the same colour as haemoglobin, on a molecular basis); but the spectral curve of the haemin in borate is of a similar shape to that of haemoglobin treated with sodium hydroxide, and does not show the differences seen in the curve of haemin in sodium hydroxide. Horecker compares his test and standard solutions with a yellow-green filter and finds a different factor than the 1.3 mentioned above for the quantitative relationship between the colour of haemin and haemoglobin. However, with the green light filters in use here (Chance OGR 1; Ilford tricolour green, spectrum green, and mercury green) the quantitative relationship between the colour of haemin in borate and in sodium hydroxide appears to be the same; and with these filters, therefore, the same quantity of haemin should be used in borate buffer as was specified by Clegg and King for use in sodium hydroxide solutions.

The findings for a series of solutions of different crystalline haemins in borate buffer and in sodium hydroxide solution are given in Tables I and II. It is seen that the average reading of

TABLE I.—Colour Intensities of Various Preparations of Haemin in NaOH and in Sodium Borate

(Colours read in a King (1942) photoelectric colorimeter with Chance and Ilford light filters, and in a Hilger absorptometer with Ilford spectrum yellow-green light filter)

Preparation of Haemin		Specific Extinction Coefficients of Haemin Solutions. (Es for 1 mg. Haemin Iron per 100 ml. Solution)*							
		Haemin in NaOH Solution†				Haemin in Borate‡			
No.	% Iron	Chance Green Filter	Tricolour Green Filter	Mercury Green Filter	Yellow-green Filter	Chance Green Filter	Tricolour Green Filter	Mercury Green Filter	Yellow-green Filter
16	8.41	0.810	0.806	0.646	0.742	0.821	0.777	0.623	0.741
17	8.26	0.854	0.838	0.672	0.772	0.835	0.816	0.642	0.767
19	8.13	0.857	0.845	0.669	0.774	0.855	0.835	0.654	0.777
26	8.36	0.855	0.836	0.666	0.765	0.843	0.821	0.646	0.768
28	8.00	0.834	0.821	0.660	0.754	0.835	0.816	0.645	0.770
30	8.42	0.816	0.799	0.638	0.730	0.810	0.797	0.625	0.741
DGH	8.03	0.878	0.857	0.677	0.793	0.858	0.842	0.660	0.790
Mean		0.843	0.829	0.661	0.761	0.837	0.816	0.642	0.764
Coeff. of variation (%)		2.68	2.62	2.14	2.81	2.04	2.55	2.15	2.36

\* The photoelectric readings (extinctions) of these solutions were appropriately factored by the weights of haemin taken and the percentages of iron in the haemin, to give the readings (specific extinction coefficients) which would have been obtained had 100 ml. of each standard solution contained an amount of haemin equal to 1 mg. of iron, and when the solutions were read in the colorimeter at a depth of 1 cm.

† Approximately 40 mg. haemin dissolved in 500 ml. 0.1 N NaOH.

‡ 20 mg. haemin dissolved (overnight) in 200 ml. 0.1 N NaOH. Aged for two days in ice-box. Standard: same buffer.

TABLE II.—Stability of Standard Solutions of Haemin in Sodium Borate

(Mean specific extinction coefficients of seven alkaline haematin standards read at various times after preparation)

Age of Solutions		Haemin in Borate Buffer pH 9.4			
		Chance Green Filter	Tricolour Green Filter	Mercury Green Filter	Yellow-green Filter
2 days .. .. .		0.837	0.816	0.643	0.764
2 months .. .. .		0.838	0.821	0.650	0.770
4 .. .. .		0.845	0.828	0.660	0.759
9 .. .. .		0.850	0.822	0.659	—
1 year .. .. .		0.783	0.778	0.656	0.720

the colour for the different haemin solutions is closely similar for both the borate and sodium hydroxide solutions for any given light filter. The keeping quality of the haematin standard in borate buffer is certainly superior to that in sodium hydroxide solution.

The standard recommended now is a solution of 79.4 mg. of pure crystalline haemin (8.57% iron) or an equivalent amount of another crystalline haemin of lesser iron content (for example 81 mg. of a haemin of 8.41% iron:  $\frac{79.4 \times 8.57}{8.41} = 81$ ), dissolved in 100 ml. of Sorensen's sodium borate buffer pH 9.4,\* kept for two days in the ice-box and then diluted to 1 litre with the same borate buffer. (Equivalent to 100% of Haden normal; 15.6 g. haemoglobin per 100 ml. of blood.)

Gibson and Harrison (*Biochem. J.*, 1945, 39, v, 490) have recently described an artificial standard consisting of a sulphuric acid solution of potassium dichromate, chromium sulphate, and cobalt sulphate. It has been found very satisfactory in this laboratory. It is apparently permanent and the colour is almost identical with that of alkaline haematin solutions formed by treating haemoglobin with sodium hydroxide.—I am, etc.,

British Postgraduate Medical School,  
London, W.12.

E. J. KING.

### Bornholm Disease in Children

SIR.—The report by Drs. W. M. Jamieson and D. M. Prinsley (July 12, p. 47) prompts us to record an outbreak of Bornholm disease in the Halesowen area of Worcestershire, in which 48 children were seen by us in general practice. We must emphasize that it was not until we had treated twelve cases that we were able to provide a diagnosis, and then when we realized that a disease of infectious nature had occurred many investigations we would like to have carried out were not possible for various reasons.

So far as we know Bornholm disease is a syndrome, and if this is not recognized the diagnosis is perplexing. We believe it is spread by droplet infection. Headache, grunting respirations, and subcostal or abdominal pain would appear to be the main complaints in this disease. A reference to the literature available to us describes this condition as epidemic myalgia, epidemic pleurodynia, acute benign pleurisy, and epidemic muscular rheumatism, none of which seems to fit the clinical picture. The *British Encyclopaedia of Medical Practice* states that the disease occurs chiefly in the late summer months, and attacks the sexes equally, those under puberty being more susceptible.

The first cases were seen early in May. The peak was reached in mid-June and continued until the third week of July, since when only two fresh cases have been treated. Forty of the cases were seen in Halesowen, the other eight being from a country village six miles away. The affected children were between the ages of 2 and 10. Those of school age did not all attend the same school, and the children living in the country district did not attend the schools in Halesowen. There was no noticeable predilection for either sex. The incubation period was between two and eight days. The onset was generally acute, the patient complaining of severe frontal headache which became more intense on pressure, and subcostal or abdominal pain. Three children complained of subcostal pain, and two said they radiated round to the back and was increased by rotation. Those with abdominal pain described it as sharp and stabbing, occurring intermittently. Vomiting was present in several cases, but no diarrhoea was reported. In a few children there was a history of general malaise for three to four days before the attack. The children were all obviously ill. The temperature when first seen was in the region of 103° F. (39.4° C.) and never below 102° F. (38.9° C.). Slight injection of the fauces was frequent. Most cases had rapid grunting respirations. No abnormal breath sounds or pleural rubs were detected and the heart sounds were normal. Examination of the abdomen showed tenderness of one side—mostly the left—and there was guarding of the muscles. Rectal examination was negative. Kernig's sign and neck rigidity were not found, nor any lesion of the nervous system. The urine was normal, apart from traces of acetone.

The first twelve cases received nothing but aspirin, and they recovered in ten days, followed by marked weakness. We then tried the effect of sulphathiazole and found that the children felt perfectly well in three to four days. There were three exceptions to this. The condition of the child seemed quite satisfactory until seven days after the apparent cure, when the whole history of events was repeated. A further course of sulphathiazole was given, and the children made a complete recovery. The dose of the drug was 6 to 12 g., according to age, and the cases which relapsed were given a repeat dosage. One child was x-rayed after his relapse, and

a small area of consolidation was found in both lungs in the mid-zones. This child had one symptom not mentioned by the others: when his attacks of abdominal pain occurred he wanted to pass water. Two weeks later he was again x-rayed and his chest was reported clear. Examination of four throat swabs showed *Staph. aureus*; examination of four stools showed no organisms.

As stated above, we had extreme difficulty, before we realized that an outbreak was present, in approaching our cases. Pleurisy, pneumonia, acute abdomen, and meningitis were considered.—We are, etc.,

Halesowen, Worcs.

H. W. BLAND,  
G. T. NEWTON.

### REFERENCE

Rolleston, Sir Humphry (1938). *Brit. Ency. Med. Pract.*, 2, 588, London.

### Irradiation of Gastric Cancer

SIR.—I am glad to see that interest in the above subject is being revived, and I am sure that it is a field which will repay further exploration. In their article in the *Journal* of Aug. 16 (p. 243) Dr. G. Cranston Fairchild and Mr. Alan Shorter state that direct irradiation of carcinoma of the stomach was first conceived and reported by Fairchild in 1935. Under the heading "A New Method of Approach in Gastric Surgery" in the *Journal* of Feb. 23, 1929, I reported two cases where this method had been used in 1923 and 1924. The object of my paper was to draw attention to the possibility of converting an inoperable into an operable case by preliminary direct irradiation, and in both cases a successful resection was carried out after an interval of six weeks. Both patients were alive at the time that paper was written—in the one case five and a half years and in the other four and a half years after operation.—I am, etc.,

Leeds.

DIGBY CHAMBERLAIN.

### Diathermy Dissection of the Gall-bladder

SIR.—I have read the annotation (July 5, p. 21) as well as Mr. R. J. McNeill Love's article (p. 11) on the subject. Obviously, I feel satisfaction about the tribute paid to my electrosurgical operation, which I have developed in all its details in the years 1928–32, so that hardly any chance was left for modifications. But I am rather surprised that this operation apparently has to be rediscovered time and again, and I am compelled to attribute this fact to my inefficiency in giving the method sufficient publicity.

However, it is a fact that in the *Lancet* of March 26, 1938 (p. 750), and of Oct. 28, 1939 (p. 927), I again published an account of my experiences, reviewing at that time more than 1,000 cases. Moreover, as far back as 1932 at the International Congress for Liver Diseases at Vichy I showed two films of electrosurgical cholecystectomy. In one, with a simple empyema, the serosa as covering for the liver bed could be preserved. In the other, a phlegmonous wall of the gall-bladder with abscesses in the liver bed could be demonstrated where the gall-bladder had to be entirely dissected with the diathermy knife and the liver abscesses had to be electrocoagulated radically deep into the liver parenchyma. The abdominal wall was primarily closed and the patient could be dismissed after fourteen days.

Since my first publication in 1928 my method has been widely adopted on the Continent, and in South America especially introduced by P. Mirizzi (1933). M. Thorck has the credit of being the first surgeon to apply this operation in North America in 1934, and Hamilton Bailey and McNeill Love to have applied it first in England (1939).

It is an old, time-honoured tradition in our profession that any trying out of a new method is started with "modifications." In the special case of electrosurgical cholecystectomy—with the exception of M. Thorck's grafting of the falciform ligament—no modification has been recommended which the originator has not already tried out and published.

In the case of an intact serosa, I consider it a wrong move not to spare this valuable tissue for covering, as much as possible. It has proved to be better than any grafted tissue. Furthermore, I feel that many communications on electrosurgical cholecystectomy do not stress enough the necessity of a careful dissection of the cystic duct from the neck down to the common duct, and of an exact exposure of the dangerous

\*900 ml. of 0.05 M borax + 100 ml. 0.1 N NaOH.

"eternal triangle" which gives the "second-hand surgeon" so much trouble when operating for "benign strictures." When this dissection is properly done, enough serosa flaps always are found to cover the cystic duct and at least the lower part of the liver bed. When grafting is required, omentum is by far the best tissue. Only in one case, where the region of the cystic duct was blocked by an overlying tumour consisting of a bladder-colon fistula, I left the whole region untouched and was satisfied with the radical electrocoagulation of the opened bladder from inside without tying the cystic duct. The result, in a woman of 50 years of age handicapped by a severe thyrotoxicosis, was excellent.

May I be permitted to give a very brief summary of my experiences with electrosurgical cholecystectomy? This should positively be the operation of choice in badly infected cases in preference to the old cholecystectomy. It sterilizes the whole infected field and prevents the spreading of peritonitis beyond the operating field, still the main cause of a fatal outcome in most statistics. This can best be illustrated by the fact that not one single case of fatal issue through post-operative peritonitis was observed since 1928. The sterilizing effect of the operation can further be seen by the fact, since confirmed by all observers, that the abdominal wall can be closed also in badly infected cases.

Electrosurgical operation is the best method of dealing with liver abscesses and is, in poor-risk cases, well able to replace cholecystostomy, an operation which I have abandoned since the development of the electrosurgical cholecystectomy.—I am, etc.,

New York City.

B. O. C. PRIDEMAN.

### Penicillin and Blood Coagulation

SIR,—When penicillin powder was introduced for insufflation into wounds after incision I noticed that a wound which had been rendered "dry" began to bleed again after the application of penicillin powder, and occasionally I even found it necessary to secure points which, before the application of the powder, had not been bleeding. Sometimes this bleeding was very troublesome in, for instance, extensive limb injuries with much muscle damage.

It was therefore with considerable interest I read the article by Sir Alexander Fleming and Dr. E. W. Fish (Aug 16, p. 242) and which explains a phenomenon which I am sure many surgeons operating on war wounds must have observed.—I am, etc.,

Whiston, Lancs.

W. N. CHISHOLM

### Acute Non-specific Diarrhoea and Dysentery

SIR,—I should like to associate myself with the remarks of Dr. G. L. Morgan Smith (Aug. 2, p. 189). During six years' service in India (one year in the Punjab, two in the N.W.F.P., and three in Hyderabad, Sind), and four years in Hong Kong, I never saw a case of diarrhoea which could be unequivocally ascribed to chilling of the abdomen. Personally, when the weather was very hot I invariably slept naked under a fan, and never suffered any ill effects, in spite of the warnings of some of my colleagues and of old "Koi Lais" who informed me that my demise under such conditions would be rapid.

I found that the greatest incidence of diarrhoea occurred (a) in the recent arrivals from temperate climates, and (b) during the winter and early spring, when flies were most prevalent; and I am quite convinced that food or water contamination is responsible for these outbreaks. Anyone who has had any experience of the hygienic conditions of the average cookhouse in India and other tropical countries can only be amazed that parastro-intestinal infections are not more frequent. (This particularly applies to officers' messes, which are generally the least inspected and most unhygienic of any.)

The attitude of mind of those who perpetuate this myth of "chilling of the abdomen" is further exemplified by the (until recently) prevalent ideas about so-called "sunstroke." I have never met anyone who could claim to have seen a fully authenticated case of sunstroke, though I have myself seen several cases of heat-stroke, which usually occurred in the evening when the humidity increased. While in the Tropics I never wore a *topi* except in uniform, when it was compulsory, and

frequently went about without a hat at all, in spite of the many warnings I received. I feel sure that a lot of harm has been done to the European resident in the Tropics by Kipling's lines: "But the worst of your foes is the sun overhead," because it caused unnecessary emphasis to be placed on the *topi* and spine-pad.

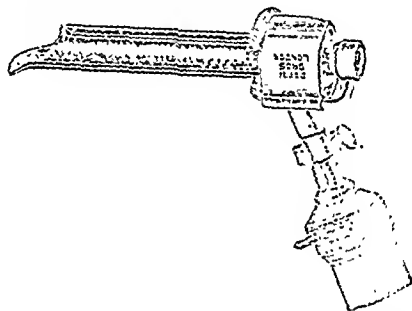
In my opinion, the value of a *topi* lies not in the material from which it is made but in the better ventilation it affords by reason of the corrugated head-band around the rim. The criterion I used, both as regards heat and cold, was comfort. Any type of hat, if worn for long periods in the hot sun, will cause sweating and discomfort. Its temporary removal allows evaporation of the sweat, and therefore cooling. In the same way a fan allowed to play on the naked body in bed permits one to obtain that necessary amount of sleep which is essential. Should the temperature drop during the night the bodily reactions will very soon warn one, and one can either turn off the fan or pull up a sheet.

Provided one is in reasonable health, Nature, through our own sensations, will indicate our necessities.—I am, etc.,

H. G. ROBERTSON,  
Lieutenant-Colonel, R.A.M.C.

### An Infants' Pharyngoscope

SIR,—An infants' pharyngoscope, which I designed several years ago, has since proved extremely efficient. It is simply a pharyngoscope blade that can be adapted to any auriscope. This makes it a valuable adjunct to a practitioner's kit. The pharyngoscope blade has a bayonet catch for use on any electric auriscope, the long length is 3 inches, the short length 2 inches, and the cut-out portion 3/8 inch. It is nickel-plated, made by Down Bros. and Mayer and Phelps.



It fits into the auriscope in the same way that the different sized aural funnels do, and the light from the auriscope bulb, projected along the hollow blade, gives an excellent illumination of the infant's larynx. With the aid of any cranked sinus forceps (I use St. Clair Thomson's cranked forceps), a size No. 4 Jacques rubber catheter can be inserted easily into the trachea. If this is connected up to a low pressure oxygen supply, which is bubbling at the rate of forty bubbles a minute, it will keep sufficient oxygen in the bronchioles to sustain the child until it can recover from its shock and take over breathing on its own initiative. This is useful in cases of asphyxia pallida, especially after operative delivery or prolonged labour where the limp infant refuses to make any attempt at respiration.—I am, etc.,

Littleover, Derby.

LINDSAY O. WATT.

### Care and Treatment of Elderly and Infirm

SIR,—The report of the B.M.A. Committee on the Care and Treatment of the Elderly and Infirm (*Supplement*, June 21, p. 133) is very promising, and a step in the right direction. One important group of elderly patients which does not seem to be provided for is that of the old pulmonary tuberculous patient with a positive sputum. The curtailment of the disease generally depends a lot upon the early diagnosis and isolation of these patients. It is hoped that separate accommodation, or communities, suitably equipped for these old patients, will be provided in the proposed geriatric service, their medical treatment being under the supervision of tuberculosis officers.—I am, etc.,

Stafford.

CHARLES D. ROSS.

## "Golden Ointment"

SIR,—Might I through your columns make an appeal to hospital ophthalmic departments not to make up atropine ointment with yellow vaseline. Time and time again in general practice one is confronted with patients with a dilatation of one or both pupils, photophobia, and great alarm due to the use in minor irritations of "golden ointment" given to someone else by a hospital. All yellow ointment emanating from a hospital eye department is assumed to be the household panacea for eye ailments. We know quite well that one should not use other people's medicine, but it always has been done and always will be, human nature being what it is. I feel sure it would be equally easy for hospitals to make up atropine with white petroleum jelly or other medium and thus avoid this confusion in the eyes of the ignorant public.

While on the subject of hospitals I would like to make another appeal which I shall repeat at a later date with your permission, Sir. It is to standardize the size of the notepaper used by consultants. At present we are faced with a wide range of shapes and sizes of letters which make filing a cumbersome and untidy business. I would suggest a sheet which when folded in two is slightly smaller than the N.H.I. envelope. If we decide to accept National Health Service I have no doubt that a similar system of envelopes for case histories will be issued and possibly just the same size as at present. It may be that under bureaucracy a standard form of hospital report will be devised and issued which in all probability will not fit the envelopes, having been invented by a different department on the usual principle of never letting your right hand know what your left hand is doing with which we are so familiar. Meantime, while we have the chance let us help ourselves and use the brains God gave us.—I am, etc.,

Fitzwilliam, nr. Pontefract.

J. S. LAURIE.

## POINTS FROM LETTERS

## Milk in Schools

Dr. G. BAYTON FORGE (Salisbury) writes: I practise in one of the largest milk-producing districts, and the farmers here state far more milk is being produced than ever before. Yet there is none for my poor old patients and none for cheese. . . . It was told me only a few weeks ago that in a large school near London it was no uncommon thing for 80 milk rations to be wasted from absenteeism. It should be collected, but the bare fact stands out it is not. . . . I state most emphatically milk should be decontrolled and the issue to schools stopped. There would then be plenty for the old people and plenty for cheese, saving dollars.

## Medical Education—General Training

Dr. FLORENCE M. E. DAVIES (Corwen, Merionethshire) writes: In one of your recent numbers it was suggested that medical students should have instruction in sociology. I disagree: by all means let them learn about life—by living it! For two years, say from 15 to 16 or 18, if a lad has passed his matriculation or equivalent entrance examination, let him really knock about and rough it. For instance, a voyage as a deck-hand; service in the Army or R.A.F.; as an agricultural labourer, or a miner or factory hand. Turn him out after his first year of work in any of the above occupations with £1 in his pocket and with no help from relatives or friends, and see how he fares when left entirely to his own resources. We don't want supercilious young fops signing "fit (or unfit) for work" but medical men who have actually been through the mill themselves.

## Poliomyelitis

Dr. MURIEL B. O'DOHERTY (Belfast) writes: Poliomyelitis, because of the finding of the virus in the faeces, would appear to commence as an intestinal infection. Its seasonal incidence in Great Britain coincides with the appearance of soft fruits in the shops. In India, where the seasonable incidence was not so clear-cut, the appearance of cases coincided with the availability of soft fruits (apricots, etc.) to the troops. Strawberries have deteriorated because of virus diseases, the virus entering the plant by insect agency (the strawberry aphid), and now the Ministry of Agriculture have insisted that strawberry plants cannot be sold without a certificate. I suggest that some of the viruses causing disease in the soft fruits are neurotropic in man (and monkeys), and that either poliomyelitis is spread by ingestion of these diseased fruits or the infection is spread to food by an insect vector. Making jam of fruit, of course, will kill the virus.

## Obituary

## SIR THOMAS CAREY EVANS, M.C., F.R.C.S.

Sir Thomas John Carey Evans, late I.M.S., sometime surgeon to the Viceroy of India, and formerly medical superintendent of Hammersmith Hospital, died suddenly at his home in Crickieth on Aug. 25, at the age of 62.

The eldest son of Dr. R. D. Evans, J.P., of Blaenau Ffestiniog, he was born in 1884 and was a student successively at University College, Cardiff, Glasgow, St. Bartholomew's Hospital, and Vienna. He took the M.R.C.S., L.R.C.P. in 1905 and the F.R.C.S. five years later. After qualifying he acted as house-surgeon at the Royal Southern Hospital, Liverpool; as resident medical officer of the Eastern Dispensary, London; and later as senior clinical assistant at Woodilee Asylum. He entered the Indian Medical Service in 1907 and was surgical specialist with the 8th Lucknow Division and to the Abor Expedition. During the 1914-18 war he served with distinction in Egypt and Mesopotamia and was three times mentioned in dispatches. Returning to the I.M.S. he held a number of senior posts, including that of resident medical officer to the State of Mysore. At this time he was appointed surgeon to the Viceroy.

After leaving India he became medical superintendent of Hammersmith Hospital, and he was also on the staff of St. Paul's Hospital for Genito-Urinary Diseases and the Hospital for Tropical Diseases, London. He was for many years active in the Royal Society of Medicine, the Harveian Society, and the Hunterian Society. He was made a Chevalier of the Légion d'Honneur in 1919, and was knighted in 1924. Among his contributions to the medical press were papers on the surgery of amocbiasis, prostatic enlargement, and litholapaxy. He had been a member of the British Medical Association for over forty years.

In 1917 he married Olwen Elizabeth, daughter of the late the Right Hon. David Lloyd George, who was created Earl Lloyd George of Dwyfor in 1945. Barely a year ago he bought Eisteddfa, an estate near Crickieth, and took up again an early interest in farming.

Dr. NORMAN HOWARD MUMMERY died on July 20 at the age of 70, and industrial medicine lost one of its pioneers. He trained at University College, London, and graduated M.R.C.S., L.R.C.P. in 1902. In the 1914-18 war he had the unusual experience of serving in both the medical branch of the Royal Navy and the Royal Army Medical Corps, reaching the rank of lieutenant-colonel. In 1924 he was appointed whole-time medical officer to J. Lyons and Company, London, thus finding an opportunity to plan and administer one of the first large factory clinics in the country. He had a passion for detail, and his organization at Cadby Hall was outstanding in its time. When the Association of Industrial Medical Officers was formed in 1935 Howard Mummery, recognized then as a leader in his branch of medicine, was unanimously elected its first chairman. Much of the success of this society is due to his untiring efforts. His tact in the chair, his strength of character—amounting often to paternal sternness—his wide knowledge of his subject, and his mastery of administrative method did much to oil the wheels of early meetings when tenseness in discussion could well have caused disharmony. At the end of 1936 he resigned his appointment in industrial medicine and settled in St. Helier, Jersey. He looked forward to a quiet retirement, but his clinical urge persisted and within a few months he began consulting work in dermatology, a branch of medicine in which he was specially experienced. The whole of his social existence was soon to be disintegrated, however, for he left the island only some hours before its invasion by the Germans in 1940. Return to England meant a return to industrial medicine. At the Bristol Aeroplane Company, and with other firms, his experience was once more placed at the disposal of industry, this time as his contribution to the war effort. But as the war drew to a close his health began to fail, and once again he retreated to Jersey, where he died. Industrial medicine was enlarged in no small measure by his work and example.

Dr. WILLIAM STANLEY HEBERDEN died in Johannesburg on Aug. 3. He was born at Ranmore, Surrey, in 1864, and was a direct descendant of William Heberden. He graduated from St. George's Hospital in 1889 and soon afterwards went to



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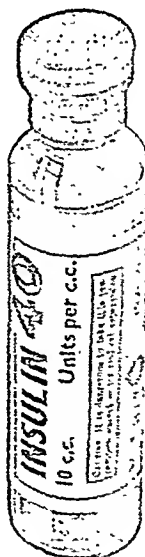
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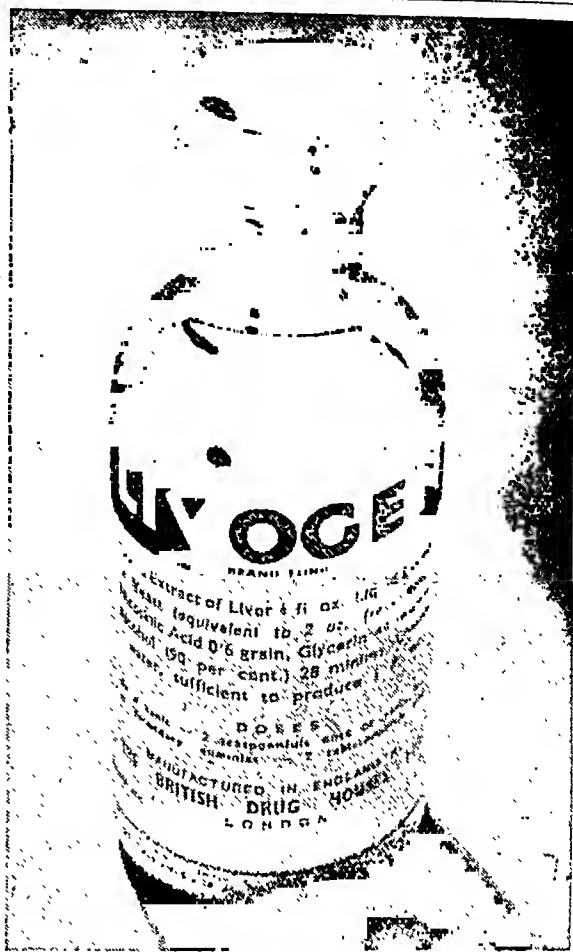
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South Africa, where for seventeen years he was one of the senior surgeons on the staff of the Johannesburg General Hospital. He retired from active practice in 1925 and from then up to a year ago he was the chief medical adviser to a number of insurance companies. He is survived by his widow, three daughters, and a son, who is a student of medicine at the University of the Witwatersrand.

Dr. WILLIAM SEYMOUR, who was 68, died suddenly on Aug. 14, and his death will have come as a shock to his colleagues and a host of close friends in Newcastle and the North of England, where he had been engaged in the special branch of anaesthetics for thirty-five years. He graduated M.B., B.S. at Durham in 1906, and in his early student days was regarded as one of the best all-round athletes in the North. He was more than a useful amateur boxer, a fine centre-three-quarter, captained Northumberland and Durham 'Varsity in rugby football, and was chosen as reserve for England on several occasions. He also captained his university cricket eleven. Seymour was also no mean golfer, but his greatest enjoyment was a day or night of fly-fishing for salmon or sea-trout in his beloved Esk or Liddle rivers, which he knew from boyhood from their source to the Solway. He will be greatly missed by his surgical colleagues, to whom he gave loyal and faithful service at any hour of the day or night, and who recognized in "Bill" Seymour a sound and competent anaesthetist, one upon whom they could rely in cases of difficulty and danger. Among other appointments, all of which he had more or less recently retired from owing to other calls upon his time, he was one of the "morning list" anaesthetists on the staff of the Royal Victoria Infirmary, Newcastle, for over thirty years. He served abroad in the first world war as a captain, R.A.M.C.(T.F.), and was for some time attached to an Australian hospital unit at Boulogne, where his skill so impressed the surgical staff that they gave him a warm invitation to return with them to Australia after the war and practise his specialty there. Seymour was so conservative that he eschewed all new ideas in anaesthetics—he never even appeared to wish to familiarize himself with them—and he adhered to the open mask or his Junker bottle connected to his own design of gag for continuous anaesthesia in operations about the mouth, throat, or nose. In the administration of chloroform and ether with a high proportion of air and warm oxygen (passed through a second connexion on his gag) Seymour was unsurpassed anywhere, and he frequently used to remark that only by this method could he keep in such close personal touch with his patient's progress and condition. In over one hundred thousand anaesthetics given by him he had five so-called anaesthetic deaths, one being a case with a large tumour of the brain. Seymour was a non-smoker, practically a teetotaler, and very fit for his age, looking as if he would go on for ever. His sudden passing leaves a gap which many of us so long associated with his ungrudging services and help will find it almost impossible to bridge. He was a man for whom his colleagues felt a real affection. We offer our heartfelt sympathy to his widow, son, and daughter.—W. F. W.

## The Services

Major (now Temporary Lieutenant-Colonel) N. G. G. Talbot, O.B.E., R.A.M.C., has been awarded the Efficiency Medal (Territorial).

Surgeon/Lieutenant-Commanders T. H. Pierce and F. J. S. Gower, R.N.V.R., have been awarded the R.N.V.R. Officers' Decoration.

### MEDICAL DEPARTMENT OF THE NAVY

The address of the Medical Department of the Navy, on and after Sept. 1, will be Queen Anne's Mansions, St. James's Park, London, S.W.1 (Tel.: Whitehall 9444).

The 49th annual meeting of the Board of the Scottish Mental Hospitals Pathological Scheme was held at the Royal College of Physicians, Edinburgh, on June 13, with Prof. Sir David Henderson in the chair. Prof. Drennan points out in the Report that their laboratory is now established as the University Laboratory for Neuropathology, while continuing the special research aims for which it was conceived nearly fifty years ago. An atlas of neuropathology based on material from the laboratory will shortly be published in Edinburgh. Members of the Executive Committee are as follows: Prof. Sir David Henderson (Chairman), Dr. W. N. J. Chapman, Dr. J. C. Anderson, Prof. T. J. Maekie, Dr. T. R. Spence, Dr. W. Boyd, Dr. John Chalmers, Dr. G. M. Bell, and Dr. W. D. Chambers (Hon. Secretary and Treasurer).

## Universities and Colleges

### UNIVERSITY OF CAMBRIDGE

Allan Menzies McFarlan, M.B., B.Chir. (Magdalene College), has been appointed to the Readership in Human Ecology from Oct. 1.

Rowdon Marrian Fry, M.R.C.S., L.R.C.P., and Joao Mary Boissard, M.R.C.S., L.R.C.P., have been appointed University Director and University Assistant Director respectively of the Public Health Laboratory Service for three years from Oct. 1.

Michael George Parke Stoker, M.D. (Sidney Sussex College), has been appointed University Demonstrator in Pathology for three years from Oct. 1.

Title of degree of M.D. was conferred by diploma on E. Rhodes (Girton College) during July.

The following medical degrees were conferred on Aug. 2:

M.D.—J. R. Bignall, E. M. Griffin, G. A. Emmerson, T. W. Leitchworth, W. P. U. Jackson, M. G. P. Stoker, R. G. Mathers.  
M.B., B.Chir.—M. H. Lessof, H. W. Cornford, G. R. Faber, B. G. Parsons-Smith, L. G. R. Wand, A. F. Crick, J. L. Moffatt, E. E. Philipp, M. P. Spence, P. G. Trebarne, R. G. Law, G. C. Manning, S. H. F. Howard, A. W. Robinson, F. C. Stallybrass, I. W. Stoddart, M. A. J. Browne, J. H. Garson, K. O. George, C. L. Grandage, J. G. Harrison, H. B. Kidd, D. C. Morley, J. K. P. Perera, D. H. Richards, G. W. Sykes, T. R. Maurice, P. K. Pybus, J. H. Scouler Buchanan, M. de B. Daly, W. D. Foster, R. V. Gibson, D. J. Howell, B. T. Kier, J. A. McDonald, J. McEneaney, K. M. McNicol, R. C. S. Pointon, R. H. B. Protheroe, M. G. Rife, A. J. Russell, N. Tate, C. E. Thomas, G. S. Plaut, A. B. Douglas, D. K. Ford, A. W. Ferguson, J. G. ... .. J. D. Mackichan, R. E. V. B. Young, ... .. R. E. D. Harvey-Samuel, J. D. Burton, ... .. C. W. Hollingsworth, E. Sherrah-Davies, ... .. A. Tutton, A. P. Waterson, P. M. Yeoman, ... .. M. Vine, Pow-Meng Yap, S. B. Bennett, R. C. Read, F. G. Herman.  
\* By proxy.

### UNIVERSITY OF MANCHESTER

At a Graduation Ceremony on July 5 the following medical degrees were conferred:

M.D.—F. P. Ellis (gold medal), R. W. Burslem, A. I. Goodman, A. D. Leigh (*in absentia*), S. B. Rampling, T. P. Sewell, I. Sutton.

### QUEEN'S UNIVERSITY, BELFAST

At a Graduation Ceremony held on July 9 the following medical degrees were conferred:

M.D.—T. Freeman, T. R. D. G. Creery, † G. W. Csonka, † F. G. C. Walker, J. H. Adams, J. L. Blair, C. F. Campbell, J. S. Elwood, P. A. H. McC. Foster, J. G. Gibson, E. H. Gordon, W. Johnston, R. J. Kernohan, Alice I. M. Leach, A. R. Lyons, W. J. McLeod, R. P. Maybin, † R. S. Murray, A. S. Ramsey, † B. E. Swain, N. H. Wass, R. J. Wright.  
M.B., B.Ch., B.A.O.—C. A. G. Armstrong, Joan G. H. Bennett, H. C. Boyd, J. S. Brown, J. A. Byrne, Pauline M. Charlton, J. G. Clearkin, R. T. Cooke, J. Erwin, J. Fulton, R. S. Gibson, F. S. Grebbell, Mary Gunning, Mary E. C. Henry, G. Hughes, G. J. G. Irvine, Anne W. Kilpatrick, W. G. Lissett, T. E. C. Lintao, H. McC. McAdoo, Irene S. McCaughy, E. G. McClean, R. L. McCorry, C. McDowell, D. J. McSparran, J. D. Morrow, F. N. Newsam, G. S. Parkes, A. Reid, Kathleen J. Reid, P. N. Ronaldson, J. Shanks, R. L. Turner, J. Weatherup, Elizabeth M. Wells.  
\* With high commendation. † With commendation. ‡ *In absentia*.

### ROYAL COLLEGE OF SURGEONS OF ENGLAND

The first meeting of the Board of the Faculty in Dental Surgery of the College was held on July 31. The Members of the Board are as follows: Sir Alfred Webb-Johnson, Bt., P.R.C.S., Sir Cecil Wakeley, K.B.E., C.B., F.R.C.S., and Mr. L. E. C. Norbury, O.B.E., F.R.C.S. (all *ex officio*), and H. A. Mahony, Ph.D., F.D.S., Principal Dental Officer, Ministry of Health, Prof. H. F. Humphreys, O.B.E., M.C., M.B., Ch.B., F.D.S., Director of Dental Studies, Birmingham University, Prof. H. Stobie, F.R.C.S., F.D.S., Dean, Royal Dental Hospital, Prof. F. C. Wilkinson, M.D., F.D.S., Dean, Turner Dental School, University of Manchester, Alan Shefford, O.B.E., F.D.S., Sub-dean, University College Hospital Dental School, W. Kelsey Fry, C.B.E., M.C., M.R.C.S., L.R.C.P., F.D.S., Consultant, Ministry of Health and Royal Air Force, V. A. F. Greenish, F.D.S., Examiner for the L.D.S., R.C.S.Eng., E. W. Fish, M.D., F.D.S., Chairman of the Dental Board of the United Kingdom, Major-General A. B. Austin, C.B., F.D.S., Honorary Dental Surgeon to the King, Director, Royal Army Dental Corps, Prof. T. Talmage Read, F.R.F.P.S., F.D.S., Warden, Dental School, University of Leeds, Surgeon Captain (D) J. T. Wood, C.B.E., L.D.S., Honorary Dental Surgeon to the King, Deputy Medical Director-General of the Navy for the Dental Services, W. G. Senior, O.B.E., Ph.D., F.D.S., Dental Secretary, British Dental Association, H. T. Roper-Hall, M.B., Ch.B., F.D.S., Chairman, Education Committee, Dental Board of the United Kingdom, Edward Samson, F.D.S., President, British Dental Association, A. C. Deverell, F.D.S., Director, Eastman Dental Clinic, Royal Free Hospital, Air Commodore G. A. Ballantyne, C.B.E., D.F.C., F.D.S., Honorary Dental Surgeon to the King, Director of Dental Branch, Royal Air Force, F. S. Warner, F.D.S., Sub-dean, Guy's Hospital Dental School, Prof. R. V. Bradlaw, M.R.C.S., L.R.C.P.,



## EPIDEMIOLOGICAL NOTES

## Poliomyelitis

There were 646 cases of poliomyelitis notified in England and Wales during the week ended Aug. 16, compared with 568 in the week ended Aug. 9, and 448 in the week ended Aug. 2. During July notifications rose by 50% a week, but since then the increase has dropped to 27% and in the latest week to about 14%, which suggests that the steeply rising curve of incidence is beginning to flatten out.

Figures for some of the most affected county areas are not notably different from those of the previous week (given in parentheses): London 89 (84), Lancashire 71 (71), Durham 39 (36), Middlesex 32 (35). Substantially increased notifications were reported from Yorkshire East Riding 18 (5), Surrey 39 (24), and Warwickshire 37 (23). There was a continued decline in the weekly figures from Yorkshire West Riding 44 (57).

Notifications of polio-encephalitis were lower than in the previous week 45 (56). The distribution of notified cases of this condition does not appear to be closely related to that of the notified cases of poliomyelitis. About half the 45 cases of polio-encephalitis occurred in the areas mentioned above as having a heavier or rising incidence of cases of poliomyelitis.

The 568 notifications in the week ending Aug. 9 were made from all counties except Somersetshire, Huntingdonshire, Cambridgeshire, Nottinghamshire, Cardiganshire, Montgomeryshire, Isle of Ely, Anglesey, Rutlandshire, Flintshire, Merionethshire, and Radnorshire, and of these from only the last six named have no notifications been made during the present outbreak. More than 20 cases were reported from the following counties (increases (+) and decreases (-) on the previous week are shown in parentheses): London 84 (+31), Lancashire 71 (+35), Yorkshire West Riding 57 (-13), Durham 36 (-9), Middlesex 35 (+15), Surrey 24 (-8), Warwickshire 23 (+10), and Kent 21 (+8). A further seven counties reported between 10 and 20 cases during this week.

There were 56 cases of acute polio-encephalitis reported from 22 counties in the week ending Aug. 9—Yorkshire West Riding 11 and London 9 having the highest number of notifications.

The table below shows the notifications over a period of 12 weeks in the 1926 outbreak (1,160 cases), the 1938 outbreak (1,462 cases), and in the 12 weeks this year ending Aug. 16, during which time there had been 2,486 notifications.

Week	1926	1938	1947
22	2	5	3
23	8	5	22
24	9		31
25	10	4	44
26	3	3	56
27	5	6	79
28	8	8	110
29	16	19	177
30	25	41	302
31	20	61	448
32	37	81	568
33	47	77	646
Totals ..	190	310	2,486

## Discussion of Table

In England and Wales 5,488 notifications of measles were made during the week, the largest weekly decrease, 1,466, since the beginning of June. There were also fewer fresh cases of whooping-cough 229, scarlet fever 123, diphtheria 62, pneumonia 46, and paratyphoid 12 than in the previous week.

The notifications of diphtheria, which numbered 138, were the lowest ever notified in a week; the previous minimum was 180 reported during the last week of 1946. Acute poliomyelitis notifications were 120 in excess of those during the previous week. Other increases observed were dysentery 25, cerebrospinal fever 18, acute polio-encephalitis 17, and typhoid 3.

The decline in the incidence of measles was general in most parts of the country; only two counties showed an increase of more than ten cases upon the notifications of the previous week—Gloucestershire 27 and Somersetshire 14. The largest decreases were reported from Yorkshire West Riding 380, Glamorganshire 116, Essex 90, Cumberland 65, London 63, Southampton 63, and Shropshire 60. Warwickshire, with 55 more notifications of whooping-cough, was the only county to have a large increase in the notifications of this disease; the largest decreases were London 39, Yorkshire West Riding 37, and Lancashire 32.

Little variation occurred, in comparison with the previous week, in the county notifications of scarlet fever or diphtheria; for the former the largest decreases were Warwickshire 26 and

Staffordshire 23, while London had 17 fewer new cases of diphtheria than in the previous week.

The greatest contribution to the increase in the notifications of dysentery was made by Kent, with 9 more cases than in the previous week.

In Scotland there were increases in the notifications of acute poliomyelitis 56, pneumonia 49, whooping-cough 22, diphtheria 19, scarlet fever 16, and cerebrospinal fever 15. Of the 93 notifications of acute poliomyelitis, 36 were reported from Glasgow, compared with 17 in the previous week. Glasgow also had 14 more cases of cerebrospinal fever.

In Eire a decrease in the notifications of measles, 151, was the only item of interest.

In Northern Ireland notifications of acute poliomyelitis were 22 higher than in the previous week, but of this increase 4 cases were due to late notifications of earlier weeks. Of the 33 cases reported, 12 were notified from Belfast C.B., an increase of 8 on the previous week. There was little difference in the notifications of other diseases compared with the previous week.

## Week Ending August 16

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 614, whooping-cough 1,870, diphtheria 145, measles 4,468, acute pneumonia 253, cerebrospinal fever 60, acute poliomyelitis 646, acute polio-encephalitis 45, dysentery 66, paratyphoid 17, and typhoid 8.

## Medical News

## Medical Department of the Navy

On and after Sept. 1 the address of the Medical Department of the Navy will be Queen Anne's Mansions, St. James's Park, London, S.W.1 (Tel.: Whitehall 9444).

## Consultants and Specialists Spens Committee

A Committee has recently been set up by the Minister of Health and the Secretary of State for Scotland to advise on the range of total professional remuneration of registered medical practitioners engaged in the different branches of consultant or specialist practice in any publicly organized hospital and specialist service. The Committee are inviting evidence from the organizations directly interested. They will, however, be prepared to receive evidence from interested bodies or persons other than those specially invited, and it is requested that those wishing to place their views before the Committee should submit memoranda to the Joint Secretaries of the Committee, Ministry of Health, Whitehall, London, S.W.1, before the end of September.

## Medical Research Council: New Members

The Committee of Privy Council for Medical Research have appointed Neil Hamilton Fairley, C.B.E., M.D., D.Sc., F.R.C.P., F.R.S. (Professor of Tropical Medicine in the University of London), and John Henry Gaddum, Sc.D., M.R.C.S., F.R.S. (Professor of Materia Medica in the University of Edinburgh), to be Members of the Medical Research Council from Oct. 1, 1947.

## Conference of W.H.O.

The fourth session of the Interim Commission of the World Health Organization opens at Geneva on Aug. 30. Reports will be received on the W.H.O.'s field missions in China, Ethiopia, and Greece, its fellowship programme, and its epidemiological reporting service. The draft agenda includes such items as alcoholism, unification of pharmacopoeias, malaria, tuberculosis, habit-forming drugs, influenza, insulin requirements and supply, schistosomiasis, venereal disease, and cancer registration.

## Cancer Research Bequest

The Donner Foundation has given a large building at Palm Beach, Florida, to the Institutum Divi Thomae at Cincinnati to provide quarters for a marine biophysics laboratory. Lower forms of sea life are convenient material for studying cell reproduction, and it is proposed to conduct cancer research at the laboratory.

## U.S. Books for Exchange

The United States Army Medical Library in Washington has supplied U.N.E.S.C.O. with a list of more than 700 medical monographs for exchange on a piece-for-piece basis with medical literature published outside the United States. Files of purely local serial publications will be accepted.

## Kashmir Health Service

Three well-equipped hospitals have recently been built at Srinagar, Jammu, and Mirpur. An infectious diseases hospital will shortly be opened at Srinagar also. Vaccination is compulsory and the incidence of deaths from smallpox and cholera negligible.



## The Medical Directory

To maintain the accuracy of the annual volume of the *Medical Directory* the publishers, Messrs. J. and A. Churchill, Ltd. (104, Gloucester Place, London, W.1), rely upon the return of their schedule, which has been posted to every member of the medical profession. Should the schedule have been lost or mislaid they will gladly forward a duplicate upon request. The full names of the medical practitioner should be sent for identification.

## Rheumatic Fever Research

An organization called the Helen Hay Whitney Foundation for Rheumatic Fever Research has been formed in New York, with Dr. Duckett Jones, Director of the American Heart Association, as medical director and supervisor of research.

## COMING EVENTS

### Film on Anterior Poliomyelitis

The Westminster and Holborn Division of the B.M.A. has arranged with the Central Office of Information for a film on anterior poliomyelitis, produced by the Ministry of Health, to be shown at the Meyerstein Hall, Westminster Hospital Medical School, S.W., on Thursday, Sept. 4, at 8.30 p.m. It is understood that the film stresses aspects of early diagnosis. The Ministry of Health's film on penicillin, in colour and equipped with sound track, will be shown also. The Division extends a cordial invitation to all practitioners in the area to attend; medical students also will be welcomed.

### Second Army Medical Services Reunion Dinner

It is proposed to hold a reunion dinner in November in London for all officers and ex-officers who served in the R.A.M.C. with Second Army (or formations under its command) in North-west Europe from 1944 to July, 1945. All officers and ex-officers who are interested in this proposal are asked to send their names and addresses (with former units) either to Dr. R. Gwyn Evans (33, Sandford Road, Mapperley, Nottingham) or to Dr. R. F. G. Ormrod (Fountain Court, Temple, London, E.C.4), so that preliminary arrangements can be made. Details will be announced later.

## SOCIETIES AND LECTURES

**WEST LONDON MEDICO-CHIRURGICAL SOCIETY.**—At West London Hospital, Hammersmith, W., Tuesday, Sept. 2, 8.30 p.m. Election of officers, etc.

A lecture course in anatomy, radiological anatomy, physiology, and applied physiology of the central nervous system will begin at the Maida Vale Hospital for Nervous Diseases on Monday, Sept. 29, under the direction of Prof. F. Goldby, Prof. Samson Wright, and the honorary staff of the hospital. The hospital can now provide facilities for postgraduate students of neurology which will satisfy the new regulations for the D.P.M. of the Conjoint Board. A weekly demonstration of clinical neurology, open to all postgraduates, will be held at the hospital in the autumn term, beginning on Friday, Sept. 26. Further details may be obtained from the dean of the medical school (Maida Vale, London, W.9).

A concentrated week-end course in the rheumatic diseases, suitable for general practitioners and demobilized officers, will be held by the Rheumatism Unit of the London County Council at St. John's Hospital on Oct. 25 and 26. Lord Moran, P.R.C.P., will be the course, and the lecturers who are participating include Sir Adolph Abrahams, Sir Thomas Fairbank, Dr. Francis Bach, Dr. Grace Batten, Dr. Blake Prichard, Dr. Philip Ellman, Dr. G. D. Kersley, and Dr. David Shaw. Details may be had from the Fellowship of Postgraduate Medicine at 1, Wimpole Street, London, W.1.

## BIRTHS, MARRIAGES, AND DEATHS

The charge for an insertion under this head is 10s. 6d. for 18 words or less. Extra words 3s. 6d. for each six or less. Payment should be forwarded with the notice, authenticated by the name and permanent address of the sender, and should reach the Advertisement Manager not later than first post Monday morning.

### BIRTHS

**DUNKERLEY.**—On Aug. 12, 1947, at Lusways Nursing Home, Sidmouth, to Jenna, wife of Dr. A. H. Dunkerley, "Malden," Sidmouth, a daughter.  
**HARPER.**—On Aug. 10, 1947, at Cleveland Nursing Home, London, to Dr. Marita Harper (née Shattock), wife of Dr. Eric Imlay Harper, a son.  
**JOHNSON.**—On Aug. 15, 1947, at Romsey Hospital, to Katherine (née Broadfoot), wife of Dr. Peter Johnson, of Linden House Cottage, a daughter.  
**WILSON.**—On Aug. 20, 1947, at the Queen Elizabeth Hospital, Birmingham, to Patricia (née McCullough), wife of Noel Wilson, M.B., M.R.C.S., a daughter—Sheila.

### MARRIAGES

**FRYER-McCONNELL.**—On Aug. 16, 1947, at Uxbridge, Graham John Firth Fryer, M.R.C.S., to Catherine Hunter McConnell, Q.A.I.M.N.S./R.  
**O'MALLEY-JONES.**—On Aug. 16, 1947, at Penyce, Wrexham, Austin G. O'Malley, M.B., Ch.B., to Iola Trevor Jones, M.R.C.O.G.

### DEATH

**COOK.**—On Aug. 16, 1947, at Preston Royal Infirmary, John Stevens Cook, M.C., M.B., Ch.B., aged 52.

## Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

### Diagnosis of Poliomyelitis

**Q.**—In the diagnosis of poliomyelitis, what laboratory investigations are necessary (1) to ascertain a carrier, and (2) for early diagnosis? In other words, how can an abortive case be diagnosed?

**A.**—A symptomless poliomyelitis carrier can be recognized only by demonstrating virus in the oropharynx or the faeces. To do so, the material to be examined (throat-swab or gargles or faeces) after suitable treatment is injected intracerebrally into a monkey, which is the only susceptible host apart from man, although certain strains of the virus have been adapted to infect rodents. Diagnosis of a case seen in the pre-paralytic stage, often with some evidence of meningeal irritation, is helped by lumbar puncture, which usually reveals an increase of cells (10–100 per c.mm.), partly lymphocytes, partly polymorphs, with little else abnormal. Experimental infection in monkeys has shown that in the pre-paralytic stage, which corresponds to abortive poliomyelitis, invasion of the central nervous system with virus has already occurred. If this stage is accompanied by meningeal inflammation, as is usual, an early cellular reaction followed by an increase of protein may be expected in the cerebrospinal fluid. However, cases of abortive and paralytic poliomyelitis have apparently occurred without any obvious changes in the cerebrospinal fluid. Samples of serum taken during the acute and convalescent stages may be examined for the development of neutralizing antibody, but this diagnostic test, using either monkeys or mice, has in the past given equivocal results.

### Horse-fly Bites

**Q.**—At this time of year the eleg, or horse-fly, is common in the country, and its bite often causes severe irritation, especially in women. What is the best antidote?

**A.**—There are three British genera of horse-flies which are easily distinguished: *Tabanus* has clear wings, *Crysops* has large dark patches on the wings, and those of *Haematopota* are finely mottled. They usually attack at different points, *Tabanus* apparently preferring the legs, *Crysops* the back of the neck, while *Haematopota* bites at the waist level, so that hands and wrists are liable to suffer. These flies are usually encountered near their breeding-grounds, which, for many British species, consist of wet meadows, muddy farm lanes, or boggy waste ground. Protection from bites could probably be ensured for several hours by a skin application of dimethyl phthalate. People vary considerably in their reaction to the bites, which sometimes take a long time to heal. As with most insect bites, there seems to be no specific treatment, but soothing lotions would appear to be indicated.

### Urethritis

**Q.**—A newly married man of 25 has suffered from urethritis for about a week. Only two drops of creamy pus are obtainable for examination at any time. Pus cells are numerous and well preserved, but no organisms are present either in direct films or on culture. The condition is believed to be non-gonococcal. What further investigations should be undertaken and what treatment do you advise?

**A.**—Cultures should be repeated in a laboratory known to be able to grow gonococci (such laboratories are limited in number). If gonococci are still not demonstrable a search should be made for *Trichomonas vaginalis*. In the absence of any infecting organism treatment should consist of alkaline diuretics; if these fail, gentle irrigation with a weak solution of potassium permanganate (1/10,000) once or twice daily should be tried; alternatively mercury oxycyanide 1/5,000 may be used. If the condition persists in spite of treatment the prostatic fluid should be examined.

## Insulin

**Q.**—What are the latest views on the mode of action of insulin? Are the anti-insulin effects of anterior-pituitary glycotropic and ketogenic hormones exerted directly or through the adrenal cortex?

**A.**—Various theories have been advanced to account for the action of insulin *in vitro* as part of an enzyme system, or as reacting with such a system. Of these the most important is that of Cori *et al.* (*J. biol. Chem.*, 1947, 168, 583), based on extensive experimental evidence which appears to be convincing although it has not as yet been independently confirmed. According to Cori, a point of action of both anterior-pituitary extract and insulin is the enzyme hexokinase. This enzyme is widespread in the tissues of the body and catalyses the transfer of a phosphoric acid group from adenosine triphosphate to glucose, to give glucose-6-phosphate and adenosine diphosphate. It is possible that the formation of glucose-6-phosphate under the influence of the hexokinase system obligatorily precedes the utilization of glucose for most purposes in the body. Cori's work shows that the action of hexokinase can be inhibited *in vitro* by anterior-pituitary extract, and that this pituitary-induced inhibition of hexokinase can be released *in vitro* by the addition of insulin. Thus an important action of insulin in the intact animal may be the release of hexokinase from anterior-pituitary inhibition, which would permit the preliminary step, under the influence of the enzyme, necessary for the utilization of glucose for different purposes. It seems improbable that this is the only way that insulin acts in the body, since hypophysectomized animals are extremely sensitive to the hypoglycaemic action of insulin; there is no evidence that the activity of hexokinase itself is stimulated by insulin, the action of insulin being limited to the release of the inhibition of hexokinase induced by the pituitary extract. It is likely that further work along the lines initiated by Cori may lead to the demonstration of an *in vitro* action of insulin on other enzyme systems, which might then account for the gaps in the present picture.

Since pituitary adrenocorticotropin and certain adrenal steroids all exert an anti-insulin action in experimental animals it is clear that some part of the anti-insulin action of crude anterior-pituitary extracts can be attributed to an action via the adrenal cortex. Nevertheless the anti-insulin (glycotropic) activity of anterior-lobe extracts is demonstrable in adrenalectomized rabbits, while the diabetogenic action of crude anterior-pituitary preparations has been demonstrated in the adrenalectomized, partially depancreatized dog by Houssey and his colleagues. It therefore seems certain that there are at least two pathways whereby anterior-pituitary factors may exert an anti-insulin action—one mediated by the adrenal cortex, and one not. The ketogenic pituitary factor is not sufficiently differentiated from the anti-insulin (glycotropic) and diabetogenic factors for anything to be said about the mechanism of its action on carbohydrate metabolism.

## Antirabies Inoculation

**Q.**—What is the normal course for prophylactic inoculations of antirabies vaccine; also the correct route of administration? How long does a course of inoculations afford protection, and how soon could a patient be considered safe? Are any untoward reactions likely, and, if so, what are they?

**A.**—The normal course recommended for the carbolized rabies vaccine is 15 to 21 days, depending on the site and severity of the bite; whether the wound was treated with an antiseptic; whether the animal which inflicted the bite is known to have been rabid; and the time which has elapsed between the bite and the onset of treatment. The vaccine is injected subcutaneously in order to provide a depot for continuous absorption. Rabid antibodies may appear in the serum ten days after the close of the antirabies treatment, and have been found up to seven months later. The significance of these antibodies is questionable, since a person who has been bitten may not develop rabies and yet may show no rabid antibody. Conversely, a person with a high antibody titre may be unprotected by the vaccine and die from rabies.

Various types of reactions may occur after antirabies treatment. These are usually mild, consisting of fever, headache,

giddiness, and local skin rashes. Rarely patients may suffer from serious, even fatal, reactions. These take the form of paralysis of different types and appear to be related to the post-vaccinal encephalomyelitis following certain infectious diseases.

## Mosquito Bites

**Q.**—What is the best repellent against mosquitoes, and what is the best treatment for bites?

**A.**—Dimethyl phthalate is an efficient repellent against mosquitoes. Proprietary creams containing the substance are available, or the liquid itself may be used. It should be smeared lightly over the skin, care being taken to cover all exposed parts. It may cause transient smarting in abrasions or in the eye; and contact with such objects as fountain-pens, spectacle frames, synthetic watch-glasses, or certain artificial-silk stockings should be avoided as it is a solvent of plastic and similar substances.

Once a mosquito bite has occurred there is little that can be done to alleviate the irritation, although cooling solutions containing alkalis or a little menthol or phenol are often recommended. It is possible that anti-histamine drugs, such as "benadryl," might diminish the reaction to a bite, but these would have to be present in the tissues at the time and consequently will have little practical application. Septic complications may have to be dealt with later.

## Anaesthesia for Circumcision

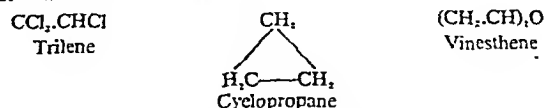
**Q.**—What is the best sedation, apart from a general anaesthetic, for circumcision in an infant 3 to 6 weeks old?

**A.**—No "sedative" short of the dose producing anaesthesia can be relied upon to give immobility during what must be the strong operative stimulus of circumcision. The most satisfactory drug for general analgesia short of unconsciousness is morphine, given in the correct dosage. For babies this should be at the rate of 1/40 gr. per stone (0.25 mg. per kilo) of body weight. Thus, for a child weighing 10 lb. (4.5 kg.) the hypodermic dose would be 1/60 gr. (1.08 mg.) of morphine. This is easily measured by dissolving a tablet of 1/6 gr. (11 mg.) in 10 ml. of water and throwing away 9 ml. of the solution.

## Trilene, Cyclopropane, Vinesthene

**Q.**—What are the chemical formulae of "trilene," cyclopropane, and "vinesthene"? What are the methods of administration of each drug, and what are their principal advantages?

**A.**—The formulae are as follows:



Full details of their administration and advantages should be sought in a standard work, such as the *Textbook of Anaesthetics*, by Minnitt and Gillies. Briefly, trilene is a good alternative to chloroform, both when the explosion hazard is present and as an analgesic in midwifery. As a supplement in small dosage trilene smooths out the difficulties of nitrous oxide-oxygen anaesthesia. Cyclopropane is a powerful non-irritating gas, given with oxygen and needing special skill and apparatus for its administration. Vinesthene resembles ethyl chloride in its clinical effect, but can in addition be given like ethyl ether for longer periods of time.

## Tinnitus

**Q.**—A man of 70, who is recovering from neurasthenia, suffers from tinnitus in both ears. He thinks that phenobarbitone aggravates the condition. Is there any reason for this? What treatment, if any, can be given?

**A.**—In some subjects phenobarbitone has an initial stimulating effect, and it is possible that it is so acting in this case. Bromides would probably be useful in alleviating the symptoms, either as acid hydrobrom. dil. or as the ammonium, potassium, or sodium bromides.

**Terminating Pregnancy for Hyperemesis**

**Q.**—A young woman with tuberculosis of the lungs, and eight weeks pregnant, is suffering from hyperemesis gravidarum. Continuation of the pregnancy is dangerous; all palliative methods have failed. Could you please tell me the safest method of terminating the pregnancy?

**A.**—Once it has been decided that induction of abortion is indicated in a case of hyperemesis it should be carried out immediately. There is therefore little place for "slow" methods of induction, and the uterus should be evacuated at "one sitting," the choice between the vaginal and the abdominal approach depending on the size of the uterus. In this case it should be reasonably easy to lift out the ovum with sponge forceps after dilatation of the cervix. Irrespective of phthisis, the chief danger is the anaesthetic. Possibly the ideal is local analgesia supplemented, if need be, with intravenous thiopentone sodium. Cyclopropane would also be suitable. The operation should not be begun until the urine is free from acetone, and should be preceded and followed by a continuous intravenous glucose drip.

**Loosening the Piston of a Syringe**

**Q.**—How can one loosen the plunger in a hypodermic syringe?

**A.**—A sharp pull exerted after attaching the plunger by string to a fixed object is sometimes effective. An alternative is prolonged soaking in a solution of antiformin (equal parts of liquor sodae chlorinatae and 15% caustic soda: this should be diluted about 1 in 10 for the purpose). A further method, of which we have no experience, is recommended in a recent issue (July–August, 1947) of the *Bulletin of the Institute of Medical Laboratory Technology*. The cap of the syringe is removed, if necessary by unscrewing the piston rod, and the barrel above the piston packed with ice. The syringe is then placed in the freezing compartment of a refrigerator. When it is thoroughly cold the barrel is immersed in tepid water; it is then held in a folded cloth and a direct, even pull is exerted on the piston.

**NOTES AND COMMENTS**

**Saturated Solutions for Dispensing.**—Mr. H. W. TOMSKI, M.P.S. (Pinner, Middlesex), writes: With reference to the reply (Aug. 9, p. 238) to a correspondent's inquiry about the use of saturated aqueous solutions for dispensing purposes, I would like to offer the following observations. A saturated solution is one in which no more of the substance will dissolve, and the B.P. states the number of parts of water required for the preparation of such solutions at 15.5°C. for various chemicals. It appears that your answer was based on this information. In practice, however, the addition of a substance to water yields a solution of far greater volume than the water itself. Thus, while 1 part of sodium chloride requires 3 parts of water, 1 part of the substance is contained in about 3.39 parts of the final solution. Some time ago, I had occasion to carry out a number of experiments to determine the quantity of substance in 1 fluid drachm (3.5 ml.) of saturated solution prepared under ordinary dispensing conditions. The following results were obtained from some of the solutions investigated: ammonium carbonate 12.1 gr.—0.78 g.; potassium bromide 22.2 gr.—1.43 g.; potassium citrate 41.1 gr.—2.71 g.; sodium bicarbonate 4.8 gr.—0.32 g.; sodium chloride 16.1 gr.—1.07 g.; sodium salicylate 33.8 gr.—2.24 g.

The addition of chloroform to concentrated solutions of potassium citrate is recommended to prevent fungal growth. Darkening of sodium salicylate solutions is due to atmospheric oxygen, and oxidation is enhanced in concentrated solutions and in the presence of alkali. The problem of retarding this process is dealt with in a paper published by me in the *Pharmaceutical Journal* (Jan. 24, 1942, p. 32). The addition of 1 in 500 potassium pyrosulphite to a 50% aqueous solution prevents darkening for about six weeks.

**Bringing up Baby.**—Dr. S. P. CASTELL (Thorpe, Norwich) writes: Dr. E. J. Dennison's letter (Aug. 9, p. 238) shares a fault with the reply to which he objects, that of stating a principle without guarding against misapplication by a dangerous minority. To believe in a principle (even a good one) is not enough. One may believe in the value of cookery and yet be an atrocious cook. We may concede that the proper upbringing of children includes some restraint, yet note that a belief in discipline is held by some who can neither

control their children nor themselves. Controlling a car includes some use of the brakes, but a devout belief in their value is not enough to make a good driver, and the man who stands on his brakes and skids his car across the road is apt to feel a bit of a fool. Let us not support the popular fallacy that belief in some slogan—discipline—freedom—patience, etc., is enough. That makes the problem appear a more insoluble problem than ever. I wish Dr. Dennison had not declared himself in favour of "thwarting," rather than restraint. It suggests that one should thwart for thwarting's sake.

**Judicial Hanging.**—Lieut.-Col. F. A. BARKER, I.M.S. (ret.), of Didcot, Berks, writes: Col. N. J. C. Rutherford's use of the word "jail" instead of "prison" (Aug. 16, p. 282) makes one think he was referring to Indian jails. If so, I can assure him that "all the official spectators" of a hanging do not walk away as the trap-door is released. The doctor (either medical superintendent of the jail or the civil surgeon in medical charge) first ascertains that the momentary rigor has ceased and that the body is hanging inert and clear of the walls before he leaves the shed, and the jailer keeps him company and himself locks the door of the shed when they depart. Thirty years ago the body had to hang for one hour before the doctor pronounced life to be extinct; this period has since been reduced by law to half an hour. On one occasion I had, as medical superintendent, to hang five persons on one morning. Three were hanged side by side at one drop, and the remaining two an hour later. But one busy civil surgeon would not wait and hanged six persons at one drop (to the great anxiety of the jailer, who feared that the beam would not stand the strain). In both these cases the hangings passed off without any untoward incident, and death was instantaneous.

**Physical Sign in Pulmonary Tuberculosis.**—Dr. F. A. NASH (London, N.21) writes: I wish to draw attention to a physical sign that is often present in cases of pulmonary tuberculosis, even when other signs are few or absent. The patient stands with his back towards the observer and about five feet away. If he shows a tendency to stand to "attention," he is told to relax and allow his arms to hang loosely at sides. He is then instructed to breathe in and out rather more deeply and rapidly than usual. The observer compares the amount of movement of the points of the shoulders. I have found the movement is often diminished considerably on what x-rays show to be the affected side, even when inspection and palpation of the thoracic cage reveal no signs.

**INCOME TAX**

*All inquiries will receive an authoritative reply, but only a selection can be published.*

**Appointment Travelling Expenses, Subscriptions, etc.**

A. T. has taken up a post as radiologist to two hospitals. They are situated some distance apart, and owing to the housing shortage A. T. has to live in a third locality. He will receive a car allowance from the hospitals, but it will not cover his total expenses. What claim can he make?

As he holds a single appointment for work at both hospitals A. T. can claim to deduct any necessary expense (over and above the car allowance received) of travelling between them; but he is not entitled to claim the cost of travelling between his residence and the hospitals. (He may, however, claim a fixed allowance of £10 towards that cost.) How precisely the total cost of running the car, including depreciation, licence, etc., can reasonably be divided between the "allowable" and the "not allowable" classes of expenditure must depend on the circumstances, but as a basis a record of, say, three months of the respective mileages should assist.

No allowance is due for the purchase of books, nor for subscriptions to professional associations, unless membership is compulsory under the service agreement. The telephone expenditure can be claimed for on the basis of a reasonable proportion as between the private use and the use arising out of the appointment.

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Atiology, Western, London*. ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone: unless the contrary be stated. Authors desiring REPRINTS should communicate with the Publishing Manager, B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1. on receipt of proofs. Authors overseas should indicate on MSS. if reprints are required, as proofs are not sent abroad. ADVERTISEMENTS should be addressed to the Advertisement Manager, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. (hours 9 a.m. to 5 p.m.). TELEPHONE: EUSTON 2111. TELEGRAMS: *Brimedads, Western, London*. MEMBERS' SUBSCRIPTIONS should be sent to the SECRETARY of the Association. TELEPHONE: EUSTON 2111. TELEGRAMS: *Mediseca, Western, London*. B.M.A. SCOTTISH OFFICE: 7, Drumsheugh Gardens, Edinburgh.

# SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY AUGUST 30 1947

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1 vacancy.

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Air Marshal Sir Victor Richardson, Cheltenham (Medical Branch of R.A.F.).

#### ONE WOMAN ELECTED BY WOMEN MEMBERS

Dr. Janet K. Aitken, London.

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(NOTE: The President, Chairman of Representative Body, Chairman of Council, and Treasurer are members, *ex officio*, of all Standing Committees.)

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5 Part-time Consultants and Specialists shortly to be elected.  
1 member to be appointed by the Committee of each Group.  
1 member to be appointed by the General Practices Committee.  
1 member to be appointed by the Public Health Committee.  
1 member to be appointed by the Hospitals Committee.  
1 member to be appointed by the Insurance Acts Committee.

DOMINIONS, INDIA, COLONIES, AND DEPENDENCIES  
COMMITTEE

Dr. J. H. Anderson, Ruthin.  
Dr. J. L. Gilks, Petersfield.  
Dr. C. J. Grosch, London.  
Dr. L. H. Henderson, London.  
Dr. Isaac Jones, London.  
Prof. W. C. W. Nixon, London.  
Dr. P. T. O'Farrell, Dublin.  
Mr. A. E. Porritt, London.  
Dr. F. M. Rose, Preston.  
Dr. J. B. W. Rowe, Harrow.  
Mr. Eric Steeler.  
1 member to be appointed by the Organization Committee.  
1 vacancy.

## FINANCE COMMITTEE

The Chairmen of the following Committees: Organization, Journal, Science, General Practice, Central Ethical, Building, and Insurance Acts.  
Dr. T. Gardner, Pontefract.  
Dr. K. M. Macdonald, Consett.  
Dr. C. F. Mayne, Plymouth.  
Mr. A. Dickson Wright, London.

## GENERAL PRACTICE COMMITTEE

Dr. H. W. Bowyer, Bolton.  
Dr. O. C. Carter, Bournemouth.  
Dr. R. W. Cockshut, London.  
Dr. R. Forbes, London.  
Dr. H. H. Goodman, Newcastle-upon-Tyne.  
Dr. E. W. Goodwin, Leicester.  
Dr. I. D. Grant, Glasgow.  
Dr. J. A. Ireland, Shrewsbury.  
Dr. J. A. L. Vaughan Jones, Leeds.  
Dr. D. T. McDonald, Belford.  
Dr. H. H. D. Sutherland, London.  
Dr. S. Wand, Birmingham.  
1 member to be appointed by each of the following Committees:  
Consultants and Specialists, Public Health, Hospitals, Insurance Acts.  
With power to co-opt not more than three additional members.

## HOSPITALS COMMITTEE

Mr. L. Dougal Callander, Doneaster.  
Dr. R. G. Gordon, Bath.  
Dr. A. Staveley Gough, Watford.  
Dr. W. S. Macdonald, Leeds.  
Mr. C. Melville, Grangemouth.  
Mr. R. L. Newell, Cheadle, Cheshire.  
Dr. A. T. Rogers, Bromley.  
Dr. F. A. Roper, Exeter.  
Dr. Marguerite G. Sheldon, Birmingham.  
Mr. Weldon P. T. Watts, Newcastle-upon-Tyne.  
1 member to be appointed by the Public Health Committee.  
1 member to be nominated by the Medical Superintendents' Society.  
1 member to be nominated by the Association of the Honorary Staffs of the Major (Non-undergraduate Teaching) Voluntary Hospitals of England and Wales.  
1 member to be nominated by the Association of Municipal Specialists.  
With power to co-opt three additional members.

## INDUSTRIAL MEDICINE COMMITTEE

Mr. L. Dougal Callander, Doncaster.  
Dr. N. J. Cochran, Burton-on-Trent.  
Dr. I. D. Grant, Glasgow.  
Dr. W. Gunn, London.  
Dr. J. A. L. Vaughan Jones, Leeds.  
Prof. R. E. Lane, Manchester.  
Dr. R. H. D. Lavery, Coventry.  
Dr. D. Stewart, Birmingham.  
1 member to be appointed by the following Committees: General Practice, Hospitals, Insurance Acts, Public Health, Consultants and Specialists.  
2 members to be appointed by the Association of Certifying Factory Surgeons.  
4 members to be appointed by the Association of Industrial Medical Officers.  
With power to co-opt not more than three additional members.

## INSURANCE ACTS COMMITTEE

Chairman of Conference of Representatives of Local Medical and Panel Committees.

## Six elected by Representative Body:

Dr. R. W. Cockshut, London.  
Dr. F. Gray, London.  
Dr. C. W. Kidd, Belfast.  
Dr. J. F. Lambie, Glasgow.  
Dr. Mona Macnaughton, Newcastle-upon-Tyne.  
Dr. S. Wand, Birmingham.

With twenty-seven Direct Representatives of Local Medical and Panel Committees in Great Britain and Northern Ireland. Six to be elected by the Annual Conference of Representatives of Local Medical and Panel Committees, one nominated by the Hospitals Committee, one nominated by the Medical Women's Federation, one nominated by the Society of Medical Officers of Health, with power to co-opt.

## JOURNAL COMMITTEE

Dr. O. C. Carter, Bournemouth.  
Dr. R. W. Cockshut, London.  
Dr. Mary Esslemont, Aberdeen.  
Dr. W. N. Leak, Winsford.  
Dr. J. C. Matthews, Downton.  
Mr. A. M. A. Moore, London.  
Dr. S. Noy Scott, Plymouth.  
Mr. R. W. L. Ward, Doncaster.  
Chairman of the Central Ethical Committee.  
1 member to be appointed by the Organization Committee.  
1 member to be appointed by the Science Committee.

## ARMED FORCES COMMITTEE

Surgeon Rear-Admiral W. H. Edgar, Alverstoke.  
Major-General R. W. D. Leslie, Nottingham.  
Mr. A. E. Porritt, London.  
Colonel A. H. Proctor, Southport.  
Air Marshal Sir Victor Richardson, Cheltenham.  
Dr. R. J. Toleman, Oxford.  
Mr. R. J. Willan, Kingsbridge.  
1 representative from each of the following: Royal Naval Medical Service, Royal Army Medical Corps, Royal Air Force Medical Service, Royal Naval Volunteer Reserve, Royal Army Medical Corps (Territorial Army).

## NORTHERN IRELAND COMMITTEE

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Mr. A. H. McC. Eaton, Omagh.  
Dr. F. Halliday, Belfast.  
*Members of Council representing Northern Ireland Branch:*  
Dr. T. H. Crozier, Belfast.  
Dr. J. M. Hunter, Portrush.  
*Representatives of Divisions in Northern Ireland:*  
1 representative elected by each Division in Northern Ireland Branch.

## ORGANIZATION COMMITTEE

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Dr. F. E. Gould, Birmingham.  
Dr. F. Gray, London.  
Dr. H. R. Frederick, Port Talbot.  
Dr. Kate Harrower, Glasgow.  
Dr. J. C. Matthews, Downton.  
Dr. J. A. Pridham, Weymouth.  
Dr. S. Laurie Smith, St. Annes-on-Sea.  
1 member to be appointed by the Dominions Committee.

## PUBLIC HEALTH COMMITTEE

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Dr. Mary Esslemont, Aberdeen.  
Dr. J. M. Gibson, Huddersfield.  
Dr. J. A. Ireland, Shrewsbury.  
Dr. N. Pick, Barnsley.  
Mr. D. S. Pracy, Atherstone.  
Dr. J. A. Pridham, Weymouth.  
Dr. Alexander Smith, East Kilbride.  
Dr. C. O. Stallybrass, Liverpool.  
Dr. J. B. Tilley, Newcastle-upon-Tyne.  
*Two members of the Council elected by Public Health Service members:*  
Dr. J. Fenton, London.  
Dr. R. H. H. Jolly, Wolverhampton.  
2 members to be nominated by the Society of Medical Officers of Health.  
1 member to be appointed by the General Practice Committee.  
1 member to be appointed by the Hospitals Committee.  
With power to co-opt three additional members.

## SCIENCE COMMITTEE

Mr. A. Lawrence Abel, London.  
Dr. Janet K. Aitken, London.  
Prof. R. S. Aitken, Aberdeen.  
Sir Henry Dale, London.  
Dr. R. G. Gordon, Bath.  
Mr. R. Kennon, Liverpool.  
Dr. R. P. St. L. Lison, Tunbridge Wells.  
Mr. L. S. Pyrah, Leeds.  
Mr. R. J. Willan, Kingsbridge.  
1 vacancy.  
1 member appointed by Journal Committee.

## SCOTTISH COMMITTEE

## Members of Council:

Dr. Mary Esslemont, Aberdeen.  
Dr. I. D. Grant, Glasgow.  
Mr. I. Simson Hall, Edinburgh.  
Dr. J. G. M. Hamilton, Edinburgh.  
Dr. W. Jope, High Blantyre.  
Dr. G. MacFeat, Douglas, Lanarks.  
Dr. D. Smith Pool, Glasgow.

## 23 Members elected by Divisions in Scotland:

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Dr. J. T. Baldwin, Penicuik.  
Mr. R. L. Beveridge, Croftshill, Dumfries.  
Dr. J. Inglis Cameron, Glasgow.  
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Dr. W. Gibson, Old Kilpatrick.  
 Dr. D. G. Gordon, Revonan, Ellon.  
 Dr. Kate Harrower, Glasgow.  
 Dr. J. M. Johnstone, Leven.  
 Dr. J. F. Lambie, Glasgow.  
 Dr. D. Dale Logan, Newmains.  
 Dr. K. M. McLay, Galashiels.  
 Dr. A. F. Wilkie Millar, Edinburgh.  
 Dr. D. Myles, Forfar.  
 Dr. R. Richards, Aberdeen.  
 Dr. D. S. Robertson, Edinburgh.  
 Dr. G. A. Rorie, Dundee.  
 Dr. A. Scott, Ayr.  
 Dr. J. T. Simpson, Perth.  
 Dr. A. E. Struthers, Paisley.

Remaining members shortly to be elected.

#### Representatives of Scottish Medical Corporations :

The President, Royal College of Physicians, Edinburgh.  
 The President, Royal College of Surgeons, Edinburgh.  
 The President, Royal Faculty of Physicians and Surgeons of Glasgow.

With power to co-opt not more than two.

### WELSH COMMITTEE

#### Members of Council representing Branches in Wales and Monmouthshire :

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 Dr. W. V. Howells, Swansea.  
 Dr. J. A. Ireland, Shrewsbury.

#### Secretaries of the Welsh Branches :

Dr. L. W. Jones, Llanfairpwll.  
 Dr. E. J. Rees, Pontypridd.  
 1 member appointed by each Division wholly situate in Wales, including Monmouthshire,  
 Together with the Chairman and Secretary of the Welsh Standing Contract Practice Subcommittee.  
 With power to co-opt not more than two.

## II. GROUP COMMITTEES

### ANAESTHETISTS GROUP COMMITTEE

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 Dr. W. M. Brown, Belfast.  
 Dr. Frankis Evans, London.  
 Dr. H. W. Featherstone, Burton-on-Trent.  
 Dr. T. Cecil Gray, Liverpool.  
 Dr. W. Alexander Low, London.  
 Dr. Z. Mennell, Petworth.  
 Dr. W. W. Mushin, Oxford.  
 Dr. G. Organe, London.  
 Dr. H. H. Pinkerton, Glasgow.  
 Dr. S. Rowbotham, London.

### CONSULTING PATHOLOGISTS GROUP COMMITTEE

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 Prof. D. F. Cappel, Glasgow.  
 Dr. C. E. Dukes, London.  
 Dr. S. C. Dyke, Tettenhall.  
 Dr. R. W. Fairbrother, Manchester.  
 Dr. J. G. Greenfield, London.  
 Prof. R. J. V. Pulvertaft, London.  
 Dr. A. F. S. Sladden, Swansea.

### DERMATOLOGISTS GROUP COMMITTEE

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 Dr. L. Forman, London.  
 Dr. F. F. Hellier, Leeds.  
 Dr. I. H. McCaw, Belfast.  
 Dr. R. M. B. Mackenna, London.  
 Dr. A. C. Roxburgh, London.  
 Dr. J. Ferguson Smith, Glasgow.  
 Dr. C. H. Whittle, Cambridge.  
 Dr. J. E. M. Wigley, London.

### FULL-TIME NON-PROFESSORIAL MEDICAL TEACHERS. LABORATORY AND RESEARCH WORKERS GROUP COMMITTEE

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 Dr. C. J. C. Britton, London.  
 Dr. H. W. Clegg, Manchester.  
 Dr. J. Gough, Cardiff.  
 Dr. J. W. Howie, Aberdeen.  
 Dr. W. R. M. Morton, Cambridge.

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 Mr. J. H. Daggart, London.  
 Sir Stewart Duke-Elder, London.  
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 Mr. R. A. Greeves, London.  
 Dr. J. J. Healy, Llanelli.

Mr. E. F. King, London.  
 Mr. F. W. Law, London.  
 Dr. E. G. Mackie, Sheffield.  
 Dr. J. Marshall, Glasgow.  
 Mr. O. G. Morgan, London.  
 Mr. A. McK. Reid, Liverpool.  
 Dr. R. G. Simpson, London.  
 Dr. C. M. Stevenson, Cambridge.  
 Dr. J. N. Tennent, Glasgow.  
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 Mr. M. H. Whiting, London.  
 Dr. D. Wilson, Kingsbridge.

1 member appointed by the Insurance Acts Committee.

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 Mr. V. H. Ellis, London.  
 Mr. C. G. Irwin, Newcastle-upon-Tyne.  
 Mr. S. T. Irwin, Belfast.  
 Mr. S. A. S. Malkin, Nottingham.  
 Mr. A. Miller, Glasgow.  
 Mr. G. Perkins, London.  
 Prof. Harry Platt, Manchester.  
 Mr. Philip Wiles, London.

### PHYSICAL MEDICINE GROUP COMMITTEE

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 Dr. P. Bauwens, London.  
 Dr. C. W. Buckley, Ashbourne.  
 Dr. J. B. Burt, Bath.  
 Dr. F. S. Cooksey, London.  
 Dr. W. S. C. Copeman, London.  
 Dr. J. Cowan, Manchester.  
 Dr. L. C. Hill, Bath.  
 Dr. M. H. Jupe, London.  
 Dr. J. W. T. Patterson, Droitwich.  
 Sir Morton Smart, London.  
 Dr. W. S. Tegner, London.

### PSYCHOLOGICAL MEDICINE GROUP COMMITTEE

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 Dr. H. Crichton-Miller, Harrow-on-the-Hill.  
 Dr. D. Curran, London.  
 Prof. H. V. Dicks, Leeds.  
 Prof. D. K. Henderson, Edinburgh.  
 Dr. P. K. McCowan, Dumfries.  
 Dr. W. G. Masefield, Eastbourne.  
 Dr. Emanuel Miller, London.  
 Dr. Doris Odum, London.  
 Dr. A. A. W. Petrie, Sutton.  
 Dr. J. R. Rees, London.  
 Dr. W. Rees Thomas, London.

### RADIOLOGISTS GROUP COMMITTEE

Dr. J. F. Brailsford, Birmingham.  
 Dr. S. Whately Davidson, Newcastle-upon-Tyne.  
 Mr. J. L. A. Grout, Sheffield.  
 Dr. M. H. Jupe, London.  
 Dr. A. B. Maclean, Glasgow.  
 Dr. R. Boulton Myles, Worthing.  
 Dr. Ralston Patterson, Manchester.  
 Dr. S. Cochrane Shanks, London.  
 Dr. C. G. Teall, Birmingham.

### SPA PRACTITIONERS GROUP COMMITTEE

Dr. R. G. Gordon, Bath.  
 Dr. L. C. Hill, Bath.  
 Dr. L. J. Prosser, Harrogate.  
 Dr. W. Yeoman, Harrogate.  
 Dr. R. G. Anderson, Cheltenham.  
 Dr. E. C. Cosgrove, Buxton.  
 Dr. F. Clayton, Leamington.  
 Dr. R. W. Stewart, Buxton.

## III. OTHER COMMITTEES

### BUILDING COMMITTEE

Sir Hugh Lett, Bt., Richmond (*President*).  
 Dr. J. B. Miller, Bishopbriggs (*Chairman of Representative Body*).  
 Dr. H. Guy Dain, Birmingham (*Chairman of Council*).  
 Dr. J. W. Bone, Luton (*Treasurer*).  
 Mr. L. Dougal Callander, Doncaster.  
 Dr. O. C. Carter, Bournemouth.  
 Mr. A. Staveley Gough, Watford.  
 Dr. C. G. Martin, London.  
 Mr. A. M. A. Moore, London.  
 Dr. J. G. Thwaites, Brighton.  
 Mr. A. Dickson Wright, London.

### COMMITTEE ON CARE AND TREATMENT OF ELDERLY AND INFIRM

Dr. Janet K. Aitken, London.  
 Lord Amulree, London.  
 Dr. A. Greig Anderson, Aberdeen.  
 Dr. E. B. Brooke, Carshalton.  
 Sir Ernest Rock Carling, London.  
 Dr. L. Z. Coslin, Orsett.

Dr. Mary Esslemont, Aberdeen.  
 Dr. R. G. Gordon, Bath.  
 Dr. G. MacFeat, Douglas, Lanarkshire.  
 Dr. A. T. Rogers, Bromley.  
 Dr. W. D. Steel, Worcester.  
 Dr. F. R. Sturridge, London.  
 Dr. Marjory Warren, Isleworth.  
 Chairmen of the General Practice, Hospitals and Public Health Committees, together with one representative each of the Institute of Almoners, the Association of Non-teaching Voluntary Hospitals, National Old People's Welfare Committee, and the Queen's Institute of District Nursing.

## CORONERS ACTS COMMITTEE

Dr. R. Forbes, London.  
 Dr. J. A. Gorsky, London.  
 Dr. E. A. Gregg, London.  
 Dr. W. B. Lewis, Oswestry.  
 Dr. H. S. Tibbitts, Warwick.  
 Chairman of General Practice Committee.  
 Chairman or nominee of Pathological Group Committee, together with two members appointed by the Coroners' Society for England and Wales.

## EX-SERVICE PRACTITIONERS COMMITTEE

Dr. H. Guy Dain, Birmingham (*Chairman of Council*).  
 Dr. G. J. Alexander, Edinburgh.  
 Dr. E. R. Boland, London.  
 Dr. P. Martin Brodie, Edinburgh.  
 Dr. James Fenton, London.  
 Dr. P. J. Gibbons, Liverpool.  
 Dr. R. G. Gordon, Bath.  
 Dr. H. G. McQuade, London.  
 Dr. J. V. Quinn, London.  
 Dr. A. T. Rogers, Bromley.  
 Dr. C. J. L. Wells, Oxford.  
 Chairmen of General Practice, Hospitals, and Insurance Acts Committees.

## FILM COMMITTEE

Mr. A. Lawrence Abel, London.  
 Lord Amulree, London.  
 Mr. V. Zachary Cope, London.  
 Dr. J. A. L. Vaughan Jones, Leeds.  
 Dr. R. P. Liston, Tunbridge Wells.  
 Dr. R. C. MacKeith, Southampton.  
 Dr. B. G. Macgrath, Liverpool.  
 Prof. G. P. Meredith, Exeter.  
 Mr. R. L. Newell, Manchester.  
 Mr. H. Reid, Liverpool.  
 Dr. C. M. Seward, Exeter.  
 Prof. J. C. Spence, Newcastle-upon-Tyne.  
 Sir Lionel Whitby, Cambridge.  
 Mr. A. Dickson Wright, London.  
 Chairman of Science Committee, together with two representatives of the B.M.S.A., and with power to co-opt

## GENERAL MEDICAL COUNCIL COMMITTEE

Sir Hugh Lett, Bt., Richmond (*President*).  
 Dr. J. B. Miller, Bishopbriggs (*Chairman of Representative Body*).  
 Dr. H. Guy Dain, Birmingham (*Chairman of Council*).  
 Dr. J. W. Bone, Luton (*Treasurer*).  
 Dr. E. A. Gregg, London.  
 Mr. N. E. Waterfield, Little Bookham.  
 Dr. R. W. Craig, Edinburgh.  
 Dr. Frank Kane, Ballycastle.  
 Dr. J. A. Brown, Birmingham.  
 Dr. Robert Forbes, London.  
 Dr. R. W. Durand, London.  
 Prof. Henry Cohen, Liverpool.  
 Dr. W. E. Dornan, Sheffield.  
 Dr. J. Fenton, London.  
 Dr. T. Fraser, Aberdeen.  
 Dr. Annis Gillie, London.  
 Mr. R. Kennon, Liverpool.  
 Major-General R. W. D. Leslie, Nottingham.  
 Mr. A. M. A. Moore, London.  
 Dr. H. B. Morgan, M.P., London.  
 Dr. J. A. Smiley, Belfast.  
 Dr. J. G. Thwaites, Brighton.  
 Mr. A. Dickson Wright, London.

## HEALTH CENTRE COMMITTEE

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 Dr. J. B. Miller, Bishopbriggs (*Chairman of Representative Body*).  
 Dr. H. Guy Dain, Birmingham (*Chairman of Council*).  
 Dr. J. W. Bone, Luton (*Treasurer*).  
 Dr. G. O. Barber, Great Dunmow.  
 Dr. A. Beauchamp, Birmingham.  
 Dr. P. J. Gibbons, Liverpool.  
 Mr. A. S. Gough, Watford.  
 Dr. C. F. R. Killick, Williton.  
 Dr. H. M. C. Macaulay, London.  
 Dr. G. MacFeat, Douglas, Lanarks.  
 Dr. T. W. Morgan, Kingston-on-Thames.  
 Mr. A. E. Porritt, London.  
 Dr. A. T. Rogers, Bromley.  
 Dr. H. R. Youngman, Cambridge.

## INTERNATIONAL RELATIONS COMMITTEE

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 Dr. J. B. Miller, Bishopbriggs (*Chairman of Representative Body*).  
 Dr. H. Guy Dain, Birmingham (*Chairman of Council*).  
 Dr. J. W. Bone, Luton (*Treasurer*).  
 Mr. A. Lawrence Abel, London.  
 Dr. Alfred Cox, London.  
 Dr. John Clayre, Southampton.  
 Dr. S. C. Dyke, Wolverhampton.  
 Dr. N. Howard Jones, London.  
 Dr. J. C. Matthews, Downton.  
 Dr. S. Laurie Smith, St. Annes-on-Sea.  
 Dr. G. de Swiet, London.  
 Mr. N. E. Waterfield, Little Bookham.  
 Chairmen of Organization, Journal and Dominions Committees, together with a representative of the British Medical Students' Association.

## MEDICAL CURRICULUM COMMITTEE

Sir Hugh Lett, Bt., Richmond (*President*).  
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 Dr. H. Guy Dain, Birmingham (*Chairman of Council*).  
 Dr. J. W. Bone, Luton (*Treasurer*).  
 Dr. Janet K. Aitken, London.  
 Prof. Henry Cohen, Liverpool.  
 Mr. V. Zachary Cope, London.  
 Mr. A. Feiling, London.  
 Dr. R. G. Gordon, Bath.  
 Dr. F. Gray, London.  
 Dr. E. A. Gregg, London.  
 Dr. G. MacFeat, Douglas, Lanarkshire.  
 Dr. John Marshall, Glasgow.  
 Mr. R. L. Newell, Manchester.  
 Sir Leonard Parsons, Birmingham.  
 Dr. F. M. Rose, Preston.  
 Prof. Sydney Smith, Edinburgh.  
 Mr. H. S. Souttar, London.  
 Dr. J. G. Thwaites, Brighton.  
 1 representative of British Medical Students' Association.

## PARLIAMENTARY ELECTIONS COMMITTEE

Sir Hugh Lett, Bt., Richmond (*President*).  
 Dr. J. B. Miller, Bishopbriggs (*Chairman of Representative Body*).  
 Dr. H. Guy Dain, Birmingham (*Chairman of Council*).  
 Dr. J. W. Bone, Luton (*Treasurer*).  
 Mr. V. Zachary Cope, London.  
 Dr. H. R. Frederick, Port Talbot.  
 Dr. E. A. Gregg, London.  
 Mrs. Philippa Martin, London.  
 Dr. J. G. Thwaites, Brighton.  
 Dr. S. Wand, Birmingham.

## PROTECTION OF PRACTICES COMMITTEE

Dr. H. Guy Dain, Birmingham (*Chairman of Council*).  
 Dr. J. W. Bone, Luton (*Treasurer*).  
 Dr. A. Beauchamp, Birmingham.  
 Dr. H. C. Boyde, London.  
 Dr. P. Martin Brodie, Edinburgh.  
 Dr. Alfred Cox, London.  
 Dr. R. Forbes, London.  
 Dr. F. Gray, London.  
 Dr. E. A. Gregg, London.  
 Dr. W. V. Howells, Swansea.  
 Dr. J. A. L. Vaughan Jones, Leeds.  
 Dr. R. G. McGowan, Manchester.  
 Mr. Weldon P. T. Watts, Newcastle-upon-Tyne.

## PUBLIC RELATIONS COMMITTEE

Dr. H. Guy Dain, Birmingham (*Chairman of Council*).  
 Dr. J. W. Bone, Luton (*Treasurer*).  
 Dr. C. Baxter, Liverpool.  
 Dr. R. W. Cockshut, London.  
 Mr. A. Staveley Gough, Watford.  
 Dr. F. Gray, London.  
 Dr. E. A. Gregg, London.  
 Dr. John Hallam, Burslem.  
 Dr. J. T. McCutcheon, Glasgow.  
 Dr. J. A. Pridham, Weymouth.  
 Dr. A. T. Rogers, Bromley.  
 Dr. W. Woolley, Bristol.

## REHABILITATION COMMITTEE

Dr. H. Guy Dain, Birmingham (*Chairman of Council*).  
 Mr. J. D. M. Cardell, London.  
 Mr. R. V. Christic, London.  
 Air Commodore O. Clarke, London.  
 Dr. F. S. Cooksey, London.  
 Mr. V. Zachary Cope, London.  
 Dr. F. A. E. Crew, London.  
 Dr. J. J. R. Duthie, Midlothian.  
 Prof. T. Ferguson, Falkirk.  
 Mr. M. L. Formby, London.  
 Mr. W. C. Gissane, Birmingham.  
 Dr. I. D. Grant, Glasgow.  
 Dr. E. A. Gregg, London.  
 Dr. F. R. G. Heaf, Berkhamsted.  
 Dr. G. Hamilton Hogben, London.  
 Prof. R. E. Lane, Manchester.

Dr. A. J. Lewis, London.  
Dr. G. MacFeat, Douglas, Lanarkshire.  
Sir Archibald McIndoe, London.  
Mr. A. Miller, Glasgow.  
Mr. A. M. A. Moore, London.  
Dr. H. B. Morgan, M.P., London.  
Mr. R. L. Newell, Cheshire.  
Mr. D. C. Norris, London.  
Dr. Donald Stewart, Birmingham.  
Dr. F. D. Howitt, London.  
Dr. Donald Hunter, London.  
Dr. J. T. Ingram, Leeds.  
Dr. J. A. L. Vaughan Jones, Leeds.  
Dr. S. Wand, Birmingham.  
Sir Reginald Watson-Jones, London.

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Dr. H. Guy Dain (*Chairman of Council*).  
Dr. J. Fenton, London.  
Mr. A. Staveley Gough, Watford.  
Dr. J. A. L. Vaughan Jones, Leeds.  
Dr. H. Joules, London.  
Mr. R. L. Newell, Cheshire.  
Mr. M. P. Reddington, London.  
1 member appointed by the General Practice Committee.

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Dr. F. Gray, London.  
Dr. D. T. McDonald, Belford.  
Dr. S. Wand, Birmingham.  
Dr. E. A. Gregg, London.  
Dr. E. Lewis Lilley, Leicester.  
Dr. J. C. Pearce, Diss.  
Dr. A. Smith Pool, Glasgow.

#### JOINT FORMULARY COMMITTEE OF B.M.A. AND PHARMACEUTICAL SOCIETY

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Prof. A. E. Barnes, Sheffield.  
Prof. D. M. Dunlop, Midlothian.  
Dr. S. A. Forbes, Croydon.  
Dr. F. Gray, London.  
Dr. E. A. Gregg, London.  
Mr. E. Lewis Lilley, Leicester.  
Dr. A. Smith Pool, Glasgow.  
Prof. E. J. Wayne, Sheffield.  
Dr. D. J. B. Wilson, High Wycombe.  
Together with 2 representatives appointed by the Royal College of Physicians, and representatives appointed by Ministry of Health.

#### B.M.A. AND BRITISH HOSPITALS ASSOCIATION LIAISON COMMITTEE

Dr. R. Gordon Cooke, Derby.  
Dr. R. G. Gordon, Bath.  
Dr. H. Joules, London.  
Mr. R. L. Newell, Cheshire.  
Mr. M. P. Reddington, London.  
Mr. A. Dickson Wright, London.

#### COMMITTEE ON PSYCHIATRY AND THE LAW

Dr. F. Bodman, Bristol.  
Dr. Denis Carroll, London.  
Dr. W. F. Gaikford, Rowington.  
Dr. R. G. Gordon, Bath.  
Dr. W. G. Johnston, London.  
Mr. Claud Mullins, Epsom.  
Dr. Doris Odum, London.  
Dr. J. G. Thwaites, Brighton.

#### JOINT COMMITTEE OF B.M.A. AND TRADES UNION CONGRESS

Dr. H. Guy Dain, Birmingham (*Chairman of Council*).  
Mr. A. Lawrence Abel, London.  
Dr. R. W. Cockshut, London.  
Dr. J. Fenton, London.  
Dr. E. A. Gregg, London.  
Dr. J. A. L. Vaughan Jones, Leeds.  
Mr. R. L. Newell, Cheshire.  
Dr. S. Wand, Birmingham.

#### THE NEGOTIATING COMMITTEE

##### 18 Representatives of the B.M.A. :

Dr. H. Guy Dain, Birmingham.  
Dr. A. Lawrence Abel, London.  
Dr. J. C. Arthur, Low Fell.  
Dr. J. A. Brown, Birmingham.  
Dr. O. C. Carter, Bournemouth.  
Dr. R. W. Cockshut, London.  
Dr. W. E. Dorman, Sheffield.  
Dr. F. Gray, London.  
Dr. E. A. Gregg, London.

Lord Horder, London.  
Dr. J. A. L. Vaughan Jones, Leeds.  
Dr. W. Jope, High Blantyre, Lanarkshire.  
Dr. J. F. Lambie, Glasgow.  
Dr. J. B. Miller, Bishopbriggs.  
Mr. R. L. Newell, Manchester.  
Dr. J. A. Pridham, Weymouth.  
Dr. S. Wand, Birmingham.  
Dr. S. A. Winstanley, Urmston.

##### 3 Representatives of Royal College of Physicians :

Lord Moran, London.  
Dr. H. E. A. Boldero, London.  
Prof. Henry Cohen, Liverpool.

##### 3 Representatives of Royal College of Surgeons :

Sir Alfred Webb-Johnson, London.  
Mr. V. Zaehary Cope, London.  
Mr. E. F. Finch, Sheffield.

##### 2 Representatives of Royal College of Obstetricians and Gynaecologists :

Mr. A. A. Gemmell, Liverpool.  
Mr. W. Gilliat, London.

##### 3 Representatives of Royal Scottish Medical Corporations :

Prof. C. McNeil, Edinburgh.  
Sir Henry Wade, Edinburgh.  
Dr. J. H. Macdonald, Luss.

##### 2 Representatives of Society of Medical Officers of Health :

Dr. G. F. Buchan, London.  
Dr. R. H. H. Jolly, Wolverhampton.

##### 1 Representative of Medical Women's Federation :

Dr. Mary Esslemont, Aberdeen.

##### 1 Representative of Society of Apothecaries :

Dr. H. Seaward Morley, Midhurst.

##### 1 Representative of Association of Honorary Staffs of Major (Non- undergraduate Teaching) Voluntary Hospitals of England and Wales :

Mr. H. J. McCurich, Hove.

## Correspondence

### Working Hours in the N.H.S.

SIR,—May I intrude on your valuable space to express my unqualified approval of the remarks made by Dr. P. B. Atkinson (*Journal*, Aug. 2, p. 190) and subsequently endorsed by Dr. G. D. Summers (*Aug. 16, p. 270*) in regard to working hours in N.H.S.? Moreover, I heartily agree with Dr. H. Dakin's suggestion (*Supplement*, Aug. 16, p. 54) that we should not regard as final the decision of a handful of doctors at the recent A.R.M. on the question of a rota and fixed working hours.

How long are we to continue in this haphazard twenty-four-hour, seven-day week system when every other organized profession and occupation has long ago recognized the necessity of establishing decent working conditions?

Under the proposed new N.H.S. it would be preposterous to expect doctors to remain perpetually on call. Are we always to be slaves to the telephone? Can we never have regular periods of leave and adequate hours of leisure? Is it too much to ask that we should at this critical stage present a united front on this most vital matter? I venture to predict that I will be found humanly impossible for doctors to work their irregular hours they have hitherto worked when the N.H.S. becomes operative.

Thanks then to the misguided representatives who defeated the most sensible motion (among a welter of motions) which advocated fixed working hours and a rota system, it would seem that intolerable working conditions are to be imposed on the doctors, such as not even their humblest patients would tolerate. I suggest that on this vital matter an individual vote should be taken from every G.P. now practising medicine in this country. There is nothing we could not achieve had we but a united front.—I am, etc.,

Skelmersdale, Lancs.

JOSEPH BELL.

SIR,—I would like to give my whole-hearted support to Dr. H. Dakin's letter (*Supplement*, Aug. 16, p. 54). I had no idea until I read his letter, that the Representative Meeting of the

B.M.A. had voted on, and actually turned down, fixed working hours for doctors. Like Dr. Dakin medical practitioners with whom I have talked regard fixed working hours most favourably. Surely one of the advantages of a National Health Service is that general practitioners will be working together and not in opposition, and therefore any overlapping of effort, such as must now exist, will not be necessary. A doctor with more leisure should, during his working hours, be better able to look after his patients. I also feel that a general vote should be taken on this subject.—I am, etc.,

Barnsley.

D. W. MAYMAN.

### Specialists by Decree

SIR,—If the Minister of Health can create a sort of specialist in midwifery, is there anything to prevent him, under his present powers, creating specialists in other branches of medicine? As far as I can see, he is at liberty to create specialists by decree at his own sweet will. Does the profession realize this?—I am, etc.,

Surrey.

H. M. STANLEY TURNER.

### INCREASED FEES FOR EXAMINING SURGEONS

In its Annual Report the Council of the British Medical Association referred to discussions with representatives of the Ministry of Labour and National Service on the question of the fees payable to examining surgeons (*Supplement*, April 26, p. 67). The following announcement has now been issued by the Ministry:

"In pursuance of Section 127 of the Factories Act, 1937, the Minister of Labour and National Service made an Order on Aug. 1, entitled The Fees of Examining Surgeons Order, 1947, determining the scales of fees payable by the occupier of a factory to examining surgeons for various services under the Act. The fees are those payable in respect of (1) examinations of young persons as to their fitness for employment and (2) periodical medical examinations of workers engaged in various processes involving special risks to health; the fee is increased when the factory is more than two miles from the surgeon's "central point." The rates of fees mentioned in the Order are those payable in the absence of any agreement between the occupier and the examining surgeon that different rates should be paid. The new Order, which comes into force on Oct. 1, 1947, provides for increases in the rates laid down, and revokes The Fees for Examining Surgeons Order, 1938, in which the old rates were determined." (S.R. & O. 1947, No. 1672. Price 1d. net. H.M.S.O.)

### FACULTY OF OPHTHALMOLOGISTS

At a meeting of the Faculty of Ophthalmologists on July 11 the president reported that, as "the appointed day" for the beginning of the National Health Service had been postponed, he had agreed with the British Medical Association's suggestion that the appointment of the medical members on the professional committees to prepare lists of participants in the Supplementary Eye Services should be deferred until the reaction of the general body of ophthalmologists to the Interim Report of the Eye Services Committee had been obtained. This was agreed.

A Hospital Services Committee has been set up with the following terms of reference: "To consider facilities for ophthalmological services, including education and research, under the National Health Service." Representatives from the universities, teaching and other hospitals have been invited to form regional subcommittees in Scotland, the provinces, and London, and to submit plans for the consideration of the main committee.

The fee of four guineas per session for local authority work had been discussed at the last meeting of the Council of the B.M.A. It was not possible to alter this rate as it had been agreed for all consultant and specialist work, but the question of an increase in the fee of £2 17s. 6d. for refraction work was still under consideration.

## H.M. Forces Appointments

### ROYAL NAVY

Temporary Acting Surgeon Lieutenant-Commander (R.N.V.R. M. J. G. Davies has been transferred to the Royal Navy in the rank of Surgeon Lieutenant.

Temporary Surgeon Lieutenant (R.N.V.R.) D. Craddock has been transferred to the Royal Navy.

### ROYAL NAVAL VOLUNTEER RESERVE

Temporary Acting Surgeon Lieutenant-Commander (D.) W. Hughes, M.R.C.S., has been transferred to List I of the permanent R.N.V.R., in the rank of Surgeon Lieutenant-Commander (D.).

### ARMY

Colonel (Temporary Major-General) J. Walker, C.B.E., M.C., late R.A.M.C., has retired on retired pay and has been granted the honorary rank of Major-General.

Colonel C. Popham, O.B.E., late R.A.M.C., having attained the age for retirement is retained on the Active List supernumerary.

Lieutenant-Colonel J. P. Macnamara, from R.A.M.C., to be Colonel.

### ROYAL ARMY MEDICAL CORPS

Lieutenant-Colonel D. Crellin, M.C., has retired on retired pay and has been granted the honorary rank of Colonel.

Major P. J. S. O'Grady has reverted to retired pay on ceasing to be employed and has been granted the honorary rank of Lieutenant-Colonel.

Captain A. R. T. Lundie, M.C., to be Major.

*Short Service Commission, Specialist*.—Lieutenant J. A. H. Brown, from Emergency Commission, R.A.M.C., to be Lieutenant (Substituted for the notification in a *Supplement to the London Gazette* dated July 22).

*Short Service Commissions*.—Captain O. S. Williams has been appointed to a permanent commission. Lieutenants H. S. Gavourin, G. D. Powel, G. H. Field, and W. G. Miln, from Emergency Commissions, R.A.M.C., to be Lieutenants.

### LAND FORCES: EMERGENCY COMMISSIONS

#### ROYAL ARMY MEDICAL CORPS

War Substantive Major H. Muller has relinquished his commission and has been granted the honorary rank of Lieutenant-Colonel.

War Substantive Captains H. G. Ritterman and T. Norman have relinquished their commissions and have been granted the honorary rank of Major.

War Substantive Captain W. E. Springford has relinquished his commission on account of disability and has been granted the honorary rank of Major.

The surname of Lieutenant W. G. Miln is as now described and not as notified in a *Supplement to the London Gazette* dated May 16. H. Balean to be Lieutenant.

*Short Service Emergency Commission, Specialist*.—War Substantive Captain P. Pau has relinquished his commission and has been granted the honorary rank of Major.

To be Lieutenants: A. C. Allin, H. I. O. Armstrong, P. J. Burdon, J. M. Dunbar, K. G. Gadd, N. Harrison, A. K. M. Holynece, H. Howell-Jones, D. W. K. Kay, J. W. Lewis, S. G. M. Mackay, J. R. McCallum, I. J. Macdonald, A. J. Merry, S. Pickford, P. G. H. T. Pollitt, G. A. Readett, H. N. Reed, J. P. Rogan, B. L. L. Rygate, B. Schneiderman, G. McM. Smibert, D. H. Woodhead.

## Association Notices

### Branch and Division Meetings to be Held

**WESTMINSTER AND HOLBORN DIVISION**.—At Meyerstein Hall, Westminster Hospital Medical School, S.W., Thursday, Sept. 4, 8.30 p.m. Film on Anterior Poliomyelitis, produced by the Ministry of Health and shown by arrangement with the Central Office of Information. The Ministry of Health's film on penicillin, in colour and equipped with sound track, will be shown also. All medical practitioners in the area are invited to attend, and medical students will be welcomed.

### TRADE UNION MEMBERSHIP

The following is a list of local authorities which are understood to require employees to be members of appropriate trade unions or other organizations:

**County Borough Councils**.—Barnsley, Barrow-in-Furness, Gateshead.

**Metropolitan Borough Councils**.—Finsbury, Fulham, Hackney, Poplar, Tottenham.

**Non-County Borough Councils**.—Dartford, Leyton, Radcliffe (limited to future appointments), Wallsend.

**Urban District Councils**.—Denton, Droylsden, Houghton-le-Spring, Huyton-with-Roby, Portslade, Redditch (restricted to new appointments), Stanley (Co. Durham), Tyldesley.

**Scottish Burghs**.—Motherwell and Wishaw.

# BRITISH MEDICAL JOURNAL

LONDON SATURDAY SEPTEMBER 6 1947

## THE GENERAL MEDICAL COUNCIL AND MEDICAL EDUCATION

BY

Sir HERBERT L. EASON, C.B., C.M.G., M.S.

*President of the General Medical Council*

My colleagues on the General Medical Council thought it desirable that I should respond to a kind invitation from the Editor of the *Journal* by trying on their behalf to explain where the concern of the General Medical Council with medical education begins and ends, and what the Council has tried to do, within the bounds of that concern, in its new Recommendations as to the medical curriculum.

### Extent of G.M.C.'s Functions as to Medical Education

When the Council published the Recommendations in May, 1947, one of the full and fair reviews which they received in the medical journals drew a contrast between "a dry precision" to be found in the Council's language and the vigour and reforming zeal displayed in the language of the Goodenough report.

The General Medical Council is a body incorporated by statute to discharge the functions assigned to it by Parliament—no less and no more. The Acts passed for this purpose are not easy to read or construe as a whole, and if the Council, in describing any part of its functions, can attain precision, it need not resent the imputation of dryness. Any attempt to indicate shortly the limits of the Council's functions as to medical education is not intelligible without a preliminary statement of the reason why the General Council of Medical Education and Registration of the United Kingdom (to quote the statutory title of the Council) is concerned with medical education at all.

### Why G.M.C. is Concerned with Medical Education

Parliament has constituted the Council predominantly of twenty-seven representatives of universities and of medical corporations which grant medical qualifications conferring the right of registration under the Medical Acts. It is the duty of these representatives (with seven direct representatives elected by members of the profession and five Crown nominees as colleagues) to secure "that persons requiring medical aid should be enabled to distinguish qualified from unqualified practitioners" (the object of the Act of 1858 as described in its preamble). That Act contemplates that persons requiring medical aid shall be enabled to make this distinction by looking for the names of practitioners in a book compiled and kept up to date by the Council which contains only the names of "legally qualified" or "duly qualified" practitioners; and that such practitioners shall have obtained qualifications which guarantee to the public that those who hold them were at the time of qualification competent to render medical aid.

It follows that the Council, as the body which has to keep the book, the *Medical Register*, for public reference, must also be responsible for seeing (1) that no person's name is entered in the book unless the Council is satisfied that he has a qualification which guarantees his competence; and

(2) that, as a condition of registration on the production of a qualification, the course of study and examinations on which the qualification is granted in fact furnish that guarantee. Hence the Council became concerned from the first with the education of all persons desirous of entering the medical profession.

### General Powers of G.M.C. as to Medical Education (Medical Act, 1858)

The means with which Parliament equipped the Council in 1858 to help the public to protect themselves against the medical attentions of unqualified persons took the form of provisions requiring universities and medical corporations which grant registrable qualifications:

1. To furnish the Council as and when required with information about (a) the courses of study and examinations to be gone through in order to obtain such qualifications; (b) the ages at which such courses and examinations are required to be gone through, and such qualifications are conferred; and (c) the requisites for obtaining such qualifications generally.

2. To admit to examinations (including final or qualifying examinations) for such qualifications any Visitors appointed by the Council to attend and be present at such examinations.

The sanctions which Parliament has attached to these powers are that:

1. If it appears to the Council that the course of study and examinations (the conjunction is important) for any such qualification "are not such as to secure the possession" by persons obtaining the qualification "of the requisite knowledge and skill for the efficient practice of their profession," the Council may "represent the same" to the Privy Council.

2. On any such representation the Privy Council may order that the qualification shall not confer any right to registration; but the order may be revoked if His Majesty in Council becomes satisfied that effectual provision has been made, to the satisfaction of the General Medical Council, by the body or bodies concerned, for the improvement of the course of study or examinations (the disjunction is again important), or the mode of conducting the examinations.

### Further Powers of G.M.C. as to Final or Qualifying Examinations

By the Medical Act, 1886, which for the first time debarred any person from registration except after passing a final or qualifying examination in the three fundamental branches of professional knowledge—medicine, surgery, and midwifery—Parliament supplemented the powers of the Council as to medical education by charging it with special responsibility for maintaining the standard of such examinations. The Act provides that the standard of proficiency required from candidates at such examinations "shall be such as sufficiently to guarantee the possession of the knowledge and skill requisite for the efficient practice of medicine, surgery, and midwifery;" that it shall be



the duty of the Council to secure the maintenance of this standard; that for this purpose the Council shall appoint Inspectors to attend, as the Council may direct, all or any qualifying examinations; that Inspectors "shall not interfere with the conduct of any examination," but shall report to the Council "their opinion as to the sufficiency or insufficiency of every examination which they attend," and any other matters relevant to the examination which the Council may require them to report; and that the Council shall send copies of Inspectors' reports to the body or bodies which held the examinations inspected, and further copies, with any observations thereon by the body or bodies, to the Privy Council.

The sanctions which Parliament has attached to these further powers are that:

1. If it appears to the Council that the standard of proficiency in medicine, surgery, and midwifery, or in any of them or any branch of them, required from candidates at a final or qualifying examination is "insufficient" to furnish the guarantee of professional competence required by the Act, the Council *must* make a representation to that effect to the Privy Council.

2. On any such representation the Privy Council, after considering any objections by the body or bodies concerned, may by order declare that the examination shall not be deemed to be a qualifying examination "for the purpose of registration under the Medical Acts"; but His Majesty in Council may at any time revoke the order on further representation from the General Medical Council or from the body or bodies concerned.

3. During the continuance of any such order (1) any qualifications granted to persons who pass the examination do not entitle them to be registered under the Medical Acts; (2) no body concerned is to be represented on the Council; and (3) any sitting member of the Council who represents any such body is suspended from taking part in the proceedings of the Council.

#### Limitations of G.M.C.'s Powers as to Medical Education

Parliament seems to have contemplated in 1858 that the power to require information from universities and medical corporations about "courses of study" would so far enlighten the Council about what the Act calls "defects" in such courses as to enable the Council on occasion to represent to the Privy Council that the course of study and examinations for a particular registrable qualification did not guarantee the professional competence of persons who obtained the qualification.

To regard the course and the examinations in conjunction seems sensible. But while the Act proceeded to empower the Council to assess examinations by sending Visitors to see them, it gave the Council no power to assess courses of study by sending Visitors into the medical schools. The omission has curious consequences. Before the Council decides, under the Act of 1886, whether a qualifying examination is "insufficient," it can follow the method conformable both with science and with common sense by causing the examination to be visited or inspected on its behalf. The standard maintained at examinations, and in particular at qualifying examinations, which is essential for the safety of the public depends much more on the efficiency of clinical and other teaching in medical schools than on any influence which the Council can exert by visiting or inspecting examinations; but the Council has no right to acquire information otherwise than on paper about the course of study which leads up to an examination.

Though, therefore, the Council's assessment of the sufficiency of a curriculum depends on the answer to the question whether the course of study and examinations for a qualification, taken together, sufficiently guarantee the professional competence of candidates who obtain the qualification, and the Council has, in homely language, been

given the job of assessing the sufficiency both of examinations and of courses of study, it has not yet been given the tools without which it is powerless to do the more important part of the job—namely, the assessment of the sufficiency of the courses. All that is needed to reconcile the law with the apparent intentions of the framers of the Act is to give the Council the same power to visit medical schools as it has had since 1858 to visit examinations; and it is for this simple and pragmatic reason that the Council concurs with the recommendation of the Goodenough Committee in favour of such an amendment.

#### G.M.C.'s Recommendations on the Medical Curriculum

Universities and medical corporations who wanted their qualifications to continue to be registrable, began to ask very soon after 1858 how they were to safeguard the position assigned to those qualifications by the principal Act. It might have frightened, but could hardly have helped a body which was designing a syllabus of instruction, or still more a teacher who was drafting a course of lectures, to impress upon them or him that a qualification may be deprived of its value as a title to registration if at any moment the Council ceases to be satisfied that it guarantees professional competence when it is obtained; and the comparable provision of the Act of 1886 as to the standard of proficiency to be required from candidates at final or qualifying examinations did not in itself shed further light on the problem.

The practical question was: "What minimum course of study, and what minimum examinations, will from time to time satisfy the Council?" and the Council, itself a microcosm of the world of medical education in that it represents directly all the bodies granting registrable qualifications, and indirectly many of the schools where candidates for the qualifications are taught, has recognized from the sixties onwards that bodies and schools are entitled to a practical answer. That answer has necessarily taken the form of public statements, revised periodically as knowledge of medicine advanced, of the subjects in which students should be instructed and examined, the order in which the subjects should be taken, the period to be covered by the curriculum and its main subdivisions, and the general scope of the examinations, for any qualification, which the Council will continue to regard as entitling its holders to registration.

The statements in which the views of the Council have been published are in principle, as they are now (1947) called, Recommendations to Bodies and Schools. For they indicate only a minimum of instruction and examination, do not impose a detailed or a uniform curriculum, and designedly leave bodies and schools free to teach and examine at a standard above the minimum, and, whether they do so or not, to provide courses and set examinations which, subject to the attainment of the minimum, may vary as much as the bodies and schools please. In short, all that the Council do or ever have done in making recommendations as to the medical curriculum is to indicate in concrete terms, for the assistance of bodies and schools, how the Council will for the time being interpret the references in the Medical Acts to standards of medical education which Parliament in its wisdom has inevitably laid down in the abstract.

#### NOTES ON G.M.C.'s RECOMMENDATIONS (1947)

Space and time forbid more than a brief series of notes on those parts of the new Recommendations of the Council as to the medical curriculum which are perhaps of special interest.

### Importance of Education of the General Practitioner

The Council found itself in general agreement with the Goodenough Committee in the following statement of the main object to which the minimum curriculum for a registrable qualification outlined in the Recommendations should be directed :

"In deciding the importance that should be attached to the various subjects and the type of instruction that should be given, the bias should be towards the needs of the future general practitioner. All parts of teaching or of clinical practice that relate only to the fields of work of the clinical or laboratory specialist should be reserved for postgraduate education, and adequate attention should be given to those problems which constitute a large part of a general practitioner's work."

### Minimum Length of Curriculum

The Goodenough Committee, who were entitled to anticipate legislation which Parliament has not yet been invited to approve, found themselves able to recommend a reduction in the minimum length of the curriculum to four and a half years. They arrived at this happy result by assuming, not only that the labourers in the field of medical education would effect "a ruthless pruning of the curriculum," but also that a compulsory year of internship after qualification would be required of entrants to the profession, so that some things necessary for independent medical practice need not be imparted to the student because they would have to be imparted to the intern. The Council was unable to hold out similar hopes of a reduction in the minimum length of the curriculum because (1) its statutory responsibilities in relation to medical education oblige it to deal with things as they are and not with things as they may be ; (2) even if a year of internship required by law were in sight, the Council does not agree that any part of that year should be spent in completing incomplete instruction given before qualification ; and (3) the Council holds in principle that, if instruction in any subject is necessary in order to make a student a safe practitioner on the public, adequate time for his instruction in the essentials of the subject must be found before he takes a final or qualifying examination. The Council, as a trustee for the public, did not therefore think it right to encourage any belief that professional competence at the time of qualification could be sufficiently guaranteed except after a curriculum lasting at least five academic years (made up of a period of pre-clinical studies of at least five academic terms, an introductory clinical course lasting three months, and a subsequent period of clinical studies covering not less than thirty-three months).

### Subjects of the Curriculum

#### General and Pre-medical Education

On this, not the least important, part of the education of candidates for the profession, which extends backwards from the moment of admission to a medical school to a point in secondary education which may be reached at a tender age, there is little difference of opinion about what is wanted, but much difficulty in making sure that applicants to deans for admission to schools have always got it. What is wanted is that potential doctors should have a good general education, and that this education should not omit the principles of physical and biological science ; but that, above all, it should not lose its breadth by permitting excessive concentration either on general or on scientific subjects. The Goodenough Committee, who were entitled, if not bound, to dip into the future, found that this end could not be attained without changes in the secondary-school curriculum and examinations, more and better teachers of general science in secondary schools, and

changes in the arrangements for teaching physical and biological science in the medical schools. The Council, confined as it is within the boundaries of present conditions, could do no more in its Recommendations than postulate that admission to the study of anatomy and physiology should be open only to students who have passed a preliminary examination in general education which admits to a British or Irish university, or is recognized as equivalent thereto by such a university or by a medical corporation ; and have also passed an examination in physics, chemistry, and biology conducted or recognized by the university or corporation concerned. For the rest the Council can only leave to the authorities of schools the responsibility of selecting for admission, in competition for the places available, those candidates who seem to an informed judgment most likely to make good doctors at least five years afterwards.

### Period of Pre-clinical Studies

The Goodenough Committee's criticisms of medical education as it is include the statement that "there is an urgent need in every school for a new viewpoint on the part of the teachers of the pre-clinical subjects and for the drastic elimination from the curricula, and therefore from the examinations in these subjects, of a mass of detailed information which serves only to clutter up the student's mind and to deaden his interest in subjects that can and should make the liveliest appeal to him." Parliament has not charged the Council to teach teachers of pre-clinical or other subjects how to teach, and the Council has from the first been scrupulous to refrain from seeming to assume any right to do so. It is therefore not in a position to go far to satisfy the hopes that this statement must have excited in the minds of candidates if not of others. But it has done what it thinks it can by way of Recommendations to leave the way clear for any change of heart in teachers and examiners in pre-clinical subjects that may in fact be desirable.

*Human Anatomy.*—The Council has adhered in the Recommendations to its former view that instruction in human anatomy should include dissection of the whole body. But in the introduction to the Recommendations it is pointed out that : "If on a review in detail of the present methods of instruction in dissection it should be found possible to shorten the course without sacrifice of essentials, the saving of time will also contribute towards the amelioration of the position indicated by the comprehensive finding of the Goodenough Committee."

*Social Medicine and Public Health.*—By omitting, on the other hand, from the Recommendations any express provision as to instruction in social medicine during the period of pre-clinical studies, the Council believes that it can for the moment best encourage full liberty of scope and method in the teaching of this subject, which, as the Goodenough Committee say, "can be satisfactorily settled only in the light of experience gained from experiments." It may perhaps be safe to assume that no course in human anatomy and human physiology is likely to leave the student without enlightenment on "the factors concerned with the promotion and maintenance of mental and physical health" and "the fundamental importance of health and the prevention of disease" which the Committee specified as aspects of social medicine to which he should be introduced during the period of pre-clinical studies.

### Introductory Clinical Course

Whether the apparent finiteness of the scientific subjects or the infinite variety of clinical medicine attracts particular students more or less, it seems undisputed that the transi-

tion from pre-clinical to clinical studies should be eased and emphasized by the provision of an introductory clinical course. The Recommendations therefore contemplate a course, lasting three months, of instruction in the methods of clinical examination which will precede the beginning of clinical studies.

#### Period of Clinical Studies

*Medicine, Surgery, and Midwifery.*—Since the Council could not assume, as the Goodenough Committee did, that a compulsory year of internship would follow qualification, the Recommendations provide in *medicine* for a period of six months to be spent in medical appointments in hospital wards and in a medical out-patient or equivalent department (whereas the Committee appear to contemplate a slightly shorter period partly spent in work leading up to internships); and in *surgery* for practical instruction in minor operative surgery on the living (which the Committee think had better be postponed to the period of internship).

Three important changes in the Recommendations as to instruction in *midwifery* have been made with the support both of the Council's Inspector in that subject at the Inspection of Qualifying Examinations, 1942-6, and of the Goodenough Committee. The number of cases of labour which every student should be required to attend has been reduced from the minimum of 20, often found impracticable, to a minimum of 12 (the first 5 at least to be attended in the lying-in hospital or wards). It is provided that a student should not be admitted to a final or qualifying examination in midwifery unless it is properly certified that (1) in each of the cases covered by the certificate the student has been in personal attendance on the patient during the whole course of labour; and (2) no such case has been credited to more than one other medical student or to more than one pupil midwife.

*Paediatrics, Psychiatry, Social Medicine.*—The Goodenough Committee give special prominence to paediatrics, psychiatry, and social medicine as the three branches of medicine in which "the developments . . . in the training provided" for students need "fuller consideration than the branches in which few changes are required." The Council in revising its Recommendations concluded that further weight ought to be given to these subjects on the different ground that since the previous revision in 1936 the advance of knowledge, combined with a veering of popular as well as professional interest towards them, means that there is more to be taught and learnt about them, and that a curriculum primarily designed to equip the potential general practitioner must give new prominence to them as branches of medicine. The Council has therefore done what is in its power to promote the recognition of paediatrics, psychiatry, and social medicine as major subjects in the curriculum by assigning to each subject for the first time a separate main heading in the Recommendations, and by suggesting alterations, not only in what the Goodenough Committee called "emphasis and approach" in relation to these subjects, but also in the kind and length of instruction to be given in them.

(1) The Recommendations contemplate that time should be found for a clinical clerkship in paediatrics lasting three months (as compared with the period of one month recommended in 1936).

(2) The Recommendations emphasize the importance of giving first place in the instruction in psychiatry to potential rather than established disorders of the mind, and of securing that throughout the period of clinical studies (and not only during the time specifically devoted to psychiatry) the attention of the student is continuously directed to

the interrelation of physical and psychological aspects of disease.

(3) Social medicine, by that name, is a young and vigorous graft on the old public health tree. To the Goodenough Committee it signified a conception of medicine "that regards the promotion of health as a primary duty of the doctor, that pays heed to man's social environment and heredity as they affect health, and that recognizes that personal problems of health and sickness may have communal as well as individual aspects." The Committee thought it essential that "the ideas of social medicine," so described, "must permeate the whole of medical education," and were of opinion that for this purpose no less was needed than "a new orientation of medical education, a big expansion in the social work of teaching hospitals, and fundamental changes in the outlook and methods of most of the teachers."

The problem that presented itself to the Council was, of course, much more restricted, but perhaps not much less difficult. How much, and what kind of, instruction could advisedly be specified so as, on the one hand, to give medical schools and students some idea of the minimum amount of the subject which teachers should attempt to cover, and on which candidates at final or qualifying examinations must expect to be questioned; and, on the other hand, to avoid any apparent encouragement of stereotyped form or method in presenting a subject on which the Goodenough Committee pointed out that "the arrangements which a medical school should make to secure that its students are properly trained in social medicine are matters on which there is much room for experiment"? The answer of the Council as expressed in the Recommendations is (a) to bring up to date the provision made in 1936 for instruction in the part of the subject then described as "hygiene and public health"; and (b) to emphasize that throughout the period of clinical studies the attention of the student should be continuously directed to the social aspects of medicine by such means as the utilization, for purposes of instruction, of public health and social welfare services, health centres, and ancillary workers in the medical field.

#### After-care and Rehabilitation: Chronic Sickness

After-care and rehabilitation also appear for the first time under a separate main heading in the Recommendations; and the Council has drawn attention in the introduction to the Recommendations to the great and growing importance of the investigation and treatment of chronic sickness as a subject of instruction for students.

#### Recommendations as to Professional Examinations

Much has been done by the Council in the revision of the Recommendations of 1933 as to professional examinations to make the Recommendations easier to follow, and to enlarge the discretion of examining bodies in matters in which the Council no longer thinks the public interest requires it to interfere. But I propose to concentrate attention, in the last of the many paragraphs in which I have tried to give a short account of the Council's long task, on a few new or amended Recommendations which will, I hope, interest those who read the Educational Number as prospective candidates. (1) The Council recommends that at least two examiners should adjudicate on all written papers. (2) It emphasizes that proper time should be given to practical work in all clinical examinations. (3) It recommends that every candidate at oral and clinical examinations should be examined by at least two examiners, who should settle the candidate's marks jointly. (4) It

recommends that no part of a final or qualifying examination should be taken before the end of thirty months of clinical study, and that the examination should not be completed before the end of the period of clinical studies of thirty-three months. (5) It has abandoned the recommendation of 1933 that candidates should be required to complete the three portions (medicine, surgery, and midwifery) of the final or qualifying examination within a period of nineteen months.

It would be less than frank not to add that the Council's decision on the last point was not inspired by sympathy with the chronic student but by confidence that examiners can be trusted to guard the public against candidates incapable of passing at a reasonable standard. In short, the aim of the General Medical Council is to ensure that the medical practitioner will not (to borrow from H. A. L. Fisher) have to navigate the sea of knowledge without the charts and compass of an adequate education.

## PSYCHOLOGY IN MEDICAL EDUCATION

BY

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An important event in the professional life of every medical man, if not the most important event, is his dealing with patients in the first months of general practice. It is the first test of the young practitioner; it is also of course a test of his professional education. This article will discuss some of the difficulties, and the reasons for the difficulties, in the transition from student to practitioner, with special reference to the acquisition of professional skill in and understanding of the relation of a sick person to his medical adviser.

### Changes in Medical Education

There are two ways in which a doctor can get instruction. He can be taken by his teacher into the patient's environment and be told there what factors have led to the ailment, what difficulties lie in the way of the remedy, and what chances there are, all things taken into consideration, of recovery. The teacher and his pupil make an entry into the patient's life, they enter his region of "social space" and do what they can to bring some easement within it. The apprenticeship was an example of this kind of medical education. The second, the more modern way, is different: the patient is drawn into a region where he is isolated from usual social contacts and interests, and is examined by a number of hospital departments which have specialized on one or other aspect of the mechanism of his body or mind. The criterion on which the laboratory departments report is basically a statistical one: the findings lie within the normal limits for the age group of the patient examined.

Contrasting these two generalized methods of instruction and calling the former "individual or apprenticeship" and the latter "statistical or hospital," we can see advantages and disadvantages in each. When there is but one instructor, usually unsupported by the large and complicated apparatus of a hospital organization, the latest discoveries in physiology and pathology are apt to suffer some neglect; there is pressure exerted on both teacher and pupil by the environment of the home to consider before all things the present emergency, including the social and financial strain of having a sick member on their hands. The patient is seen in the world in which he lives. Under such conditions it is admittedly not easy to examine in detail the workings of his various organs, but it is difficult

not to see the way his life is tied in bonds of affection and dislike, in aspiration and despair, to his relatives and the social group of which he is a member. The apprentice to the general practitioner penetrated into the home and stood both to gain and to lose by that medical relationship.

A patient sent to hospital (to use the usual phrase) enters an unfamiliar region of social space. Within that organized system of research and therapy the easiest objects of study are the "parts of the machine"—those portions of the individual patient which are most susceptible to test and measurable reaction. In such an environment of isolation from the personal and social forces which act upon the personality it is difficult to get a comprehensive understanding of the personality of the patient. An over-all view is a greater achievement of clinical synthesis in a hospital than in a house; a thoroughgoing mechanistic analysis of the patient is more difficult in the home than in the ward.

The task of medical education is to develop fully the capacity both for clinical synthesis and for mechanistic analysis. The questions arise: What conditions most favour this double development? What factors make those first few months of general practice something to be anticipated with dread and looked back on with relief as a thing long past? That many practitioners are eased in this transition by the senior partner of the firm they join, and thus enjoy a postgraduate apprenticeship, shows that the present—we do not know yet about the future—organization of medicine can allow the filling up of this gap in technical education.

### How does the Doctor Spend his Day and his Energy?

Odd though it may seem, there has never been a "job analysis" of the doctor's working day, or, if such an investigation has been made, it has received almost no publicity. It would appear that medical education has developed without a detailed reference to the job for which the student is being trained. How much of the doctor's time and how much of his skill are employed in the diagnosis and therapy of injuries, disorders, or normal processes—for example, confinements? How much of his day is given to specific planned acts of therapy, how much to diagnosis, and how much to travelling? Nor do we know how his time is divided between the age groups, the occupation groups, the income groups, or disease groups, or how far the proportions vary with urban and rural and other social and geographical divisions.

Important as these facts would be, one would think, both for teaching and for planning the future of a health service, even such an investigation of the relatively easily measurable units of time would ignore the subtler but perhaps more important factor of "concern." The doctor has concern for his patient: he is worried if he does not know what is wrong with him or how to bring him relief for his suffering. It is this concern which makes him feel the personal and human value of his work in the social—or, if you will, the spiritual—life of the community; it is something which makes him regard the financial return as only a part of the reward of his profession.

This factor, so important to the vitality of the profession and to its growth, cannot easily be brought within the scope of the mechanistically oriented education of the student. One does not have this concern-feeding for organs but only for a person, a fellow human being; one cannot book-learn it, it comes from a personal relationship.

The worries of the first few months of the general practitioner's life, or even the first few years, spring not from a need to harden his heart to suffering but to soften it so that he can feel his way into what the patient is going through in his suffering and yet keep his head. It is the attribute

of professional competence to appraise the feelings of the patient, through sympathy with him, without losing objectivity and judgment of the situation as a whole. To get this over-all appraisal of the situation is often one of the main motives which lead the patient to seek professional advice, and the doctor cannot give it unless he has faced all the issues which confront his patient.

Though the patient may have to move into the "hospital area" of social space and the doctor may have to move into that of the "family area," the appraisal can best take place in the neutral ground of the doctor's consulting-room. He must make it neutral to all influences and prejudices if it is to act as a "diagnostic and therapeutic area" in which patient and practitioner can both move with ease and mutual understanding.

### The Medical Interview

One thing must be assumed in medical work: a patient never consults his doctor without good and sufficient cause. He may make a great fuss over what seems a trivial complaint, or he may dismiss as trivial symptoms of the gravest significance, but the cardinal fact is that he has come to a point when he cannot manage by himself something concerning himself—there is a breakdown in adjustment processes. Let us leave on one side those seemingly easy cases—for example, a cut hand needing a few stitches (though even such events may be indicators of accident-proneness or some such short-cut solution of a long-standing trouble)—and all of those cases which occasion the doctor no concern. What remain? Just those cases—and taken over the year how numerous they are!—where the physical-mechanistic solution to human suffering has failed.

Two questions the practitioner has to put to himself: What is wrong? and, no less important, How ill is the patient? A repetition of a visit to the surgery with the same worried expression about the same "trivial" complaint, or a new one equally trivial, is a distress signal: the degree of the maladjustment is not to be measured by the degree of dysfunction of the organ system complained of—the patient is more ill than his body gives warrant for. What should the doctor do—judge the situation by the sole criterion of physical disability and dismiss the rest as "imagination," or assume that where there is much complaining there is something paining? And if this be the case, how does one discover the cause if it is not in the body? Is the registered medical practitioner to have traffic with the woes of the soul? Perhaps he need not go quite so far.

It was said that the consulting-room should be a sort of neutral ground where everything can be considered dispassionately (which is not the same as cold-heartedly) and without prejudice. If the patient has some worry on his mind his original complaint may be only a point of entry to the consulting-room, where he wants to get rid of his burden. Then the important thing is not only to let him talk but for the doctor to let himself listen. When it has been acquired, the art of listening is not a tedious one-way traffic but a technique of getting the patient to unfold the life-history of the suffering lying at the root of his present complaint as it is to be seen in the framework of the development of his personality as a whole: a history-giving rather than a history-taking. How can this art be acquired?

### No Research without Therapy ; No Therapy without Research

This is rather a grand way of saying, among other things, that between patient and practitioner there must be a two-way traffic.

The sufferings which lead to "trivial or pointless complaints," no less than an easily spotted neurosis, are basically hidden from and are confused for the patient himself they are bound up with the development of his personal and are an expression of conflicting trends within it. If their solution were easily within his capacity he would have solved them long ago; the fact that he comes to his doctor is sufficient evidence that his powers of adaptation have for the moment at least broken down. He cannot cope with the present problems of his life because he has to solve a satisfy unresolved and uncompleted emotional situations of the past. The aim of the interview is to allow the patient to disclose as fully and as freely as possible the history of his development. This disclosure the doctor must meet with sincerity of purpose and dispassionateness and he must not lose patience in the face of failure.

These qualities are among those which are prerequisites in the research worker. The solving of the problem of mental pain in the individual patient is not possible without this research quality in the therapist, and his greatest contribution to the two-way process is less often advice than an understanding of the problem at issue.

Research workers who try to invade the private lives of human beings to wrest from them answers to abstract research problems seldom get far with their researches in the cause and cure of mental suffering, and their work usually remains in the academic library for which it is written. People can disclose the sources of their mental suffering only during the actual experience of relief of the suffering. The so-called "normal psychology," which takes no account of the influence of pain, anxiety, guilt, and grief on human behaviour, need not for long detain the medical student in his preparation to deal with people and their problems in real-life situations.

### Is Psychiatry yet Another Specialty?

When a patient comes into a consulting-room the doctor has before him only the small segment existing in the present of an organism with an extension in time. The organism, as was recently said by a writer in the *Lancet*, began as a speck of jelly and will end some day as a life-size corpse. It grows by constant interaction with its environment, passing through different physiological phases and as many different psychological and social orientations. The egoism of the infant partly gives place to the passion of love and rage of the child (both, often and most embarrassingly, directed to the same person), and later to the stormy mixtures of adolescence, then to a fairly stable maturity, and finally shrinking in body and mind in old age (Shakespeare has said that better, but it bears repetition). Each age and stage has its problems, which when unsolved are never completely left behind: the doctor has to listen for the murmur of those old and unresolved complaints beneath the apparent preoccupation with present life.

The study of these problems is called psychopathology; the application of such knowledge to the suffering of the individual is a part of psychiatry (and of groups, "sociatry"). The training of the student to elicit a history (the much-guarded history of the development of the personality) is one of the duties of his psychiatric teachers. Training for the assessment of the retardations of development, intellectual and emotional, is also part of psychiatric teaching.

The whole range of neuroses, marital maladjustment, character disorders, delinquency, and insanity; the wider range of so-called psychosomatic affections, and the still wider range of mild and temporary worrying upsets (which are partly due to misery of spirit or insecurity, to lack of love or incapacity to give and receive affection and so



rest of body and mind)—all these are medical problems which get help from psychiatry, and sometimes only there. Is psychiatry a specialty? It stands outside the physical-mechanistic separatism which was till perhaps recently the prevailing convention in modern medicine, for if it is to do its job it must take a wide and time-spanning view of the personality in its social setting: it is of course no less a specialty than medicine itself.

### On Bringing the Student to the Patient

(a) The medical student should be brought at an early stage in his career into relation with patients. For example, when dissecting he should have periodic turns of duty as a dresser in the casualty out-patients department; even a sprained wrist or ankle should be seen in relation not only to anatomy but also to social disability. The young student should be relieved of some of his load of corpses and learn to carry live burdens. (Some of the apparent immaturity of the medical student is a reaction to the abstract and impersonal nature of his studies, which frustrate his clinical inclinations. It is a sad thing that the student's first "patient" is a corpse.)

(b) Much more time should be *lived* in medical institutions. Even in the pre-clinical years the student could learn some of the routine of the ward as a student orderly, both to have an insight into how patients behave and what they feel when doctors are not present, and to get some first-hand knowledge of the ward as a community. A few weeks in epileptic and mental defective colonies, in tuberculosis and other sanatoria for chronic cases, would widen his understanding of the chronically sick. His status on some of these visits would be nearer to that of the nursing than the medical staff; on others he should go as assistant to the doctors.

I might illustrate the value of the good nurse's approach to a case by the following example: A patient in a public ward suffered from nocturnal attacks of respiratory and other kinds of distress. His house-physician and the registrar were asked by a doctor patient in the same ward, as a matter of professional interest, what precipitated the attacks. They did not know; medical examination gave no clue. The patient's nurse was asked and gave an answer without hesitation: the attacks followed the visits of a particular relative. Two comments here: first, the nurse, whose knowledge of anatomy, physiology, pathology, and clinical medicine was of high nursing standard, used that knowledge in a quite different way from the house-physician and registrar: the latter made it the sole theoretical instrument of aetiology and diagnosis; the former (perhaps freer because she had no self-imposed duty to limit her thinking to what she read in books) was able to observe the facts as a whole. The doctors had not asked about the effect of visitors; it had not, presumably, come into their theories of aetiology. The second point is that the nurse observed the patient in a wider region of biological activity, that of the family—that is, in a social setting. The doctors saw only what lay in the bed, not even what came to the bedside. Which, in this case, was the more clinical and which the more veterinary observer? Of course, such a question should not be put: it is a question framed with reference to "academic subjects" and not to scientific method. Rather let us ask, Which of the two provided himself or herself with the greater number of frames of reference, and used them in an integrative way?

Speaking aphoristically, the best medical instruction is clinical—that is, bedside. If the patient's illness and not "a disease entity" be the subject of instruction, the best bed for this purpose is the patient's own, the next best is one that the hospital pupil has to be responsible for, the third best is that which is in hospital and which someone else looks after: the first educates the G.P., the second the nurse; the medical student in this respect comes off third best. I am referring to learning about the illnesses of actual people, not about diseases: and, further, I am saying no more than that this kind of bedside or clinical

experience—though it does not come into examination-ridden curricula—is important for the student and the young practitioner.

(c) He should at first be taken by almoners and psychiatric social workers, and later go alone, on follow-up visits to a selection of the patients he has seen and treated as out-patients and in the wards. He should realize how large is the gap between the "social space" of the family and that of the hospital, and he should be taught the techniques for lessening and bridging that gap—for example, the endeavours made increasingly nowadays to create within the hospital and convalescent home transitional communities where the recovering patient can make an effective rehabilitation.

(d) He should have experience in all branches of the mental out-patients department, in intelligence testing, in the social workers' department, and above all in the practice of psychiatric interviewing.

(e) He should interview relatives of patients with the same care as patients themselves—time spent on learning interview technique is repaid a hundredfold in his general practice.

(f) Anything that brings the student to the patient, to his home, to his factory should be welcomed, and will help to make the transition from medical school to professional life as easy and as fruitful as possible.

(g) Medical education should proceed on the principle (hard though it be to apply) that knowledge gained through the shouldering of responsibilities is the best sort of medical knowledge to have.

### On Using the Ex-student's Experience

A sample survey might be made one, two, and five years after leaving medical school, asking general practitioners what comments they would like to make on the curriculum of their training. Such opinion-taking would be specially useful to estimate the desirability of continuing experimental changes in the curriculum and dropping those that were not expedient.

### The Doctor-Patient Relationship

An experiment is in train to evolve a national health service. The stability of the profession *vis-à-vis* the patient population will ultimately depend on the doctor's capacity to meet the patient's need to be understood as a person. If treated as a merely physical mechanism composed of parts and system the patient will turn more than ever to self-medication or to unqualified persons. The existence of quacks\* is a reproach to the training and to the practice of the regular profession. (A survey of medical needs and medical aids, if realistic, would have to include the activities of the quack, his clientele, and his method of work.)

\* A quack may be defined as a person who seeks to establish a quasi-professional relation to a client (or patient) without having first submitted himself to a course of training regarded as adequate by the teachers in that profession; who makes no consistent endeavour to integrate any discovery he may make in the exercise of the profession to the body of knowledge already existing—to the end that the range of experience of the next generation of students may be improved; who when in a difficulty with diagnosis or treatment does not call in a brother-practitioner, laying before him all the facts known, being ready to accept the advice offered, or who would not be willing, if called in by a brother-practitioner, to put his experience fully at his disposal and return the patient to his own practitioner, not trying to keep him for himself; and who is unwilling to submit himself to the discipline of the organizations of his profession in matters affecting his ethical relations to his patients.

The definition turns on four things: on the willingness to learn in due humility from an older generation, to give without arrogance to the next generation, to treat one's own generation with generosity as equals, and to submit to a social code.

Most of the articles on quacks and quackery enlarge on the practitioner-patient relationship; ought not more consideration to be given to the relation existing between persons in the same field of social activity—namely, brother practitioners?

The remedy for the problem of unqualified practice lies in better medical qualification—a training which meets the needs of those worried and distrusting patients who cannot define their ills and who turn from one adviser to another till they find a listener.

The organization of a national health service will fail of its purpose if scope is not given in fullest measure for the relationship between doctor and patient to be one of personal trust and confidence and that continuity of interest in the individual patient which springs from professional "concern."

## STATISTICS IN THE MEDICAL CURRICULUM?

BY

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In maintaining, with customary vigour, the value of statistics in the furtherance of medical research Prof. F. A. E. Crew was fain to admit that "the very mention of the word 'statistics' evokes a peculiarly strong emotional reaction on the part of the great majority of medical men and women. I think it is fair to say," he continued, "that by the profession as a whole an ignorance of, and a scornful and distrustful attitude towards, statistics are regarded as the praiseworthy attributes of a robust personality."<sup>1</sup> Whether that attitude is a prerogative of the medical profession is of course gravely open to doubt. The daily misuse of statistics of every shape and kind perhaps makes sceptics of us all—or, far worse, leads us to accept uncritically figures which fit in with our pet beliefs and to reject, equally uncritically, those that do not. With the doctor it may be, as I have suggested elsewhere,<sup>2</sup> that both selective and environmental factors contribute to this state of "allergy." The person who is taking up medicine as a career may well be one whose interests lie mainly with individuals—sick persons—and far less, if at all, with the statistical concept of the group. In his clinical training this attitude may be further encouraged by concentration on the specific case, by too close an attention to the average to the neglect of the variation round it, and by a communicable distrust passively or actively transferred from the teachers to the taught in a field in which controlled experiments are notoriously difficult.

### The Present Dangers

However that may be, there is no doubt, I should say, that the present generation does look with rather more favour than the past upon the statistical approach to the problems of medicine, in the curative as well as in the preventive field. A superficial study of medical journals is sufficient to reveal that—in spite of the gloom which much of the flow of literature must continue to inspire in the mind of the statistical enthusiast. While that change is—to the statistician at least—all to the good, it may yet bring, I believe, its own dangers. Such dangers will arise if the writer or the reader does not really understand the basis of the methodology that is being applied. For instance, we may run the risk of passing from the situation in which it is too readily concluded that the reactions of Group A, treated in one way, differ materially from the reactions of

Group B, treated in another way, when in fact such a difference might quite easily have arisen merely by chance with the numbers involved, to the other extreme when, overawed by a spate of  $\pm$  signs and technical tests of significance, it is humbly accepted that it is "mathematically proved" that Group A *does* differ from Group B and that therefore this must be due to the treatment, which as logic is even more indefensible. In other words, the uninstructed or half-instructed may be just as easily misled, perhaps more easily, by an appearance of "mathematical" exactitude as by the simpler and more old-fashioned methods of mishandling figures. If that were to occur, aided in other fields by the readiness with which right- or left-wing enthusiasts will continue, consciously or unconsciously, to find figures to fit their fancies, the pendulum will doubtless swing back and bring to the fore again the belief that statistics in medicine can be made to "prove" anything and are to be eschewed.

If that result is to be avoided, and a valuable method of research is to be given its proper place, the medical worker, and his readers, must be at least on speaking terms with the elements of statistical reasoning and methods of analysis, and thus be able themselves to weigh numerical evidence justly in the balance. In short, I should replace my querying title, "Statistics in the Medical Curriculum?" by "*What* Statistics in the Medical Curriculum?" (though I am well aware that some clinical teachers will prefer to read it as "*What!* Statistics in the Medical Curriculum?").

### The Need for Accuracy

To begin with, on the preventive side of medicine I believe that it is very important that the embryo doctor should be made fully aware of the uses to which statistics of mortality and morbidity are continuously put in public health work, epidemiology, and social medicine. He (or she) is not only sometimes, if he chooses, the consumer of those figures but, whether he chooses or not, is invariably their manufacturer. It is upon the original clinical judgment and diagnosis that the whole subsequent edifice must be built, and our attempts to illustrate the national trends of disease and death, and to solve the problems of epidemics and sickness as a community phenomenon, must be materially aided or hindered by the standard of accuracy that is possible at any given time and place. The student should therefore be taught that it is highly important that he give, so far as he can—as Farr was quite a long time ago (1839)—"an authentic name of a fatal disease." Such records are not merely ephemeral bits of paper to satisfy legal requirements but are fundamental to the national vital-statistical system and serious contributions to the problems of the preventive field.

Of course there will be difficulties; diagnosis and certification are not easy tasks, and the aids to them and the resulting accuracy must change from time to time. The medical statistician is perfectly aware of that. But if we await perfection we shall wait for ever, and so long as we are not ignorant of the imperfections much can be learnt from these imperfect records of mortality and sickness. The medical student, in my view, should, to encourage his interest in this field, be shown at some point in his clinical studies the main uses to which are put the material of which he is the producer and briefly how they are statistically treated—for example, by reference to publications of the Registrar-General. In short, as inevitable producer he should be encouraged to give of his best in this respect in his medical career, and as possible consumer he should be made aware of the limitations of the resulting data and thus be able to take a balanced view of them.

<sup>1</sup> "The Role of Statistics in the Furtherance of Medical Research." *Trans. Faculty of Actuaries*, 1945.

<sup>2</sup> "Statistics in Medicine." *Trans. Manchester Statist. Soc.*, 1947.

may be said that without instruction he will automatically acquire this latter characteristic. I do not myself feel so certain. During the course of a single committee meeting I have heard a distinguished surgeon reject as quite valueless the death certificates obtained in a follow-up of patients with cancer and yet express the greatest interest in the cancer mortality data by site of growth published by the Registrar-General. He apparently saw no inconsistency in this attitude towards material obtained from precisely the same sources, and such an attitude is by no means rare.

Although, naturally, I should not subscribe to the view that the statistician is merely one who hopes, by the slow and patient accumulation of errors, finally to arrive at the truth, I should maintain that in spite of recognized individual errors we can from mortality and morbidity data reach at least valuable indications of population characteristics and their changes in space and time. But that, I believe, needs demonstration by simple teaching. For instance, we have the rise in mortality from tuberculosis during years of war. Some part, however, of that change may well be artificial if, as is customary, the death rate be based upon the experience of civilians only. The more physically fit part of, at least, the male population at young adult ages is being continuously withdrawn into the fighting Services, and the civilian death rate is therefore adversely affected merely as a result of the inevitable changes in the "make-up" of the population at risk. On the other hand, we can see that some part of the rise—particularly at ages relatively or entirely unaffected by the call-up—must certainly be real, whether it be the result of overcrowding, new working environments, bad feeding, and so on. Again, in spite of errors of diagnosis in the records of cancer mortality, we can be sure that they will not account for the population characteristics revealed—the increasing rate of mortality as we pass down the social scale, the excessive death rate in occupations closely concerned with alcohol, the geographical differences in mortality of certain sites to be found even within this country.

The medical student, before he completes his course, should also be made familiar with the simpler vital-statistical rates—for example, the neonatal rate, the infant mortality and maternal mortality rates, the crude death rate and its limitations. Those figures, no doubt, lie more in the province of the public health worker, but they are now cheerfully bandied about in the daily press, and a professionally trained man or woman should have a sound knowledge of their derivation and meaning.

### A More Fundamental Question

Passing from this specific field of vital statistics, and the general practitioner's contributions to it, a more fundamental question is whether the medical student should in his training be taught the more general aspects of statistical thought and its simpler methodology. In my opening paragraphs I have more than implied that he should, and this is, not unnaturally, the view taken in a report recently issued by the Council of the Royal Statistical Society.<sup>1</sup> Apart from the need for professional statisticians and for schools of pure statistical teaching and research, it is in this report strongly urged that all students in the social and natural sciences should "have some familiarity with statistical ideas and the most common methods, as part of their background knowledge." For every worker who has need to use statistical methods many, it is pointed out, have occasion to appreciate results and arguments having

a statistical basis—the medical man, I should add for example, in assessing clinical trials of a method of treatment or tests of preventive inoculation, in assessing the results of a follow-up of patients, and so on. In short, "the statistical approach is so fundamental to the modern way of looking at things—the affairs of everyday life as well as scientific theories and experiments—that it should form part of the mental equipment of the educated man, which it is not at present."

### A Suggested Course of Training

While that outlook may ultimately be realized through the teaching of statistics in schools, at present it falls to the universities to inculcate it. The Council of the Royal Statistical Society is, therefore, led to propose three main types of courses of tuition—namely: (a) a short elementary course for at least all students in the social and natural sciences, requiring no special mathematical ability but designed to familiarize students with statistical ideas and the most commonly used elementary methods; (b) an ancillary course of a somewhat more advanced type to enable students to utilize properly statistical methods in their chosen science; and (c) an advanced course for those of mathematical bent.

To my present thesis the last is clearly irrelevant, but the question of the ancillary course is rather more difficult. The Royal Statistical Society's report argues that it is "desirable that this second type of course should be taken by most students of the social and biological sciences in all universities, as part of the normal curriculum for a first degree. We realize that this may be regarded as a revolutionary proposal, and that there are great practical difficulties in adding further work to existing programmes; but it is impossible to escape the conclusion that the scientific worker in the social and biological fields who has not a sound grasp of the statistical approach and its simpler methods of application is seriously handicapped when appreciating quantitative laws and attempting the interpretation of observational data."

To what extent is that applicable to the doctor in training? For those who intend to embark upon research or take up scientific work of one kind or another such a course is, I believe, most definitely needed. But for the bulk of medical students bent on general or consultant practice I suggest, at present, it would be wiser to restrict ourselves to (a), the short elementary course. Some ten lectures (or even fewer) on basic ideas and simple methods of handling and interpreting quantitative data would be sufficient for that purpose, with the addition—and this is fundamental—of some practical arithmetical work. For all teachers of statistics are, I believe, in agreement on at least this one point, that without practical applications by the student the teacher's instruction may be largely wasted. Many of the students would, no doubt, never again apply the methods in their field of work (any more than they personally apply, say, their instruction in bacteriology), but they would at least acquire the necessary background—be grounded in thinking about numerical material, its limitations and its meaning, and thus be less liable to accept at their face value results based upon unwarranted comparisons, upon so-called "controls," or upon a quantitatively exceedingly slender foundation.

### The Statistical Method in Practice

They would be taught, I reiterate, to *think* about figures, constructively or destructively as appropriate, about their own and those published or put about by other persons. At present that thought is often entirely lacking or is

<sup>1</sup> "The Teaching of Statistics in Universities and University Colleges." A report of the Council of the Royal Statistical Society printed in advance of the *Journal of the Society*, 1947, 110. Price 6d.

misguided through lack of a knowledge of how to set about it or through ignorance of statistical concepts. A few simple examples from "real life" might clarify that assertion. In 1946, for instance, I made for the British Medical Association an inquiry into the pre-war incomes of general practitioners—information which was required for submission to the Spens Committee on levels of remuneration in the new health service. It was impracticable to seek this information from all practitioners, and a sample was taken—how is highly important but not relevant to my present point. Let us suppose that out of a total of 20,000 practitioners 5,000 were picked at random to give a representative cross-section. Of these 5,000, however, only 3,000 respond. In other words, the original sample which the statistician is satisfied will, within limits, give the right answers is replaced by a smaller sample which may not be at all representative of the total population. If those who choose to answer are those earning good incomes the resulting figures are too high; if persons earning a lot are too busy to bother with forms they are too low. The actual motives or habits leading to answering are unknown, and there is no means of determining whether or no they are associated with earning capacity. But, on the other hand, some persons do not see why the numbers should not be made up to the original 5,000 required by taking another sample and adding in their replies—there were plenty of practitioners left who had not been approached. The fundamental statistical requirement of quality as well as quantity is overlooked. No mere increase in numbers can produce the representative cross-section sought if those who are willing to respond are basically not representative themselves. Whatever the size of the sample it remains biased. For very similar reasons the follow-up of patients to determine the upshot of treatment may give an erroneous answer if only a proportion of the original treated group can be traced, say, five years later. The question turns upon whether the lost-sight-of are likely to be different in their state of health from the traced—have they more frequently disappeared through death or, on the other hand, through survival in good health and a consequent movement to a distance? Is the sample that can be found representative of the original group?

In the field of association equally simple, but still overlooked, difficulties arise. For instance, we may note that children who contract a disease after inoculation against it die less frequently than uninoculated patients. We must, however, consider whether the two groups are comparable except with regard to the state of inoculation. The inoculated might be of school age and the uninoculated of pre-school age, and we should then expect to see a lower fatality rate in the former compared with the latter, quite apart from inoculation, since the fatality rate normally declines with age. Or we have the uncontrolled observation that patients with a given disease have such-and-such a characteristic or antecedent, and overlook the essential need to know whether they have that characteristic or antecedent any more frequently than happier mortals who do not contract that disease. It all seems distressingly obvious when it is written down; it always does—but the faculty of common sense is not so common. The same mistakes continue to crop up, and the same inefficient numerical treatments continue to be applied to data.

### Conclusion

Arithmetic guided by logic has been given as a fairly accurate definition of simple statistical methods, and it is that kind of teaching that would, it is my belief, be of real benefit to the medical student. It should introduce him not only to such general viewpoints as those given above,

to be borne in mind in considering statistical evidence, but also teach him the appropriate methods of handling and presenting data, and familiarize him with the statistical concepts of variability, the ideas lying behind elementary tests of significance, simple means of measuring and interpreting associations, and so on. Such teaching would also, I believe, be of undoubted value to the medical practitioner who found at one stage of his career or another that he wanted to set about a piece of original work—and surprisingly many are drawn to it. How should he set about making the appropriate observations? How many will he need? In what form shall the records be made to ensure completeness and to facilitate subsequent analysis? Will it be sufficient to observe the affected individuals, or must the unaffected be equally carefully included in the inquiry? Must the exposed to risk be enumerated? Will such-and-such a method denote an effective experiment and lead to a clear answer? Will a control group be required, and what, if so, is a satisfactory way of obtaining it? Will it be necessary to have full records for all the population under study, or if a sample be sufficient what is the best means of drawing the sample? And so on. The specific questions involved and the answers to them will, of course, vary from inquiry to inquiry. But the basic ideas behind them will be very similar. Some acquaintance with these ideas will certainly help to make less frequent, at the end of perhaps months of patient work, that unhappy statement beginning, "If only I had realized I should need . . ." How often at present does the statistical consultant have to echo sadly, "If only!"

## THE FUTURE OF PUBLIC HEALTH EDUCATION

BY

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When a medical student graduates he generally seeks further hospital experience in the first instance, so that he may practise under the canopy of skilled supervision. After that he ought to spend at least a year as an assistant in general practice; and military service should not tempt him to cut down this period of valuable training in the field, whether he intends to specialize or not. The majority of young medical men and women are well content, when the preparatory phase is over, to build up their life-work in general practice—the most strenuous and the most satisfying of all medical careers. Some of the others will turn to the special branches of medicine, probably because one of these has already stirred their imagination.

The prospect of a career in the public health service does not illuminate the mind with great intensity; but it is a steady light to many who see in it an opportunity for promoting social welfare. There are medical men and women to-day who discover that their interests move towards health rather than sickness; others find that their talents lie in administration; and others, again, believe that a general background of training in preventive and social medicine is a good foundation for practice in certain branches of the national medical service—such as paediatrics, industrial medicine, infectious disease, bacteriology.

One of the objects of the postgraduate course of education in public health is to lay good foundations for careers in preventive medicine. The course as it stands to-day

not narrowly vocational; but its content must inevitably change with the changing functions of the medical officer of health. Its first aim is to make good medical officers of health, and I hope that the diploma course will always be flexible, and sensitive to such changes.

### Changing Functions of the M.O.H.

In the latter half of the 19th century the work of the M.O.H. was almost entirely environmental, and he was expected to be Jack-of-all-trades—sanitarian, epidemiologist, bacteriologist, and even public analyst. An interesting account of the work of the first medical officer of health is recently been published in Prof. Frazer's monograph on W. H. Duncan, of Liverpool.<sup>1</sup> The first quarter of the 20th century brought the M.O.H. into touch with an increasing number of problems relating to personal health through the maternity, infant welfare, and school health services; and into immediate contact with sickness through schemes for tuberculosis and venereal disease and other conditions in which the social factor was of notable concern. The transfer of Poor Law hospitals from the Guardians to the County and County Borough Councils still further plunged the health officer into clinical responsibilities. At the same time the constant increase in his administrative functions added the M.O.H. daily further away from the practice of medicine, and the complex arrangements for civil defence during the recent war taxed his administrative powers to the full. The medical officers of health accepted these changes as they came and built their new duties into the structure of a health service for the people. In a recent address the Minister of Health paid a just tribute to their constructive work in a century of public service:

"The medical officers of health," he said, "spent their early years in dealing with epidemics and environmental conditions leading to disease, and later they branched out, with very much more success than is generally admitted, into the clinical fields. Although very many claims—and justifiable claims—are made for the voluntary-hospital system, it must never be forgotten that the medical officers of health *inherited* the Poor Law system, and that they had to try and adapt the ugly infirmaries of the past to modern hospital requirements. And whenever people are inclined to make odious comparisons between the standard of some of the voluntary hospitals with the municipal hospitals, they should remember that the medical officers of health had the past to live down and had very adverse circumstances to overcome. In the hospital field they have indeed won very great distinction."

Now we are on the eve of a revolution in the organization of the national medical services. So far as the health officer is concerned a painful operation (as the Minister described it) is about to be performed: the municipal hospitals and practically the whole of the public clinical services which he has done so much to build up are being taken from the local authorities and organized into a national scheme. Where do we go from here?

The established medical officers of health, and particularly the elder brethren, may say with stoic resolution:

"Though much is taken, much abides."

But this is cold comfort for the young who are on the point of choosing a career. There are thus two matters for our special consideration: the present value of a postgraduate education in public health, and the prospects of a full and satisfying life for those who take up preventive medicine as a career.

The earlier medical officers of health had to be expert in antiseptic science. Applied chemistry and the primitive but rapidly growing science of bacteriology were within the

sphere of their routine duties, and postgraduate courses of instruction in public health very properly offered laboratory study in these subjects. Before long, however, the immense broadening of these fertile acres led to specialization, and the practising health officer had to leave laboratory work to the expert. His own interest turned more and more to the pressing questions of personal health as successive Governments placed on local authorities one responsibility after another in the range of social medicine. Instruction in the social aspects of disease and in the administration of the personal health services was gradually added to the curriculum (often, it must be confessed, long after the need had arisen), but the diploma course remained essentially unaltered, founded deep on the nether springs of science and built to a Victorian model. The transfer of hospitals in 1929 had little immediate effect on public health teaching, and, indeed, no important change took place until the war of 1939–45, when plans for a national medical service began to be laid in an atmosphere of evanescent idealism. At the same time clinicians rediscovered the principles of what good medical officers of health had been practising for two generations—the application of medicine to man in his environment—and gave it the useful descriptive title of "social medicine." In this way the medical profession brought the social aspects of medicine into the foreground, and physicians have made an important contribution to the advancement of public health.

### New Curriculum for D.P.H.

The new curriculum for the Diploma in Public Health, which was approved by the General Medical Council at the end of the war, has now been in operation for two years. The course covers one academic year of full-time study (and provision is made for an equivalent period of part-time study). The first three months of the period consists of a preliminary course for a "Certificate in Public Health," dealing mainly with subjects which ought to be taught in the undergraduate curriculum as the basis of preventive and social medicine. It covers the historical approach to public health and the care of the poor, and leads naturally to a general study of central and local government as they stand to-day, including the services for health and social security. On this broad basis the student is encouraged to build up a conception of the functions of the medical officer of health—statistical, epidemiological, and environmental. Practical demonstrations in class and visits to places and institutions are arranged to illustrate the subject-matter of didactic lectures.

At the end of the first three months a Certificate in Public Health is granted to those who pass an examination. This preliminary course, it is hoped, will be a useful preparation for those who intend to follow any branch of preventive and social medicine, such as paediatrics, mental health, infectious diseases, and the school medical service.

The final course, covering a period of six months after the certificate has been obtained, is intended primarily for men and women who wish to become health officers. The curriculum changes its emphasis with the varying needs of the service, but has two broad divisions into (a) basic subjects, and (b) elective subjects. Every student is required to take a full course of six months' study in the basic subjects, but is allowed—within well-defined limits—to follow his bent in the elective subjects. The essential subjects are as follows: (1) epidemiology; (2) medical statistics; (3) physiology (including nutrition) applied to health; (4) public health law, administration, and practice. The elective subjects include these groups: (1) administrative; (2) occupational; (3) statistical; (4) tropical (comprising medical entomology, parasitology, and tropical hygiene). These

<sup>1</sup> *Duncan of Liverpool*, by W. M. Frazer. Hamish Hamilton, 1947.



## Reviews

### CUSHNY'S PHARMACOLOGY

*Pharmacology and Therapeutics.* By Arthur Grollmann, Ph.D., M.D., F.A.C.P., and Donald Slaughter, B.S., M.D. Originally written by Arthur R. Cushny, M.D., F.R.S. Thirteenth edition, thoroughly revised. (Pp. 868; 74 engravings. 45s.) London: J. and A. Churchill. 1947.

It is sad to note that this well-known textbook of pharmacology has now become wholly American in authorship. After Cushny's death Prof. Edmunds, of the University of Michigan, and Prof. Gunn, of Oxford, wrote four editions, so that the book remained at least half British; but now Prof. Grollmann and Dean Slaughter have made it an entirely American product. The change can readily be understood when they say they have prepared it as a textbook for the student and practitioner of medicine rather than as a compendium of pharmacological knowledge. Very few British students would buy this as a textbook: they would prefer something much smaller; and if the sale of the book is expected to be mainly in America it is natural to choose American authors. We notice with interest that the senior author is both professor of pharmacology in the South-Western Medical College, at Dallas, Texas, and professor of medicine and chairman of the department of experimental medicine. There are few men who are both professors of pharmacology and of medicine. It is appointments of this kind, linking the preclinical and clinical departments, that have promoted the vigorous growth of experimental medicine and clinical research in America.

The new edition is a good one. Medical research moves fast in these days, and much new material needed incorporation in the book. The authors have achieved this without increasing its size, and they are to be congratulated on its presentation. Prof. Grollmann, who is well known in this country, has prepared most of the book; it was to be expected that he should prove a careful and successful guide. There are good accounts of penicillin, streptomycin, and other antibiotics, of the antihistamine drugs, and of the use of BAL, to mention only some of the recent additions to therapeutics. We notice, however, that the authors record only the American antihistamine drugs and not the still earlier and more powerful French one. Similarly, although they clearly indicate the British origin of BAL, the only reference is to a paper by American authors. Cushny's textbook was always useful for the number of old and interesting references it contained; very many of these have been replaced by new American ones. It is true that the development of American medicine justifies this course, but we doubt whether it was wise to omit so many earlier references, particularly those to German work. We can confidently recommend this book to the practitioner of medicine.

J. H. BURN.

### GUIDE TO MINOR SURGERY

*Minor Surgery (Heath: Pollard: Davies: Williams) for the Use of House Surgeons, Dressers, and Junior Practitioners.* By Cecil Flemming, M.Ch., F.R.C.S. Twenty-third Edition. With a Chapter on the Administration of Anaesthetics by H. N. Webber, B.Ch., D.A. (Pp. 406; 209 illustrations. 14s.) London: J. and A. Churchill. 1946.

Books have their personality and limited life: very few reach a twenty-third edition and the age of 86 years. When at the youthful age of 26 and only a year after taking his F.R.C.S. Christopher Heath published his book on minor surgery and bandaging he could hardly have anticipated that it would live so long. Such an achievement shows that the successive editors—Bilton Pollard, Morrision Davies, Gwynne Williams, and now Cecil Flemming—have shown great judgment in the difficult art of rejuvenation. The present edition will be a useful guide to the young house-surgeon and practitioner.

In some parts there has been undue hesitation in making changes that are well warranted by recent advances in our knowledge. Carbolic lotion is still recommended for compresses and for washing the patient's skin (p. 13). Though the value of penicillin is affirmed the dosage recommended is

rather too small (p. 70), and it is assigned a secondary (instead of a primary) place in the treatment of boils, carbuncles, and other septic infections (p. 203). In the treatment of a slow healing chronic infected wound we are advised to change the nature of the wet dressing every few days, "for a strain organisms resistant to one may succumb to another" (p. 6); surely it is better to culture the organisms and apply appropriate remedy. Some of the illustrations are not very clear. Many genito-urinary surgeons would be displeased with their house-surgeon if he placed the patient on the table for renal operation in the position shown in Fig. 5, and Fig. 6 seems to indicate that two persons are required to elicit translucency in a hydrocele. In the examination of acute abdominal conditions the advice is given to examine the urine for blood and pus; albumin, of vital significance, might be present without either blood or pus. The index, though printed in clear type, is not full enough. These are minor defects, and we can recommend this book to the student.

V. ZACHARY COPE.

### RHESUS FACTOR

*The Rhesus Factor.* By G. Fulton Roberts, M.B. (Pp. 46 3s. 6d.) London: William Heinemann Medical Books, Ltd. 1947.

Dr. Fulton Roberts gives a reasonably comprehensive and readable account of the Rh blood groups and their clinical effects. For the non-specialist the original literature on the rhesus factor is too massive, and, owing to changes in notation made necessary by expanding knowledge, too confusing. The book must be just what many people have been wanting.

Books on the rhesus factor have appeared in Sweden, France, Switzerland, Holland, Italy, and Czechoslovakia. This is the first to be published in England. Even in the short time since it was written certain advances have been made—for example the tube agglutination method can no longer be considered satisfactory direct compatibility test. The slide test of Diamond and Abelson, which detects "incomplete" or "hyperimmune" antibody, is the safer. Harvard workers have demonstrated that just over 50% of Rh-negative persons transfused with Rh-positive blood become immunized. The Rh grouping of women, before or during the child-bearing period, who are to be transfused is therefore an absolute necessity, and should not be considered by anyone as a counsel of perfection, as the author of this book fears it may be.

R. R. RACE.

### REFRESHER IN OBSTETRICS

*Management in Obstetric Complications.* Edited by Clifford B. Lull, M.D. (Pp. 235; illustrated. 24s.) Philadelphia and London: J. B. Lippincott Company.

This small collection of papers on leading topics in obstetrics was compiled for the benefit of American doctors who were obliged by the exigencies of the war to take up obstetric practice temporarily. Some of the papers are of excellent quality.

Bernstine's section on infection of the vagina during pregnancy is a contribution of great merit, well worth careful study by all who practise obstetrics. Indeed, it is doubtful if there is a better concise description in the English and American literature. Galloway's article on puerperal infection follows the usual lines, but it is unlikely that the average doctor, thrown suddenly into midwifery, would obtain much practical benefit from it. His tribute to the work of Charles White and Robert Collins is graceful and well deserved; he, like the reviewer, regards Robert Collins as one of the greatest of all obstetricians. Greenhill's article on surgical complications is written in a usual style, and displays evidence of great intellectual ability, yet with a tendency to crudeness of expression. Findley's article on third-stage complications is well chosen and well written, and it is the first time we have heard it said of Credé's method of expression that "the placenta is expelled like a cherry." Kellogg's article on the toxæmias of pregnancy was undoubtedly the most difficult to write; in many ways it is unsatisfactory, and it is doubtful if the average general practitioner would glean much information useful to him from it. On the other hand, by the incorporation of Herxheimer's work on the pathology of the pregnancy toxæmias he has produced an article which advanced students in this country

should study carefully. The book is interesting, for it is quite different in style and contents from what would have been published in this country in similar circumstances.

WILFRED SHAW.

### ANAESTHETICS MANUAL

*A Synopsis of Anaesthesia.* By J. Alfred Lee, M.R.C.S., D.A. (Pp. 254; 42 illustrations. 12s. 6d.) Bristol: John Wright and Sons. 1947.

This latest addition to the well-known "synopsis" series is one of the best. As the author says in the preface, it is in no sense a textbook, and he does not give details of technique or references to original papers, but those who already have a sound groundwork of knowledge will find it invaluable for revision and for examination purposes. Few medical books compress so much information into so little space: every aspect of general and local anaesthesia is covered. The material, necessarily factual rather than critical, is in accordance with current teaching. As would be expected from one who has specialized in spinal analgesia, the chapter on that subject is very good, and in contrast to many writers on this controversial topic the author is moderate and unbiased when discussing many "specimen techniques." It is refreshing to see it stressed that Guedel's planes of narcosis were worked out for, and only apply to, open ether, for there is a tendency nowadays to try to use these signs in every variety of inhalation anaesthesia.

The book is exceptionally well produced and effectively printed. Glossy paper is used for some of the illustrations, but the clarity of others is somewhat impaired. Errors are conspicuous by their absence. Within its limited scope this book could hardly be improved.

C. LANGTON HEWER.

### AFTER OPERATION

*After-Treatment. A Guide to General Practitioners, House Officers, Ward Sisters and Dressers in the Care of Patients after Operation.* By H. J. B. Atkins, D.M., M.Ch., F.R.C.S. Third edition. (Pp. 328; illustrated. 18s.) Oxford: Blackwell Scientific Publications. 1946.

The third edition of this book brings it up to date by including articles on penicillin therapy and gastric suction. We may say of this edition, as of the first, that it gives an excellent account of the recognized methods used in the after-care of surgical cases. That it meets a real demand for a concise account of post-operative management is indicated by its having reached a third edition in the five years since its first publication. Although illustrations are plentiful, we should like to see still more; the Miller Abbot tube might well be illustrated both before use and in position in the lower reaches of the intestine as shown in a skiagram.

The statement (p. 169) that a man of "prostatic age" is unlikely to undergo an operation for the repair of hernia is somewhat reminiscent of surgery of earlier times, particularly in view of a recent and celebrated exception. The author does not discuss blood and plasma transfusions in detail, though in defending the omission he indicates the difficulty of selecting material for a book such as this. He is to be congratulated both on his endeavour to solve this problem and on keeping the text abreast of the times. He refers to a destructive criticism of Fowler's position written in May, 1946, and comments that a final assessment of its value must await further observation. The book should continue to appeal particularly to practitioners, house officers, and nurses whose duty it is to see the patient through that period, which is often a critical one, when the operation has been completed and the surgeon has departed.

LAMBERT ROGERS.

*Studies on the Influenza A-epidemic of January-March, 1941, at Groningen, Holland,* by J. A. R. van Bruggen, M.D., L. Bijlmer, M.D., W. A. Hoek, J. Mulder, and L. J. Zielstra (Leiden: H. E. Stenfert Kroese's Uitgevers-Maatschappij N.V.; 10s.), is a clinical and laboratory study of 44 cases of influenza which was published as a thesis of the senior author. Though carefully done it contains nothing new and suffers from the defect that, at the time of the study, the Hirst test and the modern methods of isolating influenza viruses in eggs were not known in Holland.

### BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

*Food Poisoning.* By Elliot B. Dewberry, F.R.San.I. 2nd ed. (Pp. 246. 17s. 6d.) London: Leonard Hill, Limited. 1947.

A general account of food poisoning by micro-organisms, poisonous fungi, and metals.

*Joseph Lister.* By Rhoda Truax. (Pp. 270. 10s. 6d.) London: George G. Harrap. 1947.

A biography of the famous surgeon

*Diseases of the Nervous System.* By W. Russell Brain, D.M., F.R.C.P. 3rd ed. (Pp. 987. 37s. 6d.) London: Geoffrey Cumberlege. Oxford University Press. 1947.

This edition includes new material on deficiency diseases, the "costoclavicular syndrome," and "disorders of the body image."

*The Doctor and the Difficult Adult.* By William Moodie, M.D., F.R.C.P., D.P.M. (Pp. 296. 15s.) London: Cassell and Co. 1947.

An introductory book for the general practitioner on disorders of the personality.

*Importancia Biológica del Potasio.* By Dr. Vicente Hector Cicardo. (Pp. 254. No price.) Buenos Aires: "El Ateneo." 1947.

A monograph on potassium in the animal and man.

*Tercer Congreso Interamericano de Cirugía.* Vol. I. (Pp. 527. No price.) Montevideo: 1946.

Includes papers on the biliary apparatus and the pelvis.

*Medical Research.* Edited by Austin Smith, M.D. (Pp. 169. 25s.) London: J. B. Lippincott Company. 1946.

A symposium on the requirements of medical research, with sections on the laboratory, medical schools, and clinical research.

*Blood Pressure and its Disorders including Angina Pectoris.* By John Plesch, M.D. (Budapest). 2nd ed. (Pp. 307. 21s.) London: Baillière, Tindall and Cox. 1947.

Case histories and references have been added to this edition.

*The Years After 50.* By Wingate M. Johnson, M.D. (Pp. 153. \$2.00.) London: McGraw-Hill Book Company. 1947.

Intended to help the intelligent layman approaching or past middle age to live a full life.

*Advances in Pediatrics.* Edited by S. Z. Levine et al. Vol. II. (Pp. 409. 40s. 6d.) London: Interscience Publishers. 1947.

Includes contributions on infectious lymphocytosis, fluorine and dental caries, atypical pneumonia, virus diarrhoea, and prematurity.

*Advances in Internal Medicine.* Edited by William Dock, M.D., et al. Vol. II. (Pp. 642. 57s.) London: Interscience Publishers. 1947.

Topics discussed include angiocardiology and angiography, surgery of hypertension, insecticides, penicillin in subacute bacterial endocarditis, and the rhesus factor.

*A Handbook for Nursery Nurses.* By A. B. Meering, S.R.N. (Pp. 509. 17s. 6d.) London: Baillière, Tindall and Cox. 1947.

Designed as a textbook to cover the syllabus of the certificate of the National Nursery Examination Board.

*Gynecology, Including Female Urology.* By Lawrence R. Wharton, Ph.B., M.D. 2nd ed. (Pp. 1,027. 50s.) London: W. B. Saunders Company. 1947.

This edition includes new material on embryology, congenital malformations, water cystoscopy, and the technique of ureterotomy for ureteral stone.

*Health Facts for College Students.* By Maude Lee Etheredge, M.D., D.P.H. 5th ed. (Pp. 439. 12s. 6d.) Philadelphia and London: W. B. Saunders Company. 1947.

An outline of anatomy, physiology, hygiene, and aids to health for the instruction of adolescents.

*Pasteurisation.* By Harry Hill, F.R.San.I., A.M.I.S.F., F.S.I.A. 2nd ed. (Pp. 296. 21s.) London: H. K. Lewis. 1947.

An account of the heat treatment of milk, including the H.T.S.T. process.

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THE MAKING OF THE MEDICAL  
PRACTITIONER

Medical education has always been the subject of debate. With every new generation of students some revision seems necessary. Complaints of the curriculum, that it was insufficient, or overloaded, or unbalanced, have continually been made. Just a hundred years ago V. A. Huber, a professor of Marburg, who wrote two now dusty volumes on the English universities, declared that it was as little possible then, in the eighteen-forties, as it had been in the previous century to think of becoming a physician by the help of the courses of public instruction at Oxford and Cambridge. Such knowledge as the medical profession acquired, he said (and he extended his remark to cover other professions, including the law), was gained otherwise than in university courses: it was gained by "practice in life"—whatever he may have meant by that—and by private study and instruction. A hundred years hence our descendants will be dealing with another Goodenough, while the General Medical Council, by then perhaps two or three times reconstituted, will still be considering how best to discharge its fundamental duty of ensuring that no one is turned loose into practice insufficiently equipped.

Periodical reshaping of the curriculum is inevitable, medicine being the living subject that it is. All the recent inquiries into the better planning of medical studies, beginning with the bold and imaginative Royal College of Physicians report, followed almost immediately by the much-discussed report of the Interdepartmental (Goodenough) Committee, and, after an interval, by the well-considered recommendations of the General Medical Council—all of them are so many endeavours, not to make some necessary repairs in a structure designed for permanence, but to re-adjust what the student must learn in the light of advancing knowledge and the exigencies of public requirement, while at the same time maintaining the essential principle of education, which, as Karl Pearson said, is an appreciation of method, not a mere knowledge of facts. Unfortunately the report of the Medical Curriculum Committee of the British Medical Association is not yet to hand, but when it is published it will undoubtedly prove to be a most valuable contribution to the subject.

The vigilance of the General Medical Council in this matter is largely the subject of Sir Herbert Eason's article elsewhere in this issue. The article, if it is carefully read, should dispel some of the ignorance concerning the Council—an ignorance which appertains to its educational as much as to its disciplinary function. Both on its educational and its disciplinary side the role of the Council is not to protect and defend the medical profession: it is to protect and defend the public. Some better name ought to be coined for this body than one which is likely to confuse it in some minds with an association of doctors for their mutual

advantage. If it could be spoken of under its complete title, the General Council of Medical Education and Registration, mouthful as it is, misconceptions would be less likely to arise. It is true that it is a body composed, except for one member out of about forty, of medical men, but the great majority of its members are not chosen because they represent the universities and medical corporation which grant qualifications. There is a handful of direct representatives, one to about every ten thousand people on the *Register*, chosen by popular election; but highly desirable as it is to have them, and outstanding as has been the contribution which some of them have made to the Council's work, they are really an intrusion, a small infiltration into the original academic pattern. For some years there has been one lay seat on the Council, always filled by a man eminent in public affairs, but never by one conspicuously associated with education or, for that matter, with jurisprudence. Seeing that the Council has to take into consideration not only the training of the medical student but his basic education in the secondary and public schools, the opportunity might have been seized of making one at least of the five Crown nominees a person distinguished in the educational world. It can never be said that the Council has failed to discharge its function in education; it has discharged them with great thoroughness within the limits of now rather ancient legislation; but someone whose field was general education might have assisted the Council to take a broader view, just as the Council might have profited on its disciplinary side from the presence of a jurist. Another, perhaps at present too revolutionary, suggestion would be to have on the Council one or more representatives of the students, to represent the consumer.

The exercise of oversight by the General Medical Council is made difficult by the limitations under which it works. The Council can appoint inspectors to attend the qualifying examinations, but it has no inspectorial rights concerning the courses of study, the arrangements, the staffing, the accommodation at the various colleges and schools. It assumed that the sufficiency of the curriculum depends not less—perhaps more—upon the answer to the question whether the courses of study are sufficient than upon the examinations. Both together furnish the guarantee of professional competence. Yet the Council has got the tool for only half the job, and, as Sir Herbert Eason hints, perhaps the less important half. The Goodenough Committee urged, and the Council itself endorses the view, that the Council should have the power to visit the schools as it has had the power for ninety years to visit the examinations. Not that there is any intention to bring about a dead level of uniformity. The schools would be left, as they have always been, to develop their own character and individuality in the sound British way. What the Council is out to do is to ensure a minimum standard of sufficiency. The influence of the Council is most effectively exercised through what are called "recommendations," but the word must not be regarded as meaning benevolent advice to be taken or not by the intended recipient as he pleases. The recommendations are themselves the result of a long back-and-forth procedure between the bodies and schools and the Council, and there is ample opportunity for observations of all concerned before they take a crystallized form. One of the current suggestions is that not only should each medical

school keep its own curriculum continually under review, but that the Council itself should undertake a reconsideration of the curriculum periodically, say every five years.

Such reconsiderations of the curriculum are not merely a matter of introducing new subjects about which it is considered that the student should know something, and the elimination of others which seem to have become less important; it is not a question of moving pieces about on a board, a continually increasing number of pieces for the same number of squares. Rather is it the better integration of subjects, the easier transition from one stage to another—as, for example, the passage from pre-clinical to clinical studies—the better approach to certain subjects, and, above all, the making of such arrangements as will ensure that the student not only acquires the necessary facts but is trained in the method of using them. The time-table must include opportunity for leisured reflection—leisure which may be misused by the indolent, but nevertheless must be ensured. If nothing better were turned out from the schools than living medical encyclopaedias or indices of treatment, always busily rustling their leaves, it would be a sorry thing for the patients who will afterwards come to the practitioner with their gastric ulcers, their rheumatic pains, their winter bronchitis, and each with a different temperamental and social background which calls for the philosopher often as much as for the physician.

The necessity for education, in the true sense of the word, has been well recognized in all the contributions lately made to this subject, not only by the inquiring committees but by the bodies which gave evidence before them. Thus the British Medical Association urged upon the Goodenough Committee that a full knowledge of fundamental principles would produce a more understanding practitioner, more ready to absorb and apply advances in medical knowledge and technique. The Planning Committee of the Royal College of Physicians, whose able report under Lord Moran's chairmanship appeared just before the Goodenough report and has been to some extent overshadowed by it, laid it down that the student must be taught to interpret and analyse facts, and that stress should be laid on method rather than on accumulation of knowledge. This same report put forward the idea that medical education at the universities should be free (not so great a change after all, for, expensive as it is to the student, two-thirds of it is free already, being provided by the State, by local authorities, and by endowments), so that university training, while it would still be the privilege of the relatively few, would be a privilege based on selection on the ground of ability and character and prospective fitness for the profession. Finally, the General Medical Council, in its own memorandum of evidence to the Goodenough Committee, suggested that over-organization of instruction would stultify real education, discourage the active participation of the student, depress his curiosity and initiative, and blunt his powers of observation. All the authoritative voices in medical education thus declare that, while vocational training is, of course, very important, it must not be suffered to override the larger education; that the way into medicine is not only that of apprenticeship to a craft but is also the way of the scholar, the thinker, the ever-curious student.

Those who enter the medical profession are the product of a more exacting discipline than is required in any other

field. They have to master a more comprehensive range of study than those, for example, who take theology, or law, or pedagogy. Of their value to the nation in terms of monetary reward this is not the place to speak. Their higher reward is the satisfaction of doing the work which they have chosen and for which they have undergone so long and arduous a training, work which engages their entire skill and capacity, and work, moreover, which is directed to the relief of human suffering. The doctor has this further reward, that his training and experience have not only provided him with a means of livelihood but have given him an acknowledged if untitled place in wider fields than medicine. Without entering politics, national or local, or taking any official position, the doctor is tacitly regarded as one who speaks with authority in concerns affecting the community, large or small, of which he forms a part. Even people who speak slightly of the medical profession honour the individual doctor, and that is no small tribute to the influences which have gone to make him what he is.

## TEACHER AND TAUGHT

The future of medical education is probably the most important problem now facing the profession. Medicine is at one of the critical points in its long evolution, and the direction this evolution will take during the next fifty years will depend more on the type of student to be educated and how he is educated than upon anything else. Criticism of the type of student now being educated was made in severe and unequivocal terms in the Report on Medical Education issued by the Planning Committee of the Royal College of Physicians in 1944: "There are," it was stated, "in our medical schools at present, too many students who have neither the character nor ability to make good doctors." What was more disturbing than the remark itself was the reason given by the Committee for it—namely, that this situation was "chiefly due to the small number of candidates entering medicine." The low quality was not, therefore, due to dilution of the good by quantity. This must mean either that medicine is ceasing to attract able girls and boys of school-leaving age, or that the length and cost of training are too great an obstacle for the parents of those boys and girls who want to take up medicine as a career. To meet the latter the College of Physicians considers that the financial barriers should be overcome by making university education entirely free and that suitable students should, in certain circumstances, receive maintenance grants. The effect of the National Health Service Act on recruitment into medicine has concerned even those who see the Act as a progressive step forward for improving the care of the sick. It remains to be seen whether the restrictive provisions of much of the Act will deter the able and the ambitious from entering the medical profession as they have so freely done in the past.

You cannot make a silk purse out of a sow's ear any more than you can make an educated man out of a youth who is incapable of being educated beyond a certain point, and if the able youth does not have the opportunity of being fully educated he will enter into whatever career he takes up with what the Americans call a "backlog" of ignorance. "In the making of a good doctor," the College

of Physicians Committee states, "the intellectual and personal qualities of the student are at least as important as the educational discipline to which he is submitted," an observation echoed by many. The first requisite, then, is a sound general education before the student starts on his medical course, and most authorities now agree that the minimum age of entry for a medical student to a university should be 18. In his comparative study of medical education Abraham Flexner<sup>1</sup> considered that British medical schools were at a disadvantage compared with those on the Continent in that the student body was "a decidedly miscellaneous group." His investigation of Continental methods showed that, for example, in Germany and the Scandinavian countries the student body was "relatively homogeneous." He found that in Edinburgh, the hospital schools of London, and in the English provincial schools there were "side by side in laboratories and clinics students who took an Arts degree before beginning or in connexion with the study of medicine, students who went from the sixth form to medicine, and students who have passed the minimum examination accepted by the General Medical Council, viz., English, Latin, mathematics, and an additional language." He was severely critical of the standard of secondary education in his own country, America, and concluded that "the world urgently needs a critical and comparative study of secondary education in reference especially to professional and other higher training. . . ." In these days of intense specialization and vast increase of factual knowledge the need for a thorough general education is more necessary than ever before and especially in medicine. Too often the modern science student is like the man described in a broadcast by Prof. Andrade who, when asked who Voltaire was, said he was the man who invented the voltaic cell. If, therefore, we accept the College of Physicians' stricture on the present student those responsible for medical education must have some concern in general education and stress adequacy in this as one of the criteria for selection into medical schools.

If the teacher may thus harshly criticize the student, the student himself may have something to say in reply. The majority of medical students are destined to become general practitioners. Many who have gone into general practice look back upon their student days and ask themselves: "How far did my training go in preparing me for the job I am now doing?" It is all very well for the teacher to say of his student, "This is poor stuff," but what, we may ask, does the teacher do to make the best out of it? The general practitioner cannot help recalling the dreary hours he spent peering through a gap in somebody's armpit at an operation he would never be called upon to perform; of the time he spent listening by the bedside to a physician learnedly discoursing on the differential diagnosis of an obscure neurological case with an incidence in the population of one in several thousands; of listening unprofitably to badly delivered lectures amounting to no more than what appears in standard textbooks. And, to go a little further back in his education, he will recall the soul-destroying efforts to memorize with the aid of slightly obscene mnemonics the relations of the posterior triangle of the neck and the branches of the internal carotid artery. In general practice, we are told, something like a third of the

patients are suffering from psychological disturbance. Faced with patients who are anxious and hypochondriac the general practitioner looks back into his medical education for guidance and can recall only dramatic visions of patients with advanced G.P.I. and such other museum specimens from the shelf of organic psychiatry.

In earlier times, when less facts were known and the teacher of medicine was first and foremost a cultured man, the student, we suggest, suffered less than he does now. With the growth of specialization and the tendency to elude teaching hospital staffs men who are specialists rather than general physicians the remoteness of the teachers from the problems of general practice becomes greater rather than less. We put this matter in a manner which has an element of exaggeration to illustrate what is a cardinal difficulty in the education of the majority of medical men—namely, that those who go into general practice are educated by specialists. The idea of apprenticeship is returning, an expression of awareness of this difficulty. In the U.S.A., where specialization has been carried further than in any other country, the position and problems of the general practitioner are a recurrent theme in the American medical press. It seems that thoughtful American medical men are now waking up to the shortcomings of over-specialization and to the neglect of general practice. It is no less an urgent problem in Great Britain.

Compared with general education medical education suffers from lack of experiment. Teaching in the medical schools tends to become stereotyped and determined by the qualifying examinations. The men who teach have little training in this difficult art and most of them pursue it only as a part-time occupation. Teaching must depend upon the material available for the purpose—sick persons whose welfare must come first. When all these difficulties are considered it is indeed remarkable that medical students are taught as well as they are and that the general standards of practising medicine are kept at such a good level. It is a tribute to the devotion to their task of those who man the staffs of the teaching hospitals. Yet it should be possible to introduce the experimental method into the teaching of medical students in the same way as experiments are made in the field of general education. The College of Physicians, representing an important body of teachers, lays great stress on the teaching of principle and method and deplores the excess of factual knowledge the student is expected to acquire. Flexner, asserting that medicine must be regarded as an inductive science, concluded that "the medical school cannot expect to produce fully trained doctors." The attempt in the supposed interests of the public to do this is possibly what lies at the root of much that is wrong with medical education. The medical school, Flexner went on, "can at most hope to equip students with a limited amount of knowledge, to train them in the method and spirit of scientific medicine, and to launch them with a momentum that will make them active learners—observers, readers, thinkers, and experimenters—for years to come." His emphasis was less upon teaching than upon learning. In much of what is written on medical education the stress is on "teaching." The student in some schools is "spoon-fed" by teachers who, with some natural desperation, believe the student to be incapable of feeding himself. Flexner says elsewhere that in the real sense of the phrase the educated man is self-taught. The value

<sup>1</sup> *Medical Education*, 1925, Macmillan, New York.



of the University education is that it gives the student freedom to teach himself, and in this "doing" and "observing" are the best instruments and a necessary prelude to reading and thinking. Bernard Shaw once said: "He who can does; he who cannot teaches." The medical teacher is one of the exceptions to this in that he both does and teaches. First and foremost he is a "doer," which perhaps makes him impatient with the problems of teaching. However dissatisfied those in the medical schools may be with the present type of student, we would suggest that they should seek to become dissatisfied with current methods of teaching.

### A GOODLY FELLOWSHIP

"A man's virtue is surely to be perceived in his attitude to suffering. The lowest among us are they who inflict suffering and laugh at it and those who decline to take human suffering into account when making their plans for aggrandizement and expansion. Only those who face suffering with tenderness and attempt to assuage it have reached full human stature. To these last you belong." In these lofty words Prof. F. A. E. Crew epitomized the inspiration and motive of the man who adopts medicine as a vocation. He was proposing a toast at the Final Medical Year Dinner at Edinburgh a few months ago. He spoke as one separated from his audience by "great disparity of age." Despite the numerical difference between his age and the average age of his audience his address showed how the truly scientific mind remains perpetually youthful. In his well-chosen words he caught the high note of inspiration which sums up the idealism of the young man who feels called to practise medicine—a note inevitably lacking in the more solemn contributions to the problems of medical education, but in these days of austerity and materialistic thinking more needed than ever before. "We," he said, "who must shortly hand on the torch to our successors sorely need your reinforcement, and so we bid you welcome. We are permitted to refresh our hopes at the springs of your youth." In a moving tribute to the dead, and claiming for medicine a special function in preserving the ideals for which the sacrifice of war had been made, he added: "You belong to that goodly fellowship of medicine which is dedicated to the betterment of man and of society; and of all the instruments that are now being used for the amelioration of mankind there is none so powerful, none so beneficent as is medicine, which demands for its service and elicits in its practice the noblest qualities with which mankind is potentially endowed."

Government, Crew went on, was increasingly occupied with "the satisfaction of human biological needs," and for this reason the profession of medicine held a pre-eminent position. So he urged his listeners to beware lest they lost "that intellectual honesty which at this moment is undoubtedly your most prized possession." The world into which the final-year student would soon be passing was "dominated by science in application and managed by careerists who have acquired the jargon and the patter of science—without its humility, its ethical neutrality, its open-mindedness and its honest scepticism." Science is what men make of it, and medical science is what doctors make of it. Honest scepticism and intellectual integrity

are perhaps more difficult to maintain in medicine than in any other natural science, if for no other reason than that the sick person clamours for magical powers, unaware of the imperfections of medicine as a healing art. Knowing the limitations of medicine, the medical man nevertheless finds it difficult to remain uninfluenced by the mental environment of his patients, and so at times he too readily believes in the efficacy of this or that remedy or method of treatment. And so often there is more hope than truth in the therapeutic fashion of the day. This is reflected in the spoken and the written word in medical meetings and medical journals. "Medical men," Crew said, "stand in great danger of becoming expert in the use of a language which is sonorous, impressive, and utterly void of meaning. They quickly learn that in our society a man, by concealing his lack of ideas with a cloudburst of words, can make himself virtually invulnerable." And as an instance of the lack of understanding of medical principles and of human nature he quoted "the truly astonishing statement" of the Parliamentary Secretary to the Ministry of Food that in this country "every social unit was enjoying a calorie intake of 2,900." This, he said, was not the language of medicine but "the staccato stuttering of statistics."

An echo of Crew's viewpoint was heard last week at the British Association when Dr. Edward Hindle, President of the Zoology Section, repeated Walter Moyle's regret when he revisited the Royal Society in 1716 after some years of retirement: "There is now no room for natural philosophy in Gresham's College: mathematics has engrossed all." It is possible, as Prof. Bradford Hill suggests elsewhere in this issue, that mathematics should engross medicine more than it does. But medicine, we believe—and there are many hints from many directions that this is necessary—should see itself as a part of natural philosophy. We may not go the whole way with Crew when he says that "the scientific knowledge which we already possess is enough to transform the whole quality of life for mankind," although he was supported from an unexpected quarter by Mr. Harold Nicolson when he said in a broadcast that happiness depended on good bodily health. Yet Crew is surely right in claiming for medicine immense powers which society at large prevents it from using. In claiming this he at the same time urged his student audience to avoid complacency and to keep "a persistent sense of fierce dissatisfaction with yourselves and with things as they are."

The bond between teacher and student is strong, and especially in medicine. It found its expression in the Hippocratic Oath, and it has always guided medical education along its very imperfect path. Crew ended his *Ave atque vale* with words that many a teacher would like to use in a similar and constantly recurring situation: "You take with you into your future the warm sympathy of your teachers. To us you are very precious, for you are the children of our minds, our terrestrial continuance. You will forgive our many shortcomings—we have not done all we could have done, all we intended to do—but we have tried in our own ways faithfully to serve. We shall follow your careers with very great interest, and in our slippered senescence we shall enjoy the reflected glory of your service to mankind, claiming you as instruments in whose fashioning we had a hand."

## A PROPHET IN MEDICAL EDUCATION

In preparing this Educational Number we turned again, with heightened appreciation, to the "Memorandum on Recent Advances in Medical Education in England," which Sir George Newman, then Chief Medical Officer of the Ministry of Health, addressed to the Minister of that time, Mr. Neville Chamberlain, nearly twenty-five years ago. The word "memorandum" suggests something ephemeral or provisional, but this is a solid treatise of almost 200 pages, covering the whole field, and it has not lost its appropriateness nor been replaced by any subsequent work of a similar description. One of Sir George Newman's texts was: "The purpose of the medical curriculum is the training, not of specialists, but of general practitioners." That reminder is still needed in 1947. A quarter of a century ago the same complaint concerning the overloading of the curriculum was being made as has been made ever since and was probably made long before. The student was being "overfed for his years." Sir George Newman pointed out that the real business of the curriculum is to establish a man as a practitioner in the fundamentals, to guide and direct his course of learning, and to give him an enduring inspiration.

Writing many years later on medical education, particularly in America, Prof. Helena R. Wright, who holds the chair of Social Service Administration in the University of Chicago, carried the point further. She said that, while the great majority of students go out into general practice, the general practitioner as such has no share in the teaching of the medical school. The student there comes into contact with patients only through specialists, and builds up a picture of medical practice which is a most complete and rather formidable composite production, the work of one specialist after another, but is very different from the picture which faces him when he goes into the community to practise his profession and John Jones comes complaining of lumbago and wants to know what can be done for it and cannot afford to lay up. It is not that the practitioner goes out into the world inadequately equipped, but his equipment is not always well balanced, the pack is not well adjusted to his shoulders. Medical education, after all, is only a part of general education and shares its tendencies, one of which is the reception of a tremendous accumulation of facts—more and more facts as the branches of knowledge expand and new branches are created; and it is forgotten that the object of education is to enable the student to see things clearly and to see them whole—to see the wood as well as the detail of certain selected spinneys. Fortunately, in medical education the Goodenough report, followed by the new recommendations of the General Medical Council, and already anticipated by some of the schools, has supplied a certain corrective. The student is being encouraged to study the patient, the whole patient, and the surroundings of the patient. Even twenty-five years ago those at all events in the van of medical education, as Sir George Newman's memorandum makes evident, understood the importance to the student of an understanding of the patient's psychology and temperament, as well as the social and economic factors in his background. The term "social medicine" had not then become current; it is now recommended as a subject for the curriculum—in the clinical period by the G.M.C., in the pre-clinical by the Goodenough Committee. It is a term which may be defined narrowly or broadly. The Goodenough definition includes prevention of disease, promotion of health, the effect on health of social environment and heredity, and the communal aspects of health and sickness—which seems about as wide as it can be.

Sir George Newman concluded on an optimistic note. He said that while frequent revisions of the curriculum were not to be expected, nor changes in medical policy as rapid as in recent years—meaning the years immediately following the war of 1914–18—"there is a tide of new life and aspiration passing through men's minds of far-reaching possibility." The troubled years which have followed have been years of frustration, in medical education as in many other things, but the prophecy of the early twenties may begin to find fulfilment in the late forties.

## STUDENTS WHO FAIL

Failure during medical training is a serious matter. For the student it is often followed by a loss of confidence in himself, perhaps with some embitterment, as well as by natural concern over wasted expense and effort—a concern more than shared by the parent who foots the bill. For the medical school, and ultimately the community, there should be the question of whether or not everything was done that might have helped to avoid such a result. In the first place, was the student a good candidate for the training vacancy he filled? Was a watch kept for danger signals in his lack of progress, and was there any known source of help with difficulties that the student could use? And when he had to give up, was his failure satisfactorily understood?

Questions of this kind emphasize the unsatisfactory situation in most of our universities to-day regarding the investigation and treatment of student failures. Proper investigation is essential if the individuals are to be given the best advice. It is also necessary for the light it throws on problems of general importance in the task of enrolling the future members of the profession. Thus, in recent years improved methods of selection have been thought of as a way of preventing the occurrence of failures. While no one would claim that a method of selection, however good, would completely eliminate failure of the student "to make the grade," the careful study of failures would, nevertheless, direct attention to what might be the best grounds of acceptance for training.

A recent study carried out by the psychiatry department at Michigan University<sup>1</sup> brings out some interesting points in this matter. After a preliminary survey of students who failed, a fuller investigation was made which included all the freshmen of one year. The result emerging from a comprehensive battery of tests was that the outstanding difficulties of the students who failed would not have been disclosed "in any one type of test nor by any numerical scoring system." Emotional difficulties were more prominent than lack of ability in those who failed. More important still, however, was the fact that many of these individuals responded sufficiently well to treatment to do more satisfactory work. "As a consequence of the investigation, the dean and the promotion board refer routinely students who have difficulties in the medical school and almost invariably the recommendation of the department of psychiatry is accepted."

The report of such a study, though far from comprehensive, throws into relief the contrast between the universities and good industrial firms in the provision for the well-being and successful development of their "workers." Few progressive firms to-day would do without their "personnel departments," and a therapeutic endeavour of this kind would surely seem to be not beyond the scope of a medical school. It is a controversial subject, and an open debate on it by a gathering of medical school deans would no doubt reveal a diversity of opinion on the subject.

<sup>1</sup> Waggoner, R. W., M.D., and Zeigler, T. W., Ph.D., *Amer. J. Psychiat.*, 1947, 103, 369.



"Caught red-handed." The earliest known representation of a dissection, c.1290 (M.S. Ashmole 399). Reproduced from the *Catalogue of an Exhibition of Books on Medicine, Surgery, and Physiology*, 1947, by permission of the Librarian, the Bodleian Library, Oxford.

## BODIES FOR DISSECTION

[FROM A CORRESPONDENT]

At the beginning of the 19th century the study of human anatomy was hampered in a manner peculiar to that branch of science: though the materials required for its pursuit were everywhere abundant, religious belief, popular prejudice, and superstition prevented their being used. To dissect a dead body was to desecrate it—a belief still prevalent among the uneducated even in civilized countries. Fortunately, however, there were always a few individuals so degraded in life that execution was not sufficient expiation, and dissection, especially in public, became an accepted epilogue to careers full of incident.

Executed criminals were the permitted source of supply during the 14th, 15th, and 16th centuries, and the universities and other centres of learning in Europe obtained the right to dissect a specified number of bodies annually—usually one to four—with the proviso that the anatomists should treat them with respect, arrange their burial, and send Mass for the departed souls. These provisions were further legally augmented in various ways: in Edinburgh by allowing "the bodies of fundlings who dye betwixt the tyme they are weaned and thir being put to schools or trades; the dead bodies of such as are stifled at birth, which are used . . . such as are *felo de se*, and have none to owne them; likewise the bodies of such as are put to death by sentence of the magistrat and have none to owne them." In England an Act of 1751 decreed that executed murderers should either be gibbeted or conveyed to the Hall of the Surgeons' Company for public dissection; and in France and Germany similar measures were enacted.

In spite of the official recognition of anatomy, however, the general populace continued to regard it with the utmost loathing. The Barber-Surgeons' Company of London used to send their beadles with a cart to Tyburn to collect the criminal's body when he had been duly executed by the hangman, but it was usual for the relatives of the deceased to incite the mob against the beadles, and in the excitement of the occasion riots commonly occurred. The annals of the Barber-Surgeons, as Young records, contain numerous notes of payments such as the following:

"1735-6. Paid the High Constable for the expenses at the late execution when the body was rescued: £3 13s. 6d.

"Paid the Beadle's expenses in prosecuting John Miller, one of the Persons who assaulted the Constables and rescued the body: £2 2s.

"1739. Paid the Beadles for their being beat and wounded at the late execution: £4 4s.

"1740. Paid for mending the Windows broke upon bringing the Body from Tyburn: 6s."

The executioner sometimes caused trouble and sided with the mob, for he was often a trafficker in corpses himself, and in any case was entitled to the criminal's clothes as a perquisite. The surgeons had to contend not only with the executioner and the mob in obtaining bodies, but on several occasions with a hanged man who came to life. In 1587 a man hanged at St. Thomas Waterings was transported to the Barber-Surgeons' Hall in a chest; on its being opened he was found to be alive. He died three days later. The Company incurred some expense over him, and not wishing to do so again on behalf of one of their members, since he was a "private anatomy"—that is, not one of the four executed felons permitted for public dissection annually—they recorded on July 13 of the same year that in such cases "the charges about the same bodie so reviving shall be borne levied and susteyned by such person or persons who shall so happen to bring home the Bodie."

### The Resurrectionists

Public disapproval of dissection continued unabated by the advance of the scientific outlook during the 18th century, and the troubles of the anatomists, whose science shared in that advance principally owing to the inspiration of William Hunter at the Windmill Street School, increased as their numbers grew. For the first time the supply—we include the tactfully illegal with the legal—failed to meet the demand, and the resurrectionists started their highly organized racket. Paupers used occasionally to offer their bodies for sale to the anatomists—the money to be paid immediately, of course—but this was more in the nature of a confidence trick than a business transaction, since the law does not recognize property in a corpse, except in so far as it belongs to the next of kin for disposal according to law, and a surgeon was therefore unable to establish a legal claim to his bargain when it died. With the growth of rationalism, however, men occasionally decreed in their wills that their bodies should be dissected—for instance, Jeremy Bentham, “so that mankind may reap some small benefit in and by my decease.” Dr. Southwood Smith kept Bentham’s skeleton in his consulting-room for many years.

Contemporaries of the resurrectionists regarded them as loathsome criminals, “the lowest dregs of degradation,” to quote Sir Astley Cooper’s phrase, and likely to commit any crime to satisfy their all too human lust for lucre. No doubt they often stooped to petty thieving, blackmail, and bribery; certainly they included among their number many whose principal means of livelihood was highway robbery and “breaking and entering”; but the typical and most successful resurrectionists left the grosser forms of crime well alone. They were graveyard “spivs” rather than dangerous felons, hawking bodies instead of the black-market goods that their counterparts peddle to-day. Murderers like Burke and Hare were exceptional.

The raising of bodies, or “things” as they were called in the slang, was normally carried out at night. The resurrectionists not only bribed the watchmen, sextons, and other interested parties to allow the exhumation to go unhindered; but also paid many of them regularly, as well as common lodging-house keepers, workhouse supervisors, hospital attendants, and undertakers, to inform them when a person died. This led to the relatives’ keeping watch themselves in many cases, but even then the resurrectionists were not defeated, for these ingenious men might mix with the mourners at the funeral and whisk the body out of its grave as soon as the gathering had dispersed, or, if that proved to be impossible, they would get the relatives thoroughly drunk by nightfall and remove the corpse when the intoxicated guard took over. If an undertaker could be bribed to fill his coffins with rubbish and slip the “things” out through the back door, so much the better; and quite the lowest form of resurrectionist was not above stealing corpses at one school of anatomy to sell them at another.

The resurrectionist’s dream of an exclusive and perpetual source of supply came true when Murphy—one of the most prominent of these men—and an accomplice whom the teller of the tale, Bransby Cooper, called Patrick since he was still alive when it was published in 1843, discovered a private burial place near Holywell Mount, in London, owned by two old ladies. They acquired this information from a man named Whackett, grave-digger and superintendent of the ground, and induced him with a suitable bribe to leave the gate open at night. So many were the bodies Murphy and Patrick obtained from this “crib”—that is, graveyard—that they excited the astonishment and envy of their rivals, who proceeded to investigate the matter. Two of them, Hollis and Vaughan, finally discovered it and tried to bribe Whackett for a share of the supply. He proved to be immutable, and their importunities so enraged him that he ran across the street to a public house, which was full of labourers, and shouted, “Those fellows are body-snatchers come here to bribe me to let them raise from my ground!” The men rushed out to attack Vaughan and Hollis, who, contriving to escape, in revenge went immediately to a crowded police court where a magistrate was at the moment presiding, and announced that if he sent officers to Holywell Mount they would find every grave despoiled of its dead,

Whackett having sold them to body-snatchers. The occupants of the court hastened to the graveyard, the crowd swelling as they passed through the streets, and on arrival seized Whackett and began furiously digging up all the graves. The allegation appeared to be true. Whackett was thrown into one of the deepest holes and earth shovelled over him. The constable rescued him just in time. The mob then destroyed every article in Whackett’s house, dragged his wife and children through a stagnant pool, and smashed all the windows in the house of the two old women, who were in fact innocent of connivance in the scheme. The story does not end there. Vaughan was rash enough to commit some offence for which the police sought him. Murphy betrayed his hiding-place, and he was sent to Maidstone Jail for two years.

Such was the gang warfare that prevailed in the highly competitive business of exhumation. Disinterment itself was decided to be a misdemeanour by the court of King’s Bench in the case of *Rex v. Lynn* in 1788; even though carried out for the purpose of dissection, it was an offence *contra bonos mores* and common decency. This did not deter students from an occasional “Visit to the Tombs,” and one such visit was described in our columns recently (July 12, p. 67). It was customary, when genuine resurrectionists got into trouble with the police, for the surgeons to pay large sums of money to keep them out of jail or to support their dependants, and Sir Astley Cooper told the Select Committee on Anatomy that “at the present moment two surgeons are bailing a man at the expense of £100 who has been detected in exhumation.” The difficulties under which the anatomists laboured were added to in 1828 when Davies, a medical student, was found guilty of possession of a cadaver, though not a party to its actual disinterment, and fined £20.

### The Craft of Exhumation

Speed and cleanliness of the surrounding soil were the two chief requisites in “raising” bodies. The method usually adopted was to remove a square of turf at the head end of the grave, dig a hole as small as was manageable down to the coffin, and insert a claw-shaped crowbar under the lid. Levering up the exposed part of the lid—about a third—the exhumator could snap it off against the earth covering the other two-thirds. He then tied a rope round the corpse’s neck and pulled—not steadily, but in short jerks. It was important to fill in the grave carefully and leave it tidy so that the robbery should not be discovered the following morning. Many a mourner must have wept over an empty grave. On a few occasions relatives tried to defeat the body-snatchers by packing the corpse in quicklime, but most people seem to have shrunk from thus hastening its dissolution.

The expert resurrectionist with two or three sober and industrious assistants (they were often neither) might raise five or six bodies in a night in this manner if circumstances were favourable. An element of class distinction entered the matter, for the coffins of the poor were buried in shallow graves than those of the wealthy and were made of cheap wood having lids that could be easily cracked open with the crowbar. When “A. B.,” who was probably Ben Crouch, a leading resurrectionist at the beginning of the 19th century, was giving evidence before the Select Committee, he expressed his preference in the following words: “When I go to work I like to get those of poor people buried from the workhouse, because instead of working for one subject you may get three or four. I do not think during the time I have been in the habit of working for the schools I got half a dozen of wealthy people.” The poor, of course, were well aware of this preference, and when the Select Committee asked “A. B.,” “What do you think to be the feeling in London, of persons of the lower classes in life, concerning surgeons having bodies for dissection?” he replied with some vehemence, “They would not mind shooting a man as dead as a robber if they caught him in a churchyard.”

A third resurrectionist, “C. D.,” who was probably Napier, gave the Select Committee some interesting details of the numbers of corpses he had supplied to the medical schools. “Will you state to the Committee what was the number of subjects you supplied to the anatomical schools in 1869-70, i.e., the year that included the winter common to both?”

the number in England was, according to my book, 305 in 1810, 44 small subjects under 3 feet; but the same year there were 37 for Edinburgh and 18 we had on hand that were never used at all." "Now go to 1810 and 1811?" "312." "Adults that year?" "Yes, and 20 in the summer, 47 small." "1811?" "1812?" "360 in the whole, 56 small ones, these are the Edinburgh ones and all." And the next year Bristol was supplied as well.

The extent of this trafficking was one of the main reasons the Select Committee's being appointed. The demand for bodies continued to increase; the number of resurrectionists multiplied to keep pace with it, and this in turn made competition all the keener. Watchmen, undertakers, and all the rest of the dishonest crew of informers kept the resurrectionists going against each other for their exclusive services. Bribes had to be increased, and with them the price of the cadavers, with the result that financial considerations came seriously to impede the progress of anatomy. The Select Committee asked Sir Astley Cooper, "What is the present price of a subject?"

"Eight guineas."

"At what do you remember it to have been formerly?"

"When I entered the profession it was 10 guineas; since that period it has risen to fourteen."

In reply to a question whether the existing law prevented bodies being obtained Sir Astley Cooper said, "The law does not prevent obtaining the body of an individual if we think proper; for there is no person, let his position in life be what it may, whom I were disposed to respect, I could not obtain."

"If you are willing to pay a price sufficiently high you would always obtain the body of an individual?"

"The law only enhances the price, and does not prevent the humation. Nobody is secured by the law, it only adds to the price of the subject." Moreover, the scarcity of cadavers, apart from increasing their price, led to the dissections and lectures often being suspended for many weeks at a time, and the Committee commented, "The pupils are exposed to the danger of acquiring habits of dissipation and indolence."

### The Anatomy Act

By the beginning of the 19th century the murders and body-snatching had sufficiently shocked the public, and the criticisms of the Utilitarians had permeated deeply enough for general approval to be given to the Select Committee's recommendation that dissection should be regulated by law. A Bill to this effect was introduced in 1829. It passed the House of Commons successfully, but the Lords rejected it on the

grounds that it condemned the bodies of the poor to an indignity that those of the rich would escape.

A second Bill was therefore introduced in 1831, and in 1832 was enacted as 2 and 3 William IV c. 75 under the short title "An Act for Regulating Schools of Anatomy." This Act permits medical students and other appropriately qualified persons to dissect human bodies, with the proviso that the nearest surviving relative shall give his or her approval, regardless of whether the deceased had given permission or not. Among the many opponents of the Bill, and perhaps the most remarkable, was the *Lancet*, which contended that it would legalize the buying and selling of bodies, encourage the resurrectionists and murderers, and fail to diminish the students' expenses. A leading article (1831-2, 1, 509), commenting on a letter from the

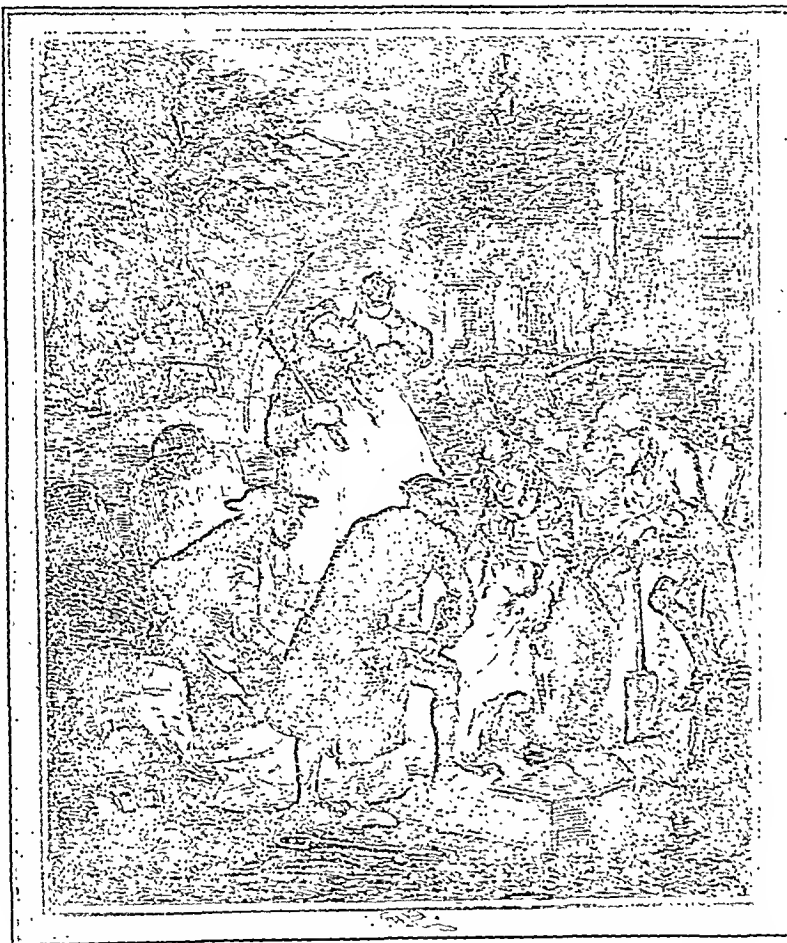
Council of the Royal College of Surgeons to Lord Melbourne which advocated the need for an Anatomy Bill, spoke of that august body as follows:

"Oh! how tamely the members of our profession have submitted to the insults of this self-perpetuating oligarchy! Contemptible in number, almost contemptible in talent, despised for their tyranny, abhorred for their injustice, yet have they menaced with their noxious authority—under the protection of their baneful powers—the great body of English medical practitioners."

The surgeons and others nevertheless got their bodies—chiefly from the poorhouses, hospitals, and mental asylums—and the supply was sufficient until the end of the 19th century. Since the turn of the century the rising standard of living combined with the increasing number of medical students has made the supply more precarious, and in fact it is now inadequate. Destitution is almost a

thing of the past; no doubt the poorhouses soon will be: every year fewer bodies lie unclaimed. Unfortunately, though public opinion long ago sanctioned dissection, private opinion, as is not unusual, continues to resent it deeply. Bequests of bodies are at present far too few to meet the demand (and in any case ineffectual if the relatives oppose them), and no doubt the Government will have to tackle the problem. We understand that in the last two years numerous representations have been made to the Minister of Health.

Presumably any endeavour to increase the supply must be preceded by a decorous "propaganda campaign" to convince the people that body donors are as urgently needed as blood donors. It will surely be impossible to legislate that bodies be obtained from certain sources, such as hospitals or prisons, without arousing insuperable opposition from the public at present; and if public opinion is so changed as to approve of such a measure, possibly the bequests alone would be sufficiently numerous to obviate the need for legislation.



"Resurrectionists." Reproduced from an illustration by "Phiz" in Camden Pelham's *Chronicles of Crime*, by permission of the Librarian, the British Museum.



## THE UNDERGRADUATE MEDICAL SCHOOLS

### PLANS AND PROSPECTS FOR NEW ACADEMIC YEAR

Through the kindness of the several deans, who have not objected to filling up yet one form more, we are able to present a survey of the position in the medical schools of Great Britain, Northern Ireland, and Eire at the advent of a new academic year. On three questions in particular information was sought: first, as to any changes or innovations in the curriculum following on the report of the Goodenough Committee and the more recent recommendations of the General Medical Council concerning changes in the curriculum; secondly, the likely effect of compulsory national service on the student position; and, thirdly, the opening of the door in all the schools to women students.

#### Innovations in the Curriculum

All the schools appear to be in process of readapting the curriculum, but such changes cannot be made by a stroke of the pen. At Edinburgh a complete revision of the whole course of study for the M.B., Ch.B. degree, based on the recommendations of the Goodenough Committee and the G.M.C., is being undertaken, and it is hoped to start the new curriculum in October, 1948. At Westminster Hospital Medical School the curriculum has recently been revised. During the first three months of the 36-months period for the London M.B., B.S. the students attend a set course which includes a larger number of lectures than hitherto. During the next twelve months they attend two medical and two general surgical firms, with a certain number of lectures, and during the subsequent fifteen months they attend five special firms, including three months in a paediatric firm, during which they receive intensive instruction in children's diseases. Other London schools—the London, St. Mary's—have instituted a special introductory clinical course; and yet others—King's College Hospital, St. George's, St. Bartholomew's—have introduced instruction in social or industrial medicine.

At Liverpool the curriculum has been modified considerably in accordance with the G.M.C. recommendations; at Sheffield a new curriculum on the lines of those recommendations will come into force in October; at Leeds the staff is being enlarged and the curriculum replanned on the same lines; and at Cardiff, so far as it is possible under present conditions, both the Goodenough and the G.M.C. recommendations have been adopted.

A new curriculum was introduced at Queen's University Medical School, Belfast, a year ago, affecting as yet only pre-medical subjects, to which now one whole academic year is given. As the students who entered in 1946 make progress the curriculum is being altered throughout its length. In general the Faculty at Belfast has adopted the G.M.C. recommendations, and quite extensive parts of the Goodenough report have been put into operation over the last two years. A course in the history of medicine has been introduced.

#### The Effect of Conscription

On the effect of compulsory national service upon the student position some of the deans offer no opinion, but the majority say that there will be no effect at all, or that the effect will be only of slight extent, giving the school a more mature type of student. It appears to be the general opinion that the students will elect to take their service in the Forces first, and then go on to their studies; this is likely to obtain so long as the schools continue to give priority to ex-Service candidates; but a number of students may choose to take first their medical course. One dean remarks that a number of parents seem to be in doubt whether to prefer their sons to do their national service as combatants before qualification or to serve in a medical capacity after qualification. This dean says that he has, after some hesitation, come to favour the second alternative "as the lesser evil."

The dean of the Liverpool Medical School foresees a student entry divided in this respect. From now onwards, he says, a proportion of students will enter the medical schools before their national service has started and another proportion after

that service has been completed. At Liverpool, therefore, it is proposed to choose each year about 60 to 65 of the best applicants from the schoolboys seeking admission. Of this number say 30 will be taken into the school forthwith, the remaining places going to men who have already completed their service; the other 30 or 35 schoolboys of the year will be given a firm letter of promise of admission after their national service, subject to a satisfactory certificate of conduct while in the Forces. It is thought that this will reassure parents and guardians, and will fit in with a process which is inevitable for as long as compulsory national service continues.

#### The Woman Student

These considerations will not apply to women students, unless, of course, the claim of the Medical Women's Federation that compulsory national service should be exacted from women on the same basis as for men is conceded. Practically all the medical schools now admit women, generally in the proportion of 15 to 25% of the total admissions. Among the London schools St. Bartholomew's admits not less than 15%, Charing Cross 20% of the total entry; Guy's, approximately 12 out of 100; St. Mary's, 10 out of 90; University College Hospital, 14 out of 70; King's College, 25%; the London, 15%; St. George's, 5 or 6 a year out of an entry limited to 30 students; St. Thomas's, 15%; Westminster, up to 15%; Middlesex, 12 out of 80.

At Oxford the number of women to be admitted during the academic year 1947-8 is 10 women to 55 men; at Bristol women students are admitted to a maximum of 25% of the total; at Liverpool, from 20 to 25%; at Sheffield, the same; at Manchester, about one woman to three men; at Leeds women students are admitted; "but of necessity in only very limited numbers at present"; at Birmingham about one-third of the admissions are women. In the Welsh National School of Medicine, by the charter of the University, there is no restriction on the admission of women students, and in practice women fill from one-fourth to one-third of the vacancies. At Edinburgh approximately 25% of the places are occupied by women. At Glasgow between 30 and 40 women students are admitted out of a normal entry of 180. At Aberdeen the number is 20 out of an expected entry this year of 92. At Queen's University, Belfast, women are admitted on an equal basis with men, and there is no limit to the percentage of women candidates in any one year. At Trinity College School of Physic, University of Dublin, women are admitted on the same terms as men, but it is added that as almost one-third of the present students are women the tendency in the future will be to limit the number of places to be made available for women students.

On the other hand, at what has hitherto been known as the London (Royal Free Hospital) School of Medicine for Women, but is in future to be called the Royal Free Hospital School of Medicine, revisions to the charter have just been approved by the Privy Council allowing the admission of men students to the school. Such admissions will begin from October, 1947. The men have been required to sit for the entrance examination, and both men and women have been accepted on the results. No quota has been fixed, but the majority of students are women.

#### London University Undergraduate Schools

The Schools (some of them postgraduate) of the Faculty of Medicine of the University of London number twenty-one. They include the twelve schools each associated with a London teaching hospital, the pre-clinical schools of University College and King's College, the London School of Hygiene and Tropical Medicine, the Lister Institute of Preventive Medicine, the Royal Dental Hospital (for dentistry only), the Maudsley Hospital (for research in psychological medicine), the College of the Pharmaceutical Society (for pharmacy only), the Royal Cancer Hospital, Free (for research in pathology and radiology), and the British Postgraduate Medical School. There are recognized teachers of the University on the staff of the National Institute for Medical Research, Hampstead, and the Royal London Ophthalmic Hospital.

At Charing Cross Hospital Medical School building operations are proceeding apace for full opening in October. The

teaching staff numbers between 30 and 40, and the expected entry of students—also the limit of entry—is 45. The departments of anatomy and physiology, which have been closed for a long period, will be reopened at the beginning of the new session. The school is in affiliation with the hospitals of the Middlesex County Council and with the Royal Dental Hospital for teaching purposes. Charing Cross Hospital and School are expected to be completely rebuilt at Harrow within the next ten years.

The expected entry at Guy's Hospital is 100 approximately, which is the limit of the annual entry. Guy's students are encouraged to undertake undergraduate resident appointments at outside hospitals such as Preston Hall, near Maidstone, for tuberculosis, and Park Hospital, Hither Green, for fevers.

King's College Hospital, Denmark Hill, has an entry of 60 medical and 25 dental students. The hospital is affiliated with Horton Hospital, and when this arrangement terminates at the end of the year it is hoped that similar arrangements will be effected with other hospitals. The long-term policy is to increase the number of beds on the present site to 1,000, and in the meantime it is hoped by association with neighbouring hospitals to provide for double the present number of students.

At London Hospital Medical College the expected entry of students is 80. The school is in full use and the teaching staff at normal strength. Maternity teaching is given at the Mile End Hospital near by. Long-term projects include the complete rebuilding of the medical and dental schools.

The Middlesex Hospital Medical School has its buildings fully in use and its staff at normal strength, and takes its usual quota of 80 students annually. Students are admitted to the recognized course for the first M.B. The Central Middlesex Hospital, Acton, and Mount Vernon Hospital, Northwood, are affiliated with Middlesex for clinical instruction.

The Royal Free Hospital School of Medicine, now to be a school for men as well as women, has a limit of entry of students of 70 for the first year, and a maximum of 30 into the second year according to the number of failures or withdrawals in the first year. The hospital becomes the parent of a teaching group under the National Health Service Act. It is the use of some beds at the Liverpool Road Fever Hospital and certain facilities for the teaching of medicine and pathology at the Archway Hospital, and it is expected that there will be an extension of facilities in these and other L.C.C. hospitals. The bombed site in Tavistock Place adjoining the present buildings has been acquired by the school, and it is hoped to erect a laboratory wing there as soon as possible.

The Medical College of St. Bartholomew's has an expected entry of 130 students. The entry later is to be limited to 100. Teaching staff is at normal strength, and plans for rebuilding the pre-clinical college, which was destroyed during the war, are well advanced.

St. George's at Hyde Park Corner is one of the smaller schools, with an expected entry of 25 and an annual limit of 30. It is in affiliation for teaching purposes with the Victoria Hospital for Children, Tite Street, Chelsea. Child psychiatry is a recent introduction in St. George's curriculum. Plans are being prepared for rebuilding and enlarging on a new site which will enable the school to take an annual clinical entry of 80 and to teach pre-medical subjects.

St. Mary's at Paddington has an expected annual entry of 90, with an annual limit of 100. It is affiliated with Paddington (L.C.C.) Hospital. Lectures have recently been introduced here on general practice, genetics, and statistics. The long-term policy is the completion of the school buildings.

St. Thomas's takes 100 students a year into the clinical period, but at present the entry is restricted to 80, owing to shortage of beds. The long-term policy is a complete new set of buildings. Implementation of the G.M.C. recommendations depends largely on increased accommodation.

University College Medical School has an expected entry of 70 students and a limit of 75. It is affiliated for teaching purposes with the North-western Fever Hospital.

At Westminster Hospital Medical School about 45 clinical students enter each year (say 25 in April and 20 in October). About 120 clinical students are in attendance. There are facilities

for 150, but lack of accommodation at King's College, Strand, where the majority of students take the pre-clinical course, restricts the number entering for the clinical period. Although at this school, as at others, 90% of the places are reserved for ex-Service candidates, in practice it has not been possible to fill all these places with suitable ex-Service students. In October the entry will be approximately 60% from school and 40% ex-Service (this refers, of course, to students entering the pre-clinical department at King's). The Infants Hospital, Vincent Square, now called the Westminster Children's Hospital, and All Saints' Hospital, Vincent Square, for genito-urinary cases, have been amalgamated with the Westminster. At least one other amalgamation is in prospect. Plans are on foot for the building of a new school with pre-clinical (anatomy and physiology) departments, and chairs of medicine, surgery, and obstetrics and gynaecology are projected as a long-term policy.

The West London Hospital at Hammersmith has been an undergraduate medical school since 1937, and at the moment admits women students for the clinical course only. The pre-clinical course is taken at University College for London students, and a number from Oxford and Cambridge are also admitted. During the war a certain number of students did their pre-clinical work at King's College, Strand, but this arrangement ceased at the end of the war. The University is anxious for the school to devote its resources and organization to the postgraduate training of specialists, particularly in general medicine and surgery. In view of this, the admission of undergraduate students will have to cease in the near future, and it is impossible to consider any further applications from such students at the moment. In due course the school will join the British Postgraduate Federation, which has been instituted by the University of London.

The London County Council, in its general hospital service, follows the practice of employing senior medical students during their periods of vacation and allowing them free board and lodging in return for their services. This privilege has lately been extended to the mental health services, and the medical officer of health has been authorized to arrange, where practicable, for approved medical students to be attached to hospitals and institutions of the mental health services without remuneration, but with free board and lodging if required, the normal period of attachment to be not more than six weeks and not more than two students to be attached to any one institution at any one time.

### Oxford and Cambridge

The entry of students from school into Oxford University is restricted by decree; the number to be admitted to the Medical School in the academic year 1947-8 has been fixed at 55 men and 10 women. Holders of certain scholarships and exhibitions are approved for this purpose and Rhodes scholars are accepted automatically. As for other candidates, the names of male medical students are put forward by the college, hall, or society to which the student seeks admission for consideration by a selection committee set up by the University for the purpose. Preliminary inquiries should therefore be addressed to the head of a society, not to the dean of the Medical School. There are 22 men's societies in Oxford, each attached to a particular college, with the master, or principal, or provost, as the case may be, at the head, together with one non-collegiate society. Female students are selected by the five women's societies attached to the three women's colleges and Lady Margaret Hall, with one non-collegiate society; these act together to choose the most suitable candidates. In view of the various Ministry of Labour regulations about deferment and of the fact that it may be necessary to pass a college entrance examination before acceptance, any prospective student coming straight from school (that is to say, any except an ex-Service student) is strongly advised to make application for admission to a society well in advance of his or her eighteenth birthday. All the societies provisionally accept prospective medical students. It should be added that the acceptance of ex-Service men and women is not limited by the decree above mentioned. The acceptance of foreign students for the time being is limited by reason of the pressure on accommodation of colleges and laboratories.

Students without war service matriculating after the end of Trinity term, 1946, will no longer qualify for the B.A. degree by passing the first B.M. examination (organic chemistry, anatomy, and physiology), but will be required to take the second public examination, the course for which is normally taken by medical students is the Final Honour School of Animal Physiology. Students with not less than eight months' approved war service who matriculate before the end of Trinity term, 1948, can qualify for the B.A. degree by passing the first B.M. examination, and hence do not require to reach the higher standard in the preliminary examinations in physics and chemistry, which is essential for entry into the Final Honour School.

It has been decided that the Clinical School shall become a permanent feature at Oxford, so that students may qualify either at Radcliffe Infirmary, or by transference to a London or other teaching hospital. The clinical administrative and social centre is being established in Osler House, which is adjacent to the Radcliffe Infirmary.

At Cambridge in the new academic year the pre-clinical Medical School will be filled to capacity. The Medical School at Cambridge is based upon the existing University departments and Addenbrooke's Hospital. Members of the staff of Addenbrooke's have become recognized teachers in the University, while the University has assumed the responsibility for the pathological and biochemical services of the hospital and has appointed University officers to carry out the work under the direction of the professor of pathology. The University has taken the further step of linking the public health laboratory service to the Department of Pathology by appointing the two senior members of the staff of that department to University posts. Some of the difficulties of accommodation are in process of being temporarily overcome by the erection of huts on the Downing site.

These new developments are all part of the long-term University plan, begun a few years ago with the formation of departments of experimental medicine and of radiotherapeutics. The consolidation and reorganization of the pathological services provides the basis for the evolution of the new departments contained in the five-year plan for the Medical School. This year the University will launch its Department of Human Oecology, which will include a service for the supervision of the health of undergraduates and those engaged in hazardous laboratory work, as well as a subdepartment of epidemiology and a statistical service. In principle a new department should begin each year, provided premises are available. Departments of paediatrics, thoracic surgery, orthopaedic surgery, and haematology are contemplated. It is hoped that during the quincentennial the building of a new Addenbrooke's Hospital on an appropriate site will be well in hand, thus providing ample accommodation for hospital services and University departments alike, as well as permitting serious contemplation of a full undergraduate medical school, in addition to the postgraduate plans which are now being pursued.

### English Provincial and Welsh Schools

The expected entry of students this year at the Medical School, Hospitals Centre, Birmingham, is 110, which is also the limit on admissions. The only priorities in student admissions are for ex-Service persons (90%). The curriculum now includes an introductory course, and neurology and tuberculosis are new subjects. Long-term development is the completion of the main building. All house appointments at the teaching hospital are available for students on graduation before doing their military service.

At Liverpool the limit of admissions is 100, and the entry this year as last will be to the maximum; 70 will enter first year (pre-medical) and 30 the second year. Liverpool has four general teaching hospitals, and to obviate waste of time in travelling the students in their clinical years (fourth to sixth) will in future have all lectures at the University concentrated in two mornings of each week. After setting aside the women's entry and commitments to the Colonial Office, up to 90% of remaining places are reserved for suitable ex-Forces candidates, local claims having preference. A considerable amount of midwifery and some elementary clinical medicine and

surgery are taught in corporation hospitals. A big long-term plan centres on the building of a single general teaching hospital. Short-term plans include the introduction of Hons. B.Sc. in physiology and biochemistry, starting this year, and the establishment of a full-time department of anaesthetics.

The entry at Leeds for the first M.B. is up to the full limit of 75. The main teaching is done in the General Infirmary at Leeds, a voluntary hospital, but there is affiliation for teaching purposes with Leeds municipal hospitals. As with any teaching school, most of the junior appointments are filled by the school's own graduates, but facilities do exist for others. The D.P.H. course at Leeds is running again, and the D.P.M. may be running next session.

The Medical School at Manchester takes 96 students as a maximum. Long-term plans at Manchester include the building of a new medical school and library to house the rapidly expanding pre-clinical departments and some of the clinical departments as well.

Sheffield has 52 medical and 8 dental students entering for their first year and 20 medical for their second. The limit of first-year entry is 40 medical and 20 dental students, and for the second year the number entering is limited to make total classes of 60. Up to 90% of places are available for ex-Service candidates, but it is not anticipated that such a high percentage of suitable applicants will be received. The teaching hospitals are the Royal Sheffield Infirmary and Hospital (including the Edgar Allen Institute), the Jessop Hospital for Women, and the Children's Hospital; and local authority hospitals for tuberculosis and infectious diseases and the West Riding Mental Hospital are affiliated. A new Medical School has been planned at Sheffield to allow for an annual entry of up to 100 medical and 50 dental students each year. A department of social medicine is to be developed and student health service organized.

Bristol has an entry of 60, the maximum intake. Here a transitional period of study, including an introductory clinical course, is being introduced. During the coming session this will be of three months' duration. The examination in elementary pathology and elementary pharmacology (section II of second M.B.) will probably be abolished. The minimum period for clinical studies is expected to be reduced from 36 to 33 months, and it is proposed to extend the period of paediatric clerking from one to three months. A full-time professor of child health has recently been appointed. The local municipal general hospital, Southmead, is used considerably for teaching purposes; all obstetrical instruction is carried out there, also an appreciable part of the teaching in medicine and surgery. The city hospitals for infectious diseases and mental diseases have also been used for teaching purposes for many years.

The Medical School of King's College, Newcastle-upon-Tyne (University of Durham), will have approximately 65 first-year admissions. Second-year admissions will be about 25, bringing the total number for the year to about 90. The number of applicants considered for admission has been approximately four times the number of vacancies. The recently established Department of Industrial Health at Durham University has begun to take a full part in clinical teaching. A new Department in Anaesthesia has recently been established. The teaching hospital remains the Royal Victoria Infirmary, but close relations are maintained with the Newcastle General Hospital (the municipal hospital). At present students attend only on a very limited scale at the General Hospital, which is, however, used considerably for postgraduate teaching.

The Welsh National School of Medicine at Cardiff, a constituent college of the University of Wales, is again in full use, with the teaching staff at normal strength, and is prepared to accept the entry of 50 students to begin their clinical work, the maximum it is possible to admit to clinical studies under present conditions. The new entry of pre-clinical students is expected to be at least 50, and if it is possible to obtain the necessary additional staff this number will be increased to 65. Apart from the automatic readmission of students of the University of Wales to continue their medical courses, first priority for other candidates is given to ex-Service men and women. Instruction in pre-clinical subjects is available in each of the constituent colleges of the University (Aberystwyth, Bangor, Swansea, and Cardiff), but in practice

most of the students enter Cardiff College. The Royal Infirmary is the main teaching hospital, but the school uses also Llandough Hospital and the City Lodge Hospital of Cardiff Corporation. The school authorities have submitted a scheme for a long-term policy. The architect has been appointed and the draft plans prepared for a scheme which envisages a University medical teaching centre, comprising adequate accommodation for each department of the medical school, a teaching hospital of not less than 1,000 beds, and appropriate recreational facilities for students and staff on a site of about 70 to 80 acres. It is hoped that such a site will be found in Cardiff. As a short-term policy the Ministry of Health has approved the provision of additional beds for the Cardiff Royal Infirmary to be erected in the grounds of the Corporation hospital at Llandough. It is hoped that this extension will proceed quite rapidly, and with it the teaching facilities for medical students will be much improved.

### Scottish Schools

In the Faculty of Medicine of the University of Edinburgh all the available places for undergraduate students are occupied. The selection of students to be admitted for the first year of the medical course in October, 1947, has been made, and approximately 200 new students have been accepted; 200 first-year students is the maximum that can be taken under present conditions. Since the end of the war there have been increases in staff in many of the departments, and there is sufficient staff now to carry out all the duties in the accommodation at present available. Pre-medical education is carried on in the school. During the first year of the medical course the basic sciences of physics, chemistry, botany, and zoology are studied, and in addition the students attend courses in anatomy. The Royal Infirmary is the main teaching hospital, but facilities for clinical instruction are available at the municipal hospitals, the City Fever Hospital, the Royal Hospital for Sick Children, the Princess Margaret Rose Hospital (orthopaedics), and the Royal Edinburgh Hospital for Mental Disorders.

At Glasgow University the normal entry of medical students is 180, but has been increased this year to 240 in view of amalgamation with the Anderson College of Medicine and St. Mungo's College. It is hoped that the amalgamation arrangements with the Anderson College will be completed by Oct. 1. The University has agreed to increase its annual intake of medical and dental students so as to provide for those who would ordinarily have been admitted to Anderson, and such students will read for the M.B., Ch.B. or dental degree subject to the same terms and conditions as apply to present University students. Existing students of the Anderson College will be given facilities to continue their studies for the Scottish Conjoint diploma under the regulations which were in force at the date of their entry to the College. Those who can show a good progress record will be given the option of transferring to the M.B., Ch.B. degree and will be allowed to count examinations already passed up to and including the third professional. It is anticipated that the University will specify a minimum period of study under their own regulations before the privilege of sitting the final examination is granted. St. Mungo's College, which is the Medical School to the Royal Infirmary, and has been an independent entity since its foundation, has now been amalgamated with Glasgow University, and applications for admission should in future be made through the usual University channels.

The entry of students at Aberdeen is 92. In student admissions preference is given, other things being equal, to students from the University area and sons and daughters of graduates. All hospitals in Aberdeen are used as teaching hospitals. At present, in accordance with the recommendations of the G.M.C., final-year students reside on the hospital site for four months; plans are being made to increase the accommodation so that final-year students will reside on the hospital site for the full year. New chairs have been founded in child health and in biological chemistry, and appointments to these will be made in the course of the next twelve months.

The University of St. Andrews has an expected entry of between 75 and 80 students at the Medical School, Dundee. The limit of entry is conditioned by the clinical material available. First priority is given to ex-Service applicants, other

things being equal; thereafter priority in respect of competitive examinations for bursaries, scholarships, etc. On the average at Dundee over several years the sex ratio has been two male students to one female student. New subjects to be introduced into the curriculum include medical psychology, and greater stress will be laid on paediatrics and public health and social medicine. The G.M.C. recommendations have been adopted and will be introduced in October, 1948. The hospitals of the area, including the municipal hospital and also the Perth Royal Infirmary, are affiliated to this school.

### Irish Schools

The Medical School of Queen's University, Belfast, is in full use and the teaching staff has returned to normal strength. The number of students entering is limited to 112 for the coming session, but if the number of ex-Service men applying is large there is power to increase the limit to 130. Priorities for admission are (1) residence in Northern Ireland, (2) sons and daughters of former Queen's graduates, (3) residence in Great Britain, (4) residence in British Commonwealth. A certain number of places are reserved for British colonial students and for a few American ex-Service men, but the highest priority at the moment is for ex-Service men normally resident in Northern Ireland. Applicants for the present year are about four times the number of permitted entry. Ex-Service students have also the opportunity of doing additional work during the summer vacation by way of special courses, to allow them to catch up on their studies. Most of the examinations in the University are in grouped subjects, and the normal practice is that a student must pass in the whole of one group. In the case of ex-Service candidates, however, passes in individual subjects are permitted. Pre-medical education is carried on in the school, and the school authorities do not favour this year being spent at secondary schools.

The Faculty is fortunate in being affiliated for teaching purposes to the Royal Victoria Hospital, the Mater Hospital, the Belfast City Hospital, and to all the hospitals in Belfast which deal with special cases. In this way a very large number of beds are available for students, and the relationship between the University and the teaching hospitals has always allowed the full development of such a liaison. Queen's has recently decided to rebuild its clinical school on the Grosvenor Road site, in close relationship to the Royal Victoria Hospital. In this way an even closer liaison between hospital and University will be established, and with the appointment of full-time professors of medicine and surgery a greatly improved scheme for teaching will soon be developed. It is hoped that at least temporary buildings will be available within the next academic year on ground kindly granted to the University by the hospital. A visit from the University Grants Committee is expected in 1948, after which it is hoped that many new developments will be encouraged financially.

At the University of Dublin School of Physic, Trinity College, the limit of entry is 150 pre-medical students, from whom about 95% will be selected for the first medical year. Innovations and new subjects will be introduced on the institution of the new curriculum, modified in accordance with the G.M.C. recommendations. Priority is given to the children of graduates of the University. A number of places are allocated to ex-Service students, and the Ministry of Education grants for further education are tenable in this school. There is no conscription in Eire. It is presumed that British students will be exempt during their period of training at Trinity. Pre-medical courses are given in the school, and no exemption is accorded in consideration of similar courses taken elsewhere. The school has no control over any Dublin hospital, but instruction given at each of the ten Dublin clinical hospitals is recognized by the Board of Trinity College. Reciprocity exists between these ten hospitals, so that a student of the school who has paid his fee to one hospital is entitled to attend courses in any of the ten. It is hoped to establish a department of social medicine in the near future.

The University Colleges of Dublin, Cork, and Galway are constituent colleges of the National University of Ireland, whose degrees of M.D. and M.B., B.Ch., admit to the Register, with supplementary qualifications in medicine, surgery, and midwifery. Work in the schools is proceeding as usual.

## POSTGRADUATE TRAINING

## FACILITIES IN LONDON

Facilities for postgraduate education in this country were for many years of a sporadic character. Lately, however, thanks to the establishment of the British Postgraduate Medical Federation—which is a school of the University of London, and is directed by Sir Francis R. Fraser from the central office, 2, Gordon Square, W.C.1—a coherent plan for the provision of advanced education and research has been presented. In London now a graduate who has chosen a specialty and wishes to continue his specialist training can be helped with advice and information not only concerning postgraduate activities in London but in all the other university centres in Great Britain. At the Postgraduate Medical School of London, which is in association with the Hammersmith Hospital (L.C.C.), advanced instruction in general medicine, general surgery, obstetrics and gynaecology, and pathology is provided. In addition a number of special institutes have been organized, some of them already fully functioning, while others are at various stages of development and able to provide training for limited numbers. The institutes and their associated hospitals are as follows:

<i>Institute</i>	<i>Associated Hospitals</i>
Child Health ..	Hospital for Sick Children, Great Ormond Street; Queen Elizabeth Hospital for Children, Hackney.
Neurology ..	National Hospital for Nervous Diseases, Queen Square.
Oto-laryngology ..	Royal National Throat, Nose, and Ear Hospital, Gray's Inn Road, and Golden Square.
Ophthalmology ...	The Moorfields Group (Royal London Ophthalmic, Royal Westminster Ophthalmic, Central London Ophthalmic Hospitals).
Psychiatry ..	Medical School of Maudsley Hospital.
Orthopaedic Surgery	Medical School of Royal National Orthopaedic Hospital.
Urology ..	Combined School of St. Peter's and St. Paul's Hospitals.
Diseases of the Chest	Medical School of Brompton Hospital.
Dermatology ..	Medical School of St. John's Hospital for Diseases of the Skin.
Cardiology ..	Medical School of the National Heart Hospital, Westmoreland Street, W.1.

## The Hammersmith School

The Postgraduate Medical School of London has been a school of the University of London since 1935. Increasing demands for postgraduate education from the Dominions, Colonies, and foreign countries have made it necessary to expand the clinical facilities at the school, and satisfactory arrangements have been made with the London and Middlesex Council Councils for the use of additional medical and surgical units in their hospitals for clinical training. The students of these clinical units attend the school for didactic teaching one day a week.

In the clinical departments bedside teaching is given, reinforced with lectures, conferences, demonstrations, and attendance at operations. The full programme of organized teaching is carried on in ten-week periods, corresponding to London University terms. During vacations the staff are engaged in research work and the higher education of selected students. At present there are no vacancies for short-term students until April, 1948, except in the department of surgery, which is expanding its size. House appointments are usually made from among students, and facilities are provided for senior students who wish to carry out original research under the director.

The Department of Medicine is organized in five clinical units—three at Hammersmith and two at auxiliary hospitals. About 90 students can be accommodated, and resident appointments are available for about 20. In the Department of Surgery, which provides training for general surgeons but gives instruction also in orthopaedics, oto-laryngology, and urology, teaching is so organized as to be continued from out-patient departments

through the wards and operating theatres to follow-up clinics. Students do not themselves perform operations. There are at present no facilities for work in preparation for the primary F.R.C.S. examination. Teaching in the Department of Obstetrics and Gynaecology is conducted in the antenatal and postnatal clinics and in the sterility clinic as well as in the wards and operating theatres. The Department of Pathology is organized in four main sections: (1) morbid anatomy and histology; (2) bacteriology; (3) haematology and clinical pathology; and (4) biochemistry. Instruction is adapted to the requirements of the course for the diploma in clinical pathology of the University of London, which lasts for one year, starting in October. It is hoped that in future there will be twenty places available in this course instead of ten as hitherto. Selection for these places is made in June. Fortnightly courses in practical anaesthetics are also given. In the Department of Radiology teaching is based on the requirements for the D.M.R. Temporary huts providing additional accommodation for clinical departments and for the amenities of students have now been completed.

## The Specialist Institutes

The Institute of Child Health includes in its programme every aspect of child health, including the newborn, and provision throughout the year in three terms of three months each with a series of lectures by specialists and experts. The teaching is mainly by attendance on the hospital practice, which is continuous. This last is also true of the Institute of Neurology with three terms annually. More advanced students appointed as clerks in the wards or attached to special departments. The Institute of Oto-laryngology holds two comprehensive 20-week courses annually, covering the whole field of the specialty. The courses consist of lectures, demonstrations and attendance on the practice of the hospital, with facilities for dissection. In the Ophthalmic Institute, in addition to teaching by means of hospital practice, a course lasting four to six months is held twice a year, in March and October.

In the Institute of Psychiatry the present "short course" will be the last of its kind. The future training in psychiatry is as a long-term training covering two or three years. In the Institute of Orthopaedic Surgery a first course has recently been held of three months' duration, consisting of some 100 lectures or lecture-demonstrations. Future courses are expected to last six months. The Institute of Urology holds three courses of 14 weeks' duration annually, including systematic lectures, patient sessions, ward visits, and operations. In the Institute of Diseases of the Chest the teaching is primarily by means of attendance on hospital practice, students enrolling for three months or more on what is at present approximately a half-course of instruction consisting of clinical work in the wards and the out-patient departments and a certain number of lectures and demonstrations. Clinical teaching in the Institute of Maternity takes place in the out-patient department twice a week and there are facilities for study in the pathological laboratories but no ward instruction yet. The Institute of Cardiology holds three intensive courses of lectures and demonstrations, lasting a fortnight, in February, July, and November; the aim is to train cardiologists, and physicians in training as cardiologists are expected to attend whole-time for one year at least.

In all these institutes considerable expansion is planned soon as the trained staff and accommodation become available. At present facilities are limited by the difficulties of building the heavy demand on existing places by medical officers demobilized from the Forces, and the six years' accumulation of graduates from abroad. Established specialists from overseas who wish to see something of the practice of this country are here for a relatively short time and are always welcome. The work at the Institutes is of an advanced type and sufficient to enable graduates who have had adequate practical experience to prepare for the higher degrees or diplomas.

## Facilities Elsewhere in Great Britain

It would be a great mistake to assume that facilities for postgraduate instruction are confined to London. At the provincial and Scottish Universities highly organized



continuous postgraduate courses are provided. This is specially true of Oxford, Cambridge, Bristol, Manchester, Liverpool, Birmingham, Cardiff, Edinburgh, and Glasgow. Some attempt has been made in the following table to set out the courses available; it is almost certainly not complete:

Subject	University	Type	Duration	Starts
Anaesthetics ..	Bristol	Full-time	2 weeks	April and Oct.
	Oxford	Part-time	2 " "	Mar. and Sept.
Bacteriology ..	Manchester	Full-time	1 week	June and Dec.
	Birmingham	"	9 months	Oct.
	Glasgow	"	4 weeks	Each term
	Edinburgh	"	9 months	Oct.
Medicine (general) ..	Manchester	"	9 " "	"
	Edinburgh	"	11 weeks	Jan., April, Oct.
	Glasgow	"	8 " "	April and Oct.
Neurology ..	Birmingham	Part-time	2 months	During term
Obstetrics and gynaecology	Glasgow	Full-time	3 weeks	May and Nov.
Ophthalmology ..	Oxford	"	8 " "	April and Oct.
Orthopaedic surgery	Liverpool	"	15 months	Oct.
Physical medicine ..	Bristol	"	5 " "	Sept.
Psychiatry ..	Bristol	"	10 weeks	Oct.
	Edinburgh	"	2 terms	"
	Leeds	"	3 " "	"
	Manchester	"	9 months	"
	Aberdeen	"	9 " "	"
	Birmingham	"	9 " "	"
	Bristol	"	9 " "	"
	Durham	"	9 " "	"
	Edinburgh	"	9 " "	"
	Glasgow	"	9 " "	"
Public health ..	Leeds	"	9 " "	"
	Liverpool	"	9 " "	"
	Manchester	"	9 " "	"
	Wales	"	3 " "	"
	Birmingham	Part-time	12 " "	Jan.
	Bristol	Full-time	18 " "	Oct. (alt. yrs.)
	Edinburgh	"	18 " "	Oct.
	Liverpool	"	18 " "	"
	Manchester	"	18 " "	April
	Sheffield	"	18 " "	Oct.
Radiotherapy ..	Wales	"	18 " "	"
	Bristol	"	18 years	"
	Birmingham	"	" "	(alt. yrs.)
	Edinburgh	"	" "	"
	Liverpool	"	" "	"
	Manchester	"	" "	April
Surgery (general) ..	Sheffield	"	18 months	Oct.
	Edinburgh	"	2 months	Mar. and Oct.
	Glasgow	"	8 weeks	April and Oct.
Tropical medicine ..	Liverpool	"	9 months	Oct.
	Edinburgh	"	2 terms	Oct.
Tuberculosis ..	Liverpool	"	4 months	Jan. and Sept.
	Wales	"	6 " "	Jan.

To this comprehensive list a few details may be added. The Oxford Medical School continues to offer facilities for postgraduate research in the pre-clinical and clinical departments, and members of the University can qualify for the postgraduate research degrees of Bachelor of Science and Doctor of Philosophy after carrying out a course of approved study and research under the supervision of the Board of the Faculty of Medicine. At Cambridge during the past year the University School of Postgraduate Teaching and Clinical Research has been officially inaugurated. At Bristol, in addition to the special postgraduate courses for the University's diplomas in radiotherapy, radiodiagnosis, public health, and psychological medicine, there is an unofficial course for the Final F.R.C.S., and candidates for the Primary F.R.C.S. are given assistance. A course is provided for the diploma in physical medicine of the Royal Colleges, and it is proposed in addition to give this autumn a short course for the Colleges' diploma in anaesthetics.

At Liverpool fourteen Fellowships are awarded annually, each of the value of not less than £350, tenable for one year, but renewable for a second year on the recommendation of the head of the department concerned. They are whole-time research appointments, but may include a limited amount of teaching or demonstrating. Appointment to the Fellowships normally begins with the October session, but applications must be made to the Dean by the end of June. The subjects covered by the Fellowships include gynaecology, bacteriology, anatomy, pathology, physiology, orthopaedic surgery, tuberculosis, and others. The Welsh National School of Medicine has four postgraduate research scholarships available—in tuberculosis, cancer, medical pathology, and midwifery, of the value of £250, £200, £150, and £150 respectively. Aberdeen also has several valuable postgraduate scholarships.

At Edinburgh large numbers of graduates have attended courses on internal medicine and surgery under the auspices of

the Postgraduate Board for Medicine. Two weeks' refresher courses have also been provided at frequent intervals for general practitioners. At Manchester the Dean of Postgraduate Studies administers a scheme, and Manchester has courses in preparation for the D.P.H. and D.P.M. At Sheffield clinical facilities are available in various departments, many posts being at present filled by demobilized officers under the Ministry of Health scheme. A limited number of research appointments in the medical science and clinical departments are also available. At Leeds, as in other Universities, the scheme for postgraduate training of demobilized medical officers is being operated. Here, too, the preparation for the D.P.H., as in other universities, is again running.

Queen's University, Belfast, awards postgraduate degrees in medicine, surgery, and obstetrics, also honours science degrees in pathology, bacteriology, and other subjects. Following the end of the war there has been a great influx of ex-Service candidates for postgraduate degrees, many of them working for the M.D. Special courses in pathology, medicine, and diseases of children are given throughout the year with a view to these examinations. In close association with the postgraduate teaching there are at the moment fifty registrarships in the various aspects of medicine and surgery available for demobilized medical officers, and at the moment all of these are filled.

### Refresher Courses for Insurance Practitioners

Postgraduate study courses for general practitioners, which were suspended during the war years, were resumed in 1946. The courses are arranged by the British Postgraduate Medical Federation in conjunction with the Universities, and the Ministry of Health is prepared to provide financial assistance to insurance practitioners in respect of their attendance at specially arranged courses. The conditions governing grant to insurance practitioners are:

- (1) That at least three years have elapsed since the date of the applicant's first registrable qualification.
- (2) That the applicant has not less than 300 (or in the case of a rural practice 150) insured persons on his list, or on his combined lists if he is under contract with more than one Insurance Committee.
- (3) That the applicant attends not more than either one two-weeks course consisting of 22 half-day sessions or two one-week courses consisting each of eleven half-day sessions or the part-time equivalent.

The first course for which grant was approved was held at the West Middlesex County Hospital, beginning on Nov. 11, 1946. Since that date 202 applications from insurance practitioners have been approved, of which 16 were cancelled either by the applicants or because there were insufficient applications for a particular course. These applications under the Ministry of Health scheme were in respect of practitioners resident in England for courses arranged by English and Scottish Universities, but a few applications from practitioners resident in Scotland and Wales for attendance at hospitals in England have been approved. Since the resumption grant has been approved by the Ministry of Health in respect of 42 courses covering general medicine, surgery, obstetrics and gynaecology, and special subjects. These details do not include courses arranged in Wales and in Scotland for practitioners resident in those countries. At the Welsh National School of Medicine, Cardiff, postgraduate courses extending over two weeks have been provided for insurance and other practitioners, and similar arrangements have been made in Scotland.

### The Royal Colleges

In any catalogue of postgraduate teaching facilities the contribution of the Royal Colleges must never be overlooked.

The lectures given at the Royal College of Physicians of London, including the Croonian, FitzPatrick, Oliver-Sharpey, Milroy, Goulstonian, Lumleian, Humphry Davy Rolleston, and other series, must not be omitted in any assessment of postgraduate facilities in London. Fellows, members, and licentiates of the Royal College who are fortunate enough to be able to attend them gain a surprising amount of knowledge of special subjects in medicine.

The Royal College of Surgeons of England has arranged a programme of postgraduate teaching for 1947-8 which includes

two courses each of twelve lectures on surgery, three courses each of twelve lectures on anaesthesia, two courses each of twelve lectures on oto-laryngology, two courses each of twelve lectures on ophthalmology, two courses each of twelve lectures on orthopaedics, 40 lectures in the autumn on anatomy, applied physiology, and pathology, and 72 lectures on these subjects in the spring. In addition to the lectures, practical demonstrations extending over a period of three months are also held. The College grants many research scholarships and prizes, and in certain cases makes grants in aid of surgical research, the work being carried out either in the College or elsewhere. In addition original work is presented through the medium of the Hunterian and Arris and Gale and a number of commemorative lectures.

The Fellowship of Postgraduate Medicine (1, Wimpole Street, W.1) has a bureau which provides general information on post-graduate work and arranges at various hospitals certain courses of instruction which may be classed under the heading of (1) week-end courses occupying the whole of Saturday and Sunday, for general practitioners, given in general and special hospitals; and (2) short courses for candidates for the M.R.C.P. and F.R.C.S. Twice a year revision courses in anaesthetics are arranged in Oxford and in London.

The National Association for the Prevention of Tuberculosis (Tavistock House, W.C.1) arranges lecture courses in London and other centres with demonstrations of clinical methods in the treatment of tuberculosis and discussion of results.

## EXAMINATIONS AND REGISTRATION

### Registration of Students

By regulation of the General Medical Council every candidate for registration as a student must produce evidence that he has attained the age of 17. The minimum standard of general education required is that of university matriculation or entrance examination in the faculties of arts or pure science. Every applicant is required to have passed an approved examination in general education, and, in addition, an examination in elementary physics or chemistry conducted or recognized by one of the licensing bodies. A student who has diligently attended an approved course of instruction in elementary biology at a secondary school or other teaching institution recognized by a licensing body may be admitted to the professional examination in elementary biology immediately after his registration as a student.

The certificate presented by the student must bear evidence that he has passed in English, a language other than English, elementary mathematics, and an additional subject or subjects, such as history, geography, physical science, dynamics, natural science, Latin, Greek, Hebrew, French, German, or other language accepted by the university for the purpose. Subject to this condition, the Council recognizes responses of Oxford University, the previous examination of Cambridge, and the matriculation examinations of the other universities of England and the University of Wales, the preliminary examinations of the Scottish universities, the entrance examination to the School of Physic of the University of Dublin, the matriculation examinations of the National University of Ireland, the Queen's University of Belfast, and the Irish Royal Colleges of Physicians and Surgeons, and all examinations accepted by one or more of these universities or bodies as equivalent, for the purpose of entrance or matriculation, to their examinations. These include, for example, the higher school and the school certificate examinations of the Oxford Delegacy for local examinations, the Cambridge Local Examinations and Lectures Syndicate, Bristol, Durham, and other universities, and the Central Welsh Examination Board, and the leaving certificate examination of the Scottish Education Department. The Council will also recognize all examinations of Colonial universities similarly accepted by one or more of the British universities for the purposes of matriculation. The final examinations for degrees in art and science of any university of the United Kingdom or of the British Dominions are also recognized.

Every person who desires to be registered as a medical student should apply to the dean of the medical school which he is attending within fifteen days of the commencement of study.

and produce evidence that he has reached the age of 17 and that he has passed the preliminary examination in general education and the examination in elementary physics and chemistry.

### Qualifying Examinations

#### The English Conjoint

The Examining Board in England of the Royal College of Physicians of London and the Royal College of Surgeons of England (Examination Hall, Queen Square, London, W.C.1) examines candidates for the qualifying diplomas of L.R.C.P., M.R.C.S. Copies of the latest emergency regulations, issued in March, 1947, may be obtained from the Secretary.

In addition to the preliminary examination in general education, three examinations have to be passed: a pre-medical examination; a first examination in anatomy, physiology, pharmacology, and materia medica; and a final examination in pathology and bacteriology, medicine, surgery, midwifery, and gynaecology. Candidates are required to complete the medical curriculum extending over not less than 54 months of study at recognized medical schools and hospitals, and to pass the professional examinations in accordance with the regulations after passing any two parts of the pre-medical examination. The Board does not itself conduct the preliminary examination in general education, but recognizes a number of matriculation examinations and school-leaving certificates. The examinations of the Board are conducted four times a year, and candidates are required to give notice to the secretary of the Board twenty-one days before the examination. The subjects of the pre-medical examination are chemistry, physics, and biology, including elements of genetics. The first medical examination is in two parts: (1) anatomy and physiology, written, oral, and practical; and (2) pharmacology and materia medica (oral only). In the final examination, medicine, surgery, and midwifery and gynaecology are written, clinical, practical, and oral; pathology is written and oral only, and may not be taken alone as the last part of the examination.

Candidates who produce evidence of not less than twenty-four months' recognized clinical study subsequent to passing in anatomy and physiology are admissible to any one part only of the examination; on the completion of twenty-seven months' study they are admissible to one or two further parts, or to three parts if presenting themselves for the first time. Candidates may not enter for the last part of the examination until they have completed thirty months' clinical study.

Before admission to the final examination candidates must show that they are at least 21 years of age and must produce evidence (1) of having attended certain specified courses at a recognized medical school and hospital; (2) of general out-patient and in-patient attendance at a hospital during thirty months, six months' medical clinical clerkship, six months' surgical dressership, and three months' gynaecological clerkship; (3) of attendance at five labours by a teacher or member of the staff of an approved hospital and of having subsequently conducted fifteen other labours; (4) of having received instruction in children's diseases and the care of infants, and in the eye, throat, nose, and ear, and skin departments of general hospitals or at special hospitals; (5) of having received instruction in venereal diseases, radiology, and vaccination, and of having attended courses, including clinical demonstrations, at a fever and at a mental hospital.

#### The Scottish and the Irish Conjoint

The Royal College of Physicians of Edinburgh, the Royal College of Surgeons of Edinburgh, and the Royal Faculty of Physicians and Surgeons of Glasgow have an arrangement whereby the student may obtain after one series of examinations the diplomas of all three bodies (L.R.C.P., L.R.C.S.Ed., L.R.F.P.&S.Glas.). Each of these corporations grants its single diploma after examination, but such single diploma does not confer the right to registration, except as a qualification additional to those already on the Register. The course of professional study after registration as a medical student embraces a period of certified study during not less than five academic years, in the last three years of which clinical subjects shall be studied.

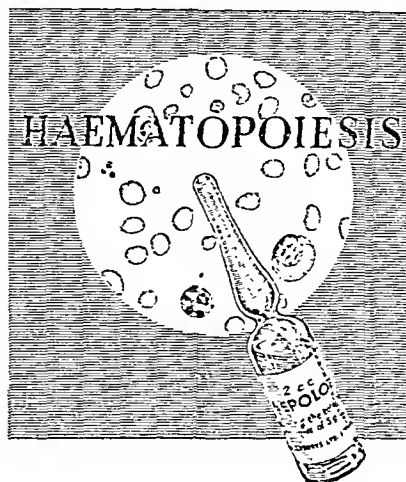


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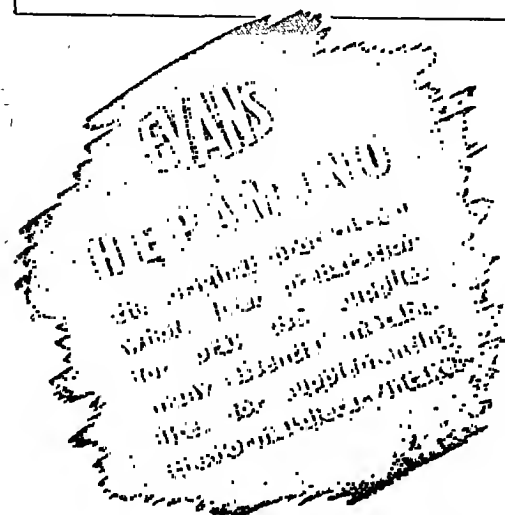
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The first examination embraces physics, chemistry, and biology; the second, anatomy and embryology, and physiology, biochemistry, and biophysics; the third, pathology, materia medica, and pharmacology. The final examination consists of two parts: the first part forensic medicine and public health, and the second part medicine, surgery, and obstetrics and gynaecology. All candidates for the triple qualification, on appearing for the final examination conducted by the Board, must produce certificates for registration as medical students and certificates of efficiency in the practice of vaccination from a Government teacher in the United Kingdom. Candidates for the examination of the Scottish Conjoint may work at any of the medical schools of Great Britain and Ireland. Details may be obtained from the registrar, 18, Nicholson Street, Edinburgh, 8.

The Conjoint Board of the Royal College of Physicians of Ireland and the Royal College of Surgeons in Ireland issues a joint licence in medicine, surgery, and midwifery (L.R.C.P.I.&L.M., L.R.C.S.I.&L.M.), and accepts candidates from most of the medical schools at home and overseas. The regulations can be obtained from the secretary of the Conjoint Board in Ireland, Royal College of Surgeons, St. Stephen's Green, Dublin.

#### University Degrees

All the universities offer qualifying bachelor degrees in medicine and surgery, conferred on the results of examination. The abbreviations are the B.M., B.Ch. of Oxford, the M.B., B.Chir. of Cambridge, the M.B., B.S. of Durham and London, the M.B., Ch.B. of the other English and Scottish universities, and the M.B., B.Ch. of the University of Wales. Queen's University, Belfast, and the National University of Ireland. The baccalaureate in medicine and in surgery and the licence in medicine and in surgery of the University of Dublin both admit primarily to the *Register*. All the universities also confer on graduates holding a bachelor's degree the higher qualification of Doctor of Medicine or Master of Surgery. The degree of Doctor of Surgery in addition to that of Master is offered at Durham. Liverpool offers the degree of Master of Orthopaedic Surgery (M.Ch.Orth.). The Irish universities offer the degree of Master of Obstetrics (M.A.O.). The requirements of the universities vary, and particulars should be obtained from the one selected.

#### Medical Corporations Acting Severally

The Society of Apothecaries of London grants the diploma of Licentiate in Medicine and Surgery (L.M.S.S.A.Lond.) to candidates who pass in the primary examination, which is held quarterly, and the final examination, which is held monthly, except in September. The minimum period of study is normally five years. Further information may be obtained from the registrar, Apothecaries' Hall, Black Friars Lane, London, E.C.4.

The Apothecaries' Hall of Ireland (95, Merrion Square, Dublin) grants the L.A.H.Dubl. to students who pass the three professional examinations.

#### Higher Qualifications at Royal Colleges

The Royal College of Physicians of London confers its Membership (M.R.C.P.) by examination. A candidate is required to give at least twenty-eight days' notice of his intention to present himself for examination and to transmit such medical and surgical qualifications as he may have obtained, together with a list of his public and other appointments, testimonials, etc. The pass examination for Membership consists of a written examination in the form of a paper on questions of medical anatomy, on pathology, and on the principles of medicine; a paper on questions on the practice of medicine, including the principles of public health, and on psychological medicine; a clinical examination in the clinical wards of a hospital, and oral examinations. Fellows of the College (F.R.C.P.Lond.) are elected annually at a general meeting. The address of the College is Pall Mall East, London, S.W.1.

The Royal College of Surgeons of England (Lincoln's Inn Fields, W.C.2) grants its Fellowship (F.R.C.S.Eng.) to those who pass its primary and final Fellowship examinations. The

primary examination is held in April and October. The examination, which is partly written and partly oral, is in anatomy and applied physiology and the principles of pathology. The final examination, held in May and November, with surgery, including surgical anatomy and pathology, as its subject, is again partly written and partly oral, and includes the examination of patients and the performance of operations on the dead body. Candidates who have passed the primary examination are admissible to the final on production of evidence of having been engaged in the acquirement of professional knowledge for not less than two years subsequent to the date of obtaining their registrable qualification, and of having held for not less than six consecutive months a recognized resident post in charge of general surgical patients in the wards of a recognized general hospital.

The College has lately instituted the diploma of Fellow in Dental Surgery (F.D.S., R.C.S.Eng.). Candidates are required to pass a primary and final examination. The diploma is registrable in the *Dentists Register* as an additional qualification, provided that the name of the holder already appears in that *Register*.

Membership of the Royal College of Obstetricians and Gynaecologists (M.R.C.O.G.) may be applied for by medical graduates who have been registered or eligible for registration for at least three years. The Fellowship (F.R.C.O.G.) is granted to members who are considered to have advanced the science and art of obstetrics and gynaecology. The address of the College is 58, Queen Anne Street, London, W.1.

Any licentiate of a British or Irish College of Physicians or any graduate in medicine of a university may apply for election to Membership of the Royal College of Physicians of Edinburgh after the expiration of two years from the date of his original qualification. The examinations for the coming year begin on the first Friday of October, January, April, and July. Only a person who has been for at least three years a Member of the College can be elected to the Fellowship (F.R.C.P.Ed.). Every proposal for election to the Fellowship must be signed by four Fellows, and the motion for election is made at the quarterly meeting of Fellows. Particulars of the Membership examination may be obtained from the secretary of the College, 9, Queen Street, Edinburgh, 2.

Candidates for the Fellowship of the Royal College of Surgeons of Edinburgh are required to pass an examination on the principles and practice of surgery and on clinical surgery and on one optional subject. After having passed the examination the candidate is required to lodge with the clerk to the College a petition for election, which must be signed by two Fellows. The Royal College has lately instituted a higher dental diploma. The address of the College is Surgeons' Hall, 18, Nicholson Street, Edinburgh.

Fellowship registrable as an additional qualification is granted after examination by the Royal Faculty of Physicians and Surgeons of Glasgow (242, St. Vincent Street, C.2). The candidate must be a licentiate of the Faculty or a graduate of a university or medical college approved by the Faculty, and he may be examined either in medicine or in surgery.

The Royal College of Physicians of Ireland grants membership on the result of an examination and elects Fellows by ballot from among the Members. The address of the registrar is 6, Kildare Street, Dublin.

Recently the regulations of the Fellowship of the Royal College of Surgeons in Ireland (St. Stephen's Green, Dublin) have been revised so as to bring them more closely into line with those of the English College. Candidates for the diploma are required to pass two examinations—primary and final. The examinations are held in March, June, and November. The subjects of the primary examination are anatomy, including dissections, physiology and histology, and principles of pathology. The subject of the final examination is surgery, including surgical anatomy and pathology. A course for the primary Fellowship examination and a postgraduate course in surgery, lasting about eight weeks, are held twice a year.

The Society of Apothecaries of London conducts the examination of Master of Midwifery (M.M.S.A.), embracing antenatal care, midwifery, and infant welfare and their relation to hygiene and preventive medicine. The examination, which is written, oral, and clinical, is held in May and November.



**Diplomas granted in British Possessions**

Diplomas in medicine and surgery granted by the following universities or other bodies in British possessions are registrable in the Colonial List of the *British Medical Register*:

Universities of Sydney, Queensland, Adelaide, Melbourne  
Ceylon Medical College  
University of Hong Kong  
Royal University of Malta  
Newfoundland Medical Board  
University of New Zealand  
Universities of South Africa, Capetown, and the Witwatersrand  
King Edward VII College of Medicine, Singapore

Under specified conditions the diplomas of colleges in Canada are registrable; also, with some exceptions, and subject to dating, the diplomas of the Universities of India and the University of Rangoon.

**SPECIAL DIPLOMAS****Diploma in Public Health**

The Diplomas in Public Health of the English and Scottish Conjoint Boards and of the various universities are registrable with the General Medical Council. The diploma is open, after a stipulated interval, to those who have passed the final qualifying examination. The preliminary and final examinations for the D.P.H. under the English Conjoint Board are normally conducted twice yearly—in June and December—and candidates must give notice to the secretary of the Examining Board, Examination Hall, Queen Square, London, W.C.1, twenty-one days before the examination begins, and must furnish the necessary certificates.

The course for the preliminary examination consists of systematic instruction in the history of public health and public assistance, the functions of central and local authorities, social security, the statistical presentation of public health data, causal agents of infection and their control, influence on health of heredity and environment, physical education, and the principles of education. The course must include practical demonstrations, exercises in epidemiological problems, and visits to places and institutions of importance in public health. The examination consists of two written papers and an oral session. Those who pass this examination receive the Certificate in Public Health, the possession of which makes them eligible to begin the course of study required for admission to the final examination. The final course includes systematic instruction in a large number of subjects, such as physiology and biochemistry; food and nutrition in relation to public health; bacteriology, parasitology, and medical entomology as applied to epidemiology; mass aspects of disease; sanitation; statistical methods and data; the law relating to public health; mental health services; and occupational health. Candidates are required to produce a certificate of having resided and received instruction for four weeks in an infectious diseases hospital or of having regularly attended at such a hospital for three months, also of having for not less than five months attended the health department of a local authority and personally studied the daily work of each section of such department under proper guidance. The examination consists of three written papers, a clinical examination in infectious diseases, an oral examination in that subject and in epidemiology and general and special hospital administration, and a general oral examination. The whole examination must be passed at one time. Candidates who pass this examination are granted the diploma.

D.P.H. courses, after wartime suspension, have been resumed at many universities. They are held at, among others, Liverpool, Leeds, Bristol, Birmingham, Manchester, Cardiff, and Aberdeen. At the Medical School, Newcastle-upon-Tyne, the course for the certificate and diploma is being revived in October.

The London School of Hygiene and Tropical Medicine (Keppel Street, W.C.1) furnishes courses for the D.P.H. The course is designed primarily for qualified medical practitioners who intend to enter the public health service in this country as medical officers of health. The course begins on Sept. 29

and lasts one academic year of nine months. Examination for the certificate is held at the end of three months. All the vacancies for the full course for the diploma have been filled and there is a waiting list. Applications for the course beginning in the autumn of 1948 will be considered early next year. In view of the development and subdivision of medical work in the public health service, some places in the course for the certificate have been reserved for practitioners who intend to engage in public health work other than as medical officers of health.

The London School also furnishes courses for the academic diploma in bacteriology. There are now no vacancies for this course, and applications for the subsequent session should reach the School by March, 1948, as the number of places is strictly limited. A short course lasting three months in the principles of medical statistics and statistical methods will start in January, 1948. Applications for admission should be made not less than one month before the course is due to begin.

The Royal Institute of Public Health and Hygiene (28, Portland Place, W.1) arranges courses of lectures and laboratory instruction by qualified teaching staff for the D.P.H. Students completing the course are entitled to enter for examinations for the diploma of the universities and corporations. Examinations for the certificate and diploma are held twice yearly in London and at provincial centres.

**Diploma in Tropical Medicine and Hygiene**

A course for the academic diploma in tropical medicine and hygiene (D.T.M.&H.Eng.) is furnished by the London School of Hygiene and Tropical Medicine. The course is designed to prepare qualified medical practitioners for the examination of the Conjoint Board for this diploma. It is open to any qualified medical practitioner, but students not holding a qualification registrable in England should consult the secretary of the Conjoint Board (8, Queen Square, W.C.1) regarding their admissibility. The first course during the next session starts on Sept. 29, and the second on March 1, 1948. The examinations that conclude these courses will be held in March and July respectively.

The Incorporated Liverpool School of Tropical Medicine is now on a normal peacetime footing. The two separate diplomas in tropical medicine and in tropical hygiene formerly offered are now combined to form a single Diploma in Tropical Medicine and Hygiene. Courses of instruction for this diploma are given twice yearly, and each lasts about four months. During 1947-8 these courses will start at the end of September and the beginning of March, respectively. They are open to postgraduate students only, of whom about 40 or 50 a term can be accommodated. Women students are accepted on the same terms as men. The address of the School is Pembroke Place, Liverpool.

Before admission to the examination for the diploma candidates are required to furnish certificates of possession of a qualification in medicine and surgery and to attend satisfactory courses of instruction in the university on tropical medicine and pathology and a number of related subjects. The examination consists of one paper on tropical medicine, one on pathology including bacteriology, one on parasitology, one on entomology, one on tropical hygiene, one on sanitary engineering, vital statistics, and chemistry; and practical and oral examinations in tropical medicine, parasitology, entomology, and tropical hygiene.

**Diploma in Industrial Health**

The Diploma in Industrial Health of the Royal College of Physicians of London and the Royal College of Surgeons of England (D.I.H., R.C.P.Lond.&R.C.S.Eng.) may be granted to those who possess a qualification registrable in the *British Register* and to graduates in medicine and surgery of those universities and medical colleges recognized by the Examining Board in England for the purpose. Candidates are admissible to Part I of the examination 24 months after having passed a final qualifying examination. Both parts of the examination are taken in June and December unless otherwise ordered. Exemption from Part I may be granted to candidates who hold a recognized certificate in public health. For admission to Part I candidates are required to produce a certificate of sat-

ictory and regular attendance on a course extending over one academic term of not less than ten weeks of whole-time study, or an equivalent period extending over not less than five months of part-time study, covering in either case not less than 300 hours. For admission to Part II candidates are required to produce certificates that they have, subsequent to having passed Part I, attended satisfactorily and regularly, at an institution recognized by the Examination Board, a course extending over not less than five calendar months' whole-time study or an equivalent period extending over not less than twelve months of part-time study, covering in either case not less than 550 hours.

The Society of Apothecaries of London (Black Friars Lane, L.C.4) has instituted an examination in industrial health, embracing the history and legislation relating to the subject, occupational diseases, industrial environment, the practice of industrial medicine, and clinical medicine and surgery as applied to industry.

The Royal Institute of Public Health and Hygiene (28, Portland Place, W.1) arranges courses for the Diploma in Industrial Health. A course of instruction for Part I of the diploma will begin on Sept. 29 (this is the same as for the Certificate in Public Health). Those already holding that certificate can if they desire be accepted for the course for Part II, provided a sufficient number of enrolments is received on any one occasion. The course for Part II includes the history of the development of and the legislation relating to industrial health, the organization of a health service in industry, applied physiology and applied psychology in industry, placement of workers, industrial accidents, occupational diseases and disabilities, rehabilitation and resettlement in industry, and special problems relating to employment of women and young persons. Practical instruction includes visits to industrial establishments, rehabilitation and retraining centres, and works' surgeries, and attendance at a skin and an ophthalmic clinic and at the accident department of a hospital. The examination consists of two written papers of three hours each, a clinical examination, and an oral examination.

#### Other Special Diplomas

A large number of other special diplomas are available. The English Conjoint offers diplomas in laryngology and otology, in ophthalmic medicine and surgery, in anaesthetics, in child health, in physical medicine, and in medical radiotherapy and radiodiagnosis. The University of Oxford grants a diploma in ophthalmology. The University of London has a diploma in clinical pathology. Liverpool University has the degree of Master of Surgical Orthopaedics. The Conjoint Board in Ireland has diplomas in ophthalmic medicine and surgery, in anaesthetics, and in psychological medicine. The examination for the Diploma in Psychological Medicine covers in Part I the subjects of the anatomy and physiology of the nervous system and psychology, and, in Part II, neurology, including clinical and pathological neurology, and psychiatry or psychological medicine. The English "Conjoint" and several of the universities have diplomas in psychological medicine. A course for the D.P.M. is normally held at Maudsley Hospital, Denmark Hill, London (L.C.C.), in the early months of the year. Among many other diplomas the first diploma in medical radiology and electrology—that of Cambridge—instituted some twenty years ago, should be noted.

#### Fellowships, etc.

The Faculty of Radiologists (45, Lincoln's Inn Fields, W.C.2) offers a Fellowship (F.F.R.) to medical graduates of five years' standing who have spent at least one year in general clinical work at an approved hospital, have practised radiology exclusively for three years, and have held a radiological diploma for at least two years. Candidates are required to pass an examination and submit a thesis. Those who hold higher medical or surgical qualifications may be exempted from the examinations in general medicine, general surgery, or pathology. Full particulars may be obtained from the warden.

The National Association for Mental Health (39, Queen Anne Street, W.1) arranges training courses in certain aspects of psychiatry, mainly child psychiatry and mental deficiency. For the last sixteen years Fellowships have been given to enable qualified psychiatrists to obtain special training in child guidance

at a recognized training clinic. Preliminary qualifications for the award of a Fellowship are the D.P.M. or equivalent experience in the psychoses, psychoneuroses, and mental defect. Fellowships are tenable at ten training clinics in England and Scotland. The usual course of training covers twelve months, half-time. This is considered desirable in that it enables experience to be gained in treatment for an adequate period. The training includes clinical work under the supervision of experienced psychiatrists, psychologists, and psychiatric social workers. The course of training is recognized by the Ministry of Education as being a suitable qualification for the medical directorship of an education authority's child guidance clinic, and up to the present this has been the only course of training recognized specifically for this purpose, though it is possible to get equivalent experience by personal arrangement. A fee of £60 is charged, but from a Fellowship Fund candidates requiring financial assistance may receive a grant with a subsistence allowance of up to £150. Applications for Fellowships should be made to the Child Guidance Section of the National Association.

The Tavistock Clinic (2, Beaumont Street, W.1) has specialized as a centre for the out-patient treatment of children and adults suffering from psychiatric disability. In addition to therapeutic work the Clinic and the associated Tavistock Institute of Human Relations are developing techniques in preventive psychiatry. These include discussion groups, selection techniques, and techniques for improving personal relations within working groups such as schools and factories. The educational programme includes courses for psychologists and social workers as well as doctors. The twelve-month half-time course for psychiatrists specializing in child psychiatry is organized jointly with the National Association for Mental Health. A parallel course for psychiatrists specializing in out-patient psychiatry with adults will begin in October, 1947. The number of students accepted for these courses is strictly limited. Two open-case conferences are held each week, intended for doctors and other professional workers interested to gain knowledge of recent developments in out-patient psychiatry.

The Institute of Psycho-Analysis (96, Gloucester Place, W.1) furnishes a part-time course, lasting about four years, in psycho-analytical theory and technique. It includes a personal analysis, attendance at lectures and seminars, and clinical work under supervision. The Institute does not set out to teach all aspects of psychiatry, and general psychiatric experience must be obtained at other clinics and hospitals. Completion of the course to the satisfaction of the training committee qualifies for election as an associate member of the British Psycho-Analytic Society.

#### THE MEDICAL REGISTER

During the year 1946 the number of additions to the *Medical Register* was lower than in any year since 1937. There were 2,237 registrations, as compared with 2,666 in 1945 and with between 3,300 and 3,500 in the mid-war years. This is the fourth year in succession in which there has been a reduction in the number registered. The same tendency is found in dental registrations. In 1946 the intake was only 247 graduates and licentiates, the lowest figure since 1932. The lowered numbers are a reflection of the reduced entry to the schools during the war, and this is likely to continue for some years to come.

The following table gives the position in respect of the *Medical Register* for the last ten years:

	Registered	Restored	Total	Removed owing to Death or Other Reason	Number on Register on Dec. 31
1937	2,214	29	2,243	1,090	60,163
1938	2,365	34	2,399	1,142	61,420
1939	2,968	49	3,017	1,027	63,360*
1940	2,384	37	2,421	1,102	64,679
1941	3,296	16	3,312	996	66,992
1942	3,556	7	3,563	1,127	69,428
1943	3,532	13	3,545	1,091	71,582
1944	2,971	11	2,982	1,218	73,646
1945	2,666	11	2,677	1,190	75,133
1946	2,237	14	2,251	1,092	76,292

\* Figure adjusted in 1940.

In 1927 the number added by registration was 1,941, but in subsequent years it fell, and did not touch 2,000 until 1936. The total number on the *Register* has increased by 42% during the last twenty years.

Of the number of persons at present (1947) on the *Register*—namely, 76,292—46.95% have been registered by virtue of an English qualification, 26.76% a Scottish, 13.20% an Irish, 6.96% a colonial, and 0.54% a foreign. In addition there have been 817 colonial and 3,449 foreign temporary registrations in pursuance of the Medical Register (Temporary Registration) Orders, 1940 and 1941, made under the Defence Regulation 32B; but in accordance with the Emergency Laws (Transitional Provisions) Act, 1946, no further registrations have been effected under the Defence Regulation since February of last year. Since the beginning of registration in 1858 the number of persons registered has been 145,357.

The number of students admitted to the medical schools in the year 1946-7 was 2,553, a number which may be increased by about 100 when outstanding returns have been made to the General Medical Council. Figures for recent years have been:

1939-40 ..	2,623	1943-44 ..	2,426
1940-41 ..	2,398	1944-45 ..	2,612
1941-42 ..	2,361	1945-46 ..	2,610
1942-43 ..	2,468	1946-47 ..	2,553

The Goodenough Committee's recommended entry was 2,500 to 2,600 at present.

## THE COST OF MEDICAL EDUCATION

A pre-war estimate of the cost of educating a man or woman for the medical profession was £1,500, though there were lower estimates. To-day allowance must be made for increased maintenance costs and in some instances increased tuition and examination fees. No fixed figures can be given, the cost varying in different parts of Great Britain. Some investigations in the North of England three years ago gave the total cost of six years' studentship as £1,070 if the student lived at home and £1,380 if he was in lodgings. The cost of the residential part of the course in Oxford was given in 1945 as about £250 per annum, but this has risen slightly since that time.

The fees charged at medical schools vary as between one school and another; an estimated average cost of training for six years, including books and instruments, is between £320 and £360. This estimate covers the First M.B. in the case of degree students and the pre-medical examination in the case of students reading for the Conjoint Diploma. The fees for examination for the L.R.C.P., L.R.C.S.Ed., L.R.F.P.S.Glas. are: for the first examination £6; for each of the two subjects in the second and in the third examination £3; and for the final examination, £6 for the first part and £9 for the second: a total of £33. The fees for university degree examinations vary between £20 and £40.

Further fees for tuition and examination will, of course, be required if it is decided to proceed to higher degrees or diplomas. On submitting for approval a dissertation for the degree of Doctor of Medicine of Oxford £10 is paid, and £17 before admission to the degree. The fee for the membership examination of the Royal College of Physicians of Edinburgh is 35 guineas, and when a Member is raised to the rank of Fellow he pays 38 guineas exclusive of stamp duty (£25). The examination fee for the Fellowship of the Royal College of Surgeons of Edinburgh is £20, and, having passed the examination, the applicant, on lodging a petition for election as Fellow, pays £30 to the College funds, of which £10 is remitted if he is already a licentiate. In the Conjoint Board in Ireland the fee for examination for the Diploma in Ophthalmic Medicine and Surgery is 12 guineas, for the Diploma in Anaesthetics 10 guineas, for the Diploma in Psychological Medicine 20 guineas, and for the Diploma in Child Health 6 guineas. The Liverpool School of Tropical Medicine has lately revised its fees for the course of instruction for the D.T.M.&H. The fee is now 40 guineas instead of 30 guineas, and for the revision course 20 guineas instead of 22½ guineas. These are merely examples of the scale; the fees are set out in the syllabus of the courses or the regulations for the examination.

## Fees for Postgraduate Courses

The fees charged at the Postgraduate Medical School of London vary from 3 guineas for one week to 50 guineas for a year. At the associated London postgraduate institutes the fees vary considerably—at the Institute of Child Health, from 25 guineas for six months' attendance to 3 guineas for a week; at the Institute of Neurology the fees for the course are 20 guineas, and for attendance on the hospital practice 15 guineas for three months or 28 guineas for six months; at the Institute of Laryngology and Otology the composite fee, which includes enrolment as a clinical assistant, attendance on the hospital practice and at one of the comprehensive courses, but excludes dissection, varies from 35 guineas for three months to 45 guineas a year. At the Ophthalmic Institute the fee for Part I, which comprises anatomy, embryology, histology, etc., is 15 guineas, and for Part II, which comprises bacteriology, pathology, operative surgery, and aspects of ophthalmic disease, 25 guineas. For attendance on the hospital practice the fees vary from 1 guinea for one month to 5 guineas for a perpetual ticket for any period longer than six months. At the Institute of Orthopaedic Surgery the fee is 30 guineas for a three-months course, including hospital practice. At the Institute of Urology the fee for a fourteen-week course is 15 guineas. At the Institute of Diseases of the Colon the fee for a half-time course lasting three months or more is 10 guineas, or 4 guineas for one month. At the Institute of Dermatology, for clinical teaching twice daily in the out-patient department, the fee varies from 1 guinea for one week to 15 guineas for a year. The fee for a short course of lectures in the summer months is approximately 4 guineas, and for longer and more systematic course in the winter 10 guineas. At the Institute of Cardiology, for general physicians who attend for all out-patient teaching sessions for one term of approximately three months, the fee is 25 guineas. Three intensive courses of lectures and demonstrations, each lasting a fortnight, are held during the year, and for these the fee is 12 guineas.

The fees at universities outside London vary considerably and should be ascertained from the deans concerned. Bristol, postgraduate clinical work at hospitals may be carried out at fees of 3 guineas for one month, 5 guineas for 1 month, 7 guineas for three months, and 10 guineas for 6 months. Bristol arranges refresher courses on Sunday mornings for general practitioners, with practical demonstrations, and for these the fee is 1 guinea for a month.

The fees of the Royal Institute of Public Health and Hygiene for the preliminary (certificate) course in public health are 20 guineas (whole-time) or 25 guineas (part-time), and for the final (diploma) course, inclusive of fever hospital administration, 40 guineas (whole-time) or 45 guineas (part-time); for the Diploma in Industrial Health the fees for the Part I course are 20 guineas (whole-time) or 25 guineas (part-time), and for the Part II course approximately 50 guineas (whole-time) or 55 guineas (part-time).

## THE NEWLY QUALIFIED

Immediately after qualification and registration the medical practitioner should join the British Medical Association and one of the defence societies.

The British Medical Association, with which the Canadian Medical Association and the Medical Association of South Africa are affiliated, has a membership of about 56,000. Three-fourths of the members of the working profession are in the B.M.A. Medical practitioners are elected to membership by the Council of the Branch in the area of which they reside, or, if not resident in a Branch area (for example, serving with H.M. Forces), by the Central Council. The ordinary subscription for members resident in Great Britain and Ireland is 3 guineas, but there is a 2-guinea subscription in the case of members of not less than 10 years' standing; members of not less than ten years' standing retired from practice; members not engaged in practice who are on the whole-time teaching staff of a Government department, university, or medical school, or whose whole time is occupied in investigation of scientific problems as distinguished

from routine laboratory work; and medical officers serving with H.M. Forces. Newly qualified practitioners admitted to membership before the expiration of two years from the date of registration pay 1½ guineas up to the end of their fourth year after registration, and members not resident in Great Britain and Northern Ireland pay 1½ guineas. The privileges of a member include participation in all activities of the Association, local and central, and in the government of the Association and the formulation of its policy; the receipt weekly of the *British Medical Journal* and its *Supplement*; the use of the houses of the Association (Tavistock Square, London; Drumsheugh Gardens, Edinburgh); and the advice and help of the central staff in professional matters. Forms of application are obtainable from the Hon. Secretary of the Division or Branch or from the Secretary at B.M.A. House.

The Medical Defence Union (49, Bedford Square, London, W.C.1), which is the oldest medical defence organization in the country, has over 31,000 members and has expended, since its inception, over £300,000 in fighting and settling cases on behalf of the profession. In 1946 the cases conducted by the Union amounted in all to 1,384. The annual subscription is £1, with an entrance fee of 10s.; the latter is waived in the case of those joining within one year of registration.

The Medical Protection Society (until lately known as the "London and Counties") (Victory House, Leicester Square, London, W.C.2) has a membership of between 23,000 and 24,000. The Society was the first organization to afford indemnity against adverse costs and damages, the first also to afford unlimited indemnity. During 1946 over 1,400 applications were received from members for advice and assistance. The annual subscription is £1 and there is an entrance fee of 10s. Membership is open to any registered medical or dental practitioner.

The Medical and Dental Defence Union of Scotland (113, St. Vincent Street, Glasgow, C.2) has a membership of nearly 6,000. The annual subscription is £1, with an entrance fee of 10s., the latter not payable by practitioners admitted within twelve months of qualification.

## PRIVATE PRACTICE AND PUBLIC SERVICES

Private general practice will be the destiny of the greater number of men and women after qualification, but a proportion, after some experience of general practice, will undertake further study with a view to becoming specialists, and some, having taken the D.P.H., will enter the public health service. A comparative few will undertake laboratory work and medical research, which, though not the most remunerative branch of medicine, offers stimulating opportunities to those with the right mental equipment.

The Spens Committee, which reported last year, recommended a considerable increase in general practitioners' remuneration as compared with the total net income of practitioners for the three last pre-war years or with the previous level of capitation payment under the National Health Insurance service. The insurance capitation fee has now, for the first time in national insurance history, reached a level which is considered not unsatisfactory, and that fee provides a standard which more or less governs a number of other services which are on a capitation basis. The British Medical Association has also during the past year been instrumental in securing increases in fees for medical examination in connexion with life assurance, in fees for attendance on various classes of the population, in sessional fees at local authority clinics, and in the remuneration in other publicly organized services.

### The Public Health Service

In the public health service a wide range of openings is now afforded in the shape of appointments under local authorities. The senior posts in the public health service are almost entirely administrative; the junior posts are generally mainly clinical, though with some administrative responsibility. It seems likely that under the National Health Service there will be an increased field for clinical preventive work.

Remuneration of whole-time officers in the public health service, hospital or other, has been governed for many years by what is known as the Askwith agreement. That agreement was terminated on March 31, 1946, and an interim agreement, without prejudice to an eventual settlement when conditions under the National Health Service have been fully explored, was reached at a conference of the associations of local authorities with the British Medical Association, a representative of the Ministry of Health presiding. Certain percentage increases on the basic Askwith rates were provisionally accepted, but these were found, in the light of present economic experience, to be unsatisfactory, especially in the case of those receiving the higher salaries—that is, over £1,000 a year—who in many instances obtained no advantage whatever from the revision. The subject was accordingly reopened, and recently, instead of the previously agreed 30, 20, and 10% increases on basic lower, medium, and higher salaries respectively, increases of 35, 30, and 25% have been accepted, the increases to take effect from July 1 of this year. Under this percentage increase bonus is retained, which represents 10% on the lower salaries, 7 or 8% on the medium, and 5% on the higher.

The chief employer of public health medical officers is the London County Council, with its 76 general and special hospitals and its 21 mental hospitals and institutions for mental defectives. Most of the general hospitals are already recognized training centres for candidates for the University of London M.D. examination and a number of them for the final F.R.C.S. and for the diploma of membership of the Royal College of Obstetricians and Gynaecologists. In England and Wales, apart from London, there are 91 local authority mental hospitals, and in Scotland 23, and in the whole of Great Britain some 20 others administered by voluntary bodies.

Industrial medicine offered wide opportunities during the war, and in many industrial concerns the medical officer plays an important part. The trouble is, however, that the great majority of workers in this country are employed in small factories—too small for the appointment of a whole-time medical officer. Something is being done in the way of grouping small factories together for medical service and employment of part-time factory doctors. The Association of Industrial Medical Officers exists for the purpose of bringing together medical men and women engaged in industrial medicine, whether whole-time or part-time. Four meetings are held by the association in each year, at which subjects having a bearing on industrial medicine are discussed. Ordinary membership is at present confined to those engaged whole-time, but associate membership is open to part-time practitioners. Various group meetings are also held in different parts of the country. There are groups in London, Birmingham, Nottingham, North-west England, Scotland, Tees-side, Leeds, South Wales, and West of England.

### Service Abroad

The Colonial Medical Service offers many posts for men and women doctors. A candidate's preference for any particular part of the Colonial Empire is given full consideration, though it may not always be possible to meet his wishes. Vacancies occur most often in the larger medical departments in tropical Africa. Generally speaking, the initial salary is from £600 to £700 on a scale rising to £1,000 or £1,120, but there are a number of higher-scale posts, both administrative and specialist, with salaries up to £2,000. Government quarters are provided, together with first-class passage to and from the territory. Officers in this service have special opportunities in preventive medicine. Inquiries should be addressed to the Director of Recruitment, Colonial Office, 15, Victoria Street, S.W.1.

Ten research studentships for graduates in medicine and cognate sciences have recently been instituted by the Secretary of State for the Colonies. A graduate awarded a studentship will be eligible for a maintenance allowance assessed according to personal circumstances. The maximum rates of allowance are £260 per annum at the Universities of Oxford and Cambridge, £250 at the University of London, and £220 at other universities in the United Kingdom. The allowance is free of income tax. A studentship will normally be awarded for a period of two years, subject to a satisfactory report at the end of the first year's work from the supervisor nominated by the Colonial Medical Research Committee.

So far as the Indian Medical Service is concerned, with the transfer of power to the new Dominion Governments in India the I.M.S. as at present constituted has ceased to exist. There will be no further recruitment of Europeans in this country, and those officers now in the Service have the opportunity of retiring with compensation or electing to remain, probably as civilians, under one or other of the two Dominion Governments.

H.M. Forces offer openings for medical officers. Applications concerning commissions are dealt with by the Central Medical War Committee at B.M.A. House in London, or in Scotland by the Scottish Central Medical War Committee at 7, Drumsheugh Gardens, Edinburgh, 3.

### Training of Army Officers

Officers already commissioned in the Royal Army Medical Corps may receive their postgraduate service training at the Royal Army Medical College, Millbank, London. The senior officers' course, held twice yearly, is in three parts: (1) the study of tropical medicine and entomology, military surgery, pathology, military hygiene, and psychiatry, spread over a period of about three months; (2) clinical instruction in medicine and surgery at London teaching hospitals, also spread over three months; (3) the study of specialist subjects by such officers as have qualified by examinations following the previous parts. The work is carried out either at the College or at a recognized teaching school. The nearest medical school, that of Westminster Hospital, undertakes intensive postgraduate courses twice a year for senior R.A.M.C. officers. Short courses in tropical medicine, entomology, and hygiene are given to officers about to go overseas. The instruction in tropical medicine includes a course of lectures and clinical demonstrations.

The principles and practice of modern military surgery are also taught at the College. The surgery of tropical diseases has its due place in the syllabus. The College has a small but very adequate department of anatomy, together with an excellent library of reference books and journals. In the teaching of pathology the syllabus of lectures for the junior and senior classes is designed to cover the subjects taught in the classes of tropical medicine, surgery, and hygiene. Specialists in pathology all receive their training, except in the performance of necropsies, at the College. The vaccine and serum departments, which are a part of the College pathological organization, are separately accommodated at the Emergency Vaccine Laboratory at East Everleigh, Wiltshire. The Hygiene Department has facilities for carrying out research. The laboratories are organized for instruction in hygiene laboratory work of all kinds; there is also a hygiene museum. Officers taking a specialist course in hygiene are given the opportunity of taking the D.P.H. and the D.T.M.&H., and most of the instruction for these diplomas is given at the College. There is a course in psychiatry, with demonstrations on clinical cases at Banstead and Sutton Emergency Hospitals. A school of radiology exists in the College.

### MEDICAL STUDENTS AND NATIONAL SERVICE

Early in the present year a suggestion was made by the Ministry of Health that, with regard to conscription so far as it affected the medical profession, the age limits for general practitioners should be the same as those proposed for the general population—namely, 18 to 26—students having the option of doing their military service before or after completing their studies. The upper age limit suggested for specialists was 30, and the effect of this suggestion would be that doctors who had embarked on specialist training would be allowed deferment while holding hospital posts for the purpose, and would be liable to be called up when they had reached "graded" specialist status.

This suggestion was communicated through the B.M.A. to the British Medical Students' Association, which issued to the student bodies in all the medical schools the following points

for consideration (assuming the period of service to be eighteen months, with five years on the reserve):

(1) Whether intending medical students should have the option of undertaking their military service either before or after completion of their medical training, as would be the case with students of other faculties.

(2) Whether, if there should be no option, military service should come before or after medical training.

(3) Whether doctors who had embarked on specialist training and had not yet undertaken their military service should be allowed deferment while holding hospital posts for the purpose until the age of 30.

The student bodies in 21 schools replied; the replies were carefully scrutinized and analysed, and the following statement was submitted by the Students' Association to the B.M.A.:

"In preparing the statement the assumption was made that service before medical training would mean a general military training as a fighting soldier, whereas service after qualification would be as a commissioned officer in the R.A.M.C."

"We are very definitely in favour of allowing the intending medical student to choose whether he will undergo his military service before or after his medical training. The multiplicity of arguments put forward (by the various medical schools) for and against both alternatives emphasizes the importance of allowing each individual to plan his time in the way he thinks most valuable."

"If, however, a decision were made in favour of uniformity, we are strongly of the opinion that military service should be undertaken after, rather than before, medical training, as it would be an utter waste to train a potential doctor as a fighting soldier. We should like to point out, however, that if all intending medical students were compelled to serve before going to college the supply of Service M.O.s would be entirely dependent on volunteers."

"We believe that recently qualified doctors who intended to specialize (and who have not already undergone military service) should receive special consideration with regard to deferment of service, but that such deferment should be until six years after qualification rather than until 30 years of age. We think that service immediately after qualification would deter intending specialists, who would not wish to return to resident hospital appointments after the conditions of higher salaries of the Services; moreover, from the point of view of most of the specialties little would be gained from a rather arid period in the R.A.M.C. looking after an exceptionally healthy and very limited cross-section of the male community."

The Academic Registrar of the University of London writes: "The majority of the schoolboys [boys from the secondary, grammar, and public schools who intend to take up medicine as a career] are . . . doing their military service before their entry to a university. Those students who enter before doing their military service will, I understand, be required to undertake some form of national service when they obtain their medical qualification. I believe that the authorities of the colleges are in favour of the boys undertaking their military service before entry, so that they will be able to embark on their chosen career as soon as they obtain their qualification."

### B.M.S.A.

The British Medical Students' Association was founded in 1941 to promote the interests of medical students. It provides a method of communication between medical students and, for example, British and foreign students of other faculties, the British Medical Association, and Government departments. It publishes its own journal, and has issued a catalogue of medical films. But probably the most valuable aspect of its work is to be found in the clinical conferences which it has made possible. Three have already been held this year, at Sheffield, Edinburgh, and Leeds.

At the last Annual General Meeting it was decided to create a new category of membership for qualified men who would be invited to make a donation to the Association and who would receive a copy of the journal. This was done because it is obvious that an association which relies entirely on student support must always be in a precarious financial position, and it was felt that many students when they qualified would not wish to cut themselves off entirely from the B.M.S.A. Details about this new scheme may be obtained from the president, D. R. Cook, or the secretary, Joselyn Ransome, at B.M.A. House, Tavistock Square, London, W.C.1.



## Correspondence

### Planning and World Population

SIR.—In the leading article on this subject (Aug. 9, p. 214) you mention four checks to the growth of population, one of these being voluntary control of the birth rate, and you suggest that the rise in the standard of living in tropical countries may result in a fall in the birth rate, such as has now occurred in Western Europe and America. Finally, you came to the conclusion that it is doubtful whether the birth rate will fall within a reasonable period in the face of prohibitive religious beliefs.

Is not this a somewhat pessimistic attitude? So far as I am aware there is no religious opposition to the practice of contraception in either India, China, or Japan. Indeed, a perusal of Norman Himes's book on the *Medical History of Contraception* (London, 1936) will show that the matter has concerned these peoples for centuries. Is it not more reasonable to conclude that it is the complete lack of education in regard to sexual matters which is one of the root causes for so much misery? Now that modern contraceptive methods are so reliable and comparatively cheap, it should be possible, by means of a well-thought-out education policy, to bring a knowledge of these matters to the women of the East. Were this done really effectively it should be possible to stabilize the population, reduce the infant death rate, raise the standard of living, and, presumably, prolong health and life. In addition, the danger of over-population, which is one of the major causes of war, would be considerably reduced. This is a problem of world-wide importance demanding the immediate attention of both politician and sociologist.—I am, etc.,

London, W.1.

EDWARD F. GRIFFITH.

### Anastomotic Ulcer after Somervell Operation

SIR.—If a surgeon of the experience of Mr. Harold Dodd can fall (*Journal*, Aug. 2, p. 170) for Mr. Somervell's operation, it is high time that the originator of the principle of gastric arterial ligation spoke. My operation, which has been named "gastric ligation," and to which Mr. Somervell in 1942 referred, was started in 1931, and I performed about 80 experiments on dogs; and over 1,000 such operations have been done by me and my assistants during the last sixteen years for peptic ulcer. The preliminary results were published in 1937 in America (*Proceedings of the International Assembly of the Inter-State Post-graduate Medical Association of North America*).

In the same year Prof. Orr, then of the Miraj University, saw my work, and apparently gave an erroneous report to Mr. Somervell of the details of my operation. Mr. Somervell ligates only the main gastric vessels, which seventeen years ago I had shown was a waste of time. Gastric ligation is simply a sympathetic denervation so that the uncontrolled vagi will rapidly empty the stomach and diminish the time stimuli to gastric secretion. Devascularization is a passing phase. My operation of gastric ligation means a quadruple and multiple ligation of both mesenteries from the oesophagus to near the pylorus. Dr. Ferdinand Lee, of Baltimore, working on recovery of sympathetic function after denervation, showed that the ligation must be a hurdle of at least four thread ligatures and not a division of the arteries.

So many vain attempts to cure peptic ulcer by surgery have been made that I intended to wait fifteen years before I published my results. The summary of my work is that in dogs this widespread gastric ligation will heal permanently all peptic ulcers produced either by the Mann-Williamson experiment or by massive doses of cinchophen. In peptic ulcer in man the results are very variable. This gastric ligation with gastro-enterostomy in gastric or duodenal ulcers is a far, far better operation than gastro-enterostomy alone. It is not as good as a high partial gastrectomy; yet it may heal the rare anastomotic ulcer resulting from high gastrectomy. Gastric ligation would, without risk, often cure an anastomotic ulcer at a time when at the Manchester Royal Infirmary the mortality following partial gastrectomy for such an ulcer was in the neighbourhood of 37%. The mortality of gastric ligation is simply that of chest complications and is therefore suitable for the rank and file of surgeons who are not specialists in gastrectomy.

I repeat, however, that simply to ligate the main arteries singly, however successful in the Oriental, is futile in the Westerner, and the term "physiological gastrectomy" is a misnomer. The "Somervell operation" is no better and no worse than a simple gastro-enterostomy.—I am, etc.,

Manchester.

WILSON H. HEY.

### Fungus Poisoning

SIR.—The *Journal* of Aug. 23 includes two articles on fungus intoxication—too topical at this time of year—but both omit any mention of the pathogenesis and treatment of *Amanita phalloides* poisoning, so very important because there is every reason to expect a curative response if the fact is recognized promptly and treatment instituted at an early stage.

It should be stressed that, if symptoms appear within two to three hours of ingestion of the fungus, the probable cause is muscarine poisoning, and the correct treatment is immediate atropine plus stomach washings followed by tubal administration of activated charcoal or magnesium trisilicate or kaolin—given in the order of activity as absorbents of alkaloids. But if symptoms—usually somnolence, often but not always preceded by diarrhoea and vomiting—appear eight hours or later after the ingestion then the intoxication is not due to muscarine, and the administration of atropine, which is the usual treatment, only hastens the fatal termination.

The cause of death is truly hepatic damage, as your annotation mentions (p. 302), but the reasons, or suspected reasons, it does not mention. *Amanita* causes a progressive hypoglycaemia which becomes so pronounced that there is reason to believe that it is this directly which causes the coma and then death. This was pointed out by A. R. Dujarric de la Rivière (*Le Poison des Amanites Mortelles*, Masson et Cie, Paris, 1933), and later Binet, L., and Marck, J. (*Presse méd.*, 1936, 44, 1417), showed experimentally that the administration of glucose by vein was life-saving in rabbits to which toxic doses of *Amanita* had been given. It is reasonable to suspect that the toxin causes hypoglycaemia, which itself might be the cause of death, or that the toxin which causes this breakdown of glycogenes might occasion destruction of the hepatic glycoproteins and so produce atrophy, or that the removal of glycogenes from the liver prevented hepatic glycuration and so permitted atrophy. I did a little tentative work on this some years ago with the idea that so potent a glucose depressor might be of value in diabetes mellitus, but stopped the work when this hypothesis of its action was considered.

The treatment, therefore, of poisoning eight hours or later after the intake of fungi should be saline purges, unless diarrhoea has occurred. At the earliest possible time intravenous glucose saline with added calcium gluconate should be given as a drip, and this controlled by blood sugar estimations if possible. De la Rivière also advises the administration of raw brain by mouth and quotes some cases successfully treated in this way (*loc. cit.*), but it is considered that this is not likely to be of much help because little if any of the poison will be still unabsorbed in the alimentary tract by the time that symptoms appear and are diagnosed.—I am, etc.,

Bristol.

A. T. TODD.

### Case of Smallpox with Minimal Lesions: New Diagnosis

SIR.—We should like to draw attention to the case reported in the *Journal* of June 7 (p. 807) by one of us as a case of smallpox with minimal lesions. This diagnosis was supported by the report made by one of us (A. W. D.) that variola virus was isolated from the crusts and swab submitted from the patient. However, further examination of the virus isolated showed that it was not variola; it was subsequently proved to be the virus of herpes simplex. Owing to a misunderstanding the author of the published report of the case was not informed of the later laboratory findings until after that report had appeared in June. The case was in all probability one of generalized infection due to the virus of herpes simplex and it is hoped to submit for publication details of the evidence on which this view is based.—We are, etc.,

T. P. EVANS.  
RUFERT H. KIPPING.  
A. W. DOWNIE.

Liverpool.

### Intravenous Ergometrine for Retained Placenta

SIR,—Prof. J. Chassar Moir in his letter (Aug. 23, p. 309) states that "it is a matter of opinion whether severe third-stage haemorrhage is best dealt with by injection of an oxytocic drug, or by prompt manual removal of the placenta when simpler manipulative measures have failed." He then goes on to say that his own preference, if the uterus is relaxed, is for an oxytocic drug.

I feel that the treatment of all severe third-stage haemorrhages should not be along any such line of routine therapy. There are the well-known physical predisposing causes of third-stage haemorrhage, such as multiple pregnancy, exhaustion after a long labour, encroachment of the placenta on the lower uterine segment, etc., in which the giving of an oxytocic drug may be the most convenient and best treatment, but there is a group of cases in which third-stage disordered action of the uterus is due to psychogenic causes. These cases may follow a primary uterine inertia, or other evidence of functional uterine disorder, in the previous stages of labour. There may have been openly expressed morbid fears, or, more often, these may have been suppressed. These cases exhibit a degree of collapse out of all proportion to the amount of blood lost. In my opinion they are best treated by giving an anaesthetic (I prefer open ether) and manual removal of the placenta, followed by an oxytocic drug and morphine. It is a feature of these cases that the condition of the patient improves rapidly during induction of anaesthesia, and their condition tends to deteriorate with the return of consciousness unless morphine has been given.

With the remainder of Prof. Chassar Moir's letter I am in complete agreement, and he has done a valuable service in pointing out the certainty of undesirable side-effects being produced if a dose of ergometrine 0.5 mg. is given intravenously, as advised in "Any Questions?" (Aug. 2, p. 195).

Finally he criticizes, by inference, the routine administration of ergometrine in the third stage. This practice appears to be an attempt to improve on normality, and will be looked upon by future generations in the same light as we view to-day the routine (ritualistic?) purging of children every Friday night.—I am, etc.,

South. Shields

TERENCE ROBINSON.

### Oxygen Poisoning in Man

SIR,—Prof. J. B. S. Haldane is wrong in stating (Aug. 9, p. 226) that I attribute oxygen poisoning to carbon dioxide accumulation. I take the same view as he does that it enhances oxygen poisoning, and that is why Dr. Donald observed oxygen poisoning with exceptionally low pressures, particularly in the case of a diver tested under water in a dock basin. In this case anxiety may have caused rapid shallow breathing and consequent accumulation of the dead-space carbon dioxide. I think that "nitrogen" poisoning may really be due to accumulation of carbon dioxide.—I am, etc.,

Chalfont St. Peter, Bucks.

LEONARD HILL.

### The Extent of Neurosis

SIR,—The leading article entitled "Neurosis and Industry" (Aug. 16, p. 257) has tempted me to inform you of the result of a survey I undertook in June in an endeavour to estimate the proportion of psychic disturbances in a general practice. I did this for my own interest, but the result was surprising even to myself.

The survey was undertaken at a time when the surgeries were not heavy, when there was time to discuss complaints, conduct examinations, and assess the situation more fully than usual. It occupied 17 days and concerned 100 consecutive new patients coming to the surgery between the age of 5 and decrepitude; 46% were frequent attenders whose general physical and emotional backgrounds were well known. Each patient was given ten units of illness, and these ten units were apportioned to psychopathic or rationally physical disorders as best I could judge. A middle-aged woman stating that her nerves were out of order, complaining of irritability, ready fear, and insomnia, and demanding a tonic would be given a bromide mixture and rated as ten units of emotional anxiety, *nil* physical.

A man exhibiting a follicular tonsillitis, with a temperature of 100° F. (37.8° C.), wanting a gargle, and stating he would like to continue at work would be sent home to bed, given appropriate treatment, and assessed as ten units of rationally physical disorder. Many cases were intermediate, with anxiety enlarging a normal ailment. Of the total 1,000 units 453 were attributable to psychic causation and 547 to adequately physical disorder—a proportion which indicated that of every twenty patients coming to the surgery nine were more emotionally ill than actually so.

While the assessment must be regarded as subjective on my part it was not undertaken lightly, and almost four years of completely psychological work has given me fair ground for carrying out such an investigation with accuracy. There must be many experienced general practitioners who could carry out such an estimation, and their figures would be most interesting to know and of value in calculating the neurotic element in illness—I am, etc.,

Stockton-on-Tees.

L. F. DONNAN.

### A Giant Naevus

SIR,—Miss X, aged 21, consulted me in June, 1940. Her history was that she was born with a small port-wine stain on the margin of her lower jaw, that it had grown steadily, and that she wanted to be rid of it as it precluded her admission into a convent. She said it had not caused her any trouble, that her general health had always been good, and her complaint was more of a nuisance and disfigurement than anything else.

On examination I found a tumour, port-wine in colour, with large veins coursing over a coarse and roughened surface, hanging over her left breast and completely occluding it. Its boundaries were as follows:—From the mid-point on the chin it extended along the border of the lower jaw, skirting the lobe of the ear to the middle of the nape of the neck, just below the occipital protuberance; medially down along the midline of the neck, and half-way down the sternum; laterally, from the occipital protuberance obliquely across the back of the neck to the top of the shoulder, and curving inwards to meet the opposite side at the mid-sternal level.

The excision of the tumour appeared a formidable task owing to its vascularity. A dose of 16,000 mg.-hours was given superficially with radium needles distributed over Columbia paste plaque, screened by lead sheeting 1 mm. thick. Three weeks later, with circumferential local analgesia, the whole of the tumour was excised. It consisted of the thickened skin and platysma. The bleeding was not troublesome. The weight of the tumour had dragged upon and loosened the surrounding skin, and it was quite easy to close the gap left by the base of the tumour. The wound did quite well, except for a small area the size of a florin, which healed by granulation. I heard from the patient a few weeks ago that she was quite pleased with the result of the operation.—I am, etc.,

Newtown, Waterford.

A. J. D'ABREU.

### Poliomyelitis

SIR,—According to your report<sup>1</sup> of a recent meeting at the Central Public Health Laboratory, Colindale, there is no evidence that flies are helping to spread infection in the present outbreak of poliomyelitis. This is so opposed to American experience that I was not surprised to learn from the Ministry of Health that it is essentially an assumption. The statement is not based on specific investigations, for none has been attempted.

American research<sup>2</sup> has shown that the virus can be recovered from house-flies and blow-flies trapped in urban and rural areas during poliomyelitis outbreaks. Food contaminated by such flies was found to produce the disease when fed to chimpanzees.<sup>3</sup> The flies almost certainly acquire the virus from the stools of poliomyelitis patients or carriers. The virus has been recovered from the stools of a child 123 days after an abortive attack,<sup>4</sup> though three weeks appears to be the average time of persistence.<sup>5</sup> Such an experienced researcher as Sabin<sup>6</sup> inclines to the view that flies are a more important vector than droplets during poliomyelitis epidemics.

One objection to applying the fly-carrier theory to the present epidemic is the apparent lack of opportunity for flies to settle on infected stools. Though the virus has been detected in

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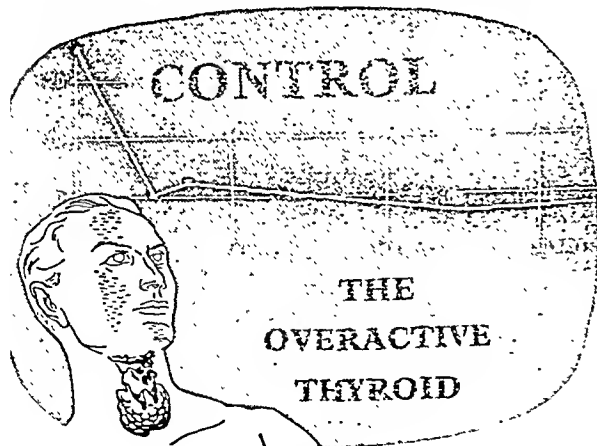
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swage,' the dilutions involved would seem to be too great for sewage farms and rivers to be important centres of virus pick-up. Earth closets are obvious sources, but they are mainly restricted to rural areas, and most of the cases are reported from towns.

There is, however, one persistent source of fresh human stools, open to visitation by flies, embracing every town. I refer to our vast network of railway lines. Because of the primitive sanitation on our trains and the large number of apparently healthy people who may be poliomyelitis carriers, railway tracks may be an important source of the virus. From it flies may contaminate food in near-by warehouses, restaurants, and homes. This might account for the widely scattered outbreaks of the disease and the speed with which it travels both here and in America.

The fact that few cases are reported from country districts, where there are earth closets as well as railway lines, does not oppose this theory. In those countries like China and the Philippine Islands,\* where sanitation is primitive, the native populations do not suffer from epidemics of poliomyelitis. Yet the virus is there, for British and American troops quickly acquire it and go down badly with the disease. It is also a fact that poliomyelitis is most widespread in those countries with the most efficient sanitation and that the disease has increased there progressively during the last fifty years.

All this suggests that under conditions of bad sanitation the bulk of a population somehow acquires immunity to poliomyelitis. The disease is rare in children under one year of age and it may be that they tolerate the virus. Sabin<sup>1</sup> has in fact suggested that, with a widespread source of the virus and many flies, children may normally suffer a symptomless attack during their first year, acquiring immunity in the process. This would explain the comparative rarity of outbreaks in rural areas where there are still earth closets. It would explain why poliomyelitis increases in countries where improvements in sanitation reduce the chances of acquiring natural immunity. It would support my contention that raw stools on railway tracks running through towns are a menace.

It is difficult to see, since so many factors are involved, how this theory could be tested adequately. I would suggest that the possibility that it may be right should be sufficient incentive for the Government to order the fitting of properly serviced chemical toilets on trains as early as the present situation permits. Now that we have had one epidemic of poliomyelitis, American experience suggests we can expect more.—I am, etc.

London, E.C.4.

CHAPMAN PINCHER.

#### REFERENCES

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- <sup>3</sup> Ward, R., Melnick, J. L., and Horstmann, D. M., *ibid.*, 1945, 101, 491.
- <sup>4</sup> *Acad. Med. Paris*, 1939, 122, 141.
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- <sup>6</sup> Paul, J. R., and Trask, J. D., *Amer. J. publ. Hlth.*, 1942, 32, 235.

SIR,—I have read with much interest recent remarks appearing in the *B.M.J.*, anent precautionary measures against the spread of poliomyelitis. The present extensive outbreak, the greatest yet experienced in this country, is naturally causing grave concern, and there is reason to believe from a study of statistics of past years that the height and extension of the infection have not yet been reached; in fact, any marked subsidence is not likely to occur until October. The widespread nature of the present epidemic calls for every effort to limit extension and to bring about its reduction as quickly and as far as possible.

While there is no doubt that the virus of the disease is largely communicated from one person to another by secretions of the oropharynx, either by direct personal contact with actively infected individuals or with healthy carriers, there is also definite evidence that the virus commonly appears for some days and even weeks in the faeces of typical and of abortive cases. The virus, which withstands drying for considerable periods, has further been demonstrated on flies and on exposed food in the homes of poliomyelitis cases. This is strongly suggestive that the infection can be disseminated in much the same manner as the enteric infections, such as paratyphoid, epidemic diarrhoea, dysentery, and typhoid. Unfortunately, owing to the nature of the virus of poliomyelitis, it is not possible as yet readily to detect contamination of food, water, fomites, etc.,

as is the case with these other infections caused by easily demonstrable micro-organisms.

Statistical evidence, however, shows so close a correspondence between the seasonal incidence of poliomyelitis and that of the enteric infections as very strongly to suggest that analogous factors operate in dissemination. For example, allowing for slight lag between time of infection and death (actual morbidity figures not being available), the incidence of deaths from enteritis presents a very remarkable correspondence with that of poliomyelitis. Taking the five years between the two wars 1924 to 1928, a period covering the mid-high epidemic poliomyelitis year 1926, and one which was comparatively little disturbed by fluctuations or geographical migrations of population, almost perfect correspondence existed in the incidence of poliomyelitis and deaths from enteritis; in fact, for the whole period I have found the coefficient of correlation to be no less than 0.95. During these years, moreover, the annual relative magnitude of the two infections also closely corresponds. In several other years an almost equally close correlation appears, the incidence commencing to rise in the same week and reaching maximum and minimum in a not very dissimilar manner. Somewhat similar though less well sustained correlations also obtain in respect of typhoid and paratyphoid fevers.

The notable fact that the initial rise of poliomyelitis and of the enteric infections almost invariably occurs at identically the same period of the year and that the gradients in the respective curves of incidence closely resemble one another throughout the remainder of the year is, I suggest, strongly indicative that, apart from climatic conditions, common disseminating factors are in operation. Moreover, the fact that the incidence of poliomyelitis has in general predominated more in rural than in urban areas is a point in itself somewhat significant.

While unquestionably attention must necessarily largely be concentrated upon the well-recognized dissemination of poliomyelitis through direct personal contact with infected cases and with carriers, I think, at all events until far more is known of the epidemiology of poliomyelitis than is at present the case, it is highly desirable that all those precautions and measures commonly carried out in respect to the prevention of the enteric infections should similarly rigidly be applied to the prevention of poliomyelitis.—I am, etc.,

Christchurch, Hants.

C. CONYERS MORRELL.

#### Penicillin in the Treatment of Diphtheria

SIR.—We have read with considerable interest Dr. David Long's article on "Penicillin in the Treatment of Diphtheria" (*June 21*, p. 884). We are glad to find that our article has roused some interest among scientific men abroad. Being a lecturer on bacteriology in a famous school he can certainly comment on our bacteriological findings. Ours was mainly a clinical study, but such bacteriological examinations as were relevant to our study were undertaken to implement our diagnosis and assess the effects of penicillin therapy.

The clinical diagnosis of all our 27 cases was beyond dispute, and the presence or absence of secondary invaders, which are mainly *E*-haemolytic streptococci and pneumococci in our place, would not alter it. The classification of our cases as early or otherwise was made on the gravity of the general symptoms and the size and extent of the membrane and not by the fever alone. The clinical reports, though brief, contain all the salient features. After all, brevity is essential in writing anything for journals in these days. "Patch" is the common expression for the pseudomembrane in diphtheria, and we wonder why it should not be used in clinical description. If Dr. Long would read the case reports he would find that not only did we see the disappearance of the patch from the throat but daily swab examinations were undertaken, and the dates when the throat swabs became negative were also mentioned. These swabs were cultured and reported only after a full study by the most competent bacteriologist, and we did not depend on morphological study alone as assumed by our friend. The typing could not be undertaken for non-availability of culture media at the time.

Treatment of diphtheria with penicillin alone is no doubt risky and adventurous, but one must be prepared to take some risk if he wants to cover a new field of therapeutics. Dr. Long will find in the case reported by Dr. A. D. Symons in the *Medical Officer*, 75, 224, that a fairly severe case of diphtheria was cured by him with penicillin alone without any antitoxic serum. In fact, he should rightly claim the priority in this new adventure. We are



continuing our work here in Calcutta in greater detail and we hope to acquaint Dr. Long with our results as soon as our data are complete. We assure him that this further work has only confirmed our previous conviction that penicillin is very effective in the treatment of early and even moderately severe cases of diphtheria without the administration of antitoxin, and that the boggy of the toxin killing the patient by involvement of cardiovascular apparatus and the nervous system if antitoxin is not given early should not be entertained.

Dr. Long has also taken an exception to our argument of economy in favour of this method of treatment, but little does he know that 90% of our countrymen hardly get two square meals a day. Only the other day three million people died of starvation in the province of Bengal. Cost may not count in the British Isles, but it is the prime factor in everything that we do here in India, including the treatment of our sick people. Before we conclude, we would request Dr. Long to approach the M.R.C. for a grant with which he may do some practical work in one of the infectious diseases hospitals in London to put the matter to test before hurrying to condemn what may ultimately be accepted as truth all over the world.—We are, etc.,

Calcutta.

M. N. DE.  
L. K. GANGULI.

### The Lazy Eye

SIR,—Surely Dr. William Moodie (Aug. 23, p. 310) has got hold of the wrong end of the stick psychologically? Should it not be that *because* children have these defects they may be backward educationally? Children wearing glasses and having one eye covered up are presumably squinters. By covering the good eye and making the defective one work, as described in letters by myself in the *B.M.J.* (Aug. 17, 1935, p. 317, and Sept. 28, 1946, p. 475), the worse eye can be materially improved in vision. The younger this is commenced the better, and progress, mentally, takes place with the improvement in vision. This is even possible in adults who lose the sight of a good eye and are left dependent on an eye that had bad vision in spite of any glasses up to the age of forty or so, there being many war and occupational examples of such injuries.

Dr. Moodie mentions equal bilateral vision in connexion, presumably, with covering up an eye. This does occur sometimes in squints, which can look straight ahead with either eye. Such cases of alternating squint are difficult to treat and not very satisfactory even when operated on, as there is some squint left even then, although nothing may be apparent when the patient looks straight ahead.—I am, etc.,

London, W.1.

SYDNEY TIDDLER.

SIR,—Although I quite agree with Dr. William Moodie (Aug. 23, p. 310) that in certain cases in which occlusion of one eye is indicated on ocular grounds it has to be abandoned on account of its ill effect psychologically, Dr. Moodie did not, however, state the generally recognized fact that the main reason for occluding one eye of a child is in the case of a constant squint, where one eye deviates and has in consequence become amblyopic from disuse in spite of appropriate optical treatment.

In my experience if occlusion is properly carried out at an early age rapid improvement of the vision of the amblyopic takes place, except in rare instances. Such treatment is followed by orthoptic exercises (and operation if necessary), so that the squint is cured before the age at which education becomes of real importance, and before the child is likely to be adversely affected physiologically or psychologically by such treatment.—I am, etc.,

London, W.1

T. KEITH LYLE.

### The Coroner's Court

SIR,—As your Medico-Legal Correspondent points out in the footnote to Dr. B. N. Blood's letter (Aug. 16, p. 272) the Act of 1926 does give the coroner powers as to committing for trial; but surely this is modified by rules as laid down in the same section of the Act?

I have found that the invariable procedure for a person "arrested on a coroner's warrant" is for the accused to appear before the magistrates, who decide whether there is a case for trial. It frequently happens that the inquest is a formal matter

for identity and cause of death to enable the coroner to issue a burial order, and it is then adjourned pending criminal proceedings. A peculiar situation may arise when a person arrested on a coroner's warrant appears before the magistrates and they decide that there is no case against him. In such circumstances it appears that the coroner's warrant still stands, and the accused, already "cleared" by the magistrates, may have to appear at the assizes for trial.

It may be hoped that the committee at present considering the working of the Coroners Acts will suggest useful amendments, and that among them will be found the principle that the coroner's inquest is primarily concerned with establishing identity and with cause of death.—I am, etc.,

Bournemouth.

W. McNAUGHTAN.

### Salaries of Specialists in N.H.S.

SIR,—I was interested to read Dr. W. Lindesay Neustatter's letter (Aug. 23, p. 309) and hasten to write to agree with him. I think that the reason of a difference of opinion that has arisen over the payment of psychiatrists as compared with physicians and surgeons has been due to the fact that the standard of the D.P.M. in the past has fluctuated, whereas both the M.R.C.P. and F.R.C.S. standards have remained at a consistently high level. Were there one examining body in the country for the D.P.M. the fluctuations might be overcome. Nevertheless this variation of standard should not be responsible for decreasing the salary.

If it is considered that, before a candidate is thought suitable in experience and training to be appointed as a specialist in psychiatry either to a senior post in a mental or a general hospital, or by a local or Government authority, a D.P.M. is necessary, then in that case the D.P.M. is the criterion of a specialist in psychiatry and the salary should be the same as that for medical or surgical specialists. The view that physicians and surgeons are more concerned with "matters of life and death" than psychiatrists is in my opinion due to gross ignorance of the work of the psychiatrist. Dr. Neustatter points this most admirably, and I would add that a psychiatrist in a general hospital is on occasions asked for an opinion as to diagnosis, treatment, and disposal of cases where neither physicians nor surgeons have come to a definite conclusion.—I am, etc.,

Manchester.

NORTHAGE J. DE V. MATHER.

### POINTS FROM LETTERS

#### Poliomyelitis

Dr. J. N. McINTOSH (Gloucester) writes: There have been occurring in my practice a number of cases (children and adults) of pharyngitis, tonsillitis, and tonsillitis-with-diarrhoea, all having a temperature. The symptoms lasted on an average three days, and the patients completely recovered. Owing to the possibility of these cases being anterior poliomyelitis or polio-encephalitis, all were kept in bed, treated with sulphonamides, and isolated for at least ten days. . . . Now that cases of poliomyelitis are increasing, I am suggesting that all cases of "sore throat" and diarrhoea, even without any fever, be treated on the above lines.

Col. P. F. CHAPMAN, I.M.S. (ret.), writes: Is it not possible that the present prevalence of infantile paralysis may, in part at any rate, be due to some article in our restricted and modified dietary? In the Central Provinces in India there were after famine years widespread outbreaks of a form of spastic paralysis. This was caused by the consumption of the millet, *Lathyrus sativa*. In ordinary times this was only used as an adjunct to other grains, and it was only when used as a staple diet that the paralysis occurred. Is it not possible that in the modification of the austerity diet we may have introduced some article which may be causing this widespread epidemic? Soya-bean flour is largely used, and dried eggs are imported in large quantities. As so far there seems to be no satisfactory method of checking this epidemic, perhaps a long shot such as this may be excusable and excused.

#### General Knowledge and General Practice

Dr. WARREN MORRIS (Bath) writes: I hope Dr. R. Lawrence (Aug. 9, 230) will not feel injured if one suggests that the injury done to one by an overdose of morphine, or to one's pocket by the present price of tobacco, is in neither case traumatic.

## STREPTOMYCIN

he Ministry of Health on Sept. 2 stated that preliminary results of the streptomycin trials organized by the Medical Research Council had proved sufficiently encouraging to justify the view that, as available supplies of the drug permit, patients suffering from tuberculous meningitis or military tuberculosis could be given the opportunity of receiving treatment with the drug. Though streptomycin is said to be the best drug at present available for the treatment of these conditions, it prolongs life and relieves symptoms in only a proportion of the cases, and it is too early to say yet whether it ever produces a permanent cure.

The production of streptomycin in this country is still very limited, but additional supplies from the United States have enabled arrangements to be made for a certain number of medical schools to receive an allocation each month for use in teaching or associated hospitals. The number of beds in the United Kingdom for which supplies are available at the moment about 150.

The cost of streptomycin is still very high, and for the time being the supplies will be distributed by the Government to medical schools free of charge. In view of the limited experience of treatment with streptomycin in other conditions, medical schools have been asked for the present to restrict treatment with the drug to cases of tuberculous meningitis and military tuberculosis. It is not recommended for use in chronic almonary tuberculosis. The following is a list of the hospitals

England and Wales and Northern Ireland at which cases of tuberculous meningitis and military tuberculosis will be treated with streptomycin:

*Birmingham*.—The Children's Hospital, Ladywood Road, Birmingham, 16; *Bristol*.—The Bristol General Hospital, Bristol, 1; *Leeds*.—The General Infirmary, Leeds; *Liverpool*.—Alder Hey Children's Hospital (6 children's beds); Royal Southern Hospital, Fazakerley (adult beds); *London*.—The Middlesex Hospital, W.1; St. Bartholomew's Hospital, E.C.1; The London Hospital, E.1; St. Mary's Hospital, W.2; St. Thomas' Hospital, S.E.1; Guy's Hospital, S.E.1; *Manchester*.—The Royal Infirmary, Manchester; *Newcastle*.—Royal Victoria Infirmary, Newcastle; *Sheffield*.—The Children's Hospital, Eastern Bank, Sheffield, 10.

*Cardiff*.—The Cardiff Isolation Hospital.

*Belfast*.—The Whiteabbey Sanatorium, Whiteabbey; Purdysburn War Hospital, Purdysburn.

*Scotland*.—Similar arrangements are being made and details will be announced shortly.

Medical practitioners who have a case of suspected tuberculous meningitis or military tuberculosis should get in touch with the nearest hospital on this list, or (in the case of hospitals in the London area) with the Emergency Bed Service (Monarch 8515).

This scheme for the treatment of tuberculous meningitis and military tuberculosis does not in any way affect the arrangements already made by the Medical Research Council for the treatment in certain hospitals of cases of meningitis due to *aemophilus influenzae*.

The authors of *The Science of Seeing* (by Ida Mann and H. J. Pirie, Pelican Books, 1s., Harmondsworth) are to be congratulated on the attractive way in which they have addressed the lay public. They instruct the reader in the reaction of the amoeba to light, and after accounts of more complex visual organs, describe the human eye, whose structure and function they discuss in a clear and almost colloquial style. They include chapters on the retina and visual purple, cone cells and colour vision, and vision and the vitamins. In the chapter entitled "Things that May Go Wrong with Our Bodies" they comment that a number of reasonably well educated people could give only three causes of blindness (congenital, war trauma, and cataract), and none had any idea of the difference between an oculist and an optician. In "Facts and Fancies about Ocular Hygiene" they explode many erroneous ideas prevalent among the laity—eye work does not harm the eyes; glasses do not tend to weaken sight; eye baths, washes, and drops are unnecessary and unsatisfactory substitutes for the flow of tears over a normal eye and may even cause conjunctivitis; it is not possible to take out the eye, scrape it, and put it back again; and cataract is not a film which grows across the eye. They expose the humbug of eye exercises, other than orthoptic exercises in the treatment of visual and muscle imbalance. They briefly consider disturbance of the visual mechanism, diseases of the eye, and injuries, and at the end of the book give an account of the training of the blind and the way in which eye defects are treated in England to-day.

## Obituary

SIR THOMAS CAREY EVANS, M.C., F.R.C.S.

Sir Frederick Menzies writes: The sudden death of Sir Thomas Carey Evans must have come as a great shock, and a deep sense of grief will be felt by his many friends in London and North Wales. For some years he and I were closely associated together in the work of the L.C.C. hospital service, and it is in this connexion that I wish to pay my humble tribute to his memory, for no "Chief" could ever have had a more loyal and devoted colleague. Carey Evans was the first medical superintendent to be appointed to Hammersmith Hospital after it had been decided that the British Postgraduate Medical School should be located there. It was obvious from the start that the choice of the new medical superintendent was a matter of paramount importance inasmuch as his duties and responsibilities were to be of an entirely different character from those of every other medical superintendent in the L.C.C. hospital service. At Hammersmith the clinical work was to be the responsibility of the staff of the medical school and the administration entirely in the hands of the medical superintendent. Dual control of a large hospital unit is always a difficult task and it was peculiarly so in this instance, not only because it was a complete departure from L.C.C. practice but also because a postgraduate medical school in the midst of an L.C.C. hospital organization was an entirely new venture. The position was in fact one which obviously called for great tact, diplomacy, and a gift for harmonious co-operation.

There is no doubt that the selection of Carey Evans for the post of medical superintendent in these difficult and delicate circumstances was a wise decision and one which was fully justified as the years went by. Great as were difficulties he had to cope with from time to time in connexion with this dual venture, his anxieties and responsibilities were immensely increased when war broke out in 1939. Nevertheless, he remained at his post throughout the whole of the war period with scarcely any holiday at all, and there can be no doubt that the constant strain and stress of these long years did much to undermine his health, so that it was not surprising that he found it necessary to retire from the L.C.C. hospital service on grounds of ill-health in the autumn of 1945. Thereafter he returned to Crickieth, where he had shortly before retirement purchased a charming house and small estate, most beautifully situated amidst marvellous scenery of mountain and sea. He threw himself with great vigour and enthusiasm into the modernization and renovation of his new home and the development of the attached gardens and farm. In these pursuits he found great happiness for himself and gave great pleasure and generous hospitality to his neighbours and friends. His sudden death so soon after his retirement is a tragedy in itself, as it occurred at a moment when he seemed at long last to have attained his lifelong ambition of a beautiful home in the beautiful surroundings of his native land. The profound sympathy of all his friends will be extended to his widow and children.

Prof. G. Grey Turner writes: Carey Evans and I first met when we travelled up the Tigris together on a paddle-steamer in the very hot summer of 1916. He was moving up with a field ambulance, and the way he directed the operations for the rescue of one of his mules that had somehow fallen overboard filled me with admiration and marked him out in my mind as a man of determined action. It was not until nineteen years later that we came together again, when in 1935 I took up my duties at the newly formed postgraduate school at Hammersmith Hospital where Evans was superintendent. The warmth of his greeting and his friendly and cheerful co-operation from that moment are still an inspiring recollection. Apart from fine wards and new operating theatres, there was no sort of provision for a department of surgery at the school, and I found myself depressed and unhelpful; but Evans came to the rescue and at once arranged that I should set up my department in the old x-ray quarters, shortly to be evacuated into the new buildings near the administrative part of the school. He also

found storage for the very large number of pathological specimens which I had brought down from Newcastle-on-Tyne, and from then on continued to be most helpful up to the moment of his retirement ten years later. His cheery optimism was a tremendous encouragement to all at the school in those early struggling days, and the way in which he could smooth things out and get round difficulties was remarkable. How he managed to get over threatening situations was not revealed, but under his supervision we got things done. As a surgeon himself and a Fellow of the College he was in a position to understand our problems, and he was withal really interested in our work and, may I say, encouragingly appreciative. With a self-contained residence in the hospital he was able to exercise his gift for hospitality, and many were the charming functions which he arranged. In all this he was most ably assisted by Lady Carey Evans, and they so frequently eased the difficulties of wartime that many of us will ever have occasion to remember with deep gratitude the comfortable facilities enjoyed at the "Hotel Ducane." In every respect he was kindness itself, and if he could do a kind action it would be done and it obviously gave him much pleasure. Others can speak of his activities in the hospital Home Guard. Many of his experiences during the bombing must have caused him much anxiety, but he continued to live in the hospital throughout the war. I came to have a great regard for his judgment of humanity and was often struck by the remarkable insight which he displayed into the characters of the numerous members of his team. As a hospital superintendent he took a keen personal interest both in the nursing staff and in the patients, and was always out to add to the efficiency of the services rendered at Hammersmith, of which he was justifiably proud.

Prof. Lambert Rogers writes: The sudden death of Sir Thomas Carey Evans is a shock to his many friends and colleagues, for his was a vivid and cheerful personality with a youthful outlook, and when he gave up his hospital work to settle down to farming in Wales it was expected that he would enjoy some years of quiet retirement. It is over thirteen years since I first met him, in the early days of the British Postgraduate Medical School, when I had the privilege of assisting Prof. Grey Turner in organizing the surgical work. Sir Thomas, then superintendent of the Hammersmith Hospital, Col. Proctor, the dean, and Capt. Scotland, the secretary, formed a triumvirate which gave the administrative side of the school a grand beginning. He was always most helpful and co-operative, ever cheerful—I never once saw him put out or in any way depressed—and, being a surgeon himself, highly sympathetic to our problems. It will be readily understood therefore that he was an ideal superintendent, and it is fitting that it should be put on record how much and how well he served the interests of the Postgraduate School. I have no doubt that this will be done and done more appropriately by others, but I should like to pay this tribute to one who made us feel at home, helped us so adequately, and was a friend to us all at a time when the new Postgraduate School was an innovation and something of an experiment, and when those of us who were the first members of its staff were to a certain extent strangers in a strange land.

Dr. HARRY COOPER died on May 21 at the age of 83. He had been in practice in Surbiton for 52 years, and had been a member of the British Medical Association for the same period. A colleague writes: After leaving Queen's College, Oxford, where he took a good classical degree, Harry Cooper became schoolmaster for two years, after which his true vocation led him to Guy's Hospital at the age of 25. At Guy's he was a successful rugby footballer, being eventually captain of the XV, and also playing for the United Hospitals and Surrey. Qualifications came easily to him, and eventually he proceeded to the D.M. of Oxford. He immediately settled in Surbiton, where he gave to three generations of its inhabitants devoted service such as only a man of his attainments and outlook could give. He was on the staff of Surbiton Hospital, retiring in 1937 as senior medical officer. In 1903 he was appointed medical superintendent of Tolworth Isolation Hospital, where he was in charge for 43 years, a period of continuous service such as falls to the lot of few doctors. Here his clinical acumen and ability in organization had full scope. He was first presi-

dent of the Surbiton District Nursing Association, an institution very near his heart and one which gained much from his chairmanship. Harry Cooper was a man of many parts. Throughout his long life he kept himself up to date and informed in all the advances which took place in medical science. He was a staunch churchman, and his outlook never better exemplified than when his house and practice, all his belongings were destroyed by a V1 bomb in 1944, one who saw the dignity and resolution with which he faced this calamity can ever forget it. The Christian ethic was a mainspring of his life and gave him that serene bearing which was the envy of lesser men. He remained mentally alert to the end, but when he retired from practice it seemed as if he had gone out of life and he quietly "folded his tent and staid away." He leaves a widow, three sons, and a daughter. Two of the sons have followed their father's profession.

Dr. HENRY LAING GORDON died at his home in Ngong, Kenya on Aug. 10 at the age of 81. Dr. Gordon was born at Penrith, Cumberland, in 1865, and qualified at Edinburgh in 1889, proceeding M.D. in 1895. His health had not been good as a student and he was advised to try a sunnier climate. Acting on this advice he spent many years as a general practitioner in Italy, South Africa, and Portugal. He returned to this country in 1918 and was for some time clinical assistant at the West End Hospital for Nervous Diseases. In 1925, at the age of 37, he went to Kenya, and from there to Nairobi, where he practised as a neurologist until his retirement in 1937. During most of this period he was visiting physician to the Mathari Mental Hospital. He had been a member of the British Medical Association for over fifty years and was president of the Kenya Branch from 1931 to 1933.

J.H.S. writes: I knew Dr. Gordon for twenty years and looked upon him as having the best brain in the profession in East Africa. His laborious work on the mental capacity of certain East African tribes was recognized by his being elected to the consultative council of the Eugenics Society. Special notice should be taken of his work at Mathari, where he transformed an almost mediaeval type of lunatic asylum into a mental hospital which I am informed is without a peer in the African continent.

Dr. FREDERIC JOHN SCRIMGEOUR died at his home in Edinburgh on Aug. 26. Dr. Scrimgeour was a student of Surgeon General Hall, Edinburgh, and qualified in 1902. He had spent most of his professional life abroad. He was surgeon to the Tulloch Memorial Hospital, Tangier, and later he became senior surgeon to the British Hospital at Nazareth. For his services as D.A.D.M.S. Palestine towards the end of the 1914-18 war he was awarded the O.B.E.

## Universities and Colleges

### UNIVERSITY OF BRISTOL

Albert Victor Ncale, M.D., F.R.C.P., has been appointed the first Professor of Child Health and Paediatrics in the University. Dr. Ncale is honorary physician to the Birmingham Children's Hospital and the Birmingham United Hospital. He takes up his new duties at the end of this month.

### UNIVERSITY OF DURHAM

A Chair of Psychological Medicine has been founded at King's College, Newcastle-upon-Tyne, and Alexander Kennedy, M.D., M.R.C.P., D.P.M., has been appointed as the first holder of the post. Prof. Kennedy was formerly honorary physician in psychological medicine at the Maida Vale Hospital for Nervous Diseases and physician to the Maudsley Hospital, Denmark Hill, London, S.E.

## The Services

The King of Norway has bestowed the King Haakon VII Liberty Medal upon the following in recognition of services rendered to Norway during the war: Surgeon Rear-Admiral F. J. D. Twigg, C.B.E., R.N., Surgeon Captain R. W. Higgins, O.B.E., R.N., Surgeon Captain W. P. Vicary, R.N.(ret.), Surgeon Commanders A. E. Flannery and J. M. Holford, R.N., and Surgeon Captain J. B. Ronaldson, O.B.E., V.R.D., R.N.V.R.

No. 33

## INFECTIOUS DISEASES AND VITAL STATISTICS

Print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Aug. 16.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland. Figures of Births and Deaths, and of Deaths recorded under each infectious disease, for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland. — dash — denotes no cases; a blank space denotes disease not notifiable or return available.

Disease	1947					1946 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever .. .. .	60	6	33	2	2	47	2	14	1	—
Deaths .. .. .	—	1	—	—	—	—	—	—	—	—
Diphtheria .. .. .	145	12	39	8	8	251	19	85	34	5
Deaths .. .. .	—	—	—	—	—	3	—	—	—	—
Enteric .. .. .	66	10	14	—	—	70	13	32	1	—
Deaths .. .. .	—	—	—	—	—	—	—	—	—	—
Epidemic typhus .. .. .	4	1	1	—	—	1	—	—	—	—
Deaths .. .. .	—	—	—	—	—	—	—	—	—	—
Scarlet fever .. .. .	—	—	19	3	—	—	—	27	8	2
Deaths .. .. .	—	—	—	—	—	—	—	—	—	—
Acute enteritis or diarrhoea under 2 years .. .. .	66	3	21	57	1	39	2	10	19	1
Deaths .. .. .	—	—	—	—	—	—	—	—	—	—
Measles* .. .. .	4,468	229	43	254	6	2,712	255	67	26	3
Deaths .. .. .	2	—	—	—	—	6	3	—	—	—
Diphtheria neonatorum .. .. .	65	5	15	—	—	56	4	25	—	—
Deaths .. .. .	—	—	—	—	—	—	—	—	—	—
Typhoid fever .. .. .	17	—	1 (B)	—	—	60	11 (B)	1 (B)	—	—
Deaths .. .. .	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenza .. .. .	253	9	3	—	3	300	15	1	1	1
Deaths (from influenza)† .. .. .	3	—	—	—	—	6	—	—	—	—
Pneumonia, primary .. .. .	—	15	117	11	3	—	100	20	—	—
Deaths .. .. .	—	—	—	—	—	—	15	3	—	—
Poliomyelitis, acute .. .. .	45	8	—	—	—	1	—	—	—	—
Deaths .. .. .	—	1	—	—	—	—	1	—	—	—
Poliomyelitis, acute .. .. .	646	89	134	10	20	33	3	2	2	—
Deaths .. .. .	—	3	—	—	—	—	—	—	—	—
Scarlet fever .. .. .	—	3	13	—	1	—	3	14	—	—
Deaths .. .. .	—	—	—	—	—	—	—	—	—	—
Scarlet pyrexia‡ .. .. .	127	3	15	2	—	136	6	9	3	—
Deaths .. .. .	—	—	—	—	—	—	—	—	—	—
Epidemic typhus .. .. .	—	—	—	—	—	—	—	—	—	—
Deaths .. .. .	—	—	—	—	—	—	—	—	—	—
Rel fever .. .. .	614	54	114	21	26	690	48	119	19	16
Deaths .. .. .	—	—	—	—	—	1	—	—	—	—
Polio .. .. .	—	—	—	—	—	—	—	—	—	—
Deaths .. .. .	—	—	—	—	—	—	—	—	—	—
Polio fever .. .. .	8	1	2	2	—	53	2	8	8	—
Deaths .. .. .	—	—	—	—	—	1	—	—	—	—
Polio fever .. .. .	—	—	—	—	—	—	—	—	—	—
Deaths .. .. .	—	—	—	—	—	—	—	—	—	—
Whooping-cough* .. .. .	1,870	203	64	70	12	2,097	148	40	29	35
Deaths .. .. .	5	—	2	—	—	5	—	2	—	—
Infants (0-1 year) .. .. .	324	30	50	—	9	316	30	44	26	10
Infant mortality rate (per 1,000 live births) .. .. .	—	—	—	—	—	—	—	—	—	—
Deaths (excluding stillbirths) .. .. .	3,765	536	455	—	76	3,691	558	481	156	97
Annual death rate (per 1,000 persons living) .. .. .	—	—	9.5	—	—	—	—	10.6	10.0	—
Births .. .. .	9,004	1,420	1,027	—	241	8,461	1,339	1,055	489	259
Annual rate per 1,000 persons living .. .. .	—	—	20.7	—	—	—	—	21.2	31.3	—
Stillbirths .. .. .	253	29	37	—	—	274	43	42	—	—
Rate per 1,000 total births (including stillbirths) .. .. .	—	—	35	—	—	—	—	35	—	—

\* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

It is still not possible to publish the return of births and deaths for Eire for 2 weeks ended July 26, Aug. 2, 9, and 16.

## EPIDEMIOLOGICAL NOTES

## Poliomyelitis and Polio-encephalitis

The number of cases of poliomyelitis notified in England and Wales during the week ended Aug. 23 was 626. This is a slight decrease on the figure for the previous week (646). It is probable that the weekly figures will continue to be of a similar order for many weeks, or possibly for several months, and that the decline in prevalence which is to be anticipated with the approach of winter will not be as rapid as the rise which occurred in June and July, and which is well shown in the graph.

Figures for the county areas compared with those for the previous week (given in parentheses) show that only London 115 (89) recorded a considerable increase. In Durham 33 (39), Lancs 65 (71), Middlesex 36 (32), Surrey 26 (39), Warwick 26 (37), Yorkshire West Riding 49 (44), and Yorkshire East Riding 11 (18) the changes appear to indicate a general tendency either to a temporary stability or to the beginning of a decline.

For the week ending Aug. 16 the rise in the incidence of poliomyelitis in England and Wales was mainly in London and the south-eastern counties, where the notifications increased from 163 to 196, and in the North and West Midland counties, where the number of cases notified rose from 79 to 116. Very little change occurred in other areas.

There were 50 notifications of polio-encephalitis in the week ending Aug. 23, a figure of the same order as those of the two preceding weeks (45 and 56).

## Discussion of Table

In England and Wales the chief features of the returns were increases in the notifications of whooping-cough 362 and poliomyelitis 78, and decreases in the incidence of measles 1,020 and scarlet fever 66.

The largest local rises in the incidence of whooping-cough were London 47, Lancashire 39, and Essex 38. No changes of any size occurred in the local trends of diphtheria. The only appreciable variation in the incidence of scarlet fever was a decrease in Lancashire 34.

A decline in the number of notifications of measles was recorded in most counties; the largest falls were Lancashire 154, Yorkshire West Riding 133, Devonshire 79, Gloucestershire 77, and London 74.

An outbreak of paratyphoid, involving nine persons, was reported from Bedfordshire; one of these patients has since died. A new outbreak of dysentery occurred in Wiltshire, Pewsey R.D. 19, while no further cases were notified in Kent, where 12 cases were reported in the previous week.

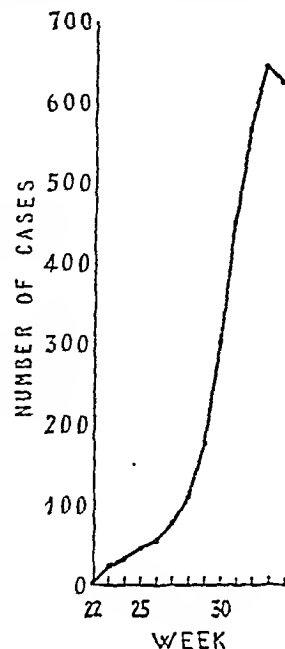
In Scotland there was a decrease of 9 in the notifications of diphtheria and of measles. For the second week a large increase was reported in the notifications of poliomyelitis; the figures for the last three weeks were 134, 93, and 37. The largest centres of infection were Glasgow 66 and Ayr County 15; the remaining 53 cases were scattered through 22 registration areas.

In Eire the only significant change in the trends of infectious diseases was an increase of 69 for measles; this rise occurred mostly in Dublin C.B. There were 16 more notifications of diarrhoea and enteritis in Dublin C.B. than in the preceding week.

In Northern Ireland the notifications of poliomyelitis declined from 33 to 20; these 20 cases involved ten registration areas.

## Week Ending August 23

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 489, whooping-cough 1,818, diphtheria 147, measles 3,278, acute pneumonia 233, cerebrospinal fever 49, acute poliomyelitis 626, acute polio-encephalitis 50, dysentery 75, paratyphoid 23, typhoid 12.



## Medical News

### F.A.O. Conference

Lord Horder leaves for Geneva on Sunday, Sept. 7, to attend the Food and Agriculture Organization Conference. Lord Horder is chairman of the Scientific Advisory Committee on Nutrition. He will be away for a fortnight.

### Sir Henry Dale Honoured

The freedom of the city of Dundee was conferred on Sir Henry Dale, O.M., F.R.S., President of the British Association for the Advancement of Science, by the Lord Provost on Aug. 27. Replying to the Lord Provost's welcome, Sir Henry Dale recalled that for the second time in its history the British Association had been honoured by the conferment on its president of the freedom of the city at its annual meeting, and on both occasions it had been Dundee.

### Canadian Diploma in Tropical Medicine

A diploma in tropical medicine is given by the Faculty of Medicine, McGill University. During the war years a short course was available to members of the armed Forces. As a result of this experience the curriculum has been revised and additional facilities provided to give medical graduates a broader training for tropical practice. The course is being conducted by the Department of Health and Social Medicine with the collaboration of other departments in the Faculty of Medicine. Further information may be obtained from the Chairman, Department of Health and Social Medicine, 490, Pine Avenue West, Montreal, Canada.

### Stracathro Hospital

Stracathro Hospital, near Brechin, will continue to be a general hospital, with special provision for orthopaedic cases, rheumatism, school medical service cases, and children suffering from debility and malnutrition. This decision has been reached by the Rt. Hon. Joseph Westwood, M.P., Secretary of State for Scotland, after discussions between the Department of Health for Scotland and the other hospitals and local authorities in the area. It has also been decided that it will not be practicable at present to use the hospital for cases of pulmonary tuberculosis. Stracathro, a large hospital set up to deal with war casualties, is a general training school for nurses, both men and women, and also provides an intensive one year's training for ex-Service orderlies who wish to become State-registered nurses.

### Rheumatology Unit

The Royal Free Hospital Unit of Rheumatology has now been formed, with its in-patient department at the North-Western Hospital, Lawn Road, Hampstead, N.W.3, the out-patient department being, as formerly, the Arthritis Clinic of the hospital in Gray's Inn Road, London, W.C.1. Doctors wishing to see the unit, or to refer patients to it, are asked to telephone the Arthritis Clinic at Terminus 4331 (Extension 73).

### Chinese Pharmacists

Seven Chinese students who have all graduated as bachelors of pharmacy were recently given a dinner to mark the termination of their two years' course. Mrs. J. K. Irvine, president of the Pharmaceutical Society, presided and was supported by representatives of each of the manufacturing houses which had "adopted" a student. Dr. Chen from the Chinese Embassy was present at the dinner and so was Mrs. Kitchingham of the British Council and other distinguished guests. Mr. A. H. Bentley, Government pharmacist in Hong Kong when the Japanese entered the war, was taken prisoner and escaped with the aid of Chinese friends who, at the risk of their own lives, befriended him until he reached Chungking. When Mr. Bentley returned to England in 1944 he approached the Pharmaceutical Society and the British Council with the idea of establishing scholarships for Chinese students to come over here for training as teachers. Through the generous aid of seven of the large manufacturing houses this was made possible. Mrs. Irvine congratulated the students and thanked the seven firms and the British Council for their co-operation.

### Vaccination for Travellers to U.S.

The U.S. Health Authorities have issued an order prohibiting the entry into the United States of any passenger who has not been vaccinated within the past three years.

### Welsh National School of Medicine

Prof. R. M. F. Picken has been appointed Provost of the Welsh National School of Medicine. He will combine the duties of Provost with those of Mansel Talbot Professor of Preventive Medicine.

## COMING EVENTS

### Polio-myelitis

The Kingston-on-Thames Division of the B.M.A. has arranged a special meeting to be held on Wednesday, Sept. 10, at 8.30 p.m., at the Kingston County Hospital, when the subject will be "The Early Diagnosis of Acute Anterior Poliomyelitis." The Ministry of Health film will be shown and a discussion will follow on the aetiology, diagnosis, and treatment of the condition, to be introduced by Drs. H. Ellis, A. A. Cunningham, and others.

### Poliomyelitis Film

There will be a showing of the Ministry of Health film, "The Early Diagnosis of Anterior Poliomyelitis," at the County General Hospital, Wakefield, on Wednesday, Sept. 10, at 8 p.m. General practitioners are invited to attend.

### Control of Tse-Tse Fly in South Africa

A meeting will be held at the London School of Hygiene and Tropical Medicine, Keppel Street, Gower Street, W.C., on Wednesday, Sept. 24, at 2.30 p.m., to discuss "D.D.T. and the Acroplax in the Control of the Tse-Tse Fly and Trypanosomiasis in South Africa." A colour-sound film prepared by the staff of the Onderstepoort Laboratory, Pretoria, will be shown and introduced by Dr. P. J. du Toit, director of veterinary services, Union of South Africa. All interested in the subject are invited to attend the meeting.

### Royal Sanitary Institute

A meeting of the Royal Sanitary Institute will be held at the Civic Centre, Southampton, on Saturday, Sept. 27, at 10 a.m., when papers will be read on "The Welfare of the Shop Assistant" and "Venereal Diseases, Past, Present, and Future" by Mr. B. I. Tanner and Dr. R. M. Warren respectively.

### William Blair-Bell Memorial Lectures

The Royal College of Obstetricians and Gynaecologists (58, Queen Anne Street, London, W.) announces that the William Blair-Bell Memorial Lectures for 1947 will be delivered in the College House on Nov. 14, at 5 p.m., and on Jan. 23, 1948, at 5 p.m. The first lecture will be delivered by Dr. D. J. MacRae, on "Heart Diseases in Pregnancy," and the second lecture by Dr. Stanley A. Way on "Primary Carcinoma of the Vagina." All medical practitioners interested in the subjects are invited to attend the lectures, but admission is by ticket only, obtainable from the secretary. Tickets will be allotted in order of application, and applicants are asked to indicate for which lecture tickets are required.

## SOCIETIES AND LECTURES

**SOCIALIST MEDICAL ASSOCIATION.**—At Denison House, 296, Vauxhall Bridge Road, S.W., Friday, Sept. 12, 7.30 p.m., Dr. Judith Waterlow. Reconstruction of the Health Services in Greece and Yugoslavia.

A course of six lectures on thoracic surgery will be given at the Medical Society of London (11, Chandos Street, Cavendish Square W.) on Saturdays, Sept. 13 and 20, Oct. 4, 11, and 25, and Nov. 1 at 11 a.m. The course is designed for candidates for higher degrees and will be given by the chief assistants to the Harefield Thoracic Surgery Unit, of which Mr. T. Holmes Sellors and Mr. Vernon Thompson are the senior surgeons; it is limited in numbers and the fee is £6 6s. Applications, with remittance, should be sent to Mr. K. S. Mullard, F.R.C.S.Ed., "Wykeham," Elgood Avenue Northwood, Middlesex.

The Royal College of Obstetricians and Gynaecologists (58, Queen Anne Street, London, W.) has arranged a postgraduate course of advanced lectures for those studying the special practice of obstetrics and gynaecology to be given in the College House from Monday Nov. 17, to Friday, Nov. 21, at 5 p.m., both dates inclusive. The fee for the course is £2 2s. (10s. 6d. for a single lecture). A small number of tickets will be available free of charge to Fellows and Members of the College and will be allotted in order of application. There will be no admission without tickets, which are obtainable from the secretary.

## BIRTHS, MARRIAGES, AND DEATHS

The charge for an insertion under this head is 10s. 6d. for 18 words or less. Extra words 3s. 6d. for each six or less. Payment should be forwarded with the notice, authenticated by the name and permanent address of the sender and should reach the Advertisement Manager not later than first post Monday morning.

### BIRTH

**HUTCHISON.**—On Aug. 28, 1947, to Nan E. (née Niblett), wife of J. B. Hutchison F.R.C.S., 8, Lynedoch Place, Glasgow, C.3, a son.

### MARRIAGE

**GOUGH—LEE.**—On Aug. 26, 1947, at St. John's Church, Torquay, Major C. W. C. Gough, R.A.M.C., to Major Clara Lee (née Burgess), R.A.M.C.



## Any Questions?

*Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.*

### Whooping-cough Immunization

**Q.**—What is the present position of immunization against whooping-cough?

**A.**—Good reviews on the present position regarding active immunization against pertussis have recently been given by elton and Willard in the U.S.A. (*J. Amer. med. Ass.*, 1944, 26, 294) and by Tudor Lewis in this country (*Med. Off.*, 1946, 76, 5). Lewis concludes from his study of the literature that "given a potent vaccine a reduction of the attack rate to about one-third with a diminution in the severity of the clinical cases and a substantial reduction in mortality may well be expected." The operative phrase is obviously "given a potent vaccine," just as we depend on a good antigen for effective immunization against diphtheria. This aspect of the problem now receiving considerable attention from laboratory workers, and methods of assay of antigenic potency in experimental animals have been devised. Controlled trials of American and British vaccines are being carried out by the Medical Research Council, but it is too early to say how effective these vaccines are. There is some evidence that an alum-precipitated is more effective than a "straight" vaccine, but it would be unwise for a medical officer of health to recommend large-scale inoculations against pertussis until more information is available about the efficacy of the vaccines at present in use.

### Hypothyroidism

**Q.**—What are the early symptoms and signs of hypothyroidism?

**A.**—In the infant there would be a retardation of the ordinary developmental stages, coupled with dryness of the skin, retinoid facies, and umbilical hernia; in childhood myxoedema there would be retardation of growth and puberty and the other features of adult hypothyroidism; in adult myxoedema the onset may be sudden or insidious, and, although there is no regular presentation of early features, sensitivity to cold and loss of the hair of the head and outer eyebrows are often early signs. Retardation of mental processes is not invariable, but may be an early sign observed by friends.

Hypothyroidism, as distinct from myxoedema, may be secondary to a pituitary lesion—for example, Simmonds's achexia after pregnancy—and in such circumstances early features may be absence of lactation, failure of reappearance of menstruation, weakness, and sensitivity to cold.

### Infantile Eczema

**Q.**—What is the most effective treatment for infantile eczema? Would injections of vitamin B<sub>1</sub> be helpful?

**A.**—Coal tar in a paste or ointment is most effective in infantile eczema, and soap and water should be avoided. Injections as a rule are undesirable, but vitamin B and liver oil are sometimes of value. Most helpful is potassium bromide 1 gr. (0.32 g.) thrice daily in a rhubarb-and-soda mixture or phenobarbitone in 1/4-gr. (16-mg.) doses. These infants are emotionally and nervously hypersensitive and readily react by ching. Attention should be given to the environment and to the mother-child relationship from the psychological point of view.

### Cod-liver Oil for Adults

**Q.**—Many elderly people now take cod-liver oil to make up for the shortage of fats. What is the appropriate dose for adults? Is it harmful when taken over a long period, and, if so, what are the symptoms?

**A.**—Cod-liver oil is not to be regarded as a medicine but as food. There is no appropriate dose, just as there is no appropriate dose for butter. It is not harmful when taken over a long period. Before vitamins were heard of cod-liver oil had a reputation as the best preventive of bronchial affec-

tions, and it remains a good treatment for chronic bronchitis when the patient cannot live in a dry climate. The only symptoms which can result from taking too much cod-liver oil are those of acidosis; but as loss of appetite is one of the earliest this should cure itself. The fear of excessive doses of vitamin D has now been shown to be groundless.

### Bequest of Body for Dissection

**Q.**—A patient is desirous that his body should be given for dissection to the nearest medical school. Could you inform me on the following points: (1) What steps should be taken to ensure that his relatives do not upset his wishes after death? (2) Should he notify the medical school now of his intentions? (3) When he dies what are my responsibilities (in order that his wishes may be respected) (a) to the coroner, (b) to the deceased, (c) to the medical school? (4) Will the medical school defray the cost of transporting the body?

**A.**—As there is no property in a corpse, a bequest of one's own body has no validity. If the relatives, who are responsible at law for the disposal of the body, override the wish of the deceased, there is nothing to be done. The utmost the patient can do now is to try to get the relatives to promise to carry out his wishes. There may be no harm in informing the authorities of the medical school, but they cannot acquire any rights over the corpse. After the death the practitioner has, if the death was due to natural causes, no responsibility to the coroner. His only responsibility to the deceased and to the medical school is the sentimental one of doing his best to persuade the relatives. It certainly seems reasonable that the medical school, who are getting what *ex hypothesi* is valuable material, should defray the cost of transport. Fuller details will be found in an article by Dr. N. M. Goodman in the *Journal* of Dec. 23, 1944 (p. 810).

### Bilateral Adrenalectomy in Hypertension

**Q.**—I have never read of the performance of bilateral adrenalectomy followed by maintenance doses of cortin in cases of essential hypertension, and, while I cannot claim to possess special knowledge of the subject, it would appear worthy of trial, especially in view of the grave prognosis in severe hypertension.

**A.**—Bilateral adrenalectomy would not be indicated for two reasons: (1) the adrenals are not the usual cause of essential hypertension, and (2) life can be maintained only precariously by substitution therapy after bilateral adrenalectomy. Substances in the blood that produce vasospasm do not necessarily have their origin in the adrenal glands, and some are thought to arise from the kidney itself. In acute adrenal insufficiency the blood flow through the renal glomeruli is decreased and anuria may occur. Of course it is well known that pheochromocytomas (adrenal medullary tumours) may cause both chronic hypertension and superimposed hypertensive crises, and are usually unilateral. In such circumstances the removal of the tumour produces cure. A case of this kind was recorded in the *Journal* of April 26, 1947, at page 563.

### Protection against Tetanus

**Q.**—My boy, aged 2, repeatedly scratches his legs by falling on the garden paths. He had one dose of A.T.S. some time ago. Is the risk of giving A.T.S. each time greater than the risk of tetanus? Is it possible, and safe, to actively immunize a child so young?

**A.**—The risk of tetanus from superficial scratches and abrasions sustained by children in gardens or playgrounds is minimal. Tetanus antitoxin would ordinarily be prescribed only for the deep penetrating wound or severe injury. However, a child may readily be protected against the risk of tetanus by active immunization with tetanus toxoid, which obviates the need for, and attendant risks from, repeated injections of antitoxin. Active immunization was used as a routine during the war for all our armed Forces and resulted in a remarkable reduction in the incidence of tetanus among wounded men. It is now being increasingly used in paediatric practice in the U.S.A. along with diphtheria immunization. Two 1-ml. doses of tetanus toxoid (obtainable commercially) are given at six weeks' interval, and if desired a boosting dose may be given a year or more later. There are no reactions and the protection

is lasting compared with the temporary protection given by the injection of tetanus antitoxin.

### Penicillin-sensitivity

**Q.**—*What is the prospect of a reaction to the parenteral administration of penicillin in a case where glossitis followed the use of penicillin lozenges and a severe dermatitis occurred after the application of penicillin cream and ointment? Would the use of pure penicillin lessen the tendency to reaction?*

**A.**—Glossitis is not necessarily due to penicillin itself; it may be due to the lozenge base, since it appears to be commoner with lozenges than with the original gelatin pastilles. The same explanation is possible, although less likely, in connexion with dermatitis following the use of an ointment or cream. Assuming that the patient is sensitive to the drug itself, the use of pure penicillin is not likely to overcome this; many such patients have been found to be sensitive to the pure product as well as to the impure commercial material. O'Donovan and Klorfajn (*Lancet*, 1946, 2, 144) desensitized a patient by giving 15,000 units by mouth several times a day for a fortnight. If parenteral administration is urgently indicated in such a case it should certainly not be withheld.

### Chronic Glaucoma

**Q.**—*What is the best treatment for a male patient of 70 with chronic primary glaucoma? He has been treated with pilocarpine for the past four years, but the vision is deteriorating—the right eye being blind, while there is only some central vision in the left. He refuses surgical treatment.*

**A.**—Pilocarpine is obviously not controlling the tension in this patient. Presumably drops in a concentration of 1% are being used three times a day. More frequent instillation may be helpful, and gutt. physostigmin. sulphas. 0.5%, or even 1%, may have to be used. The essential thing is to find out by actual measurement whether the tension can be controlled by pilocarpine or physostigmine, what concentration is necessary, and how frequently applications are to be made. It is possible that no miotic will control the tension in this patient. In such circumstances the only alternative to operation is irremediable blindness. There are newer remedies that can be employed to tide over an acute emergency. These are useful pre-operative measures, but have no place in the treatment of chronic glaucoma.

### Urinals

**Q.**—*Can you recommend a fool-proof urinal for night use in bed? The usual rubber urinal is useless in the recumbent position.*

**A.**—We know of no really satisfactory urinal for use in the recumbent position. Most patients who suffer from incontinence sleep either with a urine bottle between their legs or else with a large pad of cotton-wool. Nothing is said in the question about the cause of the incontinence. If it is due to impairment of sphincter control in the male a penile clip may prove effective. This is a clip which exerts sufficient pressure on the penile urethra to prevent the dribbling away of urine. When the bladder contains enough urine to make it necessary to void, the patient is awakened and micturates.

### Sterilization of Syringes

**Q.**—*At a hospital where the water supply contains a large quantity of lime salts, syringes and instruments boiled in the ordinary sterilizers come out covered with a film of precipitated chalk. Can this be prevented harmlessly by adding sodium hexametaphosphate or some other chemical to the water in the sterilizer? Any practical suggestions would be appreciated.*

**A.**—This question is dealt with in "The Sterilization, Use, and Care of Syringes" (M.R.C. War Memo No. 15), where it is mentioned that sodium hexametaphosphate, although preventing chalk deposit, "may precipitate alkaloidal solutions, and, by combining with protein, may affect serum reactions." Since syringes are perhaps more often used either for administering drugs or for withdrawing blood than for any other purposes, these are serious objections. A carboy of distilled water costs only a few shillings and will last a long time; rain-water is a possible alternative.

## NOTES AND COMMENTS

**Treatment of Cataract.**—Dr. SYDNEY TIBBLES (London, W.) writes: Dr. Ronald Kerr (Aug. 2, p. 196) rightly objects to the answer given in the *Journal* of June 21 (p. 911), which implies that any treatment other than surgical for cataract is futile. True, one can only get rid of a mature cataract by removing it surgically from the eye, although in the East they used to depress them out of the line of vision. The late Col. Elliot wrote a book on the evils of "couching" as it was called. For years past fully a quarter of my patients have been people with cataract. Those ready for operation were treated accordingly. However, I have people still coming after twenty and even thirty years' treatment by iodides who still require no operation, which must be the experience of many of my colleagues. There is no secret in it, as years ago we used a French ointment of calcium iodide, but with the cutting off of supplies during the war we either fell back on home products, similarly manufactured, or used potassium iodide as drops, or some similar preparation. We also use iodides in chronic rheumatism, bronchitis, and other conditions, and they appear to be of use clinically. As we hardly know the *modus operandi* of such drugs, nor of the sulphonamides or of penicillin, surely they cannot be condemned as scientifically futile—science presumably meaning systematic, i.e., according to plan, or formulated knowledge. Certainly the proportion of cases I have to operate on is very small compared with the large number of early cataracts seen. The scientists tell us that such changes in the lens cannot be "reversed," which belief I held till one day I met socially an old patient whom I thought had deserted me. She explained that, after years of treatment, she was convinced that she was entirely better, which was borne out at a further examination, when I found that the lenses had become completely clear again. I however had to operate on both eyes when she was in her late seventies, ten years later. Prior to the recent war there were many nature-cure homes in the country that specialized in the treatment dietetically of cataract. In 1938 I had the interesting experience of operating in one of them on a lady with a mature cataract of one eye. She had been kept on orange juice and a low diet, mostly vegetable, but in spite of my scepticism of such treatment by diet she was up and out for a walk at the end of seven days. Now I hold no brief for special diets in such cases, but her blood stream must have been pretty pure. For one patient requiring operation there are myriads who have cataract in various stages. If these can be kept as they are, without being allowed to degenerate further, that must surely be a great comfort to the patient. It certainly is more spectacular to make a blind eye see by means of an operation, but Dr. Kerr is quite right in stressing all the alternatives; and, after all, why should not everything be tried if it will give any relief to the patient? Finally, I hope nobody will get the impression that I am advocating nature-cure methods, as I have had no time for treatment by diets, ionization, or the many things suggested, but have merely used iodides in some shape or form, as, after thirty-odd years of seeing such cases, I am convinced that they do prevent early cataracts from becoming worse. It is very unscientific to say we do not know how, but possibly they act like other alternatives in stimulating metabolism.

**Sweating Hands.**—Lieut.-Col. S. S. VAZIFDAR, I.M.S.(ret.) (Berkhamsted, Herts), writes: With reference to the reply under the heading "Sweating Hands" (Aug. 16, p. 281), I would confidently recommend, if the young lady's examination be not over, that she be given intravenously 3 ml. of a 10% solution of NaCl. Over ten years ago I saw a girl of 17 from whose palms sweat dripped as water from a tap. The effect of one injection lasted for about a week, when it was repeated.

**Correction.**—Lieut.-Col. J. G. FOSTER writes: In your obituary notice of the Indian Medical Service (Aug. 23, p. 300) you mention, as a member of that Service, Timothy Lewis, but he was a member of the Army Medical Service, and is shown in Johnston's Roll. There is no mention of Timothy Lewis in Crawford's Roll of the I.M.S. Lewis's name was Timothy Richards Lewis.

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Atiology, Westcott, London.* ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Authors desiring REPRINTS should communicate with the Publishing Manager, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs. Authors overseas should indicate on MSS. if reprints are required, as proofs are not sent abroad. ADVERTISEMENTS should be addressed to the Advertisement Manager, B.M.A. House, Tavistock Square, London, W.C.1 (hours 9 a.m. to 5 p.m.). TELEPHONE: EUSTON 2111. TELEGRAMS: *Drumdeads, Westcott, London.* MEMBERS' SUBSCRIPTIONS should be sent to the SECRETARY of the Association, TELEPHONE: EUSTON 2111. TELEGRAMS: *Medicetra, Westcott, London.* B.M.A. SCOTTISH OFFICE: 7, Drumsheugh Gardens, Edinburgh.

# BRITISH MEDICAL JOURNAL

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## THE EARLY DIAGNOSIS OF CANCER OF THE OESOPHAGUS AND STOMACH\*

BY

Sir HENEAGE OGILVIE, K.B.E., M.Ch., F.R.C.S.

*Surgeon to Guy's Hospital*

We know the main facts about cancer. We know it is the chief cause of death in men and women in the years after 40—the time when they have established a place in life, a home, a reputation, when they are most useful to their profession and their country and most necessary to their families. We know that at first it is not a tumour but an insensible transformation of the cells in some part of the body to a structure that is a caricature of the normal rather than something new or different; that this new tissue has no nerve supply, and that it produces no inflammatory reaction in the normal parts surrounding it—in other words, that it is entirely painless, and in most cases entirely symptomless. We know that, for purposes of recording, cancers can be sorted into three stages, based on their gross naked-eye pathology: Stage I, in which there is a local growth only; Stage II, in which as well as the local growth there are early metastases in the nearest lymphatic glands or in tissues immediately adjacent; and Stage III, in which the primary growth or the metastases are fixed, or more distant organs are involved. We know also that in those parts of the body which can be effectively irradiated, or where a radical operation that satisfies pathological criteria can be performed—the breast, the colon, the rectum, and most parts of the skin—the five-year cures in Stage I are 80 to 90%, in Stage II about 50%, and in Stage III not more than 10%.

Radiation will improve, but it is doubtful whether that improvement will be dramatic. Radical surgery can hardly get more radical, for the limitations now set are not the result of timidity or lack of enterprise but are rather due to Charles Mayo's stipulation that among the results of successful surgery should be a live patient. If, therefore, we are to get more cures it can only be by finding more patients in Stage I, the stage of silence.

Two of the most malignant of all growths are those of the oesophagus and the stomach. Cure of oesophageal cancer is almost unknown. Cure of gastric cancer is sometimes seen, but in not more than 5% of those cases that come to a surgical clinic; yet it is the commonest of all malignant growths, and the chief cause of cancer deaths in all civilized countries in which records are kept. There are no signs or symptoms by which we can diagnose these diseases in their early stages, but are there any which should raise our suspicions and allow us to start those investigations that will give the answer in time? It is those early signs that are the hardest to discover, and many of you may have observed some warning sign that the rest of us have not noticed. If you have I hope that you will share it.

### Warning Signs

Those who were in the first World War will remember the "stand to" in the front trenches an hour before dawn, the hour when mists and half-shadows conceal familiar objects, the hour when the enemy may creep unseen, when a suspicious alertness is the only way to safety. We should all "stand to" over our patients who have passed the forty mark, suspicious of the enemy who may even then have established a footing unknown. We should beware of the man who starts to look ill, to get a little paler, to lose weight, to turn down the second round of golf or the last rubber at bridge, to miss his second helpings, and to become "choosy" about his diet. The mind or body of a healthy man does not tire suddenly and perceptibly at the forty or four-score, and the change from the "Wimbledon Tiger" to the steady back-line six-set tournament player of forty years later is imperceptible. Habits of meals and bowels do not change without reason; but it is the neurotics who look at their faces and tongues daily in the mirror and weigh themselves weekly, and with normal men we have to rely on our own observations or the reports of their wives or friends. We may first suspect loss of weight in our friends by the loose collar, the baggy waistcoat, loss of strength by the tendency to take a taxi instead of a walk, the lift instead of the stairs. These things we can check by a few questions. Have they noticed any difference in the fit of their clothes? Can they do all the things they did six months ago? Is there any alteration in their appetite, the amount they can eat at a time, their bowel habit? Have they started to suffer from wind lately? Some men are windbags all their lives, but a previously unexceptionable member of society who starts suddenly to belch or rumble probably has cancer. Have they for the first time taken to powders or medicine?

To start with we keep our suspicions to ourselves, for we do not wish to earn a name for being alarmists or to involve our patients in needless expensive investigations, but we must keep a constant watch on the deviation we have noticed, and we should start a weight chart. There are many groups of disease, and each has its general characteristics. The colics from stone come like stabs across the sky of otherwise excellent health. The infections are incidents of varying duration with a rise and fall. Cancer is progressive; the paleness increases, the tiredness gets worse, the weight continues to fall. And there are certain tests we can carry out without revealing our suspicions. If we suspect carcinoma of the oesophagus we can order a bulky cachet of "medinal" and aspirin and stand by while they swallow it; if carcinoma of the stomach we can ask them to share a bulky meal. And we can put

\* Substance of lecture delivered at Mount Vernon in 1946.

them on a meat-free diet and have a stool examined for blood; a negative result makes a cancer anywhere in the alimentary tract very unlikely. But if symptoms continue and progress, if we see that slight but steady deterioration that whispers "cancer" to the trained eye, we must insist upon a complete investigation. We may be wrong, but if we always wait till we are right we shall always be just too late. A live mistake is better than a dead certainty.

### Cancer of the Oesophagus

Cancer of the oesophagus is predominantly a disease of men, and of old men—that is, 60 and over. It is hardly ever diagnosed till it is well advanced, for it is entirely silent. The mouth and the stomach form their opinions about food and reject what they do not like. The oesophagus is insensible and uncomplaining. A carcinoma usually produces no recognizable obstruction till it has completely encircled the lumen; while even one centimetre of normal wall remains swallowing usually appears to be normal. Once the growth completely encircles the gullet dysphagia appears and progresses rapidly, first for solids, then for soft foods, then for liquids. Late signs, palsy of the left recurrent laryngeal nerve, involvement of the trachea or bronchus, glands in the neck, Horner's syndrome, follow in turn.

There are no early symptoms, apart from the vague ones I have outlined, and questions to all my friends have produced only three observations with any bearing on the subject. First, that there is occasionally some oesophagitis above a non-obstructive growth, giving a burning feeling deep in the throat "as if they have swallowed some very hot tea." Secondly, that a partial obstruction may suddenly be complete to some usually large bolus, so that patients come with a story of a "bone stuck in the throat." Both stories call for x-ray examination and oesophagoscopy. Thirdly, that the early dysphagia of a slightly stenosed growth is often reported as "indigestion," which leads to investigation by a barium meal and a report of a normal stomach that allays suspicion until too late. It should be the rule at every barium meal that the first swallows are watched in their passage down the oesophagus. One swallow may not make a summer, but it may diagnose carcinoma of oesophagus or cardia while there is hope.

### Cancer of the Stomach

Cancer of the stomach is also a disease of men, but it occurs much earlier, many coming soon after 40, and not a few in the thirties. The classical symptoms are epigastric pain unrelieved by alkalis, vomiting, anorexia, anaemia, loss of weight. About half the cases we see give this picture, but they are already far advanced. Very many are entirely silent till their terminal stages.

A celebrated American gastric radiologist swallowed a cup of barium to try out a newly installed apparatus; the film, to the horror of the radiographer who developed it, showed a large gastric carcinoma. Within the last five years two very famous surgeons have suddenly discovered that they had a carcinoma of the stomach by feeling the mass bump against the operating table. So silent is the lesion in the stomach that growths often reveal themselves by syndromes that do not seem to be gastric. Lesions near the cardiac orifice cause symptoms closely resembling those of oesophageal obstruction. A barium swallow may appear to pass normally down the oesophagus, and if it is not followed by a barium meal a growth in the stomach may be missed. Growths near the fundus are very difficult to demonstrate radiologically, and unless the fundus is examined with the patient in the Trendelenburg position, so that the barium fills the whole cardiac region, small

irregularities cannot be seen, and even large ones may pass unnoticed. In many cases the barium is held up at the lower end of the oesophagus, but as the constriction is smooth and funnel-shaped a diagnosis of cardiospasm is made. This is one of the commonest mistakes in gastrointestinal radiology, and one of the most tragic, for while the patient is being treated with bougies, or, as happens not infrequently, running the whole bewildering gamut of psychological investigation, the growth below the diaphragm is passing insidiously from the operable to the inoperable stage. Cardiospasm is usually a disease of younger people, and by the time it has progressed enough to bring the patient up for examination has a long history of periodic bouts of dysphagia and of remissions. In cardiospasm the oesophagus is seen in the radiograph to be considerably dilated, at least to the size of a normal caecum; above a growth the oesophagus may be filled to capacity, but it is rarely dilated in the true sense, and it does not exceed a candle in diameter. A diagnosis of cardiospasm should never be made in an adult with a short history till the possibility of a high gastric cancer has been excluded.

In other cases profound anaemia is the only recognizable symptom, and the diagnosis of pernicious anaemia is made. In yet others a small and silent growth sends out showers of malignant cells into the peritoneal cavity that seed themselves in the pelvis, giving rise to a pelvic shelf and rectal obstruction or, in the female, to bilateral implantation carcinoma of the ovary.

Early diagnosis, once more, is the reward of a suspicious mind. Does a man who has eaten like a horse till the age of 40 suddenly get indigestion, though his job, his habits, and his wife remain the same? No! Does gastric ulcer start after 40? Never—well, hardly ever! Does the tired business man come back tired after a week at Westward Ho? Not if his tiredness is no more than business worry. These people want investigation before, not after, they start a course of diet and medication on the advice of the chemist, the man in the train, or the writer of the health column in the evening paper. The seller of alkalis is the undertaker's best friend. Investigation means observing these doubtful cases closely and anxiously, inquiring about appetite and comfort at meals; whether they have a sense of fullness when the meal is half done or belch foul-smelling gas—two symptoms highly suggestive of carcinoma; it means weighing them weekly, examining their blood and their stools, testing their vomit for free hydrochloric acid and blood; if suspicion continues it means a barium meal, and if the barium meal is inconclusive it means gastroscopy. The gastroscopist has to look at a great many stomachs before he knows his job, but when he does he misses very few carcinomas of the stomach.

### Relation of Gastric Ulcer to Gastric Cancer

One of the most important services that gastroscopy can perform is to decide whether a particular ulcer is innocent or malignant. There has been much controversy about the relationship between gastric ulcer and gastric cancer, but it is undoubtedly one of the most important aspects of the question that concerns us to-day, the early diagnosis of malignant disease of the stomach. We must consider two things: the gastric ulcer that undergoes malignant degeneration, and the gastric cancer that resembles gastric ulcer.

Authorities vary greatly in their estimate of the number of ulcers that become malignant. On the pathological side, from the investigation of necropsy and operation specimens, estimates vary between the 4 or 5% of most British pathologists and the 50% of McCartney of the Mayo

linic. Surgeons for the most part accept the lower figure, but Maingot in a recent article has stated that in about 10% of the cases of cancer of the stomach that come to him the range has been implanted on a previous gastric ulcer.

I personally believe that the number is very low indeed—so low that I should never use the argument of impending malignancy to bully a patient with an ulcer that had all the clinical indications of innocence into an operation he did not want to have. No surgeon in a lifetime has enough personal cases to allow him to lay down the law, but I must place on record that in twenty years of gastric surgery I have never seen a gastric ulcer become malignant. I feel that Maingot's experience is a piece of unparalleled bad luck in the practice of an otherwise very lucky man.

Cancer mimicking ulcer, on the other hand, is seen by every surgeon several times a year. It is necessary to remind ourselves that cancer of the stomach, while it is usually a very rapid disease, may be as slow as a scirrhus of the breast, going on for ten years with little change; that patients with slowly progressing cancers may have a good appetite and free hydrochloric acid, and that they may lose their symptoms for a time and put on weight on a gastric diet. These slow cancers are digested in their central necrotic parts by the gastric juices, and, whether by operation or necropsy, may have very much the appearance of an indurated peptic ulcer. But in these cases, if we go into the history carefully, we find that the gastric symptoms have started suspiciously late in life, that though they may have gone for some years they have been steadily and slowly progressive, and that the remissions have not been periods of complete health but of lessened discomfort. The true ulcer usually starts in the twenties, and, in its long history before its final cure by medicine or surgery, has many remissions of months' or years' duration. I know that prolonged irritations and the presence of scar tissue may give rise to a cancer, but in a lifetime I have seen little evidence that they do so except in squamous epithelium.

On the other hand we need not be too philosophic. A large chronic gastric ulcer causes constant misery even if it does not cause cancer, and gastrectomy is one of the most satisfactory and, in practised hands, one of the safest operations in surgery. An ulcer in the bucket has never been known to become malignant.

We must suspect malignancy or a premalignant character in all gastric ulcers first appearing after the age of 40; in all those in the prepyloric inch, and in other parts of the stomach that are not on or adjacent to the lesser curvature; in those exceeding an inch in diameter; in those that do not heal after a month's strict medical treatment in bed and in which occult blood is still found in the stools after such treatment. All these should be submitted to surgery without further delay.

### Conclusion

I would conclude by repeating that the early diagnosis of cancer in any internal organ depends, in the main, on clinical judgment, on the early confirmation of what can, in most cases, be no more than a suspicion. We can all remember instances of a diagnosis of malignancy made on clinical grounds, of repeated examinations by experts giving repeated denials, of confirmation coming too late for curative treatment. When cancer is in question we should accept the negative warning of a penny weighing-machine in preference to the positive reassurance of the ten-guinea Harley Street expert. And if our suspicions continue, if the weight continues to fall, we must insist on an exploration. There is more rejoicing in heaven over the one laparotomy that fails to find cancer than over the ninety-and-nine (positive ones) that find it too late.

## PUBLIC HEALTH—BERLIN, 1946

BY

JAMES MELVIN, C.B.E., M.C., T.D., M.B.

Chief Control Officer, Public Health Branch, Military Government, British Troops, Berlin

[ABRIGEO]

From the entry into Berlin in July, 1945, to the end of the winter of 1945-6 the concern of the Military Government from the health and welfare point of view was almost entirely that of first-aid to a demoralized, apathetic, depressed, and needy population. A factual account of the conditions to the end of 1945 has been given by P. G. Horsburgh and H. A. Raeburn.<sup>1</sup> History has shown that in the train of the devastation caused by wars come epidemics which have usually claimed more victims than the wars themselves. A winter plan of epidemic prevention was therefore of first importance. The situation was complicated by vast movements of population, refugees in tens of thousands moving in all directions, but chiefly from east to west. Small groups of these, infected with typhus, dysentery, and typhoid, were a potential menace to all concerned. Barriers in the form of camps for refugees had to be established. Medical teams, hospital arrangements, disinfection, feeding, and transport all had to be organized, and organized quickly.

### Public Health Control

The Allied Control Authority takes the place of the Government in Germany, and the Public Health Control Officer of the Military Government therefore acts in the capacity of an official of the Ministry of Health, except that he has overriding powers to ensure that certain aspects of local government are carried out as ordered. Berlin is under a quadripartite government, and each of the Allies has a Public Health Branch of Military Government controlling all the medical and health services of the 20 "Bezirks" (corresponding to metropolitan boroughs in London) into which Berlin is divided. The Public Health Branch of the British Military Government consists of four officers assisted by clerks, and all the medical and auxiliary services in the four Bezirks which it includes come under its control. Direction of the doctor is within its province, and on the whole the doctors, instead of resenting this, rather look to the Branch to help them. In the British sector there is one doctor to 850 population, but in an Allied sector only one to 2,500; so that, allowing for the fact that more of the hospitals in proportion to the population are in the British sector, some general practitioners must be ordered to work in other Bezirks. There will be no compulsion upon the doctor to move his home to the other Bezirk, but only his field of employment, and the direction will be limited to "squatters" and the newly qualified. The effective measure for securing direction is through control of insurance contracts, 90% of the population being insured.

### The Berlin Hospitals

The hospitals of Berlin had been reduced by May, 1945, to some 30,000 beds. By August they were up again to 38,000. The winter target was 50,000, and by the end of December 46,000 had been reached. For the British sector the target was 10,000, and the figure at the moment of writing is over 11,000. There are now practically twice as many hospital beds as in peacetime, but there are nearly three times as many sick—this with a population depleted

<sup>1</sup> *British Medical Journal*, 1946, 1, 423.



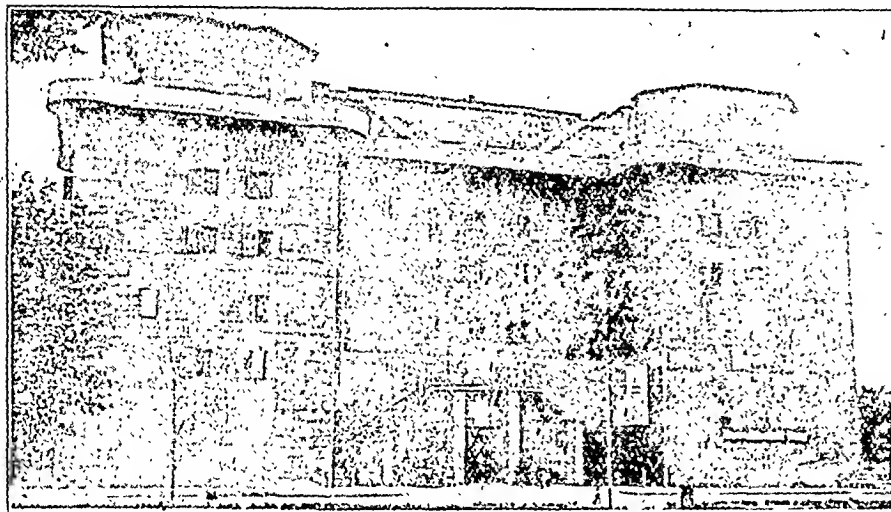


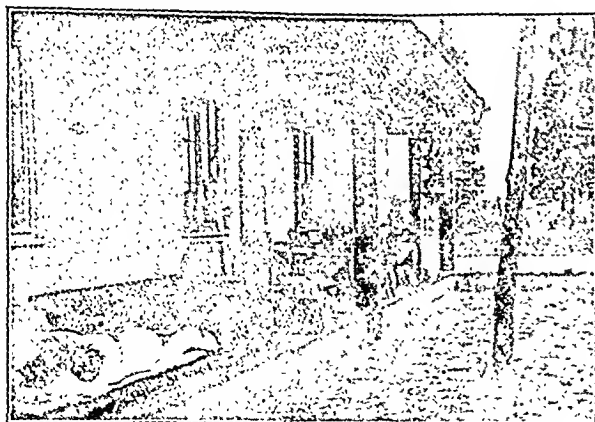
FIG. 1.—The Zoo Bunker, a large reinforced command post due to be blown up under the Potsdam agreement; destruction delayed that it may serve as an annexe to the Robert Koch Hospital.

to 70% of the pre-war figure. The proportion of hospital beds to the Berlin population is 15–17 per thousand, but only about one-third are in the condition which would be expected in a modern hospital. By December, 1946, temporary repairs were completed to 89% of the requirement, and permanent repairs to 70%. Some 38% of the hospitals were formerly schools, and plans are now being made to return these to their former use. The Grosse Halle at Spandau, a fine group of pavilion-like buildings, will form a hospital of about 2,000 beds divided into departments of medicine, surgery, gynaecology, and orthopaedics (Fig. 2).

The staffing of the hospitals has been a difficulty, because many of the supervisory doctors, being Nazis, have been removed. The British Military Government has made strenuous efforts over a period of 15 months to re-establish an organization of physicians and also associations of nurses and other auxiliaries, but so far this has been fruitless because quadripartite agreement could not be obtained. It would have been easy to establish these organizations in the British sector of Berlin, but it was obviously necessary to run Berlin as a city, and not as four separate cities, and eventual agreement, if and when obtained, will be well worth the time lost.

To visit the hospitals, however, and to see their work is one of the recompenses of a harassing day. Such courtesy and such keenness to listen, to demonstrate, and to co-operate are met with that considerable pleasure as well as educational value is found in these visits. The lack of sound administrators as well as mature specialists is a big problem. As denazification proceeds more and more doctors of the

FIG. 2.—A corner of the Grosse Halle at Spandau, which is to form a 2,000-bed hospital.



able type are thrown out, and we are left with the elderly who resisted Hitler, but whose work was so valuable that the Nazis did not get rid of them. There are in the hospitals and in the specialties some young men who will be good specialists in the future, but they are few and far between at present.

### Equipment and Supplies

Hospital equipment and medical supplies when the Allies took over were, of course, in a state of great shortage. With the usual German initiative hundreds of small firms came into being, some of which made pharmaceutical products in their cellars. If it had not been for the activity of these "Rucksack" firms, as the Germans called them, in

the early days our difficulties would have been much greater; the larger firms, owing to the disruption of their more intricate organization, were semi-paralysed. All this trade, however, must be brought to an end, at first by the Military Government, but at the earliest moment by the German representatives of the pharmaceutical trade and the local government Health Offices. In addition to pharmaceutical products large amounts of equipment and appliances have been brought in from the British zone, but, because of the policy of treating Berlin as one unit, they have been handed over to the central department and not allocated to the British sector only.

The Germans have been so cut off from the rest of the world that their medical men have been unaware of recent medical advances. German scientists, chemists, and doctors have not stood still, and they have several things to show for the betterment of mankind; but penicillin was generally unknown in Germany, and such discoveries as the Rh factor had not reached them. Extracts from medical literature have been presented to the Health Offices so that translations may be made for the medical profession. An article on the modern treatment of dysentery has probably contributed to the significant drop in dysentery incidence in Berlin.

### Nutrition

The nutritional state of Berlin has been a cause of grave anxiety to the Allies. Cross-sections of the population have been examined at intervals of about three months. The rations in use in Berlin to-day are shown in the following table:

Ration Cards	Calories per Day	Entitled Persons
Group I	2,498	Heavy workers. Persons with active tuberculosis or severe anaemia, plus 0.5 litre milk daily
" II	1,999	Moderately heavy workers. Persons with moderate anaemia, plus 0.5 litre milk daily
" III	1,608	Normal consumers
" IVa	1,388 (without milk) 1,786 (with milk)	Children up to 6 years
" IVb	1,653 (with milk)	Children up to 1 year
" IVc	1,487 (without milk) 1,619 (with milk)	Children from 1 to 6 years
" IVd	1,619 (with milk)	Children from 6 to 9 years
" V	1,559	Children from 9 to 14 years (Discontinued since March 1, 1947)

Diabetics receive extra fat and meat, and less bread and sugar. Pregnant women from the fifth month are in Group II and receive half a litre of milk daily. Classes of the population which still give concern are young adolescents, mothers of young children, and people over 60, and efforts are being made to bring these up to a

higher category of ration. The International and the Swedish Red Cross have made valuable contributions in the form of additional supplies through the medium of communal kitchens catering for children and young persons. The British Commandant in Berlin (Major-General E. P. Nares) caused the distribution of one million Arctic packs (which had been designed for an invasion of Norway) on a city-wide basis to augment the ordinary ration of school-children and adolescents in the two winters. The packs contain pemmican, biscuits, chocolate, cheese, and other concentrated foods.

### Tuberculosis

Pressing problems from the public health point of view are tuberculosis, venereal diseases, and diphtheria (at the moment adult diphtheria). Unless the increasing incidence of tuberculosis can be brought to a standstill the outlook for Berlin, and indeed for Germany and even for Europe, in the next ten years is going to be serious. There are in Berlin 70,000 cases, of which between 20,000 and 30,000 are active and infectious. The British Military Government has handed over the Luftkriegsakademie at Gatow for a tuberculosis sanatorium of 1,700 beds (Fig. 3), and the U.S.



FIG. 3.—Part of the Luftkriegsakademie, formerly a Service barracks, to be converted into a 1,700-bed tuberculosis hospital.

Government has handed over the Air School building at Wannsee, which will have a 2,000-bed capacity. The tuberculosis notifications in the British Sector and Berlin in 1946 were as follows:

### Notifications of Tuberculosis in 1946

	British Sector						Berlin					
	Tb. Lung		Tb. Other		Total		Tb. Lung		Tb. Other		Total	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
January ..	364	136	5	8	369	144	1,208	753	75	63	1,283	816
Per 10,000 pop. ..	77	29	1	2	78	30	46	29	3	2	49	31
February ..	335	120	3	6	338	126	1,146	725	78	51	1,224	776
Per 10,000 pop. ..	78	28	1	1	78	29	43	31	3	2	46	33
March ..	292	128	21	7	313	135	1,401	893	180	60	1,581	953
Per 10,000 pop. ..	61	27	4	1	65	28	74	31	7	3	81	33
April ..	250	122	30	14	280	136	1,229	786	138	79	1,367	865
Per 10,000 pop. ..	54	26	6	3	60	29	48	31	5	3	53	34
May ..	248	133	27	18	275	151	1,352	731	160	90	1,492	821
Per 10,000 pop. ..	50	27	5	4	55	30	50	28	6	3	56	31
June ..	271	117	46	11	317	128	1,144	661	152	75	1,296	736
Per 10,000 pop. ..	56	23	9	2	65	26	43	25	6	3	49	29
July ..	375	110	49	16	424	126	1,412	587	228	73	1,640	660
Per 10,000 pop. ..	74	22	10	3	84	25	53	22	9	3	62	25
August ..	363	76	65	17	428	93	1,716	599	424	70	2,140	579
Per 10,000 pop. ..	71	15	13	3	85	18	64	19	16	3	80	22
September ..	275	68	59	11	334	79	1,230	427	281	46	1,511	473
Per 10,000 pop. ..	55	14	12	2	67	16	47	16	11	2	58	18
October ..	229	64	51	6	280	70	1,288	431	282	56	1,570	487
Per 10,000 pop. ..	44	12	10	1	54	14	45	16	9	2	54	18
November ..	271	69	58	12	329	77	1,288	454	280	45	1,568	499
Per 10,000 pop. ..	54	14	12	2	66	15	48	17	9	2	57	19
December ..	229	79	47	11	276	79	1,033	532	190	52	1,223	589
Per 10,000 pop. ..	44	15	9	1	53	15	38	20	7	2	45	22
Total ..	3,505	1,222	461	122	3,966	1,344	15,391	7,399	2,388	763	17,779	8,162
Per 10,000 pop. ..	60	21	8	2	68	23	49	24	8	2	57	25

The term cases indicates fresh notifications. By the end of the year the total notified cases in Berlin amounted to approximately 75,000. These are the figures produced by the Statistical Office and are therefore final and correct.

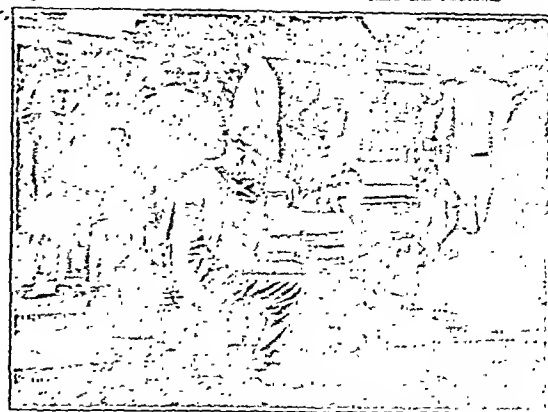


FIG. 4.—Patients leaving to begin "Operation Sanatorium"—a three-months stay in hospital in Schleswig-Holstein.

A contribution from the British Public Health Branch to the tuberculosis problem in Berlin was the making of an arrangement with the Military Government authorities in Schleswig-Holstein to accept convalescent and sanatorium patients from Berlin in the summer of 1946. In July some 500 patients left Berlin in an ambulance train for a three-months stay in the sanatorium (Figs. 4 and 5). This operation was repeated monthly until October.

### Other Communicable Diseases

Possibly the next most serious problem is venereal disease. In the latter months of 1946 the figures declined, but some of this decline is no doubt due to the treatment of gonorrhoea by penicillin. The steadily rising rate of syphilis gives a truer indication of the incidence. The number of fresh cases of syphilis in the British sector in January, 1946, was 165; this figure fell in the second quarter of the year, but rose again almost to the same level in the last months.

The incidence of diphtheria was highest in the British sector in January, 1946, with 291 cases and 25 deaths; in December of that year the cases still stood at 203 and the deaths numbered 16. In Berlin as a whole cases and deaths showed a general decline. There is compulsory inoculation of all children under 5. Inoculation on a voluntary basis after Schick-testing has been arranged for any of the adult



FIG. 5.—"Operation Sanatorium": Setting out on the ambulance train.

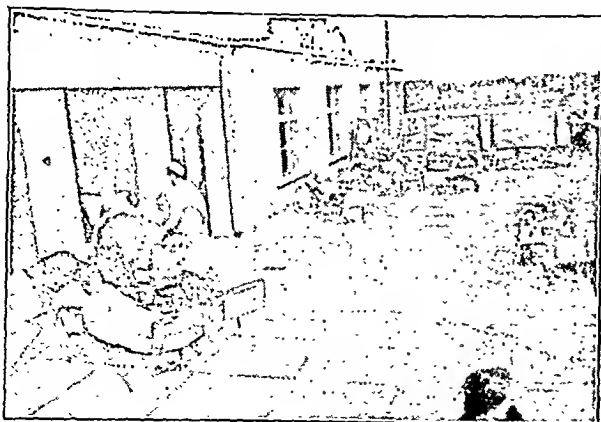
population particularly exposed to risk of infection.

Typhoid has steadily declined since the winter of 1945-6. It was decided that compulsory inoculation was essential, and a certificate of inoculation was made a qualification for the issue of a ration card. Typhus has disappeared from Berlin, which, considering the vast influx of refugees and displaced persons which took place throughout 1946, is a striking tribute to the effectiveness of the control measures and the efficacy of

D.D.T. powder dusting. Dysentery is still present and will remain until the sanitary conditions of Berlin have considerably improved. The death rate has been alarmingly high in relation to the total incidence, probably owing to the general state of under-nutrition and lowered resistance of the population, but partly also to the defective knowledge that German doctors generally have of the modern treatment of bacillary dysentery. A decided improvement has taken place in the death rate in the British sector and in Berlin generally since the middle of 1946. Owing to the lack of fuel and soap the incidence of scabies has shown a progressive rise. Bathing establishments and treatment centres have been set up in each Bezirk of the British sector.

A further problem awaiting solution at the moment is represented by the large number of orthopaedic cases in the city. These amount to some 70,000, of whom 30,000 are amputees (the result of war wounds or air-raid casualties). The material for orthopaedic appliances and prostheses for amputees is not obtainable at the moment. An enterprising firm is ingeniously converting German aeroplane parts into a light and serviceable type of artificial limb, but this work is held up by lack of leather and special steel to make the fittings and joints.

FIG. 6.—Repaired hospital roof converted to a solarium.



### Vital Statistics

The vital statistics for each month since the entrance of the Allies into Berlin (the figures for July, 1945, are not available) are given in the following table:

	Birth Rate per 1,000		Death Rate per 1,000		Infant Mortality per 1,000 Live Births	
	British Sector	Berlin	British Sector	Berlin	British Sector	Berlin
1945						
Aug. . .	15.0	12.2	54.0	62.9	231	658
Sept. . .	15.0	13.5	54.0	55.3	231	285
Oct. . .	13.0	10.0	54.0	51.5	183	245
Nov. . .	12.0	7.9	46.0	50.7	246	190
Dec. . .	7.5	6.7	46.0	48.9	246	158
1946						
Jan. . .	4.8	5.2	38.8	41.9	118	152
Feb. . .	5.1	5.3	32.9	37.0	84	152
Mar. . .	5.4	5.2	30.7	36.1	92	136
April . .	5.0	5.0	25.8	29.1	66	97
May . .	5.3	5.1	21.2	24.1	86	111
June . .	6.2	6.4	18.6	20.2	92	103
July . .	8.4	7.9	16.1	17.9	91	100
Aug. . .	8.7	9.1	15.0	15.9	100	106
Sept. . .	11.0	10.8	15.3	16.9	102	113
Oct. . .	9.7	10.2	16.4	18.6	116	114
Nov. . .	10.6	10.1	15.7	18.6	103	114
Dec. . .	9.9	9.8	20.6	23.2	98	160

The suicides in the British sector in 1946 numbered 285, and in Berlin 653. A large increase in the number of suicides in Berlin as a whole took place in December, 1946, and January, 1947; the total number in those two months was 252. The increase is said to have been due to the accentuation of misery caused by the cold.

No description of the work of Health Control in Berlin would be complete without reference to the Commander, Brigadier W. R. N. Hinde, D.S.O., D.D.M.G. Military Government, and to his staff and our colleagues in other departments of the Military Government. The British element in Military Control in Berlin is in fact a well-knit and hard-working team. Tribute must also be paid to our Allies, with whom we spend at least one whole day twice weekly. Last, but not least, a word must be said about the sound, democratically minded German official or civilian with whom we have to work. In a difficult position he is upright, hard-working, and trustworthy. There are others, it is true; but it is our job, and in fact our mission, to bring forward and encourage the former.

A council has lately been formed for the investigation of spastic paralysis and the welfare of the often forgotten victims of this condition. The British Council for the Welfare of Spastics proposes to act as an advisory and co-ordinating centre for all activities in England and Wales directed towards the treatment, the education and the training of these afflicted people. Prof. J. M. Mackintosh is its chairman; Lord Horder is its medical vice-president, the other vice-presidents being Sir Richard Livingstone, the educationist, and Mr. Fred Messer, M.P. On its council the Royal Colleges, the British Medical Association, and a large number of other medical bodies and bodies ancillary to medicine are represented, and six Government departments have observers. In close association is the Scottish Council for the Care of Spastics, the president of which is Sir John Fraser. The Ministry of Education has drawn the attention of local education authorities to the new council, stating that "the problem of the education and treatment of children suffering from spastic paralysis has not hitherto been attacked in this country except as part of the provision for physically handicapped children, and in one or two instances in schools or units specially provided or organized for the purpose. The Minister is of opinion that there is scope for investigation, research, and treatment which the British Council is well equipped through its several committees to undertake."

No precise estimate of the number of children in this country suffering from spastic paralysis is available, but one figure mentioned on the basis of certain surveys is 10,000, and of this number it is supposed that rather more than a quarter are in the "mild" category, and able to attend ordinary schools. In the U.S.A., where complete investigations have been carried out, it is said that, on the average seven children with cerebral palsy are born annually in every 100,000 of the population.

The address of the British Council for the Welfare of Spastics is 34, Eccleston Square, London, S.W.1, and of the Scottish Council County Buildings, Inverness.

## CHANGES IN BLOOD PHOSPHATE AFTER INGESTION OF GLUCOSE AND FRUCTOSE IN SPRUE

BY

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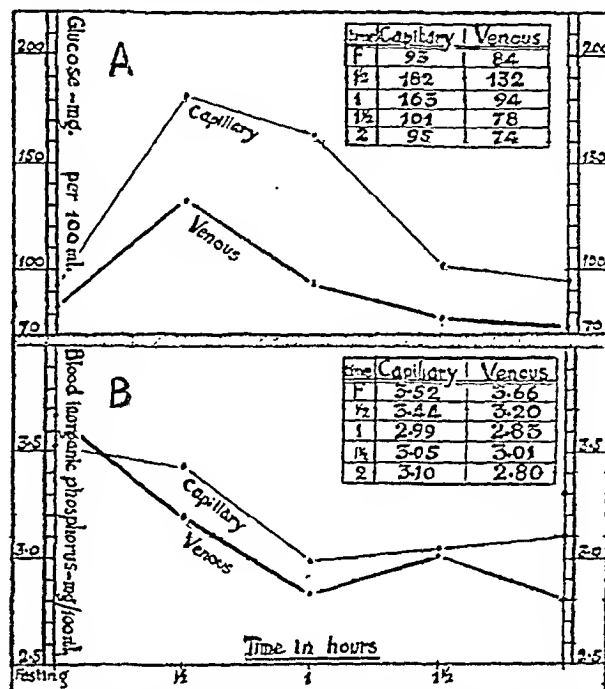
When normal subjects are given glucose by mouth there is a fall in the plasma inorganic phosphate. This fall is related to the metabolism of glucose and not to its actual absorption, for it is also observed when glucose is given intravenously and after the injection of adrenaline or sulin (Peters and Van Slyke, 1931). Moreover, the absorption of glucose without utilization, as in severe diabetes (Hartman and Bolliger, 1925), does not lead to a fall in inorganic phosphate. The changes in serum inorganic phosphate during glucose absorption in sprue have been investigated by Hanes and Reiser (1940), who found that there was an abnormally small drop in the serum inorganic phosphate in sprue patients when glucose was given by mouth but that the normal drop occurred when the glucose was given intravenously. These findings seemed to reflect the poor absorption of glucose known to occur in sprue. Hanes and Reiser also found that the urinary excretion of phosphate after glucose ingestion is greater in sprue patients than in normals. The object of the work described below was to investigate the cell as well as the plasma changes in phosphate with both glucose and fructose; if the changes with fructose were to parallel those with glucose in normals, the relative changes after glucose and fructose ingestion in sprue patients could be used in comparing the absorption of glucose and fructose in sprue. This oblique method of approach is made necessary by the fact that blood-fructose curves after a fructose meal are an unsatisfactory measure of absorption, in that the increment in blood fructose even in normal people is of the order of only 10 mg. per 100 ml. and depends very largely on the efficiency of the liver in converting fructose to glucose rather than on the speed of absorption. These considerations make it difficult to accept the claim of Aegertha *et al.* (1945), based on blood-fructose curves, that fructose absorption is normal in sprue.

### Method of Investigation

Five normals and four sprue patients were studied. All the patients had steatorrhoea and had recently lost weight. None of them had watery diarrhoea. In each subject observations were made after the ingestion of glucose (50 g.) and of fructose (50 g.) respectively. Specimens of blood were taken into oxalate tubes, one before the meal and four at half-hourly intervals for two hours after the meal. Trichloroacetic acid filtrates of the whole blood were made immediately, and for observations on the plasma the calculated blood was centrifuged without delay. The estimations were done together at the end of the two-hour period. The following data were obtained for each experiment: (1) Plasma inorganic phosphate and (2) whole-blood inorganic phosphate, using the Bodansky (1933) method; (3) fasting and hourly urinary excretion of inorganic phosphate up to two hours, using the Briggs (1922) method; and (4) the packed cell volume. In addition data were obtained from three of the sprue patients and three of the normals on the "ester" phosphate changes, using Briggs's method.

Fasting blood values were usually determined from the mean of duplicate observations. The estimated error of

a single determination was 2% for the inorganic phosphate, using a visual colorimeter, and 1% for the "ester" phosphate, using a Klett-Summerson photoelectric colorimeter. The inorganic phosphate content per 100 ml. of red cells was calculated from the figures for the plasma and whole



Graphs showing results of colorimetric estimations of (A) glucose and (B) phosphorus in the blood of a normal subject (N5) after oral administration of 50 g. of glucose.

blood and the haematocrit reading. The whole-blood "ester" phosphate content was calculated as the difference between the whole-blood acid-soluble phosphate and the inorganic phosphate content. Each curve consisted of one fasting value and four half-hourly observations after the meal. To compare the changes in the different curves we used the mean decrement (M.D.) of each curve defined as the difference in mg. per 100 ml. between the fasting value and the mean of the lowest three consecutive values after the meal. When the mean value rises above the fasting level the mean decrement is negative.

### Fasting Values

The fasting values from the curves were analysed together with additional data obtained in another investigation. The mean values for inorganic phosphate in plasma, cells, and whole blood in normals and sprue patients are shown in Table I. The inorganic phosphate

TABLE I.—Fasting Inorganic Phosphate Content of Plasma, Cells, and Whole Blood in Sprue Patients and Normal Subjects  
(Mean values, mg. per 100 ml.)

	Plasma	Cell	Whole Blood
Normals	3.74 ± 0.59	2.85 ± 0.44	3.31 ± 0.34
Sprue patients	3.36 ± 0.65	3.17 ± 0.50	3.20 ± 0.47

The means for plasma and cell values are derived from 5 normals and 5 sprue patients, those for the whole-blood values from 8 normals and 10 sprue patients. Determinations were made on each subject twice, on different days.

level is normally higher in the plasma than in the cells, and this difference is found in the present small series. On the other hand, no significant difference was found between the plasma and the cell levels in the sprue patients. Comparing the sprue values with the normals, the whole-blood levels are virtually the same; the mean plasma level is

lower, and the cell level higher, than the corresponding mean normal levels, but these differences are not significant.

Fasting "ester" phosphate values were determined in altogether 12 cases of sprue and 7 normals. None of the patients had diarrhoea. They were often anaemic; their mean haematocrit value was 41.1% (range 27-49%). Since about 98% of the blood "ester" phosphate is in the cells, for comparing the fasting "ester" phosphate values in sprue patients and normals they are given in terms of the cell content:

Mean Cell "Ester" Phosphate Content (mg./per 100 ml.)				
Normal	..	..	..	47.56 ± 5.27%
Sprue	..	..	..	53.25 ± 5.63%
Difference of means				5.69 ± 2.74%
(P* less than 0.05 by "t" test)				

The average red-cell content of "ester" phosphate was significantly raised in the sprue patients. This finding may be due to the inclusion of cases with anaemia, for in anaemia the red-cell "ester" phosphate is often high (Guest and Rapoport, 1941). The whole-blood "ester" phosphate values did not differ significantly in the sprue patients and the normals.

### Changes after Ingestion of Glucose and Fructose

#### 1. Inorganic Phosphate Changes in the Blood

The changes in the whole-blood, plasma, and cell phosphate after the ingestion of the two sugars are shown in Table II.

cell-plasma inorganic phosphate distribution after taking the sugar than in the fasting state.

In one of the normals, N5, simultaneous observations were made on the inorganic phosphate changes in the venous and capillary blood during the absorption of glucose, to see whether the arteriovenous difference in glucose normally observed during glucose absorption is associated with the disappearance of inorganic phosphate as the blood flows through the muscles. A photoelectric colorimeter was used for the estimations, which were carried out on 0.2 ml. of blood by means of the stannous chloride reduction method. The findings (see Graphs) suggest that at least part of the fall in inorganic phosphate occurs in the peripheral circulation and is related to the disappearance of glucose from the blood into the muscles.

**Sprue Patients.**—In the sprue patients most of the whole blood inorganic phosphate curves did not differ significantly from the normals. One curve with glucose (S1) and two with fructose (S1 and S4) were definitely abnormal in that they showed a rise instead of a fall in inorganic phosphate. In patient S2 the changes were relatively slight with both glucose and fructose. The cell changes were variable. The plasma changes were consistent, and for both glucose and fructose differed significantly from those found in normals. With glucose there was a slight fall in the inorganic phosphate (average M.D. +0.087), while with fructose there was no change or a rise (average M.D. -0.137). In the case of the glucose curves S3 and S4 and the fructose curve S3 the slight fall or the rise in plasma inorganic phosphate corresponded to a relatively low fasting level and not to a significantly small whole-blood inorganic phosphate fall.

TABLE II.—Plasma, Cell, and Whole-blood Inorganic Phosphate Mean Decrements (M.D.) in Normals and Sprue Patients after Glucose and Fructose Ingestion

	After Glucose						After Fructose					
	Plasma		Cells		Whole Blood		Plasma		Cells		Whole Blood	
	F	M.D.	F	M.D.	F	M.D.	F	M.D.	F	M.D.	F	M.D.
<b>Normals:</b>												
N1 .. .. .	3.87	0.473	2.37	0.403	3.18	0.387	4.63	0.653	2.18	-0.350	3.43	0.141
N2 .. .. .	3.44	0.673	2.67	0.217	3.06	0.447	4.57	0.190	3.51	0.290	4.05	0.233
N3 .. .. .	3.02	0.037	3.61	0.573	3.29	0.269	2.99	-0.200	2.74	0.333	2.87	0.057
N4 .. .. .	3.58	0.190	2.83	0.310	3.23	0.243	3.37	0.290	2.96	0.167	3.18	0.187
N5 .. .. .	3.60	0.793	2.66	0.087	3.18	0.380	4.32	1.037	2.82	-0.107	3.64	0.532
<b>Sprue patients:</b>												
S1 .. .. .	4.1	0.067	2.5	-0.100	3.4	-0.033	4.09	-0.287	2.97	0.350	3.61	-0.137
S2 .. .. .	3.04	0.100	2.78	0.380	2.97	0.153	3.45	-0.257	3.37	0.883	3.43	0.620
S3 .. .. .	3.55	0.070	3.19	0.500	3.40	0.252	3.33	-0.003	3.83	0.563	3.54	0.217
S4 .. .. .	3.15	0.110	3.74	0.857	3.42	0.467	3.88	0	3.22	-0.007	3.53	-0.007
<b>Mean of M.D.:</b>												
Normals		0.443		0.283		0.345		0.394		0.067		0.230
Sprue patients		0.087		0.409		0.210		-0.137		0.447		0.411
<b>Difference of means of M.D.</b>												
(normal - sprue)		0.346		-0.126		0.135		0.531		-0.380		0.159
P .. .. .		0.04		>0.1		>0.1		0.04		0.06		0.07

F = Fasting values. P = The probability that the given positive or negative values respectively could have arisen by chance.

**Normals.**—In normals there was a consistent fall in the whole-blood inorganic phosphate with both glucose and fructose. The fall was apparently greater with glucose than with fructose, but not significantly so. The cell and plasma changes were not simply related, and the cell change might be greater or smaller than the plasma change, or even in the opposite direction, so that the changes were much more variable in the plasma and cells than in the whole blood. The direction of the cell and plasma changes appeared to depend on the relative fasting cell and plasma values. Thus in the fructose curve on subject N1 the fasting cell inorganic phosphate content was very low compared with the plasma level, and rose after taking the sugar; subject N3 had in both curves a relatively high fasting cell inorganic phosphate content, and after taking the sugar the cell content fell markedly while the plasma content changed very little with the glucose and actually rose with the fructose. In general there was much less variability in the

From the changes shown in Table II, one may conclude that after the ingestion of glucose and fructose the whole blood inorganic phosphate normally falls. There was usually a corresponding fall in the cell and plasma levels, but when either of these levels was initially low in comparison with the other the corresponding inorganic phosphate fall was reduced or absent. In sprue, with fructose as well as with glucose, the fall in the whole-blood inorganic phosphate does not always happen. A consistently diminished fall in the plasma levels was observed, but this may in some cases have been due to the plasma inorganic phosphate content being initially low relative to the cell content.

#### 2. "Ester" Phosphate Changes in the Blood

Two glucose and two fructose curves were done on normals, and three of each on sprue patients, to estimate any changes that may occur in the blood "ester" phosphate

\*P=the probability that the difference could have arisen by chance.



vels (Table III). In the normals there was a slight but consistent fall, the M.D. being about 4-5% of the fasting value. Though more difficult to detect than the 10-15% fall which occurs in the whole-blood inorganic phosphate,

TABLE III.—"Ester" Phosphate Changes after Glucose and Fructose in Normals and Sprue Patients (mg. per 100 ml. Blood)

	After Glucose			After Fructose		
	Fasting	Mean Decrement	Cell Vol. (% of Whole Blood)	Fasting	Mean Decrement	Cell Vol. (% of Whole Blood)
Normals:						
N3 ..	18.9	0.30	46	—	—	—
N4 ..	22.4	0.93	47	21.7	0.77	47
N5 ..	—	—	—	21.5	1.83	45
Sprue patients:						
S2 ..	14.9*	-0.12*	26*	18.4	-0.50	27
S3 ..	20.8	1.53	41	18.0	1.57	42
S4 ..	22.0	0.40	46	20.4	0.10	46

\* These estimations were not made at the same time as the corresponding inorganic phosphate estimations.

The absolute reduction in "ester" phosphate is greater than that in inorganic phosphate, so that the inorganic phosphate cannot be ascribed to a change into blood "ester" phosphate.

In three sprue patients the changes were variable from case to case but similar for the two sugars: a slight rise in "ester" phosphate occurred in one patient; in the other two there was a fall, slight in one, marked in the other. The changes parallel those in the corresponding inorganic phosphate curves for whole blood.

### 3. Changes in the Urinary Excretion of Phosphate

Phosphorus excretion in the urine is often diminished immediately after glucose absorption (Peters and Van Slyke, 1931), but this does not always occur (Reiser, 1940). Our own results on normals showed a diminished excretion of phosphate after the ingestion of both sugars (Table IV)

TABLE IV.—Change in Excretion of Phosphate after Glucose and Fructose Ingestion (Mean Hourly Phosphate Excretion (mg./hr.) during Two Hours after Meal, as compared with the Fasting Excretion)

	After Glucose	After Fructose
Normals:		
N1 ..	-16.65	-15.7
N2 ..	-10.0	-5.4
N3 ..	-9.85	-11.1
N4 ..	-15.8	-1.2
N5 ..	-12.7	-8.7
Sprue patients:		
S1 ..	-5.9	+16.85
S2 ..	+4.7	+1.45
S3 ..	+8.6	+4.5
S4 ..	+5.2	+13.4

The series is very much smaller than that of Bachmann *et al.* (1938), who in 25 normals found no significant change in urinary phosphate excretion after glucose and fructose. In our sprue patients there was an increased excretion of phosphate during the two hours after taking the glucose and fructose; even on the assumption that there is normally no change in excretion, the rise is significant for the fructose though not for the glucose figures.

### Discussion

The results in normal subjects show that fructose ingestion is followed by blood-phosphate changes similar to those observed after taking glucose. Using the fall in the whole-blood inorganic phosphate as evidence that the sugars have been absorbed, it was found that two sprue patients had some impairment in the absorption of both

glucose and fructose. Like glucose, fructose can form phosphate esters, and a defect in phosphorylation, which Stannus (1942) thinks may be present in sprue, would be expected to interfere with the absorption of both these sugars.

### Summary

The plasma, cell, and whole-blood changes in inorganic phosphate after the ingestion of glucose and fructose were investigated in five normals and four patients with tropical sprue. Observations were also made on the changes in urinary phosphate excretion, and in some of the cases on the changes in the blood "ester" phosphate.

There is normally a fall in the whole-blood inorganic phosphate after the absorption of both glucose and fructose. It usually affects both plasma and blood cells, but may be limited to either. It is associated with a fall in the blood "ester" phosphate content and is partly due to a passage of phosphate into the tissues. The normal whole-blood inorganic phosphate changes after glucose and fructose were diminished or reversed in some sprue patients, indicating a defective absorption of both these sugars. The plasma inorganic phosphate fall was abnormally small; this may have been due partly to the initially low fasting plasma inorganic phosphate levels found in some of the patients. There was a rise in urinary phosphate excretion in the sprue patients, while normally there is either no change or a fall.

No difference could be demonstrated between the absorption of glucose and fructose in patients suffering from tropical sprue.

Thanks are due to the Director of Medical Services in India for permission to publish this work, which was carried out as part of the G.H.Q. (I.) Medical Research Organization investigation on sprue. I am grateful to Major D. A. K. Black, R.A.M.C., for much helpful advice and criticism, and to Pte P. Trinder, R.A.M.C., for his technical assistance.

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At the tenth anniversary celebrations of the Empire Rheumatism Council not long ago Sir Wilson Jameson, who was deputizing for the Minister of Health, said—in appreciation rather than in complaint—that the Council had been "sometimes a thorn in the side of the Ministry." In the annual report of the Council, now published, Lord Horder, the chairman, says that this tribute to its "nuisance value" is accepted with gratitude. The position at the date of the foundation of the Council was that only about 10% of underprivileged rheumatic sufferers had hope of effective treatment, though such treatment could have saved the majority of them from crippling disability. The Council stressed the fact that it was quite unreasonable to await the full success of research before instituting measures for dealing with treatment, and it put forward a plan for national action, a challenge which has been met: with the right answer.

Writing of the new National Health Service, Lord Horder says that much has yet to be settled before the Council can definitely plan its course so as to help in every way possible; but it is known that the system suggested by the Council will be followed in principle—namely, the provision of special treatment centres in each region, with peripheral local centres linked to them. These special centres will normally be sited in association with university medical teaching schools. On the recommendation of its Scientific Advisory Committee the Council has appointed two whole-time registrars whose duty it will be to estimate the factors concerned in the causation of rheumatoid arthritis.

# H. INFLUENZAE MENINGITIS IN RELATION TO TREATMENT A CLINICAL STUDY OF FOUR CASES

BY

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The increase in recovery rate of *H. influenzae* meningitis in recent years, due to chemotherapeutic and antibiotic therapy, has led to a greater interest in the condition. *H. influenza* type b rabbit serum has also been used with success in America (Alexander, 1943, 1944), but supplies so far have not been available in this country for an adequate test.

It would seem that *H. influenzae* meningitis is by no means a rarity. Out of the 29 cases of meningitis of all types admitted to this department between May 1, 1946, and Feb. 1, 1947, four were of the *H. influenzae* group, including one of mixed flora; and McIntosh and Drysdale (1945), working in the same area, have reported a further two cases. In view of the not infrequent occurrence of the condition it is important that early diagnosis be made and adequate therapy instituted.

It has been our more recent practice here to suspect *H. influenzae* meningitis in all cases in which, on initial lumbar puncture and direct smear examination, other organisms could not be implicated, and to begin treatment as for *H. influenzae* meningitis. The advent of pure (i.e., white) penicillin in economic supply has diminished the undesirability of large doses of intrathecal penicillin by reducing the incidence and severity of reactions. Prior to this we used a Seitz-filtered watery solution of the yellow sodium salt, which, when given in large doses intrathecally, produced severe cerebral reactions. Penicillin-sensitivity tests and cerebrospinal fluid penicillin concentrations were obtained in all our cases except Case 2, but we found that they bore little relation to the clinical response. Possibly more recent methods of estimation will show greater clinical correlation and be of more value in estimating the therapeutic needs.

Three of four cases treated here have made complete recoveries, the fourth patient dying of intercurrent measles, with bronchopneumonia as a further complication. While it is realized that the series is too small for generalization, when taken in conjunction with the recently published series by Zinnemann (1946) a fairly reliable method of treatment may be formulated, together with suggestions for variation to meet resistance to routine treatment.

## Case 1

M. R., aged 11 months, was admitted on May 19, 1946, following pneumonia three weeks previously. The complaints were drowsiness, irritability, slight vomiting, and squint. Examination showed slightly raised temperature, slight neck rigidity, and a left otitis media. Lumbar puncture produced a turbid fluid which on culture yielded *H. influenzae*, sensitive to penicillin and slightly sensitive to sulphamezathine, sulphathiazole, and sulphadiazine.

**Treatment.**—(1) Sulphamezathine, 4.5 g. on the first day and 3 g. daily thereafter for 8 days. Total, 28.5 g. (2) Intrathecal

penicillin. Administration was very irregular. So far as was possible lumbar puncture was alternated with cisternal puncture. For the first 5 days 30,000 units were given daily, then stopped for 4 days; there followed 30,000 units for 2 days,

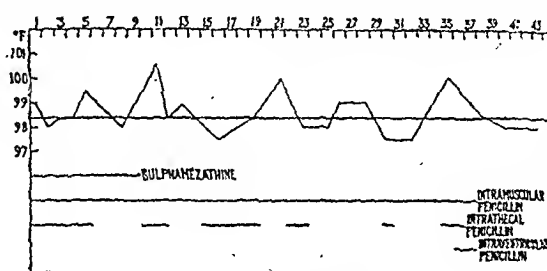


FIG. 1.—Chart of Case 1.

stopped for 3 days; 50,000 units for 5 days, stopped for 2 days; 50,000 units for 2 days, stopped for 6 days; 50,000 units for 1 day, stopped for 4 days, and finally 25,000 units for 4 days. Total, 660,000 units. (3) Intramuscular penicillin averaged 90,000 units daily in doses of 15,000 units four-hourly. Total, 3,330,000 units.

The temperature had fallen by the seventh day after admission, but never really settled. The cerebrospinal fluid, which had been clear on the second day, became turbid again on the 15th day, though cultures were sterile from the 13th day. On the 20th day the temperature rose, and continued to swing intermittently in spite of treatment till the 38th day. It has by then become apparent that there was resistance to treatment possibly by a blockage in the cerebrospinal fluid circulation cutting off penicillin from a nidus of infection. With a view to overcoming this, ventricular punctures were performed through the anterior fontanelle on the 36th and 37th days. Blood-stained fluid was obtained, and 25,000 units of penicillin were injected into a lateral ventricle on each occasion. Subsequent to this the temperature settled satisfactorily, and the child was discharged on the 62nd day fully recovered, and has remained well since. The patient's clinical condition had closely followed the rise and fall of temperature.

## Case 2

J. F., aged 10 weeks, was admitted on June 10, 1946, with a history of being off colour for one day, with some vomiting. Examination showed a flushed, sweating child with some respiratory distress. Slight neck rigidity was present. Lumbar puncture produced a blood-stained fluid which on culture yielded: (a) *Staph. aureus*; (b) *Str. viridans* or possibly pneumococcus; (c) *Str. anhaemolyticus*; (d) *H. influenzae* (this was not typed). These organisms were all sensitive in some degree to sulphathiazole and to a less extent to sulphamezathine. No growth was obtained in the subsequent culture. Sensitivity to penicillin was not investigated. Brain abscess or middle-ear disease was suspected, but no evidence of either was discovered then or later.

**Treatment.**—(1) Intrathecal penicillin, 25,000 units, was given daily for 9 days. Total, 225,000 units. (2) Sulphamezathine, 4.5 g. on the first day and 3 g. thereafter. On receipt of the sensitivity results on the fourth day sulphathiazole was substituted in 3 g. doses daily until the 12th day from admission. Total, 37.5 g. (3) Intramuscular penicillin, 10,000 units four-hourly for 13 days. Total, 780,000 units.

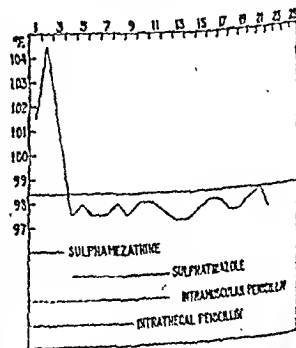


FIG. 2.—Chart of Case 2.

The cerebrospinal fluid was sterile on the eighth day. The temperature fell on the third day and remained settled till discharge on the 22nd day. After discharge there was some suspicion of hydrocephalus, but this proved unfounded. The child has continued well since.

## Case 3

J. B., aged 7 months, was admitted on Aug. 22, 1946, with four days' history of vomiting and restlessness. Examination showed neck rigidity and a bulging fontanelle. Lumbar puncture produced a turbid fluid which yielded *H. influenzae* on culture. The strain isolated was of the smooth capsulated variety, but did not agglutinate with the six known antisera for types a to f. The classification of this strain is still under investigation.\* The organism was slightly sensitive to penicillin and sulphathiazole.

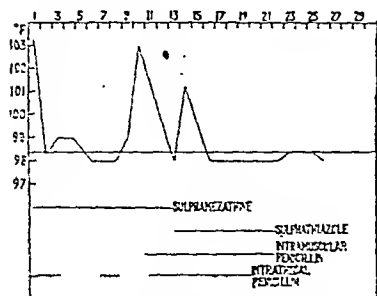


FIG. 3.—Chart of Case 3.

was given daily in doses of 15,000 units from the 11th to the 21st day of admission. Total, 990,000 units. (3) Sulphamezathine, 7 g. on the first day, and 3 g. daily till the 12th day, when the sensitivity results were obtained, and sulphathiazole, 3 g. daily, was substituted till the 21st day. Totals: sulphamezathine, 40 g.; sulphathiazole, 27 g.

The temperature settled and the fluid became clear on the sixth day, when culture was sterile. On the 10th day a relapse occurred, the fluid becoming turbid and the temperature rising. *H. influenzae* was again cultured from the cerebrospinal fluid. On the 16th day the temperature settled, the fluid became clear and sterile, and the child made an uninterrupted recovery. She has remained well since.

During treatment severe reactions followed many of the intrathecal penicillin injections of 45,000 and 50,000 units. These consisted of twitchings of the limbs and body, sometimes tremors, turning up of the eyes, and an embarrassed respiration leading occasionally to cyanosis. These occurred one to four hours after injection, and lasted up to three hours. Chloral hydrate partially controlled them, and it became a routine practice to give large doses prior to puncture, which had the effect of lessening the reactions. The cause of these delayed reactions is obscure.

## Case 4

J. L., aged 13 months, was admitted on Jan. 20, 1946, with a two-day history of drowsiness, irritability, and slight neck stiffness. Examination revealed neck rigidity and Kernig's sign. Lumbar puncture produced a turbid fluid giving *H. influenzae* type b on culture. This was relatively resistant to all sulphonamides and slightly sensitive to penicillin.

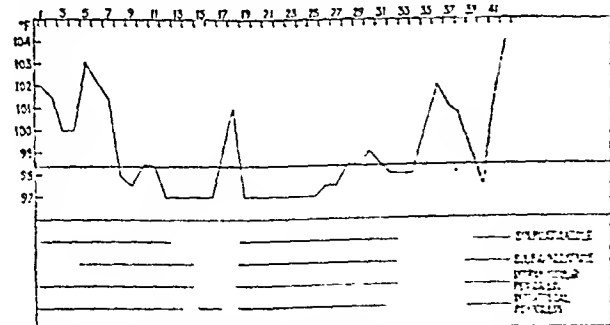


FIG. 4.—Chart of Case 4.

\* As we go to press we are informed by Drs. M. Pittman and K. Zinnemann that this organism is of type a (A).

**Treatment.**—(1) Intrathecal penicillin, 50,000 units daily by alternate cisternal and lumbar puncture. Pure penicillin was used in this case, and it was found that the reactions were less frequent and less severe. For 13 days 50,000 units were administered daily, then stopped for 2 days; 50,000 units for 1 day, stopped for 2 days; 50,000 units for a further 13 days, stopped for 8 days, and finally administered for 4 days. Total, 1,550,000 units. (2) Intramuscular penicillin, 125,000 units daily. This was given as an oil-wax suspension in one dose daily for 5 days. Total, 750,000 units. (3) Sulphathiazole, 4.5 g. daily, given in three-hourly doses by mouth for 11 days. Total, 49.5 g.; also from the 19th to 32nd day. Total, 63 g.; and from the 40th to the 42nd day. Total, 13.5 g. Combined total, 126 g.

The temperature remained raised, and on the fifth day the oil-wax suspension of penicillin was replaced by an aqueous solution, 20,000 units four-hourly for 9 days. Total, 1,080,000 units. From the 19th to 32nd day 1,680,000 units of penicillin in aqueous solution were given, and from the 39th to 42nd day 480,000 units—a combined total of 3,240,000 units of aqueous solution of penicillin.

Sulphamezathine 0.5 g., total 27 g., was given every four hours for 9 days in addition to the sulphathiazole, on the principle expounded by Frisk *et al.* (1947). Sulphamezathine, 0.5 g. four-hourly, was also given from the 19th to 32nd day (total, 42 g.) and from the 39th to 42nd day (total, 12 g.), making a combined total of 81 g.

The temperature promptly fell and was normal on the eighth day, and the spinal fluid became clear and sterile. Intrathecal penicillin was stopped on the 13th day and the rest of the treatment on the 14th day. On the 17th day the temperature rose, the cerebrospinal fluid became turbid and produced *H. influenzae* type b on culture. Treatment was recommenced as before. On the 20th day the symptoms subsided, and two days later the fluid was sterile. On the 30th day the temperature rose to 99° F. (37.2° C.). No meningitic symptoms appeared; the cerebrospinal fluid was clear and on culture was sterile. Measles was suspected. In case this was another relapse, 50,000 units of penicillin and 6 ml. of air were administered. The temperature subsided on the 32nd day and all treatment was stopped.

On the 36th day the temperature was 102° F. (38.9° C.) with no symptoms of meningitis, and the chest was normal. Measles was again suspected; and on the 38th day a morbilliform rash appeared on the body. Photophobia was present, but no Koplik's spots were seen. Measles was diagnosed. No serum to account for a serum rash had been given. Next day (39th) meningitic symptoms were again evident, and lumbar puncture proved the occurrence of another relapse. The cerebrospinal fluid was very thick and the needle was practically blocked. At this point the technique of washing out the spinal canal was adopted together with injection into the canal of heparin and air (Alexander, 1944). The procedure was as follows: Three ml. of normal saline was injected by cisternal route and drained by lumbar route. This was repeated several times until about 30 ml. of cerebrospinal fluid in addition to the saline had been drained away. This allowed as much purulent cerebrospinal fluid to be removed in as short a space of time as possible, and prevented pockets of purulent material forming in the canal. Nikethamide, 1 ml., was given intramuscularly before and after; 0.2 ml. heparin (10 mg., or 1,000 Toronto units) and 10 ml. air (i.e., one-third the quantity of cerebrospinal fluid removed) were then injected. The object of this was to separate existing adhesions and prevent further adhesions forming, also to allow better diffusion of the penicillin, 50,000 units of which was injected intrathecally at the same time. Intramuscular penicillin, 20,000 units in aqueous solution, was then given four-hourly, and sulphamezathine therapy was started again.

On the 40th day, cisternal puncture being unsuccessful, normal saline was injected and withdrawn by lumbar puncture after preliminary withdrawal of cerebrospinal fluid. Ten ml. of saline was used each time—a total of 60 ml. The fluid was purulent at first, but merely turbid at the end of the irrigation. 50,000 units of penicillin, 0.2 ml. of heparin, and 2 ml. of air were given intrathecally.

Unfortunately, the child developed bronchopneumonia on the 39th day. Sulphathiazole was administered as well as sulphamezathine. Since the 38th day the child had been listless, with distressed respiration, and the chief difficulty encountered was that of keeping respiration going after lumbar or cisternal puncture. He collapsed several times, and it became increasingly difficult to resuscitate him.

On the 42nd day his condition appeared to improve and the cerebrospinal fluid was only slightly purulent, but the bronchopneumonia persisted and the child died.

*Extract from Post-mortem Report (Dr. J. H. Prain).—*"Intense purulent meningitis with greenish muco-gelatinous exudate, covering mainly the base of the brain, but with spread to lateral and superior surfaces. Similar material extends down the spinal column surrounding the cord for the whole length of the canal. There was no evidence of developing hydrocephalus."

### Discussion

Zinnemann (1946) emphasizes the need for continuing treatment until culture of the C.S.F. has been sterile for seven days. This has been our experience. In all our cases, except Case 2 when treatment was continued until the temperature had remained normal for six days, relapse occurred owing to insufficient treatment. The relationship between temperature and C.S.F. sterility is not definitely apparent, the culture frequently becoming sterile before the fall in temperature. In view of the delay in obtaining culture reports under many circumstances, we feel that treatment may safely be related to the temperature chart and will be adequate if intrathecal penicillin is continued until the temperature has been normal for seven days.

A high dosage of intrathecal penicillin was found necessary, 50,000 units daily being satisfactory, preferably preceded by chloral hydrate. We prefer the single injection daily, as the cumulative trauma of repeated lumbar puncture is considerable, and with pure penicillin the reaction risk is decreased. We further attempted to decrease the trauma by alternating lumbar and cisternal puncture.

It is important to ascertain the sensitivity of the infecting organism to various sulphonamides, as this appears to vary. A new chemotherapeutic principle, involving the use of two or more sulphonamides simultaneously, expounded by Frisk *et al.* (1947), has opened the way to increased doses of sulphonamides without unduly increasing the risk, and is worthy of a trial in resistant cases.

In the majority of conditions requiring intramuscular penicillin we have found the oil-wax suspension satisfactory. However, in a listless child absorption may well be delayed, and four-hourly injections of a watery solution until the child becomes more mobile probably give a better absorption rate.

In Cases 1 and 4 there was some apparent hold-up of penicillin circulation in the C.S.F. To overcome this, the method of injecting air and heparin intrathecally was adopted in Case 4. In cases where the fontanelle is still patent, ventricular puncture seemed a practical and possibly more certain alternative, and this was tried with apparent success in Case 1. One of us (J.T.) has had a resistant case of pneumococcal meningitis that responded to ventricular injection of penicillin. Case 4 appeared to be doing well until a febrile period of several days followed by morbilliform rash and photophobia developed. This was almost certainly measles, as cases had occurred in the ward. After this pneumonia developed, and the child died in spite of improving cerebrospinal fluid.

### Conclusion

*H. influenzae* meningitis must be treated early and adequately to ensure maximum success in treatment.

50,000 units of pure penicillin should be given intrathecally daily, preceded by chloral hydrate by mouth or intramuscularly, until the temperature has remained normal for seven days. Full doses of a sulphonamide, the choice depending on sensitivity tests, should be given also in conjunction with intrathecal penicillin. The initial sulphonamide doses should be given intramuscularly. Until sensitivity has been ascertained, sulphamezathine, sulphadiazine or sulphathiazole, or two of them together, should be given. Intramuscular penicillin is also given, starting with the watery solution four-hourly, and as recovery occurs replacing it with the oil-wax suspension.

It is of the utmost importance to persist with intrathecal injections of penicillin until the temperature has been normal for at least seven days, despite apparently normal cerebrospinal fluid in the interval.

Resistance to treatment can be met by using more than one sulphonamide, each in full dose, and if practicable by ventricular injections of penicillin.

American reports of type b rabbit serum are encouraging. It would appear to be of value only, however, in cases caused by *H. influenzae* type b.

### Summary

Four cases of *H. influenzae* meningitis are described. In the period reviewed the incidence of *H. influenzae* meningitis was 13.8% of all meningitis in this department.

The importance of treating all unclassified cases of purulent meningitis fully and promptly with intrathecal and intramuscular penicillin and sulphonamides is discussed.

The use of two sulphonamides, each in full dose simultaneously, was adopted, and is considered to have been helpful.

Treatment should be continued for seven days after the temperature has become normal. The return of normal cerebrospinal fluid is definitely not an indication for ceasing treatment at once.

As cultures of cerebrospinal fluid may be sterile before the temperature becomes normal, the temperature is at least as important as the culture findings in deciding when to cease treatment.

The value of intraventricular injections of penicillin in resistant cases is mentioned, also experience in using intrathecal wash-outs and the use of intrathecal air and heparin injections.

Cerebral reactions following intrathecal injections of 50,000 units of penicillin are described. Their varying severity and unpredictable time of onset are mentioned.

Dilution of the penicillin with 10 ml. of cerebrospinal fluid at the time of injection did not prevent these reactions; but chloral hydrate was useful in diminishing them.

Acknowledgment is due to Dr. Jean G. Bryson, who was associated with Cases 1 and 2; to Dr. May I. Milne, who was associated with Case 4; to Sisters Meekison and Crichton, for their interest and help; to Prof. Tulloch and his staff, for their patience with our many demands on their time; and to Dr. K. Zinnemann for additional information regarding typing of *H. influenzae* strains.

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Speaking on the role of voluntary workers in the National Health Service, Mr. John Edwards, Parliamentary Secretary to the Ministry of Health, told hospital nurses and contributors at the Royal Buckinghamshire Hospital, Aylesbury, recently that it was vital that the supply of voluntary work should be kept alive. There was an unlimited amount of work to be done in improving the hospitals; only a small proportion of this could be achieved solely by voluntary effort, but with the help of the Chancellor of the Exchequer the apparently impracticable vision of those who had the hospitals at heart could be made a reality.

## BALANTIDIAL DYSENTERY IN RODRIGUEZ AND ITS TREATMENT WITH MERCURY BINIODIDE

BY

M. SHUN-SHIN, M.B., B.S., D.T.M.&amp;H.

Manson-Bahr (1936) states: "Balantidial dysentery is such a rare disease in man that it is more of a curiosity than anything else. Unfortunately the treatment of this affection has so far proved to be very unsatisfactory." The following cases successfully treated with mercury biniodide may therefore prove of interest.

Rodriguez is an island of 40 sq. miles lying about 350 miles from Mauritius, of which it is a dependency. It has a population of 12,000, and every household breeds at least one pig. The prevailing hygienic conditions are very unsatisfactory, so that dysentery due to *Balantidium coli* should not be unexpected.

During 1945 ten cases of balantidial dysentery were recorded; the first case was fatal, but the others were cured. When mepacrine proved to be ineffective in the first case it was decided to use some heavy metal, as Walker (quoted by Manson-Bahr, 1931) found that organic compounds of silver were very effective. Mercury biniodide was tried because it was the most easily obtainable metallic compound.

### Case Histories

**Case 1.**—A man aged 30 was admitted into hospital on April 10, 1945, having complained of "dysentery" for several days. His stools were profuse and watery, and contained *Bal. coli* in fairly large numbers. He was given mepacrine 0.5 g. thrice daily and a mixture of bismuth and opium. The diarrhoea increased in severity and he died five days later.

**Case 2.**—A boy aged 4½ years was admitted into hospital on May 27, 1945, with the history of having had an attack of diarrhoea two months previously but without blood; it lasted for ten days and passed off with medical treatment. For some days before admission he had been having seven to nine motions daily; most of the stools contained blood, but sometimes only mucus. On admission the stool was found to contain *Bal. coli*. An injection of biniodide of mercury, 1/24 gr. (2.7 mg.), was given intramuscularly. The number of stools decreased progressively until only two motions containing some blood were passed on the 29th, when another injection was given. By June 6 all blood had disappeared from the faeces, which were found to contain no *Bal. coli*, but only trichuris and ascaris eggs. The boy was seen again at the beginning of April, 1946. He was then well and passing normal stools, but these were not brought for examination.

**Case 3.**—A girl aged 3 years attended the out-patients' department on May 31, 1945. The mother stated that the child had been ailing for three weeks and had been passing seven to eight stools daily, with blood. The stools were found to contain *Bal. coli* apart from ascaris eggs. Biniodide of mercury, 1/24 gr., was administered intramuscularly the same day. On the next three days the child passed only one stool each day. A second injection was given on the 5th, and a stool examination on the 8th revealed only the presence of ascaris eggs; there were no *Bal. coli*. The child had been feeling well for the last three days and had a good appetite. She was seen again in April, 1946, when she was in good health, but her stools were not brought for examination.

**Case 4.**—A boy aged 5 years was seen on June 18, 1945. For the last two days he had been passing two to four motions daily, with blood and mucus. *Bal. coli* was found in his stools, and 1/10 gr. (6.5 mg.) of biniodide of mercury was immediately given intramuscularly. After that the blood and mucus disappeared from the stools, which became watery. On the 20th, stool

examination revealed an absence of *Bal. coli* and the presence only of ascaris eggs and a few Charcot-Leyden crystals. A second injection was given. Two days later the patient was passing one solid motion daily without *Bal. coli* or Charcot-Leyden crystals. The boy remained well until March 4, 1946, when he attended the out-patients' department with the history that for the last two weeks he had been passing six to seven loose motions daily. The stools were found again to contain *Bal. coli* and ascaris eggs. Biniodide of mercury was prescribed for alternate days, and four injections were given. He was again seen on April 5, when no *Bal. coli* was detected. The mother volunteered the statement that the child was well after three injections.

**Case 5.**—A girl aged 7 years had for several months been passing blood and mucus occasionally, but only one or two motions daily. Though she had been feeling weak, her appetite had been good. When seen on Aug. 9, 1945, her stool was found to contain ascaris eggs and *Bal. coli*. On the 11th and 14th she was given 1/18 gr. (3.6 mg.) of biniodide of mercury intramuscularly. On Aug. 21 the stools were found to harbour only ascaris eggs. Seven months later the girl was still keeping well, and no *Bal. coli* was found in her motions.

**Case 6.**—Three months before coming to hospital a girl aged 10 had had diarrhoea, which lasted two days. She was given chenopodium oil, after which the diarrhoea ceased. For four days before her admission on Oct. 1, 1945, she was passing two or three motions daily, with blood and mucus, and was having colicky pains. On admission her stools were found to contain *Bal. coli*, ascaris eggs, and Charcot-Leyden crystals. She was at once given 1/12 gr. (5.4 mg.) of biniodide of mercury. Next day the *Bal. coli* had greatly increased in number and were very motile. On the 3rd another injection of biniodide was given, and by Oct. 5 all the *Bal. coli* had disappeared from the faeces. She remained well until six months later, when she again attended the out-patient department. She was then (April 2, 1946) passing two loose motions with blood daily and again *Bal. coli* was detected. Biniodide of mercury, 1/12 gr., was then given every other day. After five injections the patient was still passing two loose motions daily, but the blood had disappeared. The faeces, however, were found still to contain *Bal. coli* in very large numbers. The protozoa were so numerous and close together that some fields looked like mosaic work. As ascaris eggs were also numerous, chenopodium oil was given on April 13. The patient passed about one hundred roundworms. Next day, after a soft-soap enema, she was given an enema of mercury biniodide, 1/6 gr. (11 mg.), in one litre of water—equivalent to a concentration of 1 in 100,000. On April 16 both ascaris eggs and *Bal. coli* were absent from the stools.

**Case 7.**—A boy aged 4 years had been ill for three days and had been passing one motion almost every hour. The stools were very watery and he vomited occasionally. On March 9, 1946, the stools were found to contain ascaris eggs and *Bal. coli* in fairly large numbers. Mercury biniodide, 1/12 gr. (5.4 mg.), was prescribed. He was seen again on April 3 after he had received four injections. The stools were then loose, but numbered only three a day, and contained ascaris eggs but no *Bal. coli*. The child was feeling well otherwise.

**Case 8.**—A girl aged 13, sister of Case 6, had been ill for four days. She had been passing four to six stools daily with blood and mucus and tenesmus. When the stool was examined on March 14, 1946, *Bal. coli* was discovered. Mercury biniodide, 1/12 gr., was injected every other day. After two injections all the symptoms disappeared, but the stools were still loose. By April 12 she had had 11 injections; the stool was by this time normal and well formed, and there was only one daily. No *Bal. coli* was seen.

**Case 9.**—A man aged 40 had been ill for six days. For the first two days there were only two or three stools daily, watery but without blood. For the last four days blood and mucus had appeared in the stools, which numbered up to 12 daily. Motions were accompanied by severe tenesmus. When he attended the out-patients' department on March 27, 1946, *Bal. coli* was detected in his stools. Next day 1/6 gr. (11 mg.) of mercury biniodide was injected. On the 29th only eight stools were passed; they were less in volume and the tenesmus had



decreased in severity. On the 30th a second injection was given, three days after which only two stools were passed, and these were quite normal. No *Bal. coli* was detected in the stools when examined on April 13.

**Case 10.**—A man aged 63 had had dysenteric symptoms on and off for the past six months. For the last few days he had been passing thick liquid blood-tinged stools which were found to contain *Bal. coli*. A first injection of 1/2 gr. (32 mg.) of mercury biniodide was given on April 11, 1946. Two days later *Bal. coli* was still present and a second injection was given. On April 16 no *Bal. coli* was found in the stools and the patient was feeling very well.

**In-vitro Tests.**—A 1 in 100,000 solution of biniodide of mercury was found to kill the protozoa instantaneously. Motions ceased immediately, but ciliary movements continued for about ten minutes. The granules in the protoplasm were seen to move in a caudal direction as in a current. After ten minutes over 95% of the protozoa were found to be dead and to have burst. In 1 in 1,000,000 mercury biniodide solution, motion of the protozoa took 15 minutes to stop, and after one hour most of the protozoa were dead. With mercury perchloride a concentration of 1 in 100,000 was required to obtain the same effect as with 1 in 1,000,000 solution of mercury biniodide, while with tartar emetic a concentration of 1 in 2,000 was required. With a 1% solution of methylene blue the protozoa took over an hour to die.

**Characteristics of Stools.**—In early cases the stools were indistinguishable to the naked eye from those of amoebic dysentery. In more advanced cases the stools assumed a very characteristic watery form; in two cases it was possible to guess the presence of *Bal. coli*. In two cases Charcot-Leyden crystals were discovered, being very large and fairly numerous in one case. In spite of repeated and careful examinations no *Entamoeba histolytica* were found. The crystals disappeared at the same time as the *Bal. coli*.

### Discussion

The only literature at our disposal consists of the *Lancet* and the *British Medical Journal* for the last ten years and a few pre-war numbers of *La Presse Médicale*. Mackenzie and Bean (1938) state that Dobell and O'Connor, after a survey of the literature, could find no record of a specific cure for the disease, but that Cort claimed success with enemata of 15 ml. of oil and chenopodium in 150 ml. of olive oil, and Banik reported a case successfully treated with yatroen enemata, 8 oz. (227 ml.) of 2.5% solution. Mackenzie and Bean themselves used Loeffler's methylene blue. The lower bowel was thoroughly washed out and two pints (1.14 litres) of methylene blue was slowly run in. This was retained for 2½ hours and was followed by another wash-out, the whole procedure being repeated next day. A fortnight later a further wash-out was given, followed by an injection of the dye. Since that time neither ciliates nor cysts have been found. Remlinger, Cabanie, and Bailly (1938) attended a case of *Bilharzia haematobia* and *Bal. coli* infection in an Arab boy aged 14. The bilharzia infection was treated with subcutaneous injections of 0.5 ml. of "anthiomaline" (antimony thiomalate of lithium). After 16 days' treatment only bilharzia was present.

The pathology of balantidial dysentery resembles very much that of amoebic dysentery. In both types the protozoa are not only present on the surface of the bowel but congregate in the follicles and are embedded in the tissues forming the base of the ulcers. As is the case with the treatment of amoebic dysentery by parenteral administration of emetine, the drug used in the treatment of balantidial dysentery should be introduced parenterally so that it can reach the parasite via the blood stream. Mackenzie and Bean's case, and that of Banik, successfully treated with enemata alone, possibly were early cases, before the parasite had been able to burrow deeply into the

intestinal mucosa. In advanced cases it is doubtful if with an enema the drug will be able to reach the parasite.

In the nine cases successfully treated by us with intramuscular injections of biniodide of mercury improvement set in after the very first injection, and the second injection completely cleared the infection together with the symptoms in most of the cases. In Case 5 no *Bal. coli* was detectable seven months after treatment. I have no doubt that Cases 2 and 3 would, at the time of writing (after 11 months), have shown no parasite if the patients had sent their stools for examination. Case 4 had another attack of the infection after 10 months, and Case 6 after 6 months. These two children belong to very low classes of society, living under unsatisfactory sanitary conditions, and I believe theirs are cases of reinfection rather than of relapse, as they are still exposed to the infection.

Case 6 developed the illness a second time, and five injections of the drug did not clear the infection though the symptoms disappeared. I was inclined to think that in this case the infective organism was leading a saprophytic life in the lumen of the bowel, which explains why an enema was so successful where parenteral administration of the drug had failed.

**In-vitro** tests have shown that mercury biniodide is very lethal to the parasite: it is ten times more lethal than mercury perchloride, 500 times more than tartar emetic and 100,000 times more than methylene blue.

Enemata with 1 in 100,000 solution of biniodide, one litre in quantity, should be quite harmless to the human body, because even if the whole of the mercury compound should be absorbed it would amount to only 1/6 gr., which is within the therapeutic dose.

### Summary

Ten cases of balantidial dysentery are described. The first case treated with mepacrine ended fatally.

The nine other cases, treated by intramuscular injections of biniodide of mercury, were cured, but one of them required in addition an enema of the biniodide.

It is suggested that intramuscular injection be used except when the protozoa are living also in the lumen, when injections combined with enemata are probably best.

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Manson-Bahr, P. (1931). *Manson's Tropical Diseases*, 9th ed., p. 436.  
— (1936). Lettsomian Lectures, *Lancet*, 1, 759.  
Remlinger, P., Cabanie, G., and Bailly, J. (1938). *Presse méd.*, 46, 1730.

Dr. Winifred De Kok's *First Baby* (Pp. 130, illustrated, 7s. 6d., London, John Westhouse, 1946) is intended for the young wife and mother; any doctor may confidently recommend it to his patients. It is clearly and simply written and provides sufficient detail for the uninformed reader to know exactly what to do. The author stresses the "normality" of pregnancy and labour and urges the expectant mother to cast out fear and not to listen to the gruesome stories of her relatives and "friends." She should preferably have her confinement at home if her antenatal examination shows her to be healthy and normal, and aim at breast-feeding her baby. She should prepare herself by taking the permitted extras in her diet. The author prescribes exercises for use before and after confinement, and advises on the economics of having a baby and the use of clothing coupons. She expounds in a simple manner the methods of prevention of minor ailments of mother and baby, the stages in bodily and mental development of the infant, feeding and weaning, and excretory training. This little book gives all the essential information without saying too much.

## Medical Memoranda

### Spontaneous Haemopneumothorax

The following account of two cases may be of interest in view of the article by Crawford and Shafar in the *British Medical Journal* of Jan. 19, 1946 (p. 88). They refer to the rarity of the condition, only 43 cases having up to then been reported. Many of the points discussed by them are borne out by these cases.

#### CASE 1

An officer aged 28 engaged on clerical work had a history of pneumonia on the left side in 1940, followed by a further attack of pneumonia or pleurisy on the same side in 1942. He was admitted to an E.M.S. hospital at 7 p.m. on April 28, 1945, with severe pain in the right lower chest, which had come on suddenly thirty-six hours previously, and was associated with dyspnoea. Both pain and dyspnoea had been increasing in severity since their onset.

On examination he was much distressed and dyspnoeic; his temperature was 99° F. (37.2° C.), pulse 120, and respirations 32. The heart was displaced to the left. There was little movement of the right side of the chest, which was hyper-resonant, and breath sounds were absent. A diagnosis of spontaneous pneumothorax was made, and a needle was inserted into the upper part of the right chest. The intrapleural pressure was 15/20; and air was released by a Woulfe's bottle until the pressure was reduced to 4/4, giving moderate relief. During the night the patient vomited persistently, and twelve hours after admission his condition was very poor: he was pale, the pulse was weak and rapid, and the blood pressure was 70/40, suggesting an internal haemorrhage. The intrapleural pressure was now 6/6. A blood count showed: red cells, 3,360,000; haemoglobin, 57%. X-ray examination revealed density of the lower half of the right chest—suggesting fluid—collapse of right lung, and typical pneumothorax. Two pints (1.14 litres) of blood were given by intravenous drip, with marked improvement in the general condition and a rise in blood pressure to 120/60. Aspiration of the right lower chest was then performed, and one pint (570 ml.) of dark fluid blood was removed, with relief. In the evening a further pint of blood was given, and his condition remained fairly good; but he was still dyspnoeic, and there were still signs of fluid at the right base. Dyspnoea increased during the evening, with general deterioration in his condition, accompanied by delirium through the night.

At 2 a.m. on May 1 a needle was introduced into the upper part of the right lower chest, and the intrapleural pressure was found to be 8/9. The chest was then aspirated and a further 24 oz. (680 ml.) of blood removed. In spite of this his condition steadily deteriorated, and he died at 5.45 p.m. on the fifth day.

*Post-mortem Examination* (G. Stewart Smith).—The body was well nourished and of good physique. *Heart and blood vessels*: the heart as a whole was not enlarged; but there was some dilatation of the right ventricle. *Respiratory system*.—*Right*: the pleural sac contained about two pints of blood and a large mass of clot; the lung was completely collapsed but not consolidated. At the apex and on the free borders were small emphysematous bullae. Over one of these near the apex the pleura was roughened and cracked and blood could be exuded from this area on pressure. This was probably the cause of the haemopneumothorax. There was no sign of any other source of haemorrhage. *Left*: the upper lobe showed many moderate-sized emphysematous bullae. The lower lobe was consolidated and of the consistency of liver; the appearances were those of unresolved pneumonia. *Abdomen*: nothing abnormal.

#### CASE 2

An airman aged 19 complained of diffuse pain all over his right chest. He returned to duty, but later in the day was seized with sudden pain in the chest and dyspnoea, and pain in the right shoulder and arm. Examination showed that the mediastinum was displaced to the left, there was loss of movement of the right side, the breath sounds were absent, and the chest was hyper-resonant. A diagnosis of spontaneous pneumothorax was made. The next day he was pale and very dyspnoeic, with cold clammy skin and pulse of poor volume. A needle was inserted into the eighth space in the posterior axillary line and blood was removed. X-ray examination showed a hydropneumothorax. He improved without appreciable removal of fluid until six days after the onset, when 4 oz. (114 ml.) of blood was removed, and again on the eighth and fifteenth days, when 18 oz. (500 ml.) and 1 oz. (28 ml.), respectively, were aspirated.

Two months later skiagrams showed a small residual basal axillary pneumothorax. Breathing exercises resulted in considerable improvement in function of the right chest, and there were no clinical or radiological signs of tuberculosis.

#### COMMENT

These case histories have several points in common with those discussed by Crawford and Shafar—for example: (1) The patients' age and sex are such as these authors find to be most common. (2) Spontaneous pneumothorax is said to be the initial event. This seems to have been so here. (3) The presence of abdominal symptoms—that is vomiting in Case 1. (4) Acute pain and dyspnoea were initial symptoms in Case 1 as of spontaneous pneumothorax. Case 2 was treated before he arrived at this hospital, but it appears that he had a dull ache before the onset of acute pain, which later may have been caused by subsequent haemorrhage. (5) In Case 1 there was a temporary improvement, although this was after the pneumothorax had been aspirated, and the recurrence of pain and dyspnoea could not be attributed to the first onset of haemorrhage. Case 2 improved with anti-shock measures and removal of fluid from the chest.

I should like to thank Mr. A. Graham Bryce for his help and criticism and Dr. Stewart Smith for the post-mortem report.

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Cheshire.

J. K. McMYN, M.B., Ch.B.

### Unusual Case of Concealed Haemorrhage

Though cases of concealed haemorrhage may often occur the following case was so clear-cut that it was felt to be worth reporting.

#### CASE HISTORY

This patient, a woman aged 28, had had two children, 6 and 3 years old, both normal deliveries, and one miscarriage at the first month. Catamenia were always regular. The first day of the last menstrual period was May 17, 1946, and the expected date of delivery Feb. 26, 1947. She was quite well throughout the pregnancy until Feb. 2, when she complained of headache, and went to bed for the afternoon. At 5 p.m. she noticed that her abdomen had suddenly got bigger and made breathing difficult. At 11 p.m. a large clot was passed per vaginam, the first external bleeding to occur. She had a slight loss throughout the night and next day till 7 p.m., when she had an acute and very brisk loss. She had had vague backache throughout the day, but no definite "pains." The patient was admitted to hospital at 9 p.m. on Feb. 3 with colicky abdominal pains which were like "labour pains" in many respects.

On examination she was pale, but not excessively so. The pulse was 100 and of fair volume. The blood pressure was 110/70. The uterus was the size of a full-term pregnancy and firm in consistency, but contractions were not felt. The foetus was presenting by the vertex as a right occipito-anterior. The head was not engaged, and could not be made to be so. The foetal heart rate was 160. There was a very free loss per vaginam of bright-red fluid blood with some clots. Per rectum a boggy mass could be felt, but no presenting part. The cervix was not defined. A diagnosis of placenta praevia was made, and the patient was prepared for the theatre.

Examination under anaesthesia (Dr. W. A. Taylor) revealed a central placenta praevia. The abdomen was opened and a classical caesarean section performed. The placenta bulged through the incision in the uterus. Some difficulty was experienced in delivery, but eventually a living female child was born. The placenta was found to be very large—central placenta praevia in type, but extending up the walls of the uterus half-way to the fundus. Behind the membranes in the fundus of the uterus there was a big collection of blood clot and a large retroplacental clot. The placenta and membranes were removed intact. The uterus and abdomen were closed in the usual manner. The baby's weight at birth was 7 lb. 10 oz. (3.5 kg.), and it cried well. The condition of mother and child on discharge from hospital on Feb. 23 was satisfactory.

The interest in this case lies in the fact that the patient noticed the sudden increase in the size of the uterus some six hours before there was any external evidence of bleeding. This was probably due to the initial haemorrhage occurring at the periphery of the placenta.

W. ALFORD TAYLOR, M.B., B.S.  
GORDON DUTTON, M.B., B.S.

The Nordic Surgical Union recently held its 23rd Congress in conjunction with the Nordic Orthopaedic Union at Stockholm. There was a discussion on "dextran"—a sugary substance used to replace blood and plasma in the treatment of shock.

## Reviews

### THE FALLOPIAN TUBES

*Uterotubal Insufflation. A Clinical Diagnostic Method of Determining the Tubal Factor in Sterility, including Therapeutic Aspects and Comparative Notes on Hysterosalpingography.* By I. C. Rubin, M.D., F.A.C.S. (Pp. 453; 159 illustrations, 4 in colour. 50s.) London: Henry Kimpton. 1947.

The method of utero-tubal insufflation is one of the most important contributions to gynaecological diagnosis and therapy of the present century. Rubin did much of the early work, and great credit is due to him both for his originality and for the skill with which he has elaborated the technique. In the present volume he has collected together all the work that he himself has done on tubal patency together with exhaustive references to the publications and opinions of other people. It is a monumental contribution, though essentially individualistic.

The volume reveals the extraordinarily wide interests of the author, for he has done a large amount of work on experimental animals and in clinical practice. The early part of the book, with its full discussion of physiological problems, is of absorbing interest. A careful study of the book gives the impression that nothing appertaining to the patency and function of the Fallopian tubes has ever escaped Rubin's attention. The discussion on the function of the fimbriae and on the transport of the ovum is of great value. The same intelligent mind is applied to clinical problems. The original apparatus has gradually evolved, and the excellent photograph on p. 164, which should occupy the frontispiece, perfectly illustrates his consummate technique. Rubin's clinical experience has been wide, and he has kept accurate records which enable him to furnish useful statistics. The chapter on the comparison of insufflation with lipiodol injection is one of the best, and the summing up is judicial. The references are complete.

Though it is hardly suitable as a work of reference, all practising gynaecologists should study the book from cover to cover. Unfortunately the paper and print are much below the quality of the subject matter, and we regret that the publishers of such a fine work, by a gynaecologist of world-wide fame, have not produced the book better.

WILFRED SHAW.

### MALNUTRITION

*Problems of Malnutrition and Starvation during the War.* Twentieth Sir Jesse Boot Foundation Lecture delivered by Sir Jack Drummond, D.Sc., F.R.I.C., F.R.S. (Pp. 21; 1s. 6d.) Nottingham: University College.

The first Sir Jesse Boot Foundation Lecture was given in 1922 to commemorate the generosity of the first Baron Trent in founding the Sir Jesse Boot Chair of Chemistry in University College, Nottingham. As we are told in a footnote to the title page, "the Lecture is delivered annually on some aspect of chemistry bearing on the life of the community or the industries of the City of Nottingham." A study of the titles of the 20 lectures which have been given reveals an interesting metamorphosis in the subject matter. Whereas the first eight dealt with evolution in chemical industry, subsequent lectures have passed through agriculture to pharmacy and thence to biochemistry. For the twentieth lecture Sir Jack Drummond chose to discuss problems of malnutrition and starvation during the war. No one is better qualified than he to speak on this subject, for as Scientific Adviser to the Ministry of Food he was largely responsible for the scientific feeding of the nation during the war, and after the liberation he obtained first-hand information on conditions in Western Europe.

After a preamble comparing the human machine with man-made machines, Drummond first deals with a few of the more important facts upon which modern nutritional views are based and points out how the knowledge amassed between the two wars enabled us during the 1939-45 period to calculate the daily requirements needed to preserve the health of people of different ages and occupations. The report of nutrition experts sent by the Rockefeller Health Commission to Madrid in 1941 gave us valuable information on the nutritional condition of the people during the Spanish Civil War, in which there was a shortage of calories, though few signs of malnutrition. The lecturer then considers the conditions in Western Europe

after the liberation and reveals how difficult it was to get a true account of the situation from all the conflicting reports from the various occupied countries. According to some of these the daily calories available were less than half the total required to preserve health, which meant that semi-starvation existed. If this were true, then it was important to discover what was the quantity and kind of food that could be obtained apart from the rations. Experts exiled in Britain had been able to give us valuable information on the agricultural resources of the various occupied countries, and this enabled us to assess the food that might be available to the peoples concerned. The importance of this was that we had to judge whether the general picture would be one of calorie shortage or of dietary deficiency.

In the cities of France and Belgium the people presented the typical picture of caloric deficiency, though it was by no means serious. In general the children below 5 years of age were in a good nutritional state, and high death rates were due to bad housing rather than to poor feeding. Diseases of malnutrition were not common.

In West Holland conditions were much more serious. The principal reason for the bad nutritional state of the Dutch people was that the Germans had cut food supplies as a punishment for their loyal response to our appeal to them to paralyse the railways in the late autumn of 1944. By March, 1945, the calorie value of the rations, which had been about 1,700, dropped to as low as 500 a day, which was sheer starvation. At short notice plans were prepared for dealing with some hundred thousands of people dying of starvation, but little was known of how to revive people in that condition. It was assumed that those near death could not easily take food by mouth and that even readily digestible food is not easily assimilated. For this reason we prepared large quantities of predigested meat or milk protein supplemented by glucose and vitamins for intravenous administration or to be given directly into the stomach by tube. In case of these measures failing, however, we also held in readiness large quantities of skimmed milk. Experience gained when Belsen was liberated showed that the intravenous injection of predigested food tended to worsen the dropsical condition of the hunger-oedematous patient, and given by the mouth the food was not palatable. Skimmed milk proved to be the best remedy, since this combined with glucose could be given in increasing quantity until the intake was built up to over 3,000 calories a day. A final important point brought out is the fundamental importance of wheatmeal or wholemeal bread, potatoes, and vegetables, for they afford protection against dietary deficiencies even when the total of the calories provided by these restricted diets is small.

Such an able exposition of the problem, set out in plain language for the understanding of the general public, by one who has had the experience and possesses the necessary knowledge and judgment to assess such conditions, is of great value, and we welcome its publication.

I. DE BURGH DALY.

### MALE FERTILITY

*Studies on Impaired Fertility in Man, with Special Reference to the Male.* By Rich Hammen. Translated from Danish by Hans Andersen, M.D. (Pp. 206; illustrated, 10s.) Copenhagen: Einar Munksgaard. London: Geoffrey Cumberlege (Oxford University Press). 1944.

This monograph is based on a study of 1,184 specimens of semen received from 925 male partners of infertile marriages and from 32 control subjects of known fertility. In 277 cases semen analysis was accompanied by full clinical investigation of both husband and wife. One chapter is devoted to the findings in the female in order to provide the proper perspective, the others to those in the male. The author considers the various characteristics of seminal fluid (excluding chemical analysis) and of spermatozoa, clearly describes the techniques employed and the results obtained, and interprets them cautiously and without prejudice. Like most recent workers on the subject Hammen finds it difficult to come to definite conclusions on criteria of "normal" seminal values, and he makes out a good case for abandoning the very high standards set by some writers, pointing out that they are ideal rather than practical. One of the most interesting features is the description of a method of vital staining of spermatozoa, based

in the use of brilliant cresyl blue and trypan blue, in order to distinguish the living from the dead. Hammen also gives an account of his attempts to apply Sorensen's method for studying the anaerobic metabolism of human spermatozoa. The terminology is sometimes unusual: "sperm" is preferred to semen, and "aspermia" to "azoospermia," while "aspermism" is used to denote failure to ejaculate any fluid. There are a few slips—one in the nature of a "howler": "the sperm was poured from the beaker into the graduate." On the whole, however, the English translation reads well.

As the title implies this book is not intended to be a complete dissertation on male infertility; it is an account of those of its aspects personally investigated by the author. As such there is little to criticize adversely in it. Indeed the book is not only interesting and informative but stimulating; its caution one makes the reader wish for more. Had this book been available in Britain when it was first published in 1944 it would have appeared more striking and have attracted a good deal of attention; as it is, much of its thunder has been stolen by writers in the U.S.A. and in this country during the last three years, and Hammen's work is made to appear confirmatory rather than original. The references too, although numerous and valuable, are necessarily not quite up to date. Nevertheless, representing as it does a factual account of a large-scale investigation, the work remains important, and its essential value undiminished by the passing of the years. Those interested in male fertility, and particularly in seminology, will welcome it.

T. N. A. JEFFCOATE.

## BIOCHEMISTRY OF TUMOURS

*Biochemistry of Cancer.* By Jesse P. Greenstein. (Pp. 389; illustrated. £7.50.) New York: Academic Press Inc. 1947.

the serious study of the biochemistry of cancer began in the early 1920s after pathologists had developed methods of transplanting and inducing animal tumours. This monograph gives an excellent account of the efforts of biochemists in the field of cancer research, with some emphasis on the American contribution. Dr. Greenstein's own researches have been mostly into the comparative enzymology of normal and malignant tissues, and in a large part of this book he considers this type of work under the title of "The Properties of Tumours." His account will be useful both to cancer research workers and to biochemists in general, for the former have determined many of the chemical components and enzyme activities of normal tissues for comparative purposes. The kinds of enzymes and other components of tumours are not different from those of normal organs, but the relative amounts and activities are. Dr. Greenstein's general conclusion is that tumours resemble each other in their chemical properties more than they do the normal tissues or than normal tissues resemble each other. The metabolic pattern of tumours is very similar in all species that have been studied.

The author also discusses the pathology of tumours, the intrinsic and extrinsic factors in the induction of tumours, the chemistry of the tumour-bearing host, and attempts at the control of tumour induction and tumour growth by nutritional, hormonal, and chemotherapeutic methods. Most of the work described is in stages of development at which it is impossible to draw general conclusions, but it needed collating; Dr. Greenstein has done it. There are many typographical errors, and the list of references is incomplete. The usual reference given to a fact is the one in which the data are most completely described rather than the reference in which it was first described. The section on the properties of tumours is more complete than the other parts. The author keeps closely to his subject and gives little account of the biochemical effects of radiations. It is undoubtedly the best book in this field, and it is something of a triumph for one author to be able to discuss so many facts with insight.

E. BOYLAND.

*Miracle Drug: the Inner History of Penicillin.* by David Masters Eyre and Spottiswoode. 10s. 6d., is one of the better popular books on medical subjects, because the author has evidently taken care to obtain his information from authoritative sources. It is in attractive form, and some of the episodes described, as well as much of the purely scientific information on the laboratory study and commercial manufacture of penicillin, will probably be new to most medical readers.

## BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

*Equisinoceros Pulmonar.* By M. A. Mallen (Pp. 100. No price.)

A thesis (in Spanish) on hydatid cysts in the lungs.

*A Textbook of Medicine.* Edited by Russell L. Cecil, A.B., M.D., Sc.D., et al. 7th ed. (Pp. 1,730. 50s.) London: W B Saunders Company. 1947.

New subjects discussed include deficiency of vitamins A, E. and K. psychosomatic medicine, acrodynia, and drug allergy

*Surgical Pathology.* By William Boyd, M.D., F.R.C.P. 6th ed (Pp. 858. 50s.) London: W. B. Saunders Company. 1947.

This edition includes new material on congenital heart disease, tumours of the larynx, avitaminosis in cancer of the mouth, and fibrositis of the back.

*The Child from Five to Ten* By Arnold Gesell, M.D., and Frances L. Ilg, M.D. (Pp. 475. 18s.) London: Hamish Hamilton. 1947.

An account of the mental development and behaviour of children from 5 to 10.

*Return to Night.* By Mary Renault. (Pp. 356. 10s. 6d.) London: Longmans, Green and Co 1947.

A novel.

*A Bibliography of Infantile Paralysis, 1789-1944.* Edited by Morris Fishbein, M.D (£4 10s.) London: J. B Lippincott Company. 1946.

Short notes abstract the contents of many of the references; includes subject and author indexes.

*Recent Advances in Public Health.* By J. L. Burn, M.D., D.Hy., D.P.H (Pp. 409. 25s.) London: J. and A. Churchill 1947.

A review of recent advances, with important references and many illustrations.

*De Lee's Obstetrics for Nurses.* By M. E. Davis, M.D., and M. C. Carmon, R.N. 14th ed. (Pp. 640. 15s.) London: W B. Saunders Company. 1947.

An account of pregnancy, labour, and the puerperium for nurses; with glossary.

*Science News IV.* Edited by John Enogat. (Pp. 171. 1s.) West Drayton, Middlesex: Penguin Books. 1947.

A variety of scientific topics discussed for the layman.

*Ethics: With Special Application to the Nursing Profession* By J. B. McAllister, S.S., Ph.D. (Pp. 442. 14s.) London: W. B. Saunders Company. 1947.

A discussion of ethics in relation to medicine by the Assistant Professor of Philosophy at the Catholic University of America.

*The Objective Method of Dream-Interpretation.* By Major Satya Nand, M.B., B.S., I.M.S.(RLD), P.C.M.S. (Pp. 251. Rs.9.12.) Lahore: Northern India Printing and Publishing Co. 1947.

An account of dream interpretation for layman as well as specialist.

*Biologists in Search of Material.* Edited by G. Scott Williamson, M.D., and I. H. Pearce, M.D. 2nd ed. (Pp. 107. 5s.) London: Faber and Faber. 1947.

A description of the work done at the Peckham Health Centre.

*Biochemistry for Medical Students.* By W. V. Thorpe, M.A., Ph.D. 4th ed. (Pp. 496. 18s.) London: J. and A. Churchill. 1947.

Contains new material on isotopes in biochemical investigations, on protein structure, bile pigments, and nutrition in wartime.

*Common Skin Diseases.* By A. C. Roxburgh, M.A., M.D., B.Ch., F.R.C.P. 8th ed. (Pp. 497. 21s.) London: H. K. Lewis. 1947.

Includes accounts of penicillin, D.D.T., and calciferol in dermatology.

## BRITISH MEDICAL JOURNAL

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## CUTS IN RATIONS

The meat ration has been cut. The ordinary individual can now spend only 1s. a week on meat instead of 1s. 2d., and the number of "points" available each month has been reduced from 32 to 28. The direct effect of these cuts on our nutrition will not be serious. The figures for our consumption of calories and nutrients that are most commonly quoted are derived from estimates of food imported and produced in the country; these estimates, of which a recent example appears elsewhere in this issue (p. 427), are a very poor index of the actual amounts eaten by average families. Surveys of food consumed at home by representative families have been conducted by the Ministry of Food since 1941; the results have been treated as confidential, but Drummond<sup>1</sup> has published some details. Judged by the restricted standards of the National Research Council (U.S.A.) our average food consumption in July and August, 1945, was adequate in all respects except that the vitamin A content might have been too low owing to failure to use carotene, and the vitamin C content too low because of losses in cooking. At that time the weekly bacon ration had been cut to 3 oz. (85 g.) and cheese to 2 oz. (57 g.) and the amount of animal protein available daily was 34 g.

The survey of school-children's diets made by Bransby and Wagner<sup>2</sup> in 1943-4 in Stoke-on-Trent and Salford showed that the average calories were well up to requirements, that animal protein was over 30 g., and calcium alone was deficient. The dullness, which was the fault of these diets up to 1945, is not shown in the estimates of calories and nutrients, though it might be suspected from the level of animal protein. Changes in our rations between August, 1945, and August, 1947, were not sufficient to affect the supply of animal protein, minerals, or vitamins seriously. Judging by the figures that have been published, the intake of calories has remained adequate in spite of the rationing of bread. The chief result of the present cuts will be to make our diet still less varied and less appetizing.

The present cuts may be forerunners of more drastic changes. So long as the rate of extraction of flour is kept up there will be no lack of vitamins of the B group. Vitamins A, C, and D come mainly from sources that are not likely to be affected. The main danger is to our calories, for though the average has been enough there has been no margin. Bransby and Magee<sup>3</sup> showed that it was, and it still is, difficult for heavy workers who were not eating meals in canteens to get sufficient calories without consuming larger amounts of potatoes than our supplies allowed. At the time when we published this paper it was impossible for many people to buy 2 lb. (900 g.) of potatoes a week. Even if the cuts do not seriously reduce the number

of calories available, there is a danger that the intake may fall. In 1941, according to Drummond, the average calorie intake fell to about 2,100, although there was no restriction on the number of calories that could be taken in the form of bread. It is uncertain how far this reduction was due to failure to adapt habits to the changed supply of food, but it was in part secondary to the dullness of the food, and particularly to the lack of foodstuffs to eat with bread. When lend-lease supplies brought a greater variety of food, the intake of calories rose. Further cuts now of the "point" food that lends variety to our diet will be followed by a similar fall in calories.

Any reduction of the calorie intake, whether primary or secondary, may lead to a drop in production. Therefore if more cuts are coming it will be necessary to consider further differential rationing for manual workers, graded according to the type of labour. At present manual workers (not included in certain special categories) get a week an extra 42 oz. (1.2 kg.) of bread, or its equivalent without anything to go with it. Miners—where the majority do not use canteens—get a total of 189 oz. (5.4 kg.) of bread a week with an extra ten-pennyworth of meat and 12 (340 g.) of cheese. The most welcome extra ration, apart from more bread units, would be neither meat nor cheese but some form of "visible" fat. The lowness of the present fat ration is quite the worst obstacle to varied and interesting cooking.

## THE FUTURE OF NURSING

The report of the Working Party on the Recruitment Training of Nurses, of which the main recommendations are briefly summarized elsewhere in this issue (p. 4), must be regarded as the judgment of the community on the shortage of nurses. There is no body in the nursing profession that could have undertaken this task, for to an important extent the statutory limitations of the General Nursing Councils have helped to bring about the present difficult position. The recommendations of the Working Party can be assessed properly only in the light of our knowledge of how and why the present critical shortage of nurses has arisen.

The General Nursing Councils are concerned solely with the maintenance of a register of nurses and the regulation of the examinations that give admission to it. They have no concern with, and, it might be argued, are actually precluded from taking account of, the supply of nurses, though the conditions they impose must affect recruitment. The curriculum may be so long, and the syllabus so academic, or the examinations so exacting that potentially good nurses are deterred from entering the profession or fail to qualify, but the G.N.C. take no cognizance of this. By refusing to recognize as teaching schools hospitals with less than 100 beds the G.N.C. may make it impossible for them to obtain enough nurses; but, again, the Nursing Councils do not take that into account. At least in respect of the governing bodies of the nursing profession they possess power without responsibility, and, though there are many causes for the present shortage of nurses over which the G.N.C. have no direct control, it is the lack of a body that has a responsibility in the matter that has called for action by the Government.

The educational policy of the Nursing Councils, supported by all but a few of their members, has often

<sup>1</sup> *Sth. med. J.*, 1946, 39, 18.<sup>2</sup> *British Medical Journal*, 1945, 2, 682.<sup>3</sup> *Ibid.*, 1947, 1, 524.



pressed. It is to raise the academic status of nursing, the belief that this will attract an increasing number of intelligent women who wish to understand the theory of what they do—hence a syllabus which, with its load of anatomy, physiology, and theoretical medicine, more and more resembles that laid down for medical students. Any criticism of this policy is regarded not only as a betrayal of the cause of the intellectual woman but also as short-sighted, because, it is claimed, any lowering of the standard will keep potential nurses out of the profession. It is always assumed that there are enough women of the degree of intelligence required to implement this programme. For the first time the Working Party has provided evidence on this point. About half of all present-day nurses leave school at 14 or 15, and only one-fifth reach school certificate or a higher educational standard. Intelligence tests show a wide range of ability: whereas some 40% of nurses fall within the top 30% of the population in intelligence, the quarter of the profession is among the lowest 30%. Obviously, then, we cannot now, or in the foreseeable future, staff the hospitals of this country with nurses who satisfy the intellectual requirements of the G.N.C., and the attempt to impose these high standards must turn away from nursing many otherwise suitable candidates, and also contribute substantially to the present alarming wastage.

The remedy which the Working Party proposes is a shorter and necessarily simpler, but at the same time more comprehensive, training. It suggests that time could be saved by the elimination of domestic work and unnecessary repetition, and by more efficient training. Nurse Training Units should be set up and should be independent of individual hospitals and responsible for co-ordinating all the educational facilities in the region for the benefit of the student nurse. All nurses would have fundamentally the same training, with opportunities for some specialization during the latter part of the two years of the course and in the first year of work after qualification. There can be no doubt that much of the time laid down as necessary for the training of nurses in the past has been called for because the student nurse has been required to do much of the domestic and routine work of the hospital. The new proposals could not succeed, therefore, without an adequate supply of domestic labour for hospitals, and the suggested replacement of the assistant nurse by a nursing orderly is also an integral part of the scheme. Much time would then be saved and the barriers between the different branches of nursing would be broken down. These proposals, of course, are not free from dangers. Repetition in training is not entirely a disadvantage, and it would be exploratory if the student nurse were ever to believe that, having been signed up for a limited number of hypodermic injections, she need give no more until after qualification. The student who is merely a student may find it hard to develop the sense of responsibility towards her patients that the student nurse feels at present and that forms such an important part of her training. The disappearance of the individual hospital as a training unit would mean the immediate loss of a sense of loyalty which it would be difficult or a Nurse Training Unit to re-create. But there is no progress without risks, and if these proposals are to be put into practice the new educational bodies will need the courage and vision to inspire something like the spirit of a university.

Reform of the General Nursing Councils is overdue, and in this sphere the proposals of the Working Party are indefinite. They suggest that Regional Nurse Training Boards should be set up but do not define their relationship to the reformed G.N.C., which, moreover, would still appear to control nursing education without having to take account of the effects of its policy on recruitment. It is proposed that the Minister of Health should still have the power to veto the syllabuses of the G.N.C., but it seems desirable that the last word on all matters of nursing organization, recruitment, and education should be given to a central advisory council.

Discussing the loss of nurses in training, the Working Party states that "the type of discipline which pervades the training schools to-day is unquestionably the most important cause of wastage." This has long been known, but remains largely unremedied. Historically derived from the organization of religious orders, copied in its turn from military models, nursing discipline is now more dictatorial than that found anywhere else in the lay world and is far more irksome than Service discipline. A commanding officer does not personally take account of the peccadilloes of the lowest ranks, as the matron often does in the case of the student nurse. In nursing there is, to adapt John Knox's phrase, a monstrous regimentation of women. The committee hint at psychological reasons for this, and psychologists could undoubtedly make a valuable contribution towards increasing the happiness of hospital life. Every nurses' training school should have a governing body which ought to include two or three married women with grown-up children; the matron should be this governing body's executive officer. There is much to be said for putting discipline in the nurses' home or hostel under the control of a warden directly responsible to the governing body, and for limiting the authority of the matron to education and ward discipline. In large cities where there are several small hospitals joint residential hostels under their own wardens might be set up with advantage. Much could be done along these lines at once; later, the proposals of the Working Party would go a long way to free the student nurse from a purely local autocracy.

It is a measure of the present crisis that, when industrial and domestic work are criticized as drab and monotonous, a profession as rich in varied interests as nursing cannot get enough recruits. The Working Party has brought courage and vision to its difficult task. Let its critics be equally courageous and constructive.

### SUBCLINICAL POLIOMYELITIS

In 1945 a team of workers in Chicago began a co-ordinated study of poliomyelitis. They undertook careful history and neighbourhood studies, recorded the daily temperatures of contacts, examined the cerebrospinal fluid two to five weeks after the onset of fever, and tried to detect the presence of virus in specimens from the nose, throat, mouth, and stools of those persons whose temperatures were taken. A paper<sup>1</sup> describing some of the results obtained was mentioned by Kelleher<sup>2</sup> in an article we published recently. Daily determinations of the axillary temperature were made between 5 and 25 days (usually 6 and 21 days) after the known exposure of 22 children to a patient with polio-

<sup>1</sup> Casey, A. E., et al., *Amer. J. Dis. Child.*, 1947, 72, 661.  
<sup>2</sup> *British Medical Journal*, 1947, 2, 292.

## RECRUITMENT AND TRAINING OF NURSES

## REPORT OF WORKING PARTY

The Working Party to examine the recruitment and training of nurses, composed of Sir Robert Wood, K.B.E., C.B. (chairman), Miss D. C. Bridges, R.R.C., S.R.N., S.C.M., Miss E. Cockayne, S.R.N., S.C.M., J. Cohen, Esq., M.A., Ph.D., F.B.Ps.S., and T. D. Inch, Esq., C.B.E., M.C., M.D., F.R.C.P.Ed., D.P.H., was set up in January, 1946. It has now issued its Report,<sup>1</sup> which is signed by four members; Dr. Cohen is preparing a minority report. The Working Party was asked to survey the whole field of the recruitment and training of nurses of all types, including such problems as the proper task of a nurse, the training required to equip her for that task, the annual intake needed and how it can be obtained, from what groups of the population recruitment should be made, and how wastage during training can be minimized. The Working Party particularly bore in mind the nature of the nursing force likely to be required in the National Health Service. In discussing the long-term solution of the problem of staffing the nursing services, the Report points out that an important aspect is reducing the burden of sickness, and suggests that it might be necessary to allocate more funds to medical research, public health work, and such general measures as improved nutrition and housing.

TABLE I.—*Civilian Nursing Strength in Great Britain at End of 1938 and 1945*

	End of 1938 (Thousands)	End of 1945 (Thousands)
<b>Trained nurses and midwives:</b>		
In hospitals .. .. .	46.7	47.5
Elsewhere .. .. .	32.1	30.1
<b>Total</b> .. .. .	<b>78.8</b>	<b>77.6</b>
Per 1,000 pop. .. .. .	1.7	1.6
<b>Other nurses (including student nurses and pupil midwives):</b>		
In hospitals .. .. .	67.6	79.9
Elsewhere .. .. .	11.6	16.1
<b>Total</b> .. .. .	<b>79.2</b>	<b>96.0</b>
Per 1,000 pop. .. .. .	1.7	2.0
<b>Total</b> .. .. .	<b>158.0</b>	<b>173.6</b>
Per 1,000 pop. .. .. .	3.4	3.6

It will be seen from Table I that, while the total strength of nursing force increased by over 15,000 between 1938 and 45, there was a small decline in the number of nurses and midwives in active employment. The great majority of hospital nurses are single, under 10% being married at the time of the inquiry, and the Report comments: "The high proportion of unmarried is not surprising in view of the impediments to promotion placed in the way of married nurses." It was found that in public health a much higher proportion—one in four—are married. Investigating the educational level of nurses, the Working Party found that nearly half those in hospitals, including students, received full-time education up to the age of 14 or 15 only. Another 30% received further education without reaching school certificate standard, one in six reached school certificate or matriculation standard, about 4% higher certificate standard, and only one in two hundred had a professional diploma or university degree. In Scottish hospitals a rather higher proportion have been educated to higher school certificate standard or beyond—about 13%. At voluntary general hospitals about 36% reached matriculation level or above, whereas in municipal hospitals the proportion is about 15%. More than half the nurses in hospitals have been employed in some other occupation before entering nursing. The most popular year to start nursing is the 19th, when one in every five enter; 50% start before they reach the age of 20, and 50% afterwards.

## Suitability for Nursing

The Working Party came to the conclusion "that candidates should be accepted at the age of 18 years, though not younger,

<sup>1</sup> Report of the Working Party on the Recruitment and Training of Nurses. (H.M.S.O., 2s. 6d.)

perhaps, but every encouragement should also be given to candidates of more mature years. Nor should any obstacle be put in the way of candidates who are married." They tested a random sample of nurses with two intelligence tests—one non-verbal, the progressive matrices 20-minute version, and the other a verbal test devised for use in the Army. Pressure of time has allowed them to analyse only the results of the former. The Report emphasizes the striking range of ability revealed by these tests: "There are many more nurses in the upper ranges of ability as compared with corresponding proportions in the general population, and fewer in the lower ranges." On the other hand, if the training of nurses requires students of at least average ability, "then possibly as much as 30% of the present student population would seem to be unsuitable for admission to training."

Nurses in mental hospitals and institutions were found in general to have a lower level of ability than those in non-mental hospitals. The Working Party takes the view that a small number of nurses should receive a university training in order to produce leaders and teachers of high professional standing. The estimated intake of student nurses to all types of hospitals other than maternity is shown in Table II. Over the seven years 1937–43 the annual intake was about 23,000. Of these about 12,400 (54%) were lost during training.

TABLE II.—*Summary of Estimated Intake and Wastage of Student Nurses from 1937 to 1943*

Type of Training	Average Annual Intake	Average Wastage	Wastage as a Percentage of Intake
<b>General:</b>			
Voluntary .. .. .	8,900	3,100	35
Municipal .. .. .	4,200	1,800	43
<b>Total</b> .. .. .	<b>13,100</b>	<b>4,900</b>	<b>37</b>
<b>Mental (females only)</b>	<b>6,800</b>	<b>5,600</b>	<b>82</b>
Infectious diseases .. .. .	1,800	1,000	56
Tuberculosis sanatoria .. .. .	1,400	900	65
<b>Total</b> .. .. .	<b>23,100</b>	<b>12,400</b>	<b>54</b>

Analysing the intake and loss of training nurses, the Working Party found that (1) the number entering first employment in hospital each year is probably between 9,500 and 10,000; (2) about 6,300 trained nurses each year transfer to hospitals from nursing employment in other hospitals or elsewhere; (3) an average of 5,600 trained nurses in the hospital field leave the profession each year, and about 3,000 from the public health and other fields; (4) more than one-third of the loss from hospitals is due to marriage, and sickness accounts for 9% of the loss from general hospitals and 5–15% from other hospitals. The report adds that the annual replacement rate of trained nurses must be at least 9,000 a year before the profession can expand.

## Causes of Wastage

The Working Party interviewed a number of students who had abandoned their vocation, and came to the conclusion that the difference in attitude between a nurse who gives up training and one who continues it is a difference in degree, not in kind. "Under the present system a point is reached during the training period when students 'waste,' and it appeared from these interviews that the crux of the whole problem of wastage lies in the sphere of human relationships."

The provisional hypothesis is formulated that the chief causes of wastage fall into two groups: (1) The attitude of the senior staff and their alleged lack of sympathy and understanding, leading to a cramping and over-disciplined existence, and (2) dissatisfaction with food, accommodation, hours of work, lack of privacy, etc. The Report adds that "any impartial investigator entering many nurse training schools encounters an atmosphere of dissatisfaction or even discontent"; and again, "the conclusion emerges clearly . . . that the type of discipline which pervades the training schools to-day is unquestionably the most important cause of wastage." The Working Party concludes that nurses in training must be regarded as students and not as junior employees subject to an outworn system of discipline. The amenities of life must be improved, and the training day must be reduced in span to conform as closely as practicable to a normal working day, which would necessitate

three-shift system. It further advocates proper methods of selection for student nurses and for nurses appointed to senior posts.

### Training of Nurses

The training of nurses varies greatly from school to school in length and efficiency. In studying the work of 36 student nurses the Working Party's investigators "came across no instance of any formal clinical teaching in the wards." The method of training at present is in most cases three years, but varies from four years in affiliated (and some complete) training schools to two years if the nurse is already on one of the supplementary registers. In many cases new courses of training have been added which partly duplicate the contents of courses already taken by the student. Furthermore, many courses of training a great deal of time is wasted in repetition necessitated by the requirements of ward work. The same strictures apply to "special" as well as general training, the only exception being in maternity nursing. The Report outlines a new scheme for training nurses in two years with an examination after 18 months and a final examination six months later, when the successful student would qualify as a State Registered Nurse, with the title S.R.N. and the pay and status of a qualified nurse. She would be employed, however, only under supervision until she had completed a further year's work. She would then be permitted to engage in private practice.

The actual course of training is divided up as follows: introductory course, 12 weeks; paediatrics, 9 weeks; obstetrics, 9 weeks; communicable diseases (including tuberculosis), 9 weeks; medicine, 10 weeks; surgery, 13 weeks; gynaecology, 4 weeks; public health, 5 weeks; and psychiatry, 5 weeks. Having passed an examination at the end of this course the student would then do 23 weeks' training in a selected branch of nursing. Twelve weeks is allowed for vacations in the first two years. This scheme gives students the opportunity of learning to nurse infants and children before adults, which is a great advantage.

Working Party considers desirable, since adults display nothing of the helplessness of children, and a nurse who has tended children will approach the adult with more confidence. It also provides a basic training in public health, at present much neglected, as well as an introduction to psychiatric nursing.

Those wishing to specialize in midwifery might do six months' training in the optional period, which, with the four weeks' training in the first 18 months should broadly cover the present syllabus for Part I Midwifery, while the year of work under supervision after qualifying would correspond to experience gained in Part II of the midwifery course.

An important point is that the cost of training should be separate from the maintenance expenditure of the hospital. While student nurses should receive free board and lodging as well as training grants, the Working Party found that in a sample of ex-students examined by them about one-third were fitted for nursing owing to instability or unsuitability of temperament, but they suggest this figure may have been unduly high owing to war conditions and that possibly a quarter of the whole should be regarded as unfit—about half for temperamental and half for intellectual reasons.

The Report therefore outlines a selection procedure to replace existing tests and interviews. It is based on that employed by the Women's Auxiliary Services and comprises (1) an interview by the personnel selection officer; (2) a questionnaire designed to discover the candidate's interests, stability, and personality; (3) a questionnaire dealing with occupational preferences, "self-knowledge," and health; (4) standardized intelligence tests; and, if necessary, (5) tests of scholastic attainments.

### Organization of Training

The training envisaged in the Report is beyond the scope of any one of the schools now approved for general training. It is therefore proposed to group hospitals into nursing training units, which would be organized within the Hospital Regions. Each unit would be under the charge of a director and his staff. A necessary requisite in the selection of sisters to teach in these units would be an aptitude for teaching. The Working Party proposes that every Hospital Region will set up at least one training unit as soon as possible. Each training unit would have its

education committee comprising representatives of the teaching staff, hospital matrons, and governing bodies of the institutions and health agencies forming the unit. The Regional Nurse Training Board would be required to co-ordinate the work of the various units in the region. Its members would include representatives of the Regional Hospital Board, board of governors, hospital management committees, local health authorities, and the nurse education committees of the training units. Headquarters research units should be set up at the Ministry of Health and at the Department of Health for Scotland to undertake research into training, and particular problems might be studied in experimental training centres.

The Report is critical of the constitution of the General Nursing Councils and in particular the manner of their election. Members, apart from Government representatives, are often quite unknown to those who elected them. Elections should be by Hospital Regions. The Report also advocates the amalgamation of the General Nursing Councils and possibly their unification with the Central Midwives Boards. The Working Party did not specifically examine the status of assistant nurses, but they believe that there is room, in addition to State Registered Nurses, for nursing orderlies who would be concerned with the simpler and more routine duties that do not require a full training in nursing. The training of such nursing orderlies requires further investigation.

We may quote finally an important observation on the recruitment of nurses: "It appears to us that the recruitment of candidates for nursing is a secondary task: the primary task is to remove the deterrents to recruitment, which are much the same as the causes of training wastage."

## CHANGES IN FOOD CONSUMPTION

Our first leading article this week (p. 422) discusses the probable effects of the present and possible future cuts in rations. Some of the changes in the consumption of various kinds of food over the last eight years are indicated in the most general terms in a White Paper<sup>1</sup> issued on Sept. 2 and entitled "Food Consumption Levels in the United Kingdom."

The White Paper, in the following table, shows the percentage of total calorie intake derived from certain groups of foods:

	Pre-war	1945	1946	July/June, 1946-7 (provisional)
Dairy products (excluding butter) .. ..	9	11	11	11
Meat (including canned meat and bacon) ..	17	13	14	14
Oils and fats (including butter) .. ..	17	14	14	13
Sugar and syrups .. ..	15	11	12	13
Potatoes .. ..	4	7	7	7
Grain products .. ..	38	37	35	34
All other foods .. ..	8	7	7	8
Total .. ..	100	100	100	100

The level of consumption of dairy products, excluding butter, reached its highest point in 1943, when it was 31% above pre-war. It is now at 30% above, as it was in 1945. Of the individual foods within the group, liquid milk consumption has increased progressively since 1939 and now stands at 44% above pre-war. Cheese consumption has declined almost continuously since 1942, when it reached a peak of 59% above the pre-war level. It is now rather less than in 1945, but is still above pre-war.

There have been important changes in the consumption of the different types of meat. The group which includes bacon and canned meat reached its lowest point in 1941, but has now recovered to only 9% below pre-war levels calculated on carcass weight equivalent, or 15% below pre-war calculated on edible weight. This relatively small reduction results from the substitution of boneless beef and canned meat for the other more attractive types. The consumption of mutton and lamb is not very different (10% above), but beef with bone is 40% below, bacon and ham 52% below, and pork 83% below pre-war. On the other hand, the consumption of boneless meat is  $6\frac{1}{2}$  times, canned corned meat  $4\frac{1}{2}$  times, and other canned meat more than 10 times the pre-war levels.

<sup>1</sup> Cmd. 7203, H.M.S.O., 6d.

There was a big increase in 1946 and 1946-7 in the consumption of fresh, frozen, and cured fish. With the reopening of the fishing grounds and resumption of trawling, consumption has increased to 28% above the pre-war level.

### Eggs and Fats

The part played by dried egg in the national dietary is interesting. While the consumption of shell eggs is still 44% less than before the war, total egg consumption, including the shell egg equivalent of dried and liquid egg, is only 14% below.

The consumption of "visible" fats has fallen to 26% below the pre-war level. Butter has dropped by 56%, lard and compound cooking fats by 22%, and other edible oils and fats by 44%. Margarine consumption, on the other hand, is now 70% above pre-war.

Though still 26% less than before the war, the consumption of sugar and syrups has risen above the wartime levels.

Fruit and tomatoes reached their lowest consumption level in 1941 (58% below pre-war), but then recovered to about 35% below in 1944 and 1945. The position improved to 17% below pre-war in 1946-7. Except for the years 1940 and 1941, the consumption of vegetables has been consistently above the pre-war level.

Since the beginning of the war potatoes have been used to make good in part the loss of calories resulting from reduced supplies of other foods. Consumption reached 60% above pre-war in 1944, declined slightly in 1945, but has since increased again to reach a new high level (66-67% above pre-war).

Bread and flour also provided a "buffer" against reduction in other food supplies. Flour consumption reached a peak of 24% above pre-war in 1945, but has now fallen to 12% above.

Tea consumption is now only 4% below pre-war, while that of coffee is well over twice the pre-war level.

Another table "Food supplies per head per annum moving into civilian consumption in the United Kingdom" includes the following:

	As Percentage of Pre-war			
	1940	1943	1946	1946-7 (provisional)
Dairy products (excluding butter) (total as milk solids)	100	131	129	130
Meat (including canned meat, bacon and ham):				
(As carcass weight)	89	80	86	91
(As edible weight)	90	79	82	85
Fish, poultry and game (edible weights)	69	66	105	109
Egg and egg products (fresh egg equivalent)	92	90	87	86
Oils and fats (visible) (fat content)	92	85	77	74
Sugar and syrups (sugar content)	71	65	72	74
Potatoes	98	144	167	166
Pulses and nuts	72	63	70	82
Tomatoes and citrus fruit (fresh equivalent)	69	41	70	84
Other fruit (fresh equivalent)	80	62	77	82
Leafy, green and yellow vegetables	104	119	115	107
Other vegetables	68	90	95	109
Grain products	108	118	112	110
Beverages	106	78	107	110

This shows the same changes in a different form, and easily the most significant decline over the period is that shown by "Oils and Fats (visible)."

The Report of the British Legion Village for the year 1945-6 has recently been issued. The "Village" consists of three institutions—the sanatorium and settlement at Preston Hall, near Maidstone, the convalescent seaside annexe (Douglas House) at Bournemouth, and the sanatorium for women at Nayland, near Colchester. The Medical Director points out that considerable progress has been made in laying the foundations of a long-term policy which "has been based on the principle of viewing the patient's disability in the light of his life history, his achievements, and his future plans and ambitions, realizing that the treatment of the local lesions in the lungs is but an episode in the much longer task of fitting a man to take his place again as a good citizen. . . ." Courses of training assist patients to become proficient in clerical work, nursing, carpentry, printing, transport work, engineering, painting, estate maintenance, and the manufacture of fancy goods. It is hoped that selected patients will be able to work under normal industrial conditions.

## BRITISH ASSOCIATION

### MEDICINE AND SCIENCE

The general theme of the first full post-war meeting of the British Association, held at Dundee from Aug. 7 to Sept. 1, was described in the programme, and in Sir Henry Dale's presidential address, as "Swords into Ploughshares." Some of the points made by Sir Henry Dale were summarized in a recent annotation (Aug. 30, p. 340). This was a title which, as pointed out in advance, could be taken in many ways. As interpreted both in the planning of the programme and in the resulting discussions and addresses, it referred primarily to the absorption of the new knowledge which has resulted, directly or indirectly from wartime research; to the use and development of techniques which had originated from wartime requirements for research and practical applications in peace; and last, but not perhaps of least significance, to the problems of resettlement and realignment of effort which affect the man of science. To this might be added an undercurrent of disagreement—which in a discussion on operational research reached the surface—as to the special contribution, if any, which science and scientists could make under present conditions. On this last point the Council of the British Association has called for suggestions from the scientific sections.

The more important discussions affecting medicine follow the general lines already indicated, and brought out once again the value of meetings attended by representatives of more than one branch of science. Physiologists and psychologists joined in a discussion on "Man and the Machine," to which Prof. W. E. Le Gros Clark made a notable contribution. In part thesis, this must be the first occasion when an anatomist has spoken at the same meeting, and from personal work, both the design of machinery and on the mutual relationships of the evolution of fossil *Hominidae*. The former, like the latter discussion on aviation physiology, introduced by Air Marshal Sir Harold Whittingham, was the direct result of wartime experience, and illustrated also the academic benefit which may result from an enforced introduction to practical requirements. To other joint meetings of medical interest were on antibiotics and tracer elements. In the case of antibiotics it might have been thought that the full and recent attention which has been given to this subject at the International Congress of Pure and Applied Chemistry might have rendered further attention unprofitable. Once again, however, the meeting of many interests proved of value. Dr. E. Chain, who shared the Nobel Prize for work on penicillin, attacked the wider question of the significance of the biological activity of particular chemical groupings, a notably in the case of Gramicidin-S of the combination in particular order and physical shape of a sequence of substances which individually are standard components of biological chemical architecture, but together have a marked and specific activity characteristic of the whole rather than the parts. Similarly, it was no less valuable to be reminded by Dr. J. Ramo that the part played by antibiotics in nature raises its own problems of biological interest.

### The Anatomist and the Machine

In the discussion on man and the machine, Prof. Le Gros Clark stated that during the recent war anatomical problems had assumed an importance in operational research which had not previously been fully recognized. The problems were essentially new, but they were accentuated by the realization that the efficiency of machines depending on human control was limited by the capabilities of the man who operated them. In a sense, the greater the accuracy of the machine, the greater was the need to ensure the accuracy of the human element, in order to make the fullest use of the extreme degree of precision of which the machines were capable the operator must work at his greatest mechanical advantage. Whereas before there had been a tendency to ignore the operator in design, leaving him to fit himself into the completed machine as best he could, anatomical considerations were now projected into design from the beginning.

Investigations could be broadly divided into work on static posture and dynamic posture, the former being exemplified by the design of seats. The seat must be designed with adjustment

ments which would allow it to support individuals of different body dimensions in a good average position. This position should require the minimum of effort for its maintenance and should allow the operator to stabilize himself against extrinsic forces to which he might be subjected in his work. These studies had involved extensive anthropometric surveys, with special reference to the degree of correlation between different body dimensions, and the possibility of combined adjustments to the seat. It had been found at Oxford that methods using films were not only quicker than physical measurements, and equally satisfactory as regards accuracy, but also enabled measurements to be made of kinds which could not otherwise be readily duplicated.

The second branch of research into muscular activity included a study of the natural sequence of muscle action and joint movement in the performance of specific tasks, and particularly in any composite movement. Hitherto, he confessed, anatomists had tended to study the movements of joints in isolation, often on the cadaver, and their results were not readily applicable to practical problems. It seemed now that the composite movement should be studied first, and only secondarily the part played by the individual units in a joint. Again film methods had been found useful, this time in the preliminary analysis of the sequence of movement. As an example, Prof. Le Gros Clark instanced the complex neck and head movements involved in following the path of an aircraft by means of sighting equipment. The problem was to design a system of pivoting which would preserve and not constrain this natural sequence. Certain agricultural implements for specific tasks, he added, were now being redesigned at Oxford on anatomical and physiological grounds. He also expressed the hope that the "shaped" or "ploughman's" seat might be altogether abolished.

#### Aviation Physiology

Air Marshal Sir Harold Whittingham began his survey of applied physiology in relation to aviation by recalling that a period of neglect had followed the end of the first world war, and that research on the problems of aviation medicine did not reawaken in Britain until 1935, when the problems of glare, night vision, colour vision, ocular muscle imbalance, and of the design of goggles and helmets received particular attention at the R.A.F. Central Medical Establishment. It was not until the beginning of 1939, however, that the Air Ministry Flying Personnel Research Committee was set up, under the chairmanship of Sir Edward Mellanby, and research was intensified. Although a certain amount of fundamental research was begun during the following eight months, much subsequent investigation was necessarily of an *ad hoc* nature.

As an example of this type of research, he described the studies of oxygen lack, in relation to parachute jumps from high altitudes, which had been made by E. A. Pask, W. K. Stewart, and S. L. Cowan, to determine the length of time which an average man could live, although unconscious, while descending from 44,000 to 25,000 feet. "Volunteers," he stated, "were suspended in the air by means of the standard harness and made to breathe nitrogen-air mixtures to simulate the atmospheric conditions from 44,000 feet downwards at the rate of descent of an open standard parachute. It was found that a man could remain unconscious for 7½ minutes without additional oxygen." Another problem, which had arisen through contacts with resistance groups in enemy-occupied territory, was that of picking up a human being from the ground by an aircraft in flight. This involved acceleration from rest to about 120 m.p.h. within half a second. Squadron-Leader Stewart had taken part personally both in this research and in later investigations on the safe ejection of pilots from jet-propelled aircraft.

Squadron-Leader W. K. Stewart, himself, apart from aircraft experiments, listed man-carrying centrifuges, swings, pendulums or verticle accelerators, and inclined plane test rigs up to 115 feet in height as among the laboratory devices which had been used. Specific factors found to be of importance included the total energy imparted to the body, the maximum value and duration of acceleration or deceleration, the rate of application, the body area through which the force was applied, the anatomical characteristics of the body in relation to its orientation, and the occurrence of secondary physiological effects. Dr. C. F. Code spoke on behalf of a group of United States

workers who had also undertaken personal experiments, resulting in one case in loss of life.

#### Climate and Efficiency

In a discussion on climate and health Dr. N. H. Mackworth described how sailors had volunteered to work in a hot room at the Psychological Laboratory, Cambridge, to provide practical tests of the effects of heat on working efficiency. The investigation was carried out by the Medical Research Council for the Royal Navy, but, the speaker pointed out, had also civilian applications. The main finding was that even powerful incentives failed to prevent falling off in the amount of work done. Loss of accuracy was also noted in muscular co-ordination and in the writing of morse code messages. The men were also less accurate at look-out duties and in carrying out instructions for mental work. Tests of a similar character, designed for the direct measurement of human performance, were soon to be carried out, Dr. Mackworth stated, at a research unit in the Far East. It was hoped that the results would help to alleviate both civilian and Service life in tropical regions by indicating where air-conditioning was most needed.

#### Operational Research

In the controversial discussion on operational research medicine was represented by Prof. F. A. E. Crew and Prof. W. C. Wilson. After describing the initial arrangements, whereby it had been intended that the Army Council would refer to the Medical Research Council any problem of urgency and importance which fell within the sphere of biological science, Prof. Crew stated that Sir Edward Mellanby had ultimately created his own organization for field investigations. One of the prototypes was that commanded by Prof. (then Lieut.-Col.) Wilson, who spoke next. After describing the work of his own unit in the Middle East—which included such varied investigations as the medical problems of tank units, wound shock, and the frequency of burns from "the deadly desert stove"—he referred to the shortage of trained investigators in the medical sciences. "For the progress of medicine," he stated, "it is important that the supply should be increased. I am not so optimistic as some that the shortage can be easily or quickly remedied. Most gifted research workers naturally turn to the basic sciences and only a minority to clinical subjects; and of these some are lost to research because they soon become fully occupied with clinical practice and teaching." At the present time, he added, readjustments after wartime service and the acquisition of specialist diplomas were increasing the difficulty; but many young and keen medical officers were found during the war, and he had no doubt that ultimately the requirements of experimental medicine or clinical science would be met. "If the latent forces of interest and idealism in the medical profession could be mobilized," he summed up, "they might provide a research weapon of immense power for use in some new fields, such as social medicine. But I am sure that voluntary co-operation must be sought; anything in the nature of compulsion or Government regulation would defeat its own ends."

#### Other Discussions

In a joint discussion on insecticides, held by the sections of chemistry, zoology, and agriculture, Prof. J. M. Munro described the place of insecticides in food protection. One of the special problems raised by fumigation, he stated, was to secure the effective distribution of the fumigant. Apart from failure to kill the insects in certain areas, faulty distribution could also result in an unduly high residue being left in the commodity, which might seriously taint it or cause it to be unfit for consumption. Both Dr. J. L. Simonsen, in his presidential address to the section of chemistry, and Dr. E. Hindle, in his presidential address to the zoologists, had earlier emphasized the large scale of foodstuff destruction during storage, particularly in the Tropics. Dr. Hindle quoted an average loss of 10% of all food production as "conservative" for the Commonwealth as a whole; and Dr. Simonsen estimated the loss in East Africa at 30%.

A discussion on atomic energy by the section of physics brought little new information of importance; but a joint session by the chemists and physiologists on the research uses



of tracer elements was notable for a considered survey by Dr. A. S. McFarlane, of the National Institute for Medical Research, on biochemical applications. This gave the impression, possibly for the first time, that tracer methods could now be considered not as so many individual examples of a new technique but as part of the general progress of biochemistry as a whole.

Finally, the anthropologists gave a reminder that man's primitive past is not either so deeply buried or so exclusively Freudian as some might suppose. After discussing the views on magic and religion expressed by Sir James Frazer, Prof. F. B. Jevons, and Emille Durkheim, Prof. J. Murphy suggested that the attempt made in each of these theories to make a fundamental distinction between primitive magic and primitive religion must be judged to have failed. "There is a 'generalized' type of primitive thought," he stated, "from which religion, magic, and, it may be added, science have been differentiated." In the same section Prof. E. O. James made the point, which is perhaps not without significance in civilized as in primitive society, that "ritual is more stable than myth and subject to constant reinterpretation and revaluation as occasion requires and thought demands."

## INTERNATIONAL CONFERENCE OF PHYSICIANS

### FIRST POST-WAR ASSEMBLY IN LONDON

The International Conference of Physicians was held in London from Sept. 8 to 13 under the presidency of Lord Moran. The large and representative gathering included visitors from the United States, from Australia and other Dominions and Colonies, and from twelve European countries. The British Council invited 25 overseas speakers, and of the 120 papers on the programme fully one-third were contributed from abroad. After an informal reception at the Royal College of Physicians the Conference split up into the following eight sections under their respective presidents: general medicine—Lord Moran; cardiology—Sir Maurice Cassidy; disorders of chest—Sir Robert A. Young; dermatology—Sir Archibald Gray; neurology—Dr. Gordon M. Holmes; paediatrics—Sir Leonard Parsons; psychiatry—Dr. Bernard Hart; and social medicine—Sir Wilson Jameson.

The subjects of the general discussions included infective hepatitis; pain; vitamin D in the treatment of cutaneous tuberculosis; malnutrition and the nervous system; surgery of congenital heart disease; pulmonary heart failure; the role of the pyramidal system in movement; B.C.G. vaccination; sarcoidosis; scabies and tuberculosis; social medicine in the curriculum; and the care of the aged and infirm. The Sections of Dermatology and of Paediatrics held clinical meetings. Social events included a dinner at Guildhall, a Government lunch over which the Minister of Health presided, and various visits and private entertainments. The Conference concluded with visits to Oxford and Cambridge.

### Penicillin

At the opening session, held at the Royal Institution, Sir Alexander Fleming discussed some aspects of penicillin. Defining an antibiotic as a substance produced by the living body in its normal growth which had the special property of exercising a destructive or inhibitory effect on micro-organisms, he said that penicillin was the first of the antibiotics to achieve any remarkable success, and it had set a standard which had not been reached yet by any other substance. He described his early work and showed a photograph of his first culture plate (the culture plate itself is in the Science Museum), and went on to speak of the bacteriostatic action, diffusibility, and non-toxicity of penicillin. Purification and concentration of penicillin had now been achieved, and as compared with the early samples it had been improved out of all knowledge. He paid a tribute to the Government departments, industrialists, and scientists who had worked together to such effect that when D-day came there was enough penicillin for every wounded

man. He looked forward to means being found to prevent the rapid excretion of penicillin, which would be far better than merely to delay absorption.

Dr. E. Chain followed with an account of some biochemical aspects of penicillin, and mentioned in particular the efforts made to achieve a complete synthesis. It was interesting to reflect how so small a molecule had defeated the combined efforts of British and American chemists.

Dr. R. V. Christie spoke of penicillin in subacute infective endocarditis—a condition which illustrated perhaps better than any other to what extent penicillin had altered the outlook not only on treatment but on the clinical course of disease. His remarks were based on the treatment of 269 patients in 14 centres appointed by the Medical Research Council. The period of follow-up had been at least one year, and much longer in many cases. When this investigation was first planned only one case of recovery with the use of penicillin alone had been recorded. Experiment showed that the duration of treatment was of greater importance than the total amount given; this was tested by giving 5,000,000 units of penicillin in courses of five, ten, and twenty days, and noting the relapse rate. If a patient had a relapse after one course of treatment he was very much less likely to respond to a second course. This might mean, of course, that the organisms had acquired some resistance during the earlier administrations, or it might mean that the patient belonged to a selected group of naturally resistant individuals. Whatever the explanation, the patient who relapsed should receive very much larger doses over a longer period. It was now their custom to give at least 2,000,000 units a day over a period of eight weeks. No matter how sensitive the organism might prove to be, it was no excuse for reducing the dose. Foci of infection, particularly in the teeth, should be removed, and with such precautions infection could be controlled in about 95% of patients, but 30 to 40% of these would die later from various complications, most frequently from heart failure. The cause of death was heart failure alone in 40%, heart failure with some superadded cause in 16%, uraemia in 6%, emboli in 11%, haemorrhage in 8%, and mixed or uncertain causes in 19%. These complications were clearly a greater hazard than risk of failure to respond to penicillin, and it was clinically important as well as of academic interest to be able to estimate this hazard at the start of treatment.

### Streptomycin and Other Antibiotics

This subject was introduced by Dr. P. D'Arcy Hart. Some of these antibiotics, he said, had a very limited function and could be considered as no more than potentially useful. Streptomycin, however, was the most important next to penicillin, and could be used systemically. Some reactions thought to be due to streptomycin had turned out to be due to the disease itself, for example, mental changes in tuberculous meningitis; but there were cases in which the substance had a histamine-like or allergic action, due, possibly, to impurities, the action varying even with preparations of the same potency. These reactions were rashes, headache, joint pains, and other symptoms. In addition there was something inherent in the substance, causing in some cases vestibular disturbances and partial deafness. This tended to occur more frequently with heavier doses from two to three weeks after beginning treatment, and so was more likely in tuberculosis than in non-tuberculous conditions. Toxic symptoms such as giddiness, though they had appeared quite frequently in the present M.R.C. trials, did not call for complete cessation of treatment in any case.

The new antibiotics were affected adversely by an acid pH. With penicillin it was the reverse, an acid pH enhanced activity. In an acid environment such as pus, streptomycin, unlike penicillin, might be expected to have a less efficient action than in a neutral pH, and this might partly explain the unsatisfactory results following treatment with streptomycin in cases of tuberculous empyema. The active or progressive tuberculous focus without caseation was susceptible to the action of streptomycin, the pH being probably nearer neutrality. Another difficulty with streptomycin was acquired drug resistance; due perhaps to the presence before treatment started of a proportion of resistant bacteria in an otherwise sensitive bacterial

population. He described an experiment on mice in which sulphetrone had been combined with streptomycin; the successful result was not due to cumulative but to synergic action.

Finally, Dr. I. A. B. Cathie described the application of streptomycin in tuberculous meningitis and military tuberculosis at the Hospital for Sick Children. The relapse rate was so high that a longer follow-up than had yet been possible was required, and therefore, he said, his remarks were in no sense a report on these cases. Twenty cases had been treated, all under the age of 7. Administration had been intramuscular and intrathecal, both attended by a certain amount of pain. He and his colleagues were leaning more to intramuscular administration alone, and reactions were fewer with the newer batches of streptomycin. The blood sedimentation rate nearly always fell in the initial stages of treatment with streptomycin, and rose again as the case failed to respond and death approached, in contrast to the usual course of events. No renal changes were observed and no alteration in the blood count. He believed that streptomycin provided something in the treatment of tuberculosis which had not existed before. If not a life-saver it was a life-prolonger. In meningitis the results had been disappointing; in military cases they had been encouraging, and so far there had been no deaths and the clinical and radiological improvement had been striking. How long administration should be continued was still not known, nor was it yet determined what was the best route and whether administration should be continuous or intermittent.

A report on the later sessions of the conference will appear next week.

## Reports of Societies

### SOCIETY OF MEDICAL OFFICERS OF HEALTH

The County Borough Group of the Society of Medical Officers of Health held its Annual Meeting from July 18 to 21 at York, under the presidency of Dr. W. S. WALTON, G.M. Dr. A. B. WILLIAMSON (Portsmouth) was elected president of the Group for the coming year, and Dr. J. GREENWOOD WILSON (Cardiff) was re-elected secretary. To mark the centenary of the appointment of the first medical officer of health, the customary inaugural dinner on the first evening was made more formal than usual with a "top table" which included His Grace the Archbishop of York, Sir Wilson Jameson, Sir Allen Daley, Dr. W. W. A. Kelly, chairman of the York Health Committee, and Dr. Peter Macdonald.

#### Social Medicine

Among the addresses given at the Conference was one by Prof. J. C. SPENCE on "The Conduct of Investigations in the Field of Medicine and Social Medicine." He emphasized the importance of these investigations and suggested that when the new National Health Service was fully in operation the medical officer of health should have more time and opportunity to carry them out. Having outlined the essential qualities that seemed to be common to all successful research workers, Prof. Spence urged that the medical officer of health should be inspired by the conception that he was the real community doctor and should be medical adviser in any field whatsoever—hospitals, education, housing, and even roads. The question must always be asked, Is this for the welfare of the citizen? The medical officer was responsible for finding the answer. To provide that answer he should be prepared to organize, even if he did not carry them out himself, the necessary and relevant social surveys or sociological research.

Dr. CYRIL BANKS (Nottingham) opened a full and long discussion on the operation of the National Health Service Act, 1946. This session was wound up by replies from Sir WILSON JAMESON and his deputy, Dr. J. A. CHARLES. Dr. ANDREW TOPPING (late deputy director-general, U.N.R.R.A.) gave an account of the work of that organization and Dr. ARTHUR MASSEY explained his ideas as to the work of the new medical service which he is organizing for the Ministry of National Insurance.

## Correspondence

### Medicine in the United States

SIR,—I trust this belated correspondence will be excused, but I have but recently read the remarks of Drs. Connolly (July 19, p. 108), Tanner (Aug. 2, p. 189), Sutton (June 28, p. 948), and Simpson (June 28, p. 949) in your *Journal* and must say that I find their comments on medical education, particularly in America, of the greatest interest. It was my very good fortune to study in Boston, and the clinical-pathological conference, colloquially reduced to C.P.C. in student parlance, was a feature of the clinical—i.e., the third and fourth years—of our medical curriculum. In fact it was with some amazement that I learned that it was not commonly held in all American teaching centres, although you must not take me for an authority on this. However, the gentlemen who wrote did not precisely describe this significant feature of medical education in this country, and, having witnessed many in Boston, where, I believe, the practice was originated by Dr. Richard C. Cabot at the Massachusetts General Hospital, I take the liberty of describing those in which I participated.

As you know, there are several medical schools in Boston, and Harvard and my own school, that at Boston University, habitually alternated in selecting from their remotest and best-hidden records some case which had been carefully studied on the wards and which subsequently came to necropsy. A suitable abstract of this case would be mimeographed and made available at either medical school and at other depots in Boston, particularly through the Massachusetts Memorial Hospitals, the Massachusetts General Hospital, and the Boston City Hospital. This would take place about a week in advance of the appointed date, and at that point perhaps 300 and even 500 students, interns, residents, visitors, faculty members, etc., would gather in either of the large auditoriums at the Boston City Hospital which are fitted for projection of slides, etc.

Students are required to make primary and secondary diagnoses in writing and to hand them in to a junior faculty member. The exercises open with the introduction of the man, usually a distinguished member of the *other* faculty, though this is not always true, and he, using only the facts allowed the students, with perhaps an occasional question legitimized by a misprint in the copy or which is outside his particular field, proceeds to analyse the case and to make a diagnosis.

Then the students' diagnoses, which have been tabulated, are read as so many for this disease, so many for that, and there is frequently much laughter as some particularly exotic malady is mentioned or a medical malapropism employed. There is then a question period and the pathologist, who always is right, since he *saw*, reads the necropsy protocol and shows pictures, frequently in colour, of the actual case itself.

Let this sound dull, be assured that it is not. It would burden your patience, gentlemen, to go into detail, but brilliant diagnoses have been hazarded by distinguished gentlemen who would have been much embarrassed if their opinions were not substantiated, so far out on a limb had they hung their verdicts. There have even been occasions for applause when only the central figure or perhaps a student was the only one among many to be found correct. (Those who have access to the *New England Journal of Medicine* may read the Cabot C.P.C. each week.)

May I add that I feel it most important for American and English medical personnel to be in the most intimate contact with each other? I should have written directly to Messrs. Connolly and Sutton, but their addresses, of which one example was Ely, Cambs, completely defeated me. Your courtesy has been much appreciated and your *Journal* is much valued.—I am, etc.,

New York.

HAROLD RAOUL WAINERDI.

#### Poliomyelitis

SIR,—Dr. Muriel B. O'Doherty raises (Aug. 30, p. 325) an interesting point in her letter in connexion with the transmission of the poliomyelitis virus through soft fruit. A few years ago strawberries were incriminated at Braintree, as far as I can remember, but I have no literature to hand. The present epidemic coincides with the appearance in shops and on easter barrows of a welter of pears, peaches, plums, pineapples, dates, and cherries, many of them overblown. This fruit has been

welcomed by those able to afford it, but with present living conditions I do not think much of it has been peeled or washed before consumption.

Many of these fruits were picked and packed in countries where the British population would not dream of eating them without previous washing in a weak solution of some oxidizing agent. It is known that the virus of poliomyelitis is easily destroyed by oxidizing agents (Jos. Stokes, jun., in *Textbook of Pediatrics* (edit. W. E. Nelson), Philadelphia, 1946, p. 479). I feel that a more vigorous campaign among the public, including those serving meals and uncooked food, for more care in handling and in washing up all utensils is called for urgently. —I am, etc.,

Winchester.

MYRTLE M. HUTCHINS.

SIR,—In an article on acute poliomyelitis by Dr. W. H. Kelleher (Aug. 23, p. 291) the opinion of American observers is quoted that "perhaps 98% of poliomyelitis is a mild, widespread, highly communicable disease, mainly of young children, leaving no residual paralysis . . ." This opinion is valid for the present outbreak of the disease in this country, and the presence of the specific virus is not the only factor necessary for producing the disease in a clinically recognizable form.

It is very important to discover what it is that has been added to the virus in 2% of people to produce serious disease of the nervous system. To solve this problem a study of clinical and environmental factors must be made of the patients and their known contacts, using the knowledge of the virus as an indicator of the people at risk.

Recent outbreaks of smallpox, enteric fever, and of other acute diseases, as well as chronic infections such as tuberculosis and chronic pyogenic disease, show how large is the unknown factor in the equation: specific organism plus  $x$  equals disease. A revival of epidemiology is needed, with knowledge of bacteria and viruses as an aid instead of the insufficient substitute which it has been for many years. Clinicians must take a bold part in this revival.—I am, etc.,

London, W.1.

J. M. ALSTON.

### Leprosy and its Problems

SIR,—Dr. B. Moiser's "new theory" of the spread of leprosy (Aug. 30, p. 347) is based on a number of assumptions for which he adduces no supporting evidence. That cockroaches evacuate large numbers of acid-fast bacilli after feeding on leprosy material was shown years ago by MacFie. This work was confirmed and amplified by Lamborn, in Nyasaland, in the course of observations extending over several years. It is interesting to know that Moiser has repeated some of these earlier observations—to which, however, he makes no reference.

Lamborn's observations led him to believe that the bacilli multiplied in the cockroach and that human infection may result from contamination of food by the faeces of the cockroach. Postulating a "characteristic" lesion following cockroach bites—which he has never witnessed—Dr. Moiser advances a theory that the bacillus is inoculated in the act of biting. I submit that much more substantial evidence is required of Dr. Moiser before his new theory merits serious consideration.—I am, etc.,

Bournemouth.

J. B. DAVEY.

SIR,—Your issue of July 12 has just reached me, and under the heading "Leprosy and its Problems" (p. 73) Dr. E. Muir has a letter. In it he takes to task the writer of the leading article on the same subject in the issue of June 7 for "two rather serious mistakes."

Dr. Muir considers the first of these serious mistakes the opinion of the writer that "nodular leprosy may possibly prove intractable." I have lately received a letter from a friend holding an important position in the Department of Leprosy in Sao Paulo, Brazil, from which I should like to submit an excerpt on the subject. Dr. Muir will agree with me that the visitors to the Pan-American Conference on Leprosy, held at Rio de Janeiro in October last year, were astonished and very favourably impressed with the standard of work carried out in that country, and particularly in the State of Sao Paulo. They have been using the sulphones since early in the history of this treatment, and the letter reads:

"About promin, according to the experiments done here (not by myself), my impression is the following: (1) Good results in the lesions located in the mucosa, especially in the larynx, in cases which formerly would have required tracheotomy. (2) Good results in skin lesions of some patients. I have the impression that promin has to be used chiefly in uncharacteristic or simple inflammatory cases (neuromacular of the Cairo Classification), with negative Icmpromin test, to avoid their evolution to the lepromatous type. If we can stop this evolution we shall have already done a great thing to the patient and to the prophylaxis."

Speaking from my own experience with "promin" and "diasone" since January, 1945, I heartily endorse the statement that nodular leprosy may possibly prove intractable. We have made some progress by the use of the sulphones. In my opinion, any judgment of their value is still in the impressionable stage. One has only to look at the swing in opinion of the value of the chaulmoogra derivatives which has been taking place for some years among a considerable number of leprologists to appreciate how difficult it is to arrive at an accurate and permanent judgment on the value of any treatment in leprosy. I am convinced that we are still looking for a real cure for the disease.—I am, etc.,

Trinidad.

GEORGE CAMPBELL.

### "Mushroom" Poisoning

SIR,—Since "mushroom" poisoning happens chiefly to the collector of mushrooms, the rule should not be, "Do not eat a fungus which is not obviously a mushroom," but should be "Buy your mushrooms, and collect only edible fungi which have no resemblance to any of the poisonous ones." Such fungi are (1) the puff-ball (small and giant), (2) the amethyst agar and blue leg blewit (*Tricholoma nudum* and *T. personatum*), (3) the morel, (4) the girolle (*Cantharellus cibarius*), (5) the oyster mushroom, (6) the shaggy cap (*Coprinus comatus*), (7) the beef-steak fungus, (8) *Sparassis crispa*, (9) the horn of plenty (10) the cep—if the amateur avoids the highly coloured ones I have left out the parasol mushrooms because the amanita bear some resemblance to them.

The amateur who will collect mushrooms should be careful to avoid the yellow staining mushroom (*Psalliotia xanthoderm*)—very like a small horse mushroom except for yellow stains on it, more apparent when bruised. In some people it can produce unpleasant though not dangerous symptoms, as I know from personal deliberate experiments with it. The mycophagist apt to become an enthusiast in experiment, and having learnt the known poisonous fungi can indulge his appetite with reasonable safety if he eats at first very sparingly of the unknown.—I am, etc.,

Havant, Hants.

C. THACKRAY PARSONS.

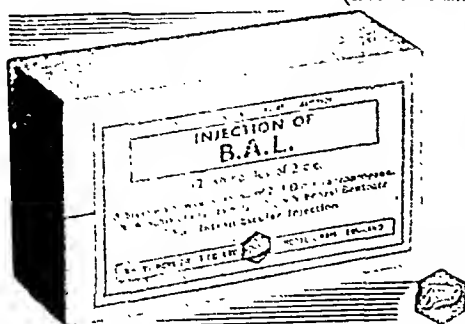
### Milk Certificates

SIR,—Now that school is about to start once more there is little doubt that a fair amount of milk certificates will be required for "sick children not attending school." Such certificates have to be renewed every week according to present regulations, which does not only burden the doctor unnecessarily but even more the mother of the sick child. In most cases of sick school-children the medical attendant is able to foresee a minimum period for which the child will have to be kept away from school—take the so frequent cases of measles, whooping-cough, or scarlet fever. The mother being usually the only person at home to look after the sick child (and perhaps a few more) it is certainly not only unnecessary but inadvisable that the mother should be obliged to go each week to the local office, leaving the sick child unattended in the house. I have known many cases where the mother has done without the milk rather than take that risk, particularly in winter with a fire burning in the house.

If doctors are credited with the ability and responsibility to issue milk certificates at all, surely they must be credited with stating the period for which the issue of milk will be necessary. In the case of sick children I consider that particular importance for the reasons stated, and I think it would be reasonable if the doctor could fill in the number of weeks for which extra milk would be required, say, up to 5 weeks at the time. In cases where no time is specified by the doctor the validity should be for one week as it is at present.

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For class IIa a similar case could be made out, as very frequently the patient is left alone in the house while the other members of the household are going to work. A kind neighbour may bring some food and look in once or twice during the day, but nobody being able to spare the time to go to and queue at the food office each week (missing work means another medical certificate), the patient goes without his or her milk, which could be of particular importance under those circumstances.

The various certifications having been under renewed discussion lately in the *B.M.J.*, I felt that the time was opportune to raise this matter in your columns, and I am sure you will earn the gratitude of many people if you will see that representations are made to the Ministry of Food in this matter—I am, etc.,

Gillingham, Kent

K. F. POTLACZEK

### Pure Anti-E Agglutinin in the Serum of an Rh-negative Woman

SIR.—In connexion with Dr. D. S. Dick's report on pure anti-E agglutinin in the serum of an Rh-negative woman (July 9, p. 95) the following case, taken from the records of the Sheffield Blood Transfusion Centre, may be of interest.

Mrs. C. Multipara. Group A, Rh-negative. Genotype cde/cde, June 11, 1946). Serum agglutinates R<sub>1</sub>R<sub>2</sub> and R<sub>2</sub>R<sub>2</sub> cells; weak agglutination 1:512. No agglutination with R<sub>1</sub>R<sub>1</sub>, R<sub>1</sub>r or R<sub>2</sub>R<sub>2</sub> cells (Dec. 20, 1946). Children normal except Baby C. born on June 4, 1946 (haemolytic disease of the newborn). No history of blood transfusion or intramuscular injection of blood.

Baby C. Group A, Rh-positive: baby's cells are agglutinated by mother's serum.

Mr. C. Group A, Rh-positive: his cells are agglutinated by anti-C, anti-D, anti-E, and anti-c as well as by his wife's serum.

Mrs. C.'s serum contained pure anti-E agglutinin. The original investigations were carried out by Dr. E. F. Aubert and Mr. I. Dunsford. Their findings were confirmed by Dr. A. E. Mourant, of the Lister Institute.—I am, etc.,

Sheffield.

R. H. MALONE

### New Treatment of Rheumatoid Arthritis

SIR.—With reference to the article by Dr. Imre Barsi headed "A New Treatment of Rheumatoid Arthritis" (Aug. 16, p. 252), I feel that there are a few points that need further elucidation.

First, there is no attempt to explain why a case of rheumatoid arthritis transfused with 300 ml. of blood from a pregnant woman should have lasting relief, while a pregnant woman with rheumatoid arthritis invariably suffers an exacerbation after parturition. Secondly, it is a pity that the follow-up of only six cases is given—what happened to the remaining 22 cases? Thirdly, there is no mention of any blood grouping having been carried out. Furthermore, three of the six cases reported had febrile reactions; in the other three reported here is no mention of the temperature of the patient just after the transfusion.

If the cases that derived benefit from this "new" treatment were the cases that suffered a febrile reaction to the transfusion, then I suggest that the improvement was due to protein shock, which has been an accepted form of treatment for many years.—I am, etc.,

Romford, Essex.

M. D. WARREN.

### Causalgia of the Face

SIR.—In reply to Mr. Patrick FitzGerald's letter (July 26, p. 150) I wish to thank him for referring me to Dr. F. D. Threadgill's paper (*Surgery*, 1947, 21, 569). While appreciating its value I do not think that the results are conclusive with regard to possible afferents entering the cord via the sympathetic chain. On p. 572 he states: "The possibility that ensation had entered the cord via the anterior roots was recognized and a second preparation was made in order to prove that his had not happened." Later he states: "The result demonstrated that vascular reflex activity may be completed entirely outside the cord." It is not proven that the painful impulses noted prior to section of the anterior roots did not enter the cord by this route.

Mr. J. A. W. Bingham (Aug. 9, p. 228) refers to impulse transmission in nerve fibres following section. That they remain capable of conduction is, as an isolated phenomenon,

common knowledge, but the question of adequacy of stimulation must also be considered. My use of the term "temporary paralysis in their peripheral course and distribution" was perhaps rather loose, but the word "paralysis" is accepted to denote that absence of normal sympathetic activity or tone which follows decentralization of the system, whether this is the result of section or blocking impulse formation or spread by "novocain" or nicotine.

I contend that blocking the sympathetic chain below the superior cervical ganglion as in Mr. Bingham's cases so alters the state in the periphery that stimulation as applied may have been inadequate. Two personal attempts to stimulate the peripheral end of the sectioned chain with a faradic current produced a diffuse pain response that could not be fully correlated with the causalgic syndrome present.—I am, etc.,

Salc, Cheshire

C. H. CULLEN.

### Acute Porphyrria

SIR.—I have read with great interest the paper by Sir Adolphe Abrahams *et al.* (Aug. 30, p. 327). Acute idiopathic porphyria is not an uncommon disease, I myself having seen ten cases. Besides the finding of the typical urine, clinically the possibility of this disease must be considered in any case of obscure abdominal pain associated with constipation, dysuria, vomiting, and all the signs of spastic ileus, especially if accompanied by hyperaesthesia of the lower limbs before the onset of more marked neurological signs.

Between 1931 and 1933 I examined 141 cases of different diseases. In 65 cases of these (27 men, 38 women) excessive amounts of uroporphyrin or coproporphyrin were found. This group included meningitis, encephalitis, meningo-encephalitis, generalized herpes zoster, disseminated sclerosis, lead poisoning, pernicious anaemia, aplastic anaemia. The group with negative results included tuberculosis, endocarditis, pneumonia, cholecystitis, myeloid leukaemia, tabes dorsalis, diabetes mellitus, cured lead poisoning, thyrotoxicosis, etc. I confirmed these results in further investigations carried out at Westminster Hospital between 1935 and 1939. The number of positive cases during this period was 40.

Here I would like to stress the presence of excessive porphyrin in the urine in certain neurological diseases—e.g., subacute combined degeneration of the cord. In this disease the porphyria disappears when the blood count returns to normal. This was observed in 11 cases; in 8 of these uroporphyrin, and in the remaining 3 coproporphyrin, were demonstrated. In the acute stage of disseminated sclerosis uroporphyrin was found in 2 cases, whereas in the chronic form I was never able to find porphyria. Another group includes acute poliomyelitis, acute encephalitis (7 cases), non-specific meningitis (3 cases), and ascending poliomyelitis associated with the name of Landry. In all these cases excessive excretion of uroporphyrin was found in the early acute stage. Some of the cases of acute encephalitis started as acute idiopathic porphyria and led to Parkinsonism. It would appear therefore that the porphyrin must be neurotoxic and is to be connected with the pathology of the C.N.S.

Lastly, I would like to draw attention to the excessive coproporphyrin or uroporphyrin in the faeces. This can be observed in the acute idiopathic porphyrias. This increase in the faeces can also be found in cases of haemorrhage occurring anywhere between the teeth and the anus. This is of diagnostic value in haemorrhages from the oesophagus and the cardiac end of the stomach, when tests for haemoglobin or haematin, etc., fail. Then there is deuteroporphyrin. The presence of this porphyrin is always proof of a gastro-intestinal haemorrhage provided the patient is on a blood-free diet.—I am, etc.,

London, W.1.

LEO RAU.

### Mind and Matter

SIR.—I have just finished reading Sir Charles Sherrington's foreword to the 1947 edition of his book *The Integrative Action of the Nervous System*, and was provoked by the last few paragraphs to speculate along the following lines.

If we share McDougall's view (1936) "that where there is life there is mind; and that, if there has been continuity of evolution of the organic from the inorganic, there must have been something of mind, some trace of mental nature and activity, in the inorganic from which such emergence took place"; and if, furthermore, we agree with Stapledon (1939) that "it is not wholly inconceivable that every physical unit (say, every electron and proton) is the body of a very simple mind," then it seems reasonable to speculate that the universe is composed of

countless millions of "psycho-physical units" (that is, electrons, protons, neutrons, etc.), which are discrete forms of "psycho-physical energy." These "psycho-physical units" are found grouped together and combined in various ways. In certain circumstances they are said to be "organized"—that is, when they make up the bodies of living organisms. Under such circumstances the psychical features of these "psycho-physical units" are summated and reinforced, and this results in a greater or lesser degree of consciousness, which varies with the degree of complexity and nature of the organization. Thus, in the case of plants, although the degree of complexity of organization is often very great, its nature is such that there is little or no evidence of consciousness or other mental phenomena. On the other hand, in the case of animal life the nature of its organization is such that there is some evidence of mind in even the simplest forms. As the scale of animal life is ascended there is increasing evidence of consciousness and other mental phenomena, culminating in the self-consciousness of man. A consideration of the fundamental biochemical and biophysical differences between plant life and animal life may in time contribute towards the elucidation of the organizational basis of consciousness. In the realm of the non-living the constituent "psycho-physical units" are not organized (that is, in the biological sense of the term), and, correlated with this fact (or so it seems), their psychical features cancel out (or are merely not summated).

Can these mere speculations be developed into a coherent and consistent theory based on the results of experiment? It is possible that they can. In time it will no doubt be possible to "prepare" simple living organisms from previously synthesized organic compounds, and, once this has been achieved, the next step will be to devise means whereby these organisms can be evolved in the laboratory under controlled conditions. In due course it should be possible to evolve, experimentally, relatively complex living organisms, which will show some evidence of mind, from the very simple "synthetic" ones. If this should ever be achieved, the stage will then be set for the development of some such theory as the one outlined in the preceding paragraph, with a possible solution of the mind-body problem.—I am, etc.,

Liverpool.

E. R. BANNER.

#### REFERENCES

- McDougall, W. (1936). *An Introduction to Social Psychology*, p. 462.  
 Stapledon, O. (1939). *Philosophy and Living*, 1, 69.

### Population Problems

SIR,—As a youth I saw my bit of English countryside infiltrated and destroyed by a new growth called "development." There were regrets, of course, but many up-to-date people accepted the change as evidence of the march of progress. After the first world war there was talk of a brave new world for heroes; but when a voice or two was raised to point out that such an achievement could hardly be possible in a country so grossly overcrowded as our own, the community took umbrage and the voices were silenced.

That was in the nineteen-twenties. In 1947, though Lebensraum has certainly not increased, the campaign for more babies has been intensified, with the emphasis as usual exclusively on numbers. And, what is more ominous, this selfsame cry for more and yet more human material has spread throughout the industrialized world, still with the emphasis on quantity. As to quality we do not, apparently, give a tinker's cuss. What are the reasons for this insatiable demand for expansion? I would tabulate them as follows:

1. International competition: (a) Cannon and bomb fodder; (b) "Hands" to work the industrial machine.
2. Ideologies: (a) Totalitarian—slave labour provides cheap power for the use of the governors; (b) Democratic—universal franchise calls the tune.
3. The known disadvantages of an ageing community.
4. A tenet of the Roman Catholic Church.

I do not propose to dilate upon items 1, 2, and 4. I would only here suggest that the atomic age may have altered our calculations on item 1. No. 3 needs, perhaps, a little amplification.

The phase of population decline following a peak has its well-known drawbacks. An increasing proportion of aged people must

be supported by a diminishing proportion of youth. There is to be a diminishing demand for all those things that make the wh of industry spin—manufactured goods, amusements, cosmetics, etc. But, whether we like it or not, the peak, with its subsequent slump, must come sooner or later. Moreover, the longer we postpone the evil day the greater must be the dislocation during process of shift to a new balance. Therefore, why not get it off as soon as possible? It would, I fancy, be relatively easy to persuade people of the necessity for some sort of check on population both quantity and quality. The real difficulty does not begin when we ask the question, How?

Nature's rough and ready checks on overcrowding, let me remember, are starvation and disease. They are crude, but they have worked, and now man has the power to control and perhaps soon to abolish both—disease by swatting the germs; and starvation, short, of course, of a world starvation, by means of mechanical transport. Is it then conceivable that, having taken on so much responsibility, we shall be permitted by nature to sit back, as were, and leave this prime problem of quantity and quality to even to blind chance, but to a certainty of disaster? For we have to admit with shame that our present type of reproduction steadily dysgenic.

I am not naive enough to believe that the National Health Service of to-morrow will do anything to stop this adverse trend. It might (though that is another story) improve the existing health of existing individuals. But so long as the State Service continues along present lines it cannot improve our stock. On the contrary the principle of free medicine and free food uncorrelated with eugenics does exactly the reverse. Improvement of stock can or come in one of three ways: (A) Free breeding, and no social service—i.e., the time-honoured methods of nature, wherein the fittest are weeded out; (B) deliberate selection from qualities desired a rejection of those qualities not desired—this is what the farm does, and it also works; (C) no active controls upon selection, but legislation to discourage the reproduction of definite defectives.

Now, one has only to set out this problem to realize the various complexities and difficulties which obstruct its solution. But unless we grasp the nettle we shall inevitably be forced back to a state of nature, as under item A, and the change will be cataclysmic. For B, it is worth remembering that Nazi Germany did make genuine effort to tackle their population from the quality angle. I know they went about it in the wrong way, and the experiment ended in failure. None the less, it did contain a germ of truth which surely will not die.

The most, I suppose, that we can hope for is some sort of recognition for the merits of C. But to achieve even this in a democratic country will need an immense amount of preliminary education to win over a large enough body of opinion, and to make people see that the idea has nothing to do with "class." If a little less time was wasted by the radio on puzzles and games, and a little more time given to straight undramatized education on the foundations of life, some real advance might be made. And surely the medical profession ought to lend a hand, especially the G.P.s. People are still willing to listen to doctors, and that, by the way, is a great compliment to our calling.

We want the good life for all men of good will. We shall never get it, though, simply by increasing the staff of the Civil Service, and we certainly can never provide it for 40 million souls on this small island, whatever we do, not even if we make them all into millionaires. I doubt very much if more than ten millions could live and work and play in this small space without polluting the ground they trod on and destroying the peculiar delicacies with which England abounds. How little is left of the spirit and grace of an English country house after it has passed into public ownership!—I am, etc.,

Buxted, Sussex.

W. R. E. HARRISON.

### Ourselves and the Russians

SIR,—May I be permitted to express my admiration of the masterful manner in which you have refuted (Aug. 30, p. 339) the virulent, and withal somewhat peevish, attack upon the *British Medical Journal* in the Soviet medical periodical the *Meditsinsky Rabotnik*, by O. Radbil. The general tone of his article is the more regrettable since no authoritative journal has given such unstinted praise to, and recognition of, the admittedly magnificent work of Russian medical scientists as has the *B.M.J.* Most important is the fact you make abundantly clear to your readers that the chief cause of Mr. Radbil's vexation of spirit lies with the Russians, who themselves are obviously responsible for the great difficulty which is being experienced in obtaining their medical periodicals.—I am, etc.,

Petersfield.

CHARLES M. BEADNELL,  
 Surgeon Rear-Admiral (ret.).

# Obituary

L. CARNAC RIVETT, M.CHIR., F.R.C.S., F.R.C.O.G.

Mr. L. Carnac Rivett, the well-known obstetrician and gynaecologist, died in hospital in London on Sept. 5 at the age of 59. Only a few months ago he was elected an honorary fellow of the American Gynaecological Society.

Lou's Carnac Rivett was born at Stockport, Lancs. on May 21, 1888. Educated privately and at Trinity College, Cambridge, he graduated B.A. in 1909. He took his medical training at the Middlesex Hospital medical school and qualified M.R.C.S., L.R.C.P. in 1912. He was successively house surgeon, casualty surgical officer, and obstetric house-surgeon at the Middlesex Hospital before obtaining the F.R.C.S. in 1915. In the following year he was successful in the examination for the mastership of surgery of the University of Cambridge, one of the most coveted of all surgical qualifications. There followed his appointment as obstetric and gynaecological registrar to the Middlesex Hospital, which was cut short by a period of service as a captain in the medical branch of the R.A.F. Towards the end of the 1914-18 war he was in charge of the surgical side of the Anglo-French Hospital at Le Tréport. Returning from active service, Mr. Carnac Rivett devoted himself to obstetrics and gynaecology. He was appointed to the honorary staff of Queen Charlotte's Hospital, and to that of the Chelsea Hospital for Women. He was on the staff of King George's Hospital, Ilford, Hounslow Hospital, the Royal Masonic Hospital, and the Queen Victoria Memorial Hospital, Welwyn. It was not until 1930, however, that he could be elected to the honorary staff of the Middlesex.

Mr. Carnae Rivett soon became well known as a dexterous and capable surgeon, an able teacher, and a lucid writer. He was examiner in obstetrics and gynaecology for the University of Cambridge, the University of Bristol, and for the Conjoint Board. He contributed to a number of medical textbooks, particularly *The Queen Charlotte's Practice of Obstetrics* the first edition of which appeared in 1927, and he wrote many papers which appeared in this and in other journals. He was a foundation member of the Royal College of Obstetricians and Gynaecologists at its formation in 1929 and he served on its Council until he was raised to the Fellowship in 1936. He had been a member of the Chelsea Clinical Society and of the Hunterian Society for many years, and several of his contributions to the literature were read in the first instance to the Royal Society of Medicine. He had been a member of the British Medical Association for 27 years, and was honorary secretary of the Section of Obstetrics and Gynaecology in 1926. His death followed a long illness which he faced with dignity and courage. He will be greatly missed by his many friends and colleagues.

JOHN MARSHALL COWAN, M.D., D.Sc., LL.D.

We announce with regret the death of Dr. John Cowan at Kilmacolm on Aug. 15. The son of the late Dr. J. B. Cowan, regius professor of materia medica, and grandson of the late Robert Cowan, professor of medical jurisprudence in Glasgow University, his forebears were eminent doctors in Glasgow for 300 years. He was educated at Fettes, King's College, Cambridge, and Glasgow University. After graduating B.A. at Cambridge in 1891 and qualifying M.B., B.Ch. in 1895, he held resident appointments in the Western Infirmary, the Royal Hospital for Sick Children, and the City of Glasgow Fever Hospitals. In 1900 he saw active service in the South African War as a physician to the Scottish National Red Cross Hospital. He proceeded M.D. in 1902. On his return to Glasgow he settled in consulting practice and was appointed to the junior staff of the Western Infirmary and the Royal Hospital for Sick Children. At the same time he became attached to the University pathological department under Sir Robert Muir. It was there and in the wards of the infirmary that he laid the foundation of his work on cardiology. In 1906 he was appointed physician to Glasgow Royal Infirmary and, shortly

afterwards, professor of medicine in Anderson's College. In the first world war he served as consulting physician to the Forces in Egypt and Palestine, retiring at the end of the war with the rank of colonel. In 1925 he was appointed physician to the King in Scotland. He acted as examiner in medicine for Cambridge, Manchester, and St. Andrew's Universities, and for the Royal Army Medical College.

John Cowan will be remembered chiefly for his work on cardiology, though he had a wide experience of other branches of medicine. He began his work on the heart at the time when Wenckebach and James Mackenzie were making revolutionary contributions to our knowledge of the subject. Basing his work on the pathological studies of his early years he made full use of the instrumental methods of gauging cardiac function which were then becoming available, but at the same time he recognized that machine-made records could not take the place of careful clinical observation. His textbook *Diseases of the Heart*, written in collaboration with the late Prof. W. T. Ritchie, forms an important contribution to our knowledge of the subject, based as it is on the personal experience of the joint authors. He also made numerous contributions to other branches of medical literature, the most notable of which were papers on the serum treatment of pneumonia. He was appointed George Gibson Lecturer at the Royal College of Physicians, Edinburgh, in 1926, and St. Cyres Lecturer at the National Hospital for Diseases of the Heart in 1930. Throughout his medical career he took an active part in undergraduate teaching. Though rather formal in manner, he gave systematic lectures which were of real value to the students. In his clinical teaching his watchwords were thoroughness and meticulous attention to detail. For his work as a physician and a teacher Glasgow University conferred on him the degree of LL.D. in 1937.

Cowan was one of a group of men who bridged the gap between the old school of pure clinicians and the modern school in which laboratory methods are being increasingly used to assist and, perhaps, at times to supplant clinical observation. While he fully appreciated the valuable help afforded by laboratory investigation, he always insisted that the last word must lie with the clinician. His rather aloof manner made him difficult to know, but all who had the privilege of working with him soon realized the generous and loyal nature that underlay the rather stiff and formal surface. He will long be held in grateful remembrance by many generations of assistants and students for the high standard of work that he practised himself and insisted on in those working with him. He was a man of wide culture and many interests outside medicine, a keen angler, and in his younger days a good shot. He married Maude Hamilton, who predeceased him, and had three children. His two sons, one of whom was in the Navy and the other in business in the East, are both dead; he is survived by a daughter.

S. H. DAUKES, O.B.E., M.D., D.P.H.

Dr. Sidney Herbert Daukes, who died at Worthing after a short illness on Sept. 3, was curator of the Wellcome Museum of Tropical Medicine and Hygiene from 1919 to 1926, and Director of the Wellcome Museum of Medical Science from 1926 to 1945. An expert in the organization of medical museums, he also wrote many novels under the pseudonym of Sidney Fairway.

The son of the Rev. S. Whitfield Daukes, he was born at Camberwell Hill on April 20, 1879, and educated at Lancing College and at Caius College, Cambridge, where he took second-class in the Natural Science Tripos in 1900. From Cambridge he went to the London Hospital, and he qualified in 1905. He obtained the diplomas in public health and in tropical medicine and hygiene in 1912 and 1913 respectively and proceeded M.D. in 1928. After some years in general practice at Beckenham he took up public health work and held posts in the school medical service at Leeds and Norwich. In the 1914-18 war he held the rank of captain, R.A.M.C., and served as a divisional sanitary officer in France. He was mentioned in dispatches and in 1920 received the O.B.E.

Dr. Daukes had his interest in museums and in graph methods of education in medicine aroused by his experience as organizer of the War Office School of Military Hygiene :

Leeds. He wrote in 1919 a War Office manual on sanitation and contributed the chapters on hygiene in the official medical history of the war. The late Sir Andrew Balfour, Director-in-Chief of the Wellcome Research Institution, was impressed by the work carried out at Leeds, and in June, 1919, he invited Daukes to take charge of the Wellcome Museum of Tropical Medicine and Hygiene. In 1923 Daukes advocated the institution of a museum of wider scope, to illustrate the latest knowledge concerning diseases and hygiene, and to show the steps by which this knowledge had been reached. His plan was approved by Sir Henry Wellcome, and in December, 1926, the Wellcome Museum of Medical Science was opened with Daukes as its first director. Under his direction the Museum played an important part in the organization of exhibitions at home and abroad. Many of our readers must have seen some of his graphically arranged exhibits and may have wondered who was responsible for these essays in visual education.

As "Sidney Fairway" Dr. Daukes was a popular novelist. *The Doctor's Defence* was a best seller, and nearly as popular were *A Cuckoo in Harley Street* and *Quack's Paradise*. His last novel, *He Loved Freedom*, published only a few days before his death, deals with the reactions of a general practitioner to the changes brought about by the introduction of State medicine: "He sits at a big desk surrounded by Government forms and little rubber stamps." Dr. Daukes had also completed an autobiography, which is in the press.

Dr. ARTHUR JOHN BROCK died in Dunfermline on Aug. 25 at the age of 68. A native of Kirkliston and a graduate of Edinburgh University, Dr. Brock qualified in 1901 and proceeded M.D. four years later, after a brief period in Vienna and later in Berlin. He served as a captain in the R.A.M.C. in the 1914-18 war and became interested in what were then called cases of shell-shock. Returning to Edinburgh, where he had previously been in private practice, Dr. Brock continued to devote himself to psychiatry, and he became medical superintendent of the Garthhill Home. He will be remembered for his translation of Galen's "On the Natural Faculties." His chief interests were in medical history and particularly in Greek medicine, and he was also responsible for much geological and historical research in the North Queensferry district. He had been a member of the British Medical Association for forty years and was an occasional contributor to our correspondence columns.

Dr. ERNST LAQUEUR, professor of pharmacology at the University of Amsterdam, died on Aug. 19 at the age of 68 on holiday in Switzerland. He was the discoverer of oestosterone, and was responsible for important work on the standardization of insulin and oestrogens. He was on the Committee of the League of Nations which established the international standards for oestrone and oestradiol benzoate. Dr. Laqueur served a term as dean of the University of Amsterdam, and in 1946 he was awarded the Berzelius Medal by the Swedish Medical Society.

## Universities and Colleges

### UNIVERSITY OF LONDON

The title of Professor of Bacteriology as Applied to Hygiene has been conferred on J. C. Cruickshank, M.B., Ch.B. Edin., in respect of the post held by him at the London School of Hygiene and Tropical Medicine.

Professor William Burns, D.Sc., M.B., Ch.B. Aberd., has been appointed to the University Chair of Physiology tenable at Charing Cross Hospital Medical School as from Oct. 1, 1947.

The title of Reader in Medical Mycology in the University has been conferred on J. T. Duncan, F.R.C.S., L.R.C.P. Irel., in respect of the post held by him at the London School of Hygiene and Tropical Medicine.

E. W. Walls, D.M., Ch.B. Glasg., has been appointed to the University Readership in Anatomy tenable at Middlesex Hospital Medical School as from Oct. 1, 1947.

A. E. W. Miles, L.D.S., M.R.C.S., L.R.C.P., has been appointed to the University Readership in Dental Surgery and Pathology tenable at London Hospital Medical College as from Oct. 1, 1947.

David Slome, Ph.D., M.B., Ch.B., Capetown, has been appointed to the University Readership in Physiology tenable at the Middlesex Hospital Medical School as from Oct. 1, 1947.

### ROYAL COLLEGE OF SURGEONS OF ENGLAND

The Honorary Fellowship of the College has been conferred on Dr. Victor Veau, the Paris surgeon, and on Dr. Robert Danis, professor of surgery in the University of Brussels.

Diplomas will be presented to Dr. Leopold Mayer (Brussels), President of the International Society of Surgery, who was awarded the Honorary Fellowship in December, 1946, and to the above newly elected Honorary Fellows when they are in London between Sept. 14 and 20 for the Congress of the International Society of Surgery.

### EPIDEMIOLOGICAL NOTES

#### Poliomyelitis and Polio-encephalitis

The number of cases of poliomyelitis notified in England and Wales during the week ended Aug. 30 was 612. This is a slight decrease on the figure for the previous week (626). The notifications of polio-encephalitis were 45, as against 50 in the previous week.

The following counties showed a significant increase on the notifications for the previous week (figures in parentheses): Chester 21 (16), Essex 21 (12), Northumberland 21 (17), Staffs 13 (7), Sussex 13 (1), Isle of Wight 8 (3). Decreases were recorded in Durham 29 (33), Kent 8 (19), and London 77 (115).

In the week ending Aug. 23, 20 fewer cases of poliomyelitis were notified than in the preceding week—626, as against 646. The notifications in London increased from 89 to 115. The other large returns were Lancashire 65, Yorkshire West Riding 49, Middlesex 36, Durham 33, Surrey 26, Warwickshire 26. The largest returns for separate registration areas were London, Lewisham 18 and Camberwell 12; Lancashire, Manchester C.B. 15; and Warwickshire, Birmingham C.B. 14.

The Ministry of Education has informed local education authorities that, generally speaking, the reopening of schools should not be postponed. It is recognized, however, that there may be special local circumstances which would justify school medical officers or medical officers of health in advising postponement of the opening of particular schools.

#### Paratyphoid in Bedfordshire

A total of 45 cases of paratyphoid B (phage type 1) fever have been notified from the eastern half of Bedfordshire during August and early September. The first cases had a conjectured date of infection about July 11 to 15.

In four villages 22 of the cases are clearly associated with canned beef believed to have been infected about the end of July, after removal from the tin by the butcher's wife, who was subsequently found to be excreting paratyphoid B bacilli in her faeces. It is not proved whether she was a chronic carrier or contracted a symptomless infection at the start of the outbreak earlier in July. The remaining cases are scattered in about ten other villages, with no obvious link between them. Nevertheless they fall into a series which, in all probability, arises from a common source which persisted and is still being sought.

#### Notifiable Rheumatism

These regulations, which come into force on Oct. 1, 1947, will make acute rheumatism in children under 16 years of age a notifiable disease for three years in the county of Lindsey (Lines) and the county boroughs of Bristol, Grimsby, Lincoln, and Sheffield. They are the outcome of a recommendation to the Minister of Health from the Rheumatic Fever Committee, which was appointed by the president and committee of the Royal College of Physicians in April, 1946. This committee considered that the incidence of acute rheumatism, continued for several years in two or three large areas with adequate facilities for diagnosis and treatment, might provide valuable information, hitherto not available in this country, on the present trend of the incidence of new cases, the relative incidence of new cases in areas of different types—e.g., urban and rural—and on the association of the disease with the various genetic, social, and environmental factors.

The definition of acute rheumatism in the new regulations comprises valvular heart disease of rheumatic origin and rheumatic chorea, as well as the acute manifestations in the joints and elsewhere which are perhaps better known under the term "rheumatic fever."

#### Annual Report for England and Wales

The Statistical Review of the Registrar-General for 1945 has been given priority over the Reviews for 1943 and 1944, which are not yet published. The crude death rate during 1945 was 12.6 per 1,000; when corrected for age and sex structure the

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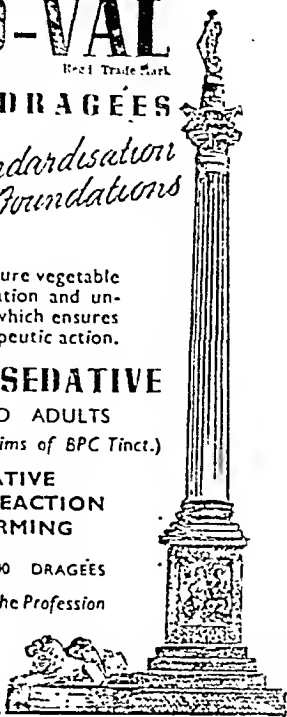


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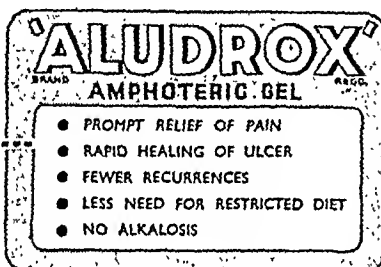
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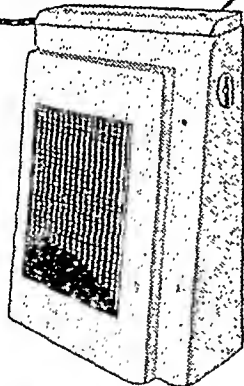


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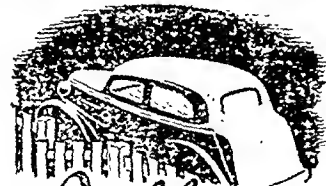
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comparative mortality-index was only 0.893, the lowest value ever recorded. The infant mortality, 46.00 per 1,000 related live births, rose slightly from the record low level of 45.44 in 1944. The death rates for children under 15 from diphtheria, 67 per million, and from scarlet fever, 7 per million, were the lowest rates ever recorded for these diseases. The notifications of measles, 445,412, were the largest since this disease became notifiable, but the death rate, 80 per million for children under 15, was below the pre-war level. Deaths from respiratory tuberculosis numbered 20,013, compared with 21,343 in 1943 and 23,660 in 1940. Notifications of dysentery rose steadily during the war years from 1,901 in 1939 to 14,728 in 1945, but only 156 deaths were reported.

Three new tables have been introduced. Fourteen infectious diseases have been analysed to show their sex and age distribution. A new series of standardized death rates for particular diseases, to compare with similar rates for Scotland, have been calculated. A detailed age analysis of deaths in the first year of life from the chief diseases of infancy, with particular reference to deaths under 4 weeks, has been included.

### Births and Deaths in Eire

The following table shows the figures for the 13 principal towns in Eire each week from the week ending July 26 to Aug. 16, 1947. During this period there were no deaths due to dysentery, scarlet fever, smallpox, typhoid, or typhus.

Week ended:	Births	Deaths		Deaths Caused by				
		All Ages	Under 1 Year	Diphtheria	Diarrhoea and Enteritis (Under 2 Years)	Measles	Influenza	Whooping-cough
1947								
July 26	423	173	19	—	3	—	—	—
Aug. 2	368	184	31	1	3	—	—	3
" 9	465	143	13	—	3	—	—	1
" 16	363	168	21	1	8	3	1	1

### Discussion of Table

In *England and Wales* the notifications of infectious diseases fell during the week. The largest declines were in the incidence of measles 1,190, scarlet fever 125, and whooping-cough 52. Small increases were recorded for dysentery 9, paratyphoid 6, and typhoid 4.

The decline in the incidence of measles was general throughout the country; the largest falls were Derbyshire 92, Glamorganshire 89, London 86. Counties with more than 100 notifications of measles during the week were Yorkshire West Riding 404, Lancashire 296, Glamorganshire 253, London 143, and Monmouthshire 113. A small decrease was recorded in the incidence of scarlet fever in most areas, but there were no large changes in the local trends.

Diphtheria remained at the lowest level ever recorded. During the past three weeks only 430 cases of diphtheria have been notified, compared with 779, 1,106, 1,236, 1,601, and 1,988 in the corresponding weeks of the five preceding years. The only change of any size in the local returns of whooping-cough was a decrease of 30 in Lancashire.

A further 8 cases of paratyphoid were notified in Bedfordshire, where 9 cases were reported in the preceding week. The chief centres of dysentery were Lancashire, Liverpool C.B. 12, and Devonshire, St. Thomas R.D. 8.

In *Scotland* there were falls in the notifications of poliomyelitis 14, measles 13, and scarlet fever 13, while increases were recorded for acute primary pneumonia 18, and whooping-cough 13. The largest fall in the notification of poliomyelitis was recorded in the city of Glasgow, with a decrease from 66 to 33. In the remainder of the western area there were more cases than in the preceding week—53 cases from 14 areas, compared with 34 from 9 registration areas.

In *Eire* the notifications of measles decreased by 30, but a rise was recorded for diarrhoea and enteritis 28 and for whooping-cough 13. These fluctuations in the trend of infectious diseases were mainly due to the experience of Dublin C.B.

### Week Ending August 30

The notifications of infectious diseases in *England and Wales* during the week included: scarlet fever 436, whooping-cough 1,618, diphtheria 164, measles 2,114, acute pneumonia 229, cerebrospinal fever 32, acute poliomyelitis 612, acute poliomyelitis 45, dysentery 85, paratyphoid 33, typhoid 11.

No. 34

## INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Aug. 25.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Infant Mortality, for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1947					1946 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever .. ..	49	7	29	1	1	39	4	18	2	—
Deaths .. ..	2	1	—	—	—	—	—	—	—	—
Diphtheria .. ..	147	11	41	13	12	255	16	77	29	7
Deaths .. ..	4	2	—	—	—	3	—	1	—	—
Dysentery .. ..	75	9	15	—	1	52	12	19	—	1
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Encephalitis lethargica, acute .. ..	1	—	—	—	—	2	1	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Erysipelas .. ..	—	23	11	4	—	—	45	8	1	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Infective enteritis or diarrhoea under 2 years .. ..	—	—	85	9	3	29	2	9	24	3
Deaths .. ..	61	10	29	—	—	—	—	—	13	—
Measles* .. ..	3,278	143	36	224	3	2,140	161	60	14	4
Deaths .. ..	5	—	—	—	—	2	—	—	—	—
Ophthalmia neonatorum .. ..	79	10	8	—	—	82	5	20	1	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Paratyphoid fever .. ..	23	2 (B)	—	—	—	66	27 (B)	—	2 (B)	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal .. ..	233	13	3	2	3	299	22	2	—	—
Deaths (from influenza)† .. ..	5	—	—	—	—	7	2	—	—	—
Pneumonia, primary .. ..	—	135	6	4	6	—	15	108	6	4
Deaths .. ..	13	—	—	—	—	—	—	—	—	—
Polio-encephalitis, acute .. ..	50	6	—	—	—	1	1	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Poliomyelitis, acute .. ..	626	115	120	6	11	30	4	1	—	2
Deaths .. ..	5	—	—	—	—	—	—	—	—	—
Puerperal fever .. ..	—	3	11	—	—	—	2	16	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Puerperal pyrexia‡ .. ..	150	8	13	1	—	138	11	14	1	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Relapsing fever .. ..	—	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Scarlet fever .. ..	489	39	101	17	15	665	53	128	18	7
Deaths .. ..	1	—	—	—	—	—	—	—	—	—
Smallpox .. ..	—	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Typhoid fever .. ..	12	3	4	5	5	36	2	—	5	1
Deaths .. ..	—	—	—	—	—	1	—	—	—	—
Typhus fever .. ..	—	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Whooping-cough* .. ..	1,818	180	77	83	12	2,058	170	41	28	29
Deaths .. ..	8	1	1	2	1	8	—	—	—	2
Deaths (0-1 year) .. ..	320	43	65	17	13	308	45	45	41	15
Infant mortality rate (per 1,000 live births) .. ..	—	—	—	—	—	—	—	—	—	—
Deaths (excluding stillbirths) .. ..	3,843	541	539	141	102	3,753	579	502	188	106
Annual death rate (per 1,000 persons living) .. ..	—	—	11.2	8.9	—	—	11.0	12.0	—	—
Live births .. ..	8,378	1282	1025	407	249	8,394	1353	1010	394	263
Annual rate per 1,000 persons living .. ..	—	—	20.6	25.7	—	—	20.3	25.2	—	—
Stillbirths .. ..	214	25	48	—	—	242	30	29	—	—
Rate per 1,000 total births (including stillborn) .. ..	—	—	45	—	—	—	—	28	—	—

\* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

## Medical News

### D.G.M.S., Ministry of Pensions

J. F. E. Prideaux, C.B.E., M.R.C.S., has been appointed Director General of Medical Services of the Ministry of Pensions in succession to Sir Walter Haward, O.B.E., K.H.P., M.B., who has retired.

### Governor of United Provinces

The King has appointed B. C. Roy, M.R.C.P., F.R.C.S., Governor of the United Provinces in succession to Sir Francis V. Wylie, K.C.S.I., C.I.E.

### New Institute of Animal Physiology

The Agricultural Research Council has decided to establish an Institute of Animal Physiology to gain information on the fundamental physiology of farm animals. The Council has appointed Prof. J. de Burgh Daly, F.R.S., Professor of Physiology in the University of Edinburgh, as the first director of the Institute. A site has not yet been chosen, but it is hoped that it will be so placed as to facilitate contact between scientists working in the Institute and those in a near-by university.

### First Aid

The British Red Cross Society has recently produced an attractive and practical "ABC of First-aid Treatment" in the form of four placards for display at first-aid posts. The instructions are simple to understand and suitable for application even by those who know nothing of first aid. The cards should prove most useful in first-aid posts on the highway, at airfields and camps, at industrial establishments, and anywhere where accidents are likely to occur.

### Veneral Disease Photographs

The Central Office of Information is prepared to loan to factories and other managements employing over 500 people a veneral diseases photographic display set. This display set was shown at a number of factories in 1945, when it evoked many favourable comments.

### Microfilm Service

The Pasteur Institute of France has started a new microfilm service free of charge for all who require to study the literature on research methods and developments in bacteriology. Upon request the Institute will provide microfilms of any articles in the journals available.

### Aid to Education

Unesco has launched a campaign to raise £25,000,000 for the rehabilitation of educational institutions in war-devastated countries. Assistance will be offered to Belgium, Byelo-Russia, Burma, China, Czechoslovakia, France, Greece, Holland, Iran, Luxemburg, the Philippines, Poland, Ukraine, and Yugoslavia.

### Pharmaceutical Scholarships

The Pharmaceutical Society of Great Britain announce the following scholarship awards: the Jacob Bell Memorial Scholarship (£70 a year for one or two years) to Mr. Arthur Edward Lee, of Crediton, Devon; the Leverhulme Scholarship (£60 with a gold medal value £10 and £5 worth of books) to Mr. David Brian Cowell, of Hornchurch, Essex, and a second scholarship (£60 and £5 worth of books) to Mr. Stanley George Webster, of Wednesfield, Staffs; the Manchester Pharmaceutical Association Scholarship (£45) to Miss Audrey Rothwell, of Leigh, Lancs. The awards are made as a contribution towards cost of courses of various pharmaceutical examinations.

### Surrey Hospitals Plan

The voluntary and municipal hospitals of Surrey, with the county borough of Croydon, set up a Joint Divisional Council in 1941. This Council produced a plan for co-ordinating and extending the hospital services in the county, which was the subject of an annotation last year (June 1, 1946, p. 841). In its Fifth Annual Report the Council has included a section which supplements the original plan and deals in some detail with ophthalmological, orthopaedic, dental, dermatological, and nursing services.

### Wills

Dr. Herbert Henry Lankester, of Eastbourne, who died on Jan. 30, left £4,742. Sir Harry George Waters, of Stroud, Glos., who died on Dec. 19, 1946, left £12,725.

Dr. Alexander Rose, of Edinburgh, late of South Norwood, London, S.E., who died on Jan. 12, left personal estate in England and Scotland valued at £20,466. Dr. Thomas Norman Vickers Potts, of Spilsby, Lincs, late medical officer of health to the West Riding, who died on April 23, left £1,705.

## COMING EVENTS

### Pharmaceutical Conference

The British Pharmaceutical Conference will be held at Torqu during the week beginning Sept. 15. Papers to be read include the following: "The Hygroscopic Capacity of Commercial Samples Penicillin and its Effect upon their Stability," by H. Brindle and W. Keepe; two papers on crystalline sodium penicillin G, the first by B. Johnson and A. F. Lerrigo, and the second by W. A. Woodard; "The Use of Antiseptics in the Sterilization of Solutions for Injection," by G. E. Davies and J. E. Davison; "The d-Tubocurarine Content of Curare," by G. E. Foster and J. V. Turner; "The Analytical Control of Pharmaceutical Preparations containing Vitamin B<sub>1</sub> and B<sub>2</sub>," by W. F. Elvidge; "The Inactivation of Enzymes and Micro-organisms in Oils and Powders," by K. Bullock and J. W. Lightbown.

### Discovery of the Electron

The Institute of Physics and the Physical Society will hold a collaboration with the Institution of Electrical Engineers, a series of lectures and other functions in London on Sept. 25-26 to mark the jubilee of the discovery of the electron by J. J. Thomson. Sir Clifford Paterson, F.R.S., will give a lecture intended for a lay audience on "The Electron Liberated" at the Central Hall, Westminster, at 7.30 p.m. on Sept. 25. Free ticket of admission and further information may be obtained from the Institute of Physics, 47, Belgrave Square, London, S.W.1. Requests should be accompanied by an addressed envelope.

### Army Psychiatrists' Reunion

The third reunion of Army psychiatrists will take place at Slater's Restaurant, 18-24, Kensington High Street, London, W.8, on Sept. 2 from 7.30 to 10.30 p.m. Full details may be obtained from Lieut.-Col. J. C. Penton, R.A.M.C., The Old Farm House, 1, Gatehill Road, Northwood, Middlesex.

### Biochemical Society

The 260th meeting of the Biochemical Society will be held at the School of Biochemistry, Tennis Court Road, Cambridge, on Sept. 21 at 11 a.m.

## APPOINTMENTS

Dr. T. Lloyd Hughes, Medical Officer for Middlesbrough, has been appointed to the Liverpool Regional Hospital Board.

Dr. Frederic Nugent Marshall has been appointed Senior Administrative Medical Officer of the Manchester Regional Hospital Board.

Dr. Marshall joined the Ministry of Health in 1936, becoming principal regional medical officer in 1942 and a senior medical officer in 1945.

EVANS, ROBERT, M.D.Belf., F.R.C.S.Ed., Honorary Assistant Surgeon, Birmingham and Midland Ear and Throat Hospital.

## POSTGRADUATE DIARY

INSTITUTE OF LARYNGOLOGY AND OTOTOLOGY, 330, Gray's Inn Road, London, W.C.—Tuesday, Sept. 16, 4.30 p.m. Mr. E. D. Davis: Injuries of the Ear.

## BIRTHS, MARRIAGES, AND DEATHS

The charge for an insertion under this head is 10s. 6d. for 18 words or less. Extra words 3s. 6d. for each six or less. Payment should be forwarded with the notice, authenticated by the name and permanent address of the sender, and should reach the Advertisement Manager not later than first post Monday morning.

### BIRTHS

DUGUID.—On Aug. 26, 1947, at 94 B.M.H., Hamburg, to Dr. Mary Duguid (née Barry), wife of Major J. Duguid, R.A.M.C., a daughter.  
HILL.—On Sept. 3, 1947, at Ashleigh Nursing Home, Gosforth, to Dr. Elizabeth Hill (née Troupe), wife of Dr. F. W. Hill, Newcastle, a daughter.  
MACLEOD.—On June 28, 1947, at Headford, Co. Kerry, the wife of Captain A. I. MacLeod, R.A.M.C., a son.  
PRESTON.—On Sept. 1, at Croydon, to Margaret (née King), wife of Dr. T. W. Preston, a son.  
ROBINSON.—On Aug. 25, 1947, to Sybil Elizabeth (née Weeks), wife of Dr. B. H. D. Robinson, Birmingham, a son—Charles Graham Francis.  
VAUGHAN JONES.—On Aug. 28, 1947, at Blackpool, to Margaret (née Wattell), wife of Dr. D. E. Vaughan Jones, a daughter.

### MARRIAGES

CHRISTIE-ALLEN.—On Aug. 16, 1947, at St. Giles Church, Oxford, Alan Christie, M.B., Ch.B., to Hilary Jocelyn Allen, B.M., B.Ch.  
ROBERTS-HOWELL.—On Aug. 29, 1947, at Epping, Kenneth Ivor Roberts, B.Sc., M.B., B.Ch., to Muriel Howell.  
TIGHE-CROGAN.—On Aug. 9, 1947, in Limerick City, Eire, John Robert Tighe, M.R.C.S.(Eng), to Nora Cregan, S.R.N., S.C.M.

### DEATHS

DAUKES.—On Sept. 3, 1947, at Worthing, Sidney Herbert Daukes, O.B.E., M.D. (Sidney Fairway), aged 68 years, peacefully after a short illness.  
THOMPSON.—On Aug. 24, 1947, at Wilton Grange, West Hartlepool, Vera Thompson, M.B., Ch.B., D.P.H.

## Any Questions?

*Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.*

### Treatment of Shock

**Q.**—*What are the best drugs to give infants or children suffering from surgical shock? Is morphine contraindicated? If not, what doses are suggested?*

**A.**—Shock, whether from surgical or other causes, and whether in children or adults, implies a clinical state recognized by pallor and/or cyanosis, low blood pressure, and coldness of the extremities, which is the result of a disequilibrium between the functional capacity of the vascular compartment and the volume of circulating fluid which it contains. This may result from (1) an expansion of the functional capacity of the vascular compartment caused by a general vasodilatation as seen in various toxic states; (2) a loss of plasma, as in burns and other traumatic states; (3) a loss of intravascular water and electrolyte, as in dehydrated states; and (4) a loss of whole blood by haemorrhage.

It follows that the immediate treatment of shock should aim at the re-establishment of equilibrium between the intravascular fluid and the capacity of the vascular compartment. This in practice will generally mean the intravenous administration of plasma in (1), (2), and (3) above, and of whole blood in (4). The question of the dosage of plasma and blood cannot be summarized adequately, but the amounts of these substances given in the first instance should be related to the amounts roughly estimated to have been lost, bearing in mind that the plasma forms about 6% and the blood about 9% of the body weight (these proportions vary somewhat at different ages, but the figures given are adequate for the purpose).

It will be seen that, on this view of shock, morphine plays no important part in treatment, and this conclusion is fully confirmed by practical experience. Morphine should not, therefore, be given to shocked children. Analgesic drugs are found to be surprisingly rarely needed in traumatized children; probably pethidine hydrochloride will prove of use for this purpose. For sedation paraldehyde is useful in infants and young children, in whom 1 to 2 ml. for each year of age may be given intramuscularly. The barbiturates may be given orally in a dosage of 3/4 gr. (50 mg.) for children aged 2 to 4 years and 1 1/2 gr. (0.1 g.) for older children; they become effective an hour or two after ingestion.

### Rheumatism and the Weather

**Q.**—*A patient in the fifties is subject to "rheumatism" with myalgia as the predominant symptom. She has exacerbations coinciding with, and always about forty-eight hours ahead of, a fall in barometric pressure. These are followed in a day or two by small bruises over the painful points. Can you suggest an explanation for these phenomena?*

**A.**—The influence of "weather" on rheumatic symptoms has been recognized from time immemorial, but so far no satisfactory explanation has been forthcoming. Variations in atmospheric humidity appear to be important but not constant in their effect, though "fibrositis" seems to be more common in climates of high humidity. The forecasting of weather changes by an increase in symptoms is a common experience in those subject to this form, while the effect of high winds accompanied by barometric variations in increasing pain in the subjects of rheumatoid arthritis is commonly observed. On the other hand, injudicious exposure to sunlight is often followed by myalgic pain and stiffness. Electrical variations in the atmosphere have been suggested as an explanation, and this is a possibility calling for further investigation. In the present case the occurrence of exacerbations forty-eight hours before a fall in barometric pressure seems to support the electrical theory. The development of small ecchymoses suggests an increased capillary permeability or fragility, and a deficiency of vitamin K may be the explanation, though vitamin C may also have an important influence.

Much work has been done in connexion with vitamin C, often with contradictory results; but it is well known that it is generally deficient in rheumatic conditions, and the study of its action in the case under consideration would seem to be worth while. Illustrative of the obscurity surrounding its action is the fact that Bicknell and Prescott, in their book on *The Vitamins in Medicine*, give no fewer than 880 references to the literature on the subject. Examination of the level of vitamin C in the blood at different times might be illuminating, and its administration in full doses would be worth trying.

### Angina Pectoris

**Q.**—*A male aged 55 years suffers from aching pain and discomfort behind the sternum, radiating into the inner side of the left arm. It is not always present, but is liable to occur after sudden effort, and especially during work or anxiety. It subsides quickly with rest. There are no signs of a valvular lesion or of arteriosclerosis. Can this be true angina with no apparent cardiovascular disease?*

**A.**—The syndrome described sounds very much like angina pectoris. The sex and age of the patient, the situation of the pain, and its relation to effort are all consistent with this diagnosis. If the pain has the quality of constriction or oppression, if it never develops while the patient is at rest, if there are no associated symptoms, and if trinitrin tablets relieve the pain, the diagnosis of effort angina becomes practically certain. The account of this case suggests a higher centre element, and if pain occurs at rest in response to emotion spasmodic angina may be a more correct designation. In either event, some degree of coronary sclerosis almost certainly exists. It is usual for the pain of effort angina to pass off within a minute, or little more, when the effort ceases; the pain of spasmodic angina is often of rather longer duration. A clear account of coronary disease and angina pectoris is given in *Disease of the Heart*, by Sir Thomas Lewis (London, Macmillan).

### Zinc-fume Fever

**Q.**—*Men who carry out the Schori metallizing process, by which a fairly thin film of zinc or other metals or substances—such as synthetic rubber or shellac—is sprayed through a flame spray pistol on to any metal or other surfaces, are said to suffer from what is described as "zinc disease." The symptoms have been likened to a malaria rigor, and consist of pyrexia, shivering, profuse sweating, and subsequent lassitude. Could you give me any information or references to literature on the subject?*

**A.**—Exposure to metal fume or to a fine spray of metallic particles in the process of metallization may give rise to "metal-fume fever" with the signs and symptoms described above. This is an old industrial disease and the textbook descriptions are usually those of zinc-fume fever. Full accounts are given in *Industrial Maladies*, by Legge, and in *Industrial Toxicology*, by Hamilton and Johnstone; both are Oxford Medical Publications (see also *Journal*, July 19, p. 120).

### Thumb-sucking

**Q.**—*A male child aged 4 1/2 years has been thumb-sucking since the age of 18 months. All the known remedies have been tried without effect, including admonition but not punishment. The child will hide in order to carry out the habit without being seen. Lately the act has been made worse by the inclusion of the forefinger of the same hand stuck into the nostril. The upper incisors are being pulled forward and the child is tending to lisp. What remedy can you suggest?*

**A.**—To be effective the remedy must be based on the cause. The late onset of the habit, at 18 months, suggests that at this age there was some emotional disturbance that made this child turn to thumb-sucking for comfort; that he finds relief in this way is clear from the urgency that now drives him to hide in order to carry it out. Usually the sucking of thumb or fingers represents a compensation for real or fancied loss of maternal love; it may well arise on account of a temporary separation between mother and child, or through some physical or environmental stress that the child cannot understand. In these cases it may be necessary to disregard the habit for a while, and to concentrate on supplying the need that has induced it, at the

same time providing additional outlets in play or other acceptable activities, with all possible warmth of parental comfort. If home measures fail, the trouble is likely to be resolved without long treatment by psychiatric advice and child psychotherapy, unless there are special complications.

### Terminating an Artificial Pneumothorax

**Q.**—*What is the usual method of ending an artificial pneumothorax? Can refills be discontinued suddenly, or should they be "tailed off"? In the case I have in mind the pneumothorax has been maintained for three years, and the disease shows no signs of activity at present.*

**A.**—The time and method of terminating an artificial pneumothorax depend very much on the condition of the lung before the treatment was started. Frequently the pneumothorax terminates itself by an obliterating fibrosis which gradually reduces the pleural space. When this does not occur spontaneously the cessation of artificial pneumothorax refills requires considerable care and judgment. It is not advisable to stop refills suddenly, but gradually to increase the interval between the refills and, if necessary, to reduce the amount of air introduced into the chest at each refill. Opinions differ as to the length of time an artificial pneumothorax should be maintained, but much depends on the presence of cavitation and a positive sputum previous to the induction. Cases in which these are present usually require longer treatment than those in which one or other or both have never been manifest. In any event, it is beneficial to maintain an artificial pneumothorax for three years and contemplate cessation of treatment in the spring of the fourth year, so that the patient has the advantage of the summer months in which to reach stabilization. In cases with considerable infiltrations before induction, it is best to allow the treatment to continue until it terminates by contraction of the chest wall and obliteration of the pleural space by fibrosis. It is, however, important to avoid a complete atelectatic lung which will not re-expand, and which usually calls for a thoracoplasty to close the pleural space.

### Tremor of Hands

**Q.**—*A young woman has a constant fine tremor of her fingers and hands which is aggravated by excitement. There is no relevant personal or family history. Please advise me as to diagnosis and treatment.*

**A.**—The most probable cause to be suspected is a masked hyperthyroidism. Careful records of the pulse rate and of the weight are advisable, and also an estimation of the basal metabolic rate. An "essential" tremor is also possible; this is usually slower and coarser than in hyperthyroidism, and no tachycardia or increased metabolic rate occurs. There is no treatment for "essential" tremor; tremor due to thyroid overactivity responds to appropriate therapy.

### Staining Films of Vaginal Discharge

**Q.**—*What is the best method of making and staining routine films of vaginal discharge when trichomonas is sought, if circumstances are against the preparation and examination of the more usual wet films?*

**A.**—Giemsa's stain is the most suitable; the film should have been fixed in osmic acid. Fluid vaginal secretion or a swab kept moist in a small volume of saline can be kept for several hours before the examination of wet films; without loss of motility; this is the method usually preferred unless circumstances absolutely preclude it.

### Ringworm of Scalp

**Q.**—*What is the best line of treatment, short of depilation by x-rays or thallium acetate, for ringworm of the scalp? May I have details of the dosage and application of phenylmercuric nitrate and chloride?*

**A.**—There is a good review, with bibliography, of the use and dangers of the phenylmercuric compounds in the treatment of infection and fungous diseases by E. A. J. Byrne (*Journal*, Jan. 18, p. 90). For ringworm of the scalp of small-spore type in children, treatment must be accurate, diligent, and arduous, and

is then attended only with a small percentage of successful results after long periods of treatment, according to most authors. Schwartz in the U.S.A. reported more success with 5% salicyl anilide in a carbowax base (*J. Amer. med. Ass.*, 1946, 132, 58), but the supply is restricted in this country. Copper undecylenate in saturated solution in a carbowax base has also been recommended.

## NOTES AND COMMENTS

**Poliomyelitis and Chlorination of Water.**—Dr. CLEMENT FRANCIS (London, W.) writes: The fact that chlorine in a strength of 0.2 p.p.m. destroys poliomyelitis virus in 10 minutes (Aug. 23, p. 317) interests me because my father, the late Dr. Alexander Francis, told me that when he was medical superintendent of a hospital in Queensland, 55 years ago, he found that the administration of chlorine water by mouth produced dramatically good results in patients with typhoid fever. He had a large number of cases to treat, as typhoid fever was then endemic in Queensland. There is evidence that poliomyelitis virus often gains entrance to the body by the alimentary canal and is discoverable in the faeces of patients and carriers, and there seems a good case for regular oral administration of chlorine water to patients in the early stages of the disease and to contacts and suspected cases. There is also no reason why chlorine water should not be sprayed up the nose and used as a gargle. The fact that London water was chlorinated during the war probably prevented a typhoid epidemic, and it would be interesting to know if the incidence of poliomyelitis in the present epidemic bears any relation to the areas in which the water supply is chlorinated. Poliomyelitis epidemics have occurred with much greater severity both in the States and in Australia than in the present outbreak in Britain, and here again the question of chlorination of the water supplies may be an important factor.

**Chemical Contraceptives.**—Dr. MARIE C. STOPES (Dorking) writes: May I supplement the answer (Aug. 16, p. 282) to the question on the above subject? No jelly can be reliable for several chemical and physiological reasons which I have set out fully in my textbook *Contraception, its Theory, History, and Practice*, for several war years out of print and now available again. Olive oil, however, is both cheap and most effective as a contraceptive if used skilfully in a sponge. As contraceptives were high priced, as well as unsatisfactory, I founded the Mothers' Clinics years ago, and we supply for 1s. 2d. a box of 12 greasy "solubles," which are cheap and effective for use with caps.

**Universities and Colleges.**—Dr. J. D. SCOBIE (Stonehouse, Lanarkshire) writes: May I voice my disapproval of the terms of a recent advertisement in the *B.M.J.* Applications were invited for the post of medical registrar and it was stipulated that the applicant "must hold the M.R.C.P. diploma or the M.B. of a University." While realizing that any body is at liberty to lay down the qualifications necessary in a particular post I do not see how any good can accrue from differentiating from university and college men. The M.B. and college diploma have this in common, that they both come up to the requirements laid down by the G.M.C., and surely these should satisfy the most fastidious. In any case an interview usually determines the most suitable applicant. Furthermore, the M.R.C.P. is generally considered to be the highest qualification in medicine obtainable by examination and should not be considered to be equivalent to the M.B. If this sort of thing was carried to its logical conclusion preference would be given to the graduates of the greater universities over the smaller.

**Correction.**—There was an error in our first leading article in the issue of Sept. 6 (p. 374). Referring to the General Medical Council the phrase "but the great majority of its members are not chosen because they represent the universities and medical corporations which grant qualifications" should read "are chosen." Out of the 40 members of the G.M.C. 27 are chosen by these bodies.

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Amilett, Western, London*. ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Authors desiring REPRINTS should communicate with the Publishing Manager, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs. Authors overseas should indicate on MSS. if reprints are required, as proofs are not sent abroad. ADVERTISEMENTS should be addressed to the Advertisement Manager, B.M.A. House, Tavistock Square, London, W.C.1 (hours 9 a.m. to 5 p.m.). TELEPHONE: EUSTON 2111. TELEGRAMS: *Britmedads, Western, London*. MEMBERS' SUBSCRIPTIONS should be sent to the SECRETARY of the Association, TELEPHONE: EUSTON 2111. TELEGRAMS: *Mediseca, Western, London*. B.M.A. SCOTTISH OFFICE: 7, Drumshough Gardens, Edinburgh.



# SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY SEPTEMBER 13 1947

## HEARD AT HEADQUARTERS

### B.M.A. and the Veterinary Profession

It was pleasing to hear an acknowledgment from the president of the National Veterinary Medical Association at its annual meeting in Edinburgh the other day of the helping hand given to the veterinary profession in the early days of the B.M.A. He reminded those assembled that the liaison between the medical and the veterinary profession really began in 1880 at a B.M.A. meeting in Cambridge, when for the first time the members of the veterinary profession were invited to attend the Public Health Section, which was discussing diseases of animals communicable to man. The occasion was also one on which the famous physiologist and experimentalist Brown-Séquard was given the LL.D. of Cambridge University. A group of veterinary surgeons listened to the discussion in the Public Health Section and decided to set up their own association with the word "medical" in its title.

### Away from Euphemism

On comparing the National Health Insurance Act, 1911, with the National Health Service Act, 1946, there is one phraseological change which is of some interest. The National Health Insurance Act, in the section dealing with maternity benefit, speaks of "confinements"—"payment in the case of confinement of the wife"—and the same expression is used in the amending Act of 1924. The polite euphemism caused some little difficulty in precise interpretation. On the other hand, the new National Health Service Act does not mention the word "confinement," but speaks of "during childbirth and from time to time thereafter during a period of not less than the lying-in period." The word "confinement" as applied to the lying-in period seems to have been first used, according to the Oxford Dictionary, by the "dearest Mrs. Delaney," the friend of royalty in the court of George III.

### The T.U.C. and Industrial Diseases

Several resolutions were on the T.U.C. agenda at Southport concerning industrial diseases. The National Association of Metal Mechanics wants Raynaud's disease scheduled as an industrial disease under the Workmen's Compensation and National Insurance (Industrial Injuries) Acts, having regard to the very serious effect of the disease and the very large number of workers suffering from it. The National Union of General and Municipal Workers calls for intensive research on the effect of modern industrial conditions on the health of the workers in order that protective and remedial measures may be provided. The Medical Practitioners Union is anxious that no workman who is shown to be suffering from a disease either caused or aggravated by his employment shall be refused benefit under the Industrial Injuries Act because such disease has not been scheduled or prescribed by the Act.

### The Dental Fee

The retention fee for dentists is to revert to its former figure. The Dental Board had approved a fee of £3 for annual retention on the Register, but the Board has now been relieved of certain financial responsibilities in connexion with grants to dental schools, and it has been found possible to revert for 1948 to the former annual retention fee of two guineas, except for the two years immediately subsequent to the year of first registration, for which the fee is one guinea.

## For Panel Committees

Local Medical and Panel Committees are reminded that nominations for direct representatives on the Insurance Acts Committee and its Scottish Subcommittee must be in by Sept. 22. In the groups in which there are contests each committee will be notified and the secretary will be asked to send to Headquarters a complete list of the members of his committee. Voting papers will then be posted to these members on Oct. 2. The voters in this election are the individual members of the committees, and each vote bears a value equal to the number of insurance practitioners in the area divided by the number of members of the committee—for example, if in an area there are 300 insurance practitioners and 10 members of the local medical and panel committee, the value of each vote will be 30. The annual conference will be held in the Great Hall of the B.M.A. House on Thursday, Oct. 30. If the number of practitioners on the medical list of an area exceeds 400 an additional representative may be appointed for each additional 400 or part thereof. Only 15 areas appear to be entitled to more than one representative. London heads the list with six, then comes Lancashire with five, Middlesex with four, Surrey and the West Riding with three, and the remaining nine each with two.

## Correspondence

### Malayan Medical Service

SIR,—The Malaya Branch of the British Medical Association at its Annual General Meeting at Easter, 1947, expressed some concern at the proposals which are being made for a unified medical service in Malaya; in that they felt that intending applicants for the Malayan Medical Service were not being made properly aware of the nature of these proposals, which have been given some publicity in the local Malayan press.

The Malaya Branch, in a motion passed unanimously, called upon the Secretary, B.M.A., in London to ascertain the exact nature of these proposals, and a reply from him has been received to the effect that the views of the Branch Council will be set before the Dominions Committee at their next meeting.

Until, however, a satisfactory reply has been received, my Council are of the opinion that all intending applicants for the Malayan Medical Service should get into touch with me before definitely deciding to accept the terms offered. A letter by air mail to the address below will bring a prompt reply by air mail.

—I am, etc.,

c/o Health Office,  
Town Board Kinta,  
Perak,  
Malaya.

R. E. ANDERSON.

\*The Colonial Office state that no final proposals have yet been made to the Secretary of State, who is awaiting the recommendations of the Governors of the Malayan Union and Singapore. Full consideration will be given by them, and by the Secretary of State, to measures which will safeguard the prospects of serving European officers, before any final scheme for the creation of a single service is approved, provided that such measures are in conformity with the undertaking given by Mr. Creech Jones in Parliament that a single medical service in Malaya composed of Europeans and Asiatics had his approval in principle. The British Medical Association will be consulted before the final scheme is approved. Meantime, applicants are informed before final appointment of the proposed single service.—ED., B.M.J.

**Compensation for I.M.S.**

SIR,—There was a letter in the *Supplement* of June 28 (p. 159) (with an editorial comment of the sort that is added when the Editor thinks a letter would have been better left unwritten but does not like to say so in as many words) to which I think reference is necessary, as it reflects on the general method of negotiation carried out by the B.M.A. on behalf of its members. The letter refers to the compensation of the I.M.S.

As one of the people intimately concerned with this subject, I should not have been surprised if I had been asked by the Association what I thought about the proposed "terms"; but actually, so far as I am aware, nobody in the I.M.S. has been asked by the Association what his views are, and I suspect that the Association would rather not know the views of the officers in the I.M.S., so that they can never blame themselves for agreeing without a struggle to terms which are in fact most unjust.

Looking at the actual figures as they appear in print, the first reaction may be to think they are generous. But a very brief study of extra conditions which apply should convince the casual observer that they are in fact the cheapest terms that the authorities concerned dare have published; and, if you accept the pound at a pre-war 7s. 6d., even the maximum compensation of £6,000 is reasonably cheap considering that an officer of twelve years' service earns a gratuity of £2,500 under ordinary regulations.

But that is not the main point of this letter. What I want to stress is the condition under which compensation may be claimed only if an officer does not accept further pensionable employment under the Crown (including the Colonies, but for some obscure reason excepting the Dominions). This clause is in effect a "binding out" clause which restricts a man for the rest of his life if he accepts compensation. I have not yet been able to get a final answer to the application of this to service under the National Health Act in Great Britain. At present it would appear that to accept "compensation" debar an officer from service under the Act if that service is pensionable. The resettlement grant of £500 is no more than a joke to anyone of any seniority in the Service, but is about all that most of us look like getting as things stand at present.

Now, as a man who has been a member of the B.M.A. ever since I was registered, I should like to know (1) if a deputation was ever sent to the India Office, (2) what various points it raised if it did go there, and (3) what the answers were, bearing in mind that the people most concerned in this have so far been told nothing.—I am, etc.,

ALSO I.M.S.

\* It is expected that the deputation will attend at the India Office this month.—Ed., B.M.J.

**Suspension of Basic Petrol**

SIR,—On Oct. 1, we are informed, the basic petrol ration is to be abolished. I need not dilate on the incompetence of a Government which has allowed this crisis to occur, on the fact that petrol could well be imported from the sterling area, or on the fact that tobacco, on which the majority of the U.S. loan has been spent, has never been rationed or restricted other than by taxation. That such action should be taken in peacetime is, however, a great infringement of liberty and will be felt hardest of all by the medical profession, especially in country districts.

In the recent war we accepted the lack of basic petrol, knowing that men's lives were being lost in bringing petrol to the country. Most of us endured the lack of leisure this imposed upon us without much complaint. At the same time we saw others not of our profession who, when they disagreed with the petroleum officer over the necessity for a journey, took the law into their own hands if they thought that their purpose was worth a one in fifty chance of paying a £10 fine. This way out was not open to us; if our consciences did not deter us there was always the thought of the G.M.C. waiting, as always, to give a stab in the back to those already in difficulties with the law. Efforts were made to obtain permission for the doctor to take his car with him on pleasure trips so that he could return in a hurry if necessary, but even this concession was refused by the Government.

In the present circumstances our consciences are clear. We have worked harder and for longer hours than most people, without their frequent wage increases. What leisure we have is precious and must not be wasted in buses and trains. I must ask the B.M.A. to take immediate and strong action along the following lines: (1) To put it to the Government that petrol is as essential to the doctor's leisure as tobacco to the old-age pensioner's, and to suggest that if a concession can be made in one case it can in the other. Failing an adequate response to this: (2) To seek an assurance from the G.M.C. that it will not regard "misuse" of petrol as "infamous conduct." And (3) to notify the Ministry of Health on behalf of insurance practitioners that as from Oct. 1, owing to travel difficulties, they cease to undertake to be always on call.—I am, etc.,

Witham, Essex.

J. W. NICHOLAS.

SIR,—This reversion to a wartime measure should be met by the profession with a demand for concessions which were never sought during the war. The usual grounds on which the right to use his car for pleasure has been suggested by the doctor have been the possibility of his leisure being interrupted by an urgent call. This possibility has never been seriously accepted by the authorities.

We should now claim some right to use our cars for pleasure on the following grounds: (a) The doctor's leisure is usually limited to a few brief spells snatched from his long working hours. With a car available some valuable recreative occupation can often be squashed into such a brief spell, whereas if public conveyances are to be used the whole of the short leisure period would be taken by travelling. (b) We each of us every week make special journeys to a considerable number of cases in which the only reason for the special trip lies in the unreasonable anxiety of some relative. If petrol can be spared in large amount for so satisfying the whims of our patients, then some small allowance should be possible for giving us the opportunity of proper recreative leisure in order that we may maintain our mental and physical "form."

The concession which we should seek should be either (a) that the doctor can use his car freely within his home town, or (b) that the doctor can use his car freely within, say, ten miles of his home. (In either case a "Doctor" label carrying also the name of the home town would solve all the police difficulties.) Even the most lazy of our number has so little leisure time that the possibility of any of us abusing such a privilege is quite negligible.—I am, etc.,

W. Bromwich, Staffs.

D. SAKLATVALA.

SIR,—The general public quite rightly expect prompt attention from their doctor in cases of emergency, and we are entitled to a reasonable amount of relaxation. During the war, when our gallant seamen had to face terrible risks in bringing supplies to this country, the medical profession, in my opinion quite rightly, had no wish to press for any modification of the regulations that might result in the using of a small additional quantity of fuel, but the position to-day is quite different. If a doctor pays a social call or visits his golf course he should be in a position to be able to be summoned as soon as possible when urgently wanted, and in the interests of the public I feel strongly that a doctor should be permitted to take his car on these occasions.

I do hope that the Association will press this.—I am, etc.,

Ipswich.

C. H. C. DALTON.

**Working Day in the Services**

SIR,—In view of the impending cuts in the Services it is to be hoped that the Central Medical War Committee is aware of the present squandering of medical manpower in the R.A.F. In a Service career of 11 months I spent the first seven sharing work which could have been done comfortably by one man in four hours daily.

Becoming aware of this the authorities then posted me as a "Pool" M.O., and I was sent to a station hospital to await further employment. For two weeks I was in sole charge of a dozen patients with colds, tonsillitis, etc. Upon the return from leave of another M.O. I was deprived of these and left hanging about the hospital for a further three weeks, with no duties whatsoever beyond an occasional odd job lasting possibly one hour. Then followed ten days' locum as station M.O., where the usual four hours a day proved more than adequate. Finally

I was moved to a smaller station, where only two hours' sustained effort dealing with minor ailments sufficed to earn my daily bread; and now the wheel has completed the circle and I am again sharing half of a four-hour working day.

During this period I have had three weeks' leave, five days off at Christmas, Whitsun, Easter, and during August Bank Holiday, and am now due for 10 days' leave. This excludes of course the new monthly 72-hour pass.

In my experience of six stations, including two where 12 M.O.s were employed, I have never found one medical officer doing a full day's work, and the majority do not exceed half a day. When the period of sudden emergency is over, it would appear feasible for a much greater use to be made of the mobile medical officer, while the almost non-existent emergencies could easily be dealt with by even the most overworked civilian medical practitioner. Even disregarding this subversive proposal, there is room for the most drastic cuts as is shown by the fantastic ratio of over three doctors per 1,000 fit men—an increase on even the wartime figures. Unemployment, even when well paid, should no longer be tolerated. I am, etc.,

F. C.

### Working Hours in the N.H.S.

SIR.—I wish to congratulate Dr. H. Dakin on his letter (*Supplement*, Aug. 16, p. 54) entitled, "Working Hours in the N.H.S.," and to draw the attention to it of those doctors, particularly general practitioners, who have not read it. There must be many of us who, like him, consider a twenty-four hour duty day to be an unnecessary imposition, and the question of fixed hours of duty in the new Service to be as important as the rates of pay.

The reason for our present long hours is entirely due to competition which exists in the profession to-day, intensified by the decline in medical etiquette between practitioner and practitioner, and consultant and practitioner. Since sickness is no respecter of hour or day, and doctors are therefore urged to keep office hours, we find ourselves in the inevitable position of having to be prepared to work twenty-four hours a day, not because we like it or even for the sake of our patients (for who among us would presume to think that the treatment we give is better than that offered by Dr. A. or Dr. B.?) but out of sheer necessity, because the alternative is loss of patients and of our bread-and-butter. Any other attitude is hypocritical and sentimental.

As long as doctors are paid per capita and not by salary, — in other words, as long as the competitive system continues — the present state of affairs will exist. With the increased work which the N.H.S. will inevitably entail it becomes progressively more necessary for a doctor to have leisure, and for his livelihood to be protected during his leisure. Abolition of competition would remove the commercial aspect, which should be absent, above all, in the medical profession. In fact, unless the hours of work for the doctor are made more attractive in relation to those of other callings, very soon there will be a shortage of doctors just as there is now of nurses. And, unless the spokesmen of the profession take this opportunity to make them so, I trust that the rank-and-file will raise their voices and make their desires heard.

Let us first be told the terms of service, and then let the whole profession make its choice, and particularly the younger men, since it is in their hands that the future of the profession lies. —I am, etc.,

Englefield Green, Surrey.

W. E. R. BRANCH.

SIR.—With all the present discussion and correspondence concerning the future of medical practice, one of the most disturbing points, in my opinion, is the repeated request for fixed hours of short duration and longer holidays. I believe that the younger members of the profession are slowly but surely being infected by the organism now so prevalent throughout industry, which produces as a main symptom the condition known as "being work-shy." Many of these younger men have only experienced service medicine—a real holiday after general practice, as I know from experience.

My two original partners here were of the old school and never thought about holidays, days off, etc. One worked seven days a week for about 28 years without a day off, and the other, who has recently retired after a spell of 12 years without a holiday.

They may, to the younger generation, appear only fit for psychological treatment or even more drastic measures. Nevertheless they did their job with enthusiasm and efficiency and established what, in my opinion, is the absolute essential of general practice—confidence among their patients.

I sincerely hope that in any future arrangements each practitioner will be allowed to arrange his own hours of work without any interference from the State or his less industrious colleagues.—I am, etc.,

Rimwood, Hants.

REGINALD H. LITTLE.

SIR.—In the *Journal* of Aug. 16 (p. 270) there is a letter over the signature of Dr. D. G. Summers, of Lincoln. Under the new scheme of N.H.S. the whole matter of actual working hours on the rota of attendance by general practitioners on the list is by far the most important touching the new work to be done. To-day the National Insurance scheme as it stands provides an appalling amount of surgery attendance and innumerable signatures for worried workers. Now is the time, the day of salvation from this drudgery.

Working hours of 9 a.m. to 6 p.m. with half an hour for luncheon provide as much real, careful, systematic work as can be managed by all or any practitioner on the list. Substitutes for work from 6 p.m. to 9 a.m., including night calls of course, should be on the rota; then and only then can really efficient work be done by the G.P. While on this very touchy yet most extremely necessary regulation, it is high time that remuneration offered be made public to the profession, especially if on a capital basis, and also the very minimum in exceptional cases should be stated.—I am, etc.,

Crainlock, Cornwall.

A. L. MARTYN.

SIR.—May I add my voice in support of Drs. Joseph Bell and D. W. Mayman (Aug. 30, p. 63). I was astounded at the representatives' voting against regular hours. It appears to me we need more modern representatives. I also feel a general vote should be taken and before it is too late.—I am, etc.,

Rowrah, near Worthington.

W. C. COLVILLE.

SIR.—I cannot help feeling that the criticism expressed in recent issues by Drs. Atkinson, Summers, Bell, and Mayman of the vote by the Representative Meeting adverse to fixed hours in the N.H.S. reflects an attitude of mind similar to that of the miners when they insist on a five-day week, and would in due course be followed by demands for time-and-a-half for Sunday calls and double time for night work. I am convinced with, I think, the majority of general practitioners that insistence on fixed hours of work must break up that tradition of personal individual service which is the corner-stone of the best sort of medical practice and which, though it may sometimes make life arduous, offers ample compensation.—I am, etc.,

Beccles, Suffolk.

C. GRANTHAM-HILL.

SIR.—May I trespass on your limited space to support the plea of Drs. Mayman (Aug. 30, p. 63) and Stanley Turner (p. 64). We are probably the only body in the country who endeavour to give a 24-hour service and (without wishing to bring politics or class into the question) mainly for the people who are to-day insisting on a 5-day week of 40 hours. If we are honest we must admit that it is impossible, as conditions have become these last few years, to continue working at this rate. It will, I think, be granted that the very high mortality and morbidity in the profession is due to the particular stresses and strains of medical life, the irregularity of our hours and quickly eaten meals at any odd times during the day, the important and serious decisions which we are expected to make, and the nights of disturbed sleep from which, as we get older, we recover less quickly. As an added burden and for good measure one may add the almost impossibility of getting domestic help.

Speaking from personal knowledge, I know several doctors who have given up lucrative practices in recent years for less remunerative occupations where the attraction has been fixed hours of work and definite periods of "off duty." Many colleagues to whom I have spoken willingly state that they would gladly sacrifice income for a less onerous life. There are also a number of men who intend to retire from practice when the new Health Service comes into effect, as they regard the prospect of working under the present conditions as no longer attractive.

The B.M.A. and our Negotiating Committee would do well for the future of the profession and the health of the country if they gave this question of hours and conditions of work their sympathetic consideration and did not regard the vote at the A.R.M. as final. If there is any doubt on this point it would be enlightening to have an "expression of opinion" on the subject from the silent rank and file of the profession.

There is another matter which may be mentioned here—the abolition of the basic petrol ration. We are to be subjected to the questioning of the police, who are only doing their duty, on our comings and goings, and should we wander ever so slightly out of our "beat" are likely to be run in for breaking the law. We, I am sure, have no desire to claim any special consideration in the present difficult state of the country, but it would be well to remember that it was the last straw that finished the camel.—I am, etc.,

Birmingham.

W. DUANE.

### Dispensers in N.H.S.

SIR,—I should be grateful if someone could answer the question as to what in the coming national medical service is to become of the medical practitioner's dispenser who possesses the Apothecaries Hall certificate. We in our practices know the value of these good people. According to the advertisements in the *British Medical Journal* an individual so qualified is worth a salary of £6 a week. Are these good people to be thrown out of a job at the last minute? Many of them have relatives dependent on them.

Some advice should surely be at hand as to whether they should continue, or branch into other spheres of activity. This will seem very hard after working hard to qualify for their certificate and perhaps having worked very diligently subsequently. I apologize for taking up this space in your columns; but feel the need is just.—I am, etc.,

Colwyn Bay, Denbighshire.

REGINALD R. HALSALL.

### Shaping Things to Come

SIR,—Put bluntly the so-called Representative Meeting of the B.M.A. was a sorry affair if one's reading of the facts is correct. The peculiar City motion that "the inclusion of women and children in a twenty-four-hour service will throw a heavy strain on doctors under the Act," etc., was actually discussed before Dr. E. B. Smith pointed out how singularly ill chosen was the wording. Many of the "Representatives" represented nothing more than their own myopic and selfish viewpoint and not the views of the doctors in their Division. The constructive and sensible motion by Dr. G. de Swift for a rota of practitioners was defeated by men who certainly did not represent the views of the *solo* G.P. or those working in rural districts. Instead they asked, What is wrong with a partnership? Those whose partnership is self-sufficient and who intend to remain outside the new Service should refrain from shaping that Service.

Thanks to the muddled thinking of the profession, the confused wording of the B.M.A. plebiscite, and the flank attack by the three wise Presidents of Gotham, we have already put our heads in the noose and are now squealing about the secrecy of the negotiations. Will we never learn, or are the events in dictator countries still too recent for us to see them in correct perspective and grasp the implications they hold for us at this moment? Having unwittingly betrayed our patients, are we now to betray those G.P.s entering the new Service, or are we to help in shaping it constructively to our own satisfaction?

It must be obvious that had the Government's sole desire been a better health service they could have included the wives, children, and dependants of the present insured class for a start, and taken over the major financial responsibilities of the voluntary hospitals. But patients are to be nationalized *in toto*, and those G.P.s who join the Service are expected to give up the goodwill of their practices, with compensation—like our post-war credits—to be paid on death or retirement. Do we get interest meanwhile? If so, will it be a paltry Government 2½% while we continue to pay 4 or 5% on our mortgages?

Let us at least see what advantages there could be in a complete State service for the G.P. to compensate for the grave loss of independence. Having served for six years in one of the finest of the State medical services (the Navy) one can visualize a civilian State service. From the G.P.'s viewpoint his income will probably drop considerably, but so should his expenses, as he will no longer own his practice, and therefore (1) his house will cease to be a public house for 24 hours a day. He will ultimately work at a clinic, and will be able to live in a smaller house out of the neigh-

bourhood if he wishes, as do M.O.H.s. (2) Until clinics are built the Government should rent his surgeries from him. (3) He needed clerical assistance for the group of doctors at a clinic should be provided (as in the Services). Meanwhile, the doctor's maid, wife acting as maid and clerical assistant, should be paid for by the Government until clinics are built. (4) Having no private practice, the State doctor should have a State car provided for him to visit the State's patients—upkeep, petrol, and garage to be a liability, of course. (5) Locums during leave, and assistants during the winter, will become a State responsibility. (6) A rota of doctors should be arranged for those who wish, either centrally or preferably locally by mutual arrangement. Doctors will do the morning clinics and their daily round. After that they would free, late calls, emergencies, and the evening surgery for odd cases being dealt with by the duty G.P. for the day (as in the Services).

As doctors will no longer provide a day and night service dispensing, the local chemists will have to form a rota, with a chemist on duty after working hours. Those patients with no money than sense who send late and still require their doctor could pay for the privilege. There is no valid reason why doctors who give up their independence, which in a practice means voluntary slavery at the dictate of conscience, should not find a wider freedom when organized on a national basis. There is of course an alternative to the whole business—a change of Government before this and other schemes render the nation bankrupt.—I am, etc.,

Dereham, Norfolk.

E. PUDDY

### Protection from Administrative Zeal

SIR,—In these highly administered days it is shocking to realize that a majority decision by plebiscite gives no absolute protection from administrative zeal. We can note with dismay that while preparations are being made for the dissolution of the spirit of the majority of the answers to our plebiscite, no comparable preparations to conserve that spirit are evident.

Could we not counter the unfortunate effect of the ignorance of the plebiscite result by a measure protective against corruption by power to which administrators are prone? Surely our Branches and Divisions are too large to have any real resistance to dictation. Could not subdivisions be actively organized in every locality? What but good could be done by the B.M.A.'s encouragement of doctors to meet locally without the formality inseparable from larger gatherings?—I am, etc.,

Ruislip, Middlesex.

WILLOUGHBY, CLARK.

## Association Notices

### Branch and Division Meetings to be Held

**EAST SUFFOLK DIVISION.**—At the Lecture Hall, Electric House, Lloyds Avenue, Ipswich, Thursday, Sept. 18, 8.15 p.m., Meeting Film: "The Early Diagnosis of Acute Anterior Poliomyelitis." A discussion opened by Dr. Ronald Jones will follow. All medical practitioners in the area of the Division are invited.

**WINCHESTER DIVISION.**—At Royal Hotel, Winchester, Wednesday, Sept. 17, 9 p.m. Address by Mr. C. K. Vartan: "Some Obstetric Emergencies and their Treatment."

### TRADE UNION MEMBERSHIP

The following is a list of local authorities which are understood to require employees to be members of a trade union or other organization:

**County Borough Councils:** Barnsley, Barrow-in-Furness, Gateshead.

**Metropolitan Borough Councils:** Finsbury, Fulham, Hackney, Poplar, Tottenham.

**Non-County Borough Councils:** Dartford, Leyton, Radcliffe (limited to future appointments), Wallsend.

**Urban District Councils:** Denton, Drayliden, Houghton-le-Spring, Huyton-with-Roby, Portslade, Redditch (restricted to new appointments), Stanley (Co. Durham), Tyldesley.

**Scottish Burghs:** Motherwell, Wishaw.

**Correction.**—The name of Dr. L. Z. Cosin was spelt incorrectly in the list of members of the Committee on Care and Treatment of Elderly and Infirm in the Supplement of Aug. 30 (p. 61).

# BRITISH MEDICAL JOURNAL

LONDON SATURDAY SEPTEMBER 20 1947

## HAEMATEMESIS AND MELAENA\*

WITH SPECIAL REFERENCE TO BLEEDING PEPTIC ULCER

BY

F. AVERY JONES, M.D., F.R.C.P.

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Consultant in Gastro-enterology, British Postgraduate Medical School*

Haematemesis and melaena have been the cause of much controversy throughout this century. The dangers and advantages of morphine, blood transfusion, early feeding, and surgery have stirred the leaders of the medical and surgical professions to vigorous debate. Diametrically opposed views have continued to flourish and have been nurtured by inadequate and misleading statistics. In the past twelve years two major changes have occurred in the management of haematemesis and melaena. Marriott and Kekwick (1935) introduced the technique of drip blood transfusion, and Meulengracht (1935) focused the attention of the medical world on the value of early and liberal feeding.

### Errors in Statistics

A knowledge of the fallacies of the statistics of haematemesis and melaena may help to explain the controversies of recent years concerning mortality and treatment. Errors may arise from the method of collection of the figures, from their mode of presentation, or from intrinsic variation between different series. The literature on haematemesis contains three types of series: mass hospital statistics, individual or personal series, and collected series. Mass hospital figures form the numerical bulk of mortality statistics. Their significance must depend on the accuracy of the final diagnosis recorded on the notes and on the method of compiling the annual statistical tables. Physicians vary greatly in the attention they give to the accuracy of the final diagnosis. A common error is the omission of the complication, and "gastric" or "duodenal" ulcer is recorded without reference to the haemorrhage which led to the admission of the patient.

Individual series are the only reliable sources for information. The personal attention to detail by an interested physician and the careful recording of the diagnosis probably explain the lower mortality in such series compared with contemporary mass statistics. One fallacy does exist: there is a tendency to publish a small series of 20 to 30 personal cases, illustrating a particular form of treatment. There is certainly a bias towards publishing successful rather than unsuccessful results, and the chance of halving a mortality in a short sequence of cases is appreciable.

Collected series of statistics are highly fallacious. There is a tendency to include groups of cases with different criteria of diagnosis. Many series exclude cases of melaena; others exclude cases with no radiological proof of ulcer. Raspberry and Miller (1943) include 24 papers concerning

fewer than 40 patients out of a collected series of 33 papers. To bring together this number of short series is to accentuate greatly the possibly misleading influence of successful short sequences. The mode of presentation of figures is the source of much confusion in the literature on haematemesis and melaena. A great difficulty in the evaluation of many papers is the failure to state the criteria of diagnosis of bleeding, the criteria for diagnosing peptic ulcer, and the basis for excluding cases diagnosed as carcinoma.

It is particularly unfortunate that the majority of writers exclude so many of their fatal cases, and their figures are quoted and requoted without any reference to the major amputation which occurred in the original paper. It has been the rule to exclude deaths with associated heart failure, pyelonephritis, acute perforation, cellulitis of the arm, parotitis, etc. Such complications may be iatrogenic and should not be excluded. Only two exclusions would seem justifiable: first, when the patient dies from a clearly unrelated disease (for example, tuberculosis); secondly, if an individual, having recovered from his haemorrhage, undergoes an elective operation and dies, his death should not be attributed to the initial bleeding.

Another source of error is the exclusion of surgical cases. It is customary for cases of haematemesis and melaena to be admitted to medical wards, and in few, if any, hospitals can admissions be made at random to both medical and surgical wards. When operation has been advised the patients have been transferred to the surgical wards. Nevertheless, many writers have excluded their surgical transfers and the surgical deaths. Thus, Crohn (1927) excluded seven surgical cases (with five fatalities) in a series of 101 haemorrhages, and his published mortality is 4%. This gives an entirely erroneous impression of the prognosis of bleeding when quoted by later writers. A fallacy common in the early part of this century was to relate the number of deaths from haemorrhage to the total number of patients admitted with peptic ulcer. Hawkins's (1907) mortality of 0.7% was calculated on a total of 556 patients admitted with peptic ulcer, but the number with frank bleeding is not stated.

The third great source of error in the literature of gastro-duodenal bleeding arises from the intrinsic variation of different series. There are four major variables to be considered—age, sex, type and position of lesion, and social status. The mortality of haematemesis and melaena from peptic ulcer rises after the age of 45 and is negligible before that age (Goldman, 1936). The mortality may be lower in women than in men. Acute gastric ulcers are much less serious than indurated penetrating lesions. Chronic duo-

\*The first of the two Goulstonian Lectures delivered at the Royal College of Physicians on March 18 and 20, 1947.



denal ulcers may be less serious than chronic gastric ulcers. The nutritional status may be better in private patients than in the labouring classes.

The age distribution may vary enormously (Table VI) and render useless the direct comparison of final mortality rates. Intrinsic variation in series is particularly apt to occur between private series, voluntary hospital series, and municipal hospital figures. There is an increase in the gastric/duodenal ulcer ratio with descent in the social scale (Morris and Titmuss, 1944), and there is no doubt that the age distribution is appreciably higher in municipal than in voluntary hospitals. There is a strong bias on the part of the general practitioner to send the old, decrepit, ill-cared-for, ill-nourished man to the local municipal hospital, where admission is a statutory obligation and therefore certain, rather than to a voluntary hospital, where a strong bias may be exercised by the junior staff against the admission of old and possibly chronic cases.

Comparison of figures from different countries introduces a possible error. Geographical variations in the ratio of acute and chronic gastric ulcer and in the gastric/duodenal ratio probably exist. The ease of admission to hospital under different medical services may influence the proportion of mild cases treated at home and therefore excluded from hospital statistics.

### British Figures

In spite of the many fallacies of medical statistics and the possible inaccuracy of individual series, a trend in mortality is clearly seen when reviewing the major British papers. In the early part of the century the mortality of haematemesis and melaena from ulcer was considered to be under 5% (Paterson, 1924). The frequently quoted figure of 2.5% from Guy's Hospital (1911-20) given by Hurst (1924) refers to an analysis of the post-mortem figures, excluding surgical fatalities, corrected for necropsies not performed and related to an approximate number of admissions. The corrected figure of 4% does indicate the low mortality at this time.

An increase began probably about 1917 (Bulmer, 1932), reached a maximum of about 20% between 1925 and 1935, and during the past decade has declined to between 5 and 10% (Table I and Fig. 1). The increase in mortality was

TABLE I.—Mortality from Haematemesis due to Peptic Ulcer

Key for Fig. 1	Name	Period	Cases of P.U.	Mortality (Corrected to conform with same criteria as present series)
C	Conybeare, quoted by Hurst (1924)	1911-20	Approx. 600	4%
B	Bulmer (1927)	1902-9	136	7%
B <sub>1</sub>	"	1910-17	179	7%
B <sub>2</sub>	"	1918-25	145	15%
B <sub>3</sub>	Bulmer (1932)	1926-31	111	16%
Ch	Chiesman (1932)	1925-31	191	25%
C & P	Cullinan and Price (1932)	1925-9	105	18%
B & H	Burger and Hartfall (1934)	1921-30	137	21%
H	Hellier (1934)	1926-32	284	14%
A	Aitkin (1934)	1929-33	262	13%
H & B	Babey and Hurst (1936)	1919-35	82	7%
S	Smith (1945)	1934-45	180	6%
A J	Present series	1940-7	615	8%

undoubtedly associated with two changes in the character of peptic ulcer. In the early part of this century acute ulcer causing bleeding was prevalent among women but carried a very low mortality (Bolton, 1913). The Registrar-General's mortality figures have demonstrated the virtual disappearance of this group of peptic ulcer in young women (Jennings, 1940; Tidy, 1944).

Although the loss of these cases of acute ulcer would increase the absolute mortality rate, this was not the complete story, and from 1920 to 1930 a further change occurred

in peptic ulcer. A twofold to threefold increase became apparent in the Registrar-General's figures, the increase being due to ulcers, particularly duodenal, in men over 40 (Tidy, 1944). That this increase is real and not due to improved diagnosis or increased surgical intervention is revealed by the statistics on acute perforation from Glasgow,

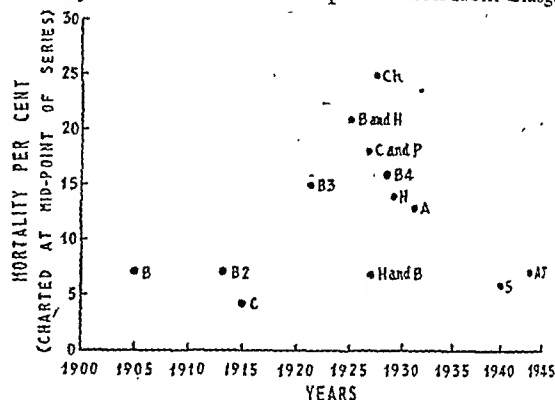


FIG. 1.—Mortality from haematemesis due to peptic ulcer. (For key, see Table I.)

which show a corresponding increase (Illingworth, Scott, and Jamieson, 1944). These changes are well reflected in the papers on haematemesis and melaena. The important mortality is in men over 40, and the lowest in women under 40. An analysis of papers from this country has shown that a remarkable increase occurred about 1920 onwards in the proportion of men over 40 and also in a marked decline in the younger women (Table II and Fig. 2).

TABLE II

Author	Males over 40		Females under 40	
	Incidence	Mortality	Incidence	Mortality
Bulmer (1902-25)	17%	24%	46%	6%
Bulmer (1926-31) and Cullinan (1925-9)	50%	20%	11%	11%
Smith (1934-45)	40%	16%	11%	4%
Avery Jones (1940-7)	51%	10%	5%	4%

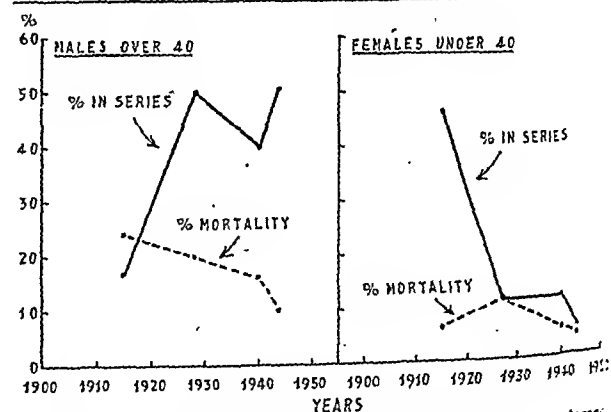


FIG. 2.—Change in age distribution of admissions for haematemesis from peptic ulcer. (See also Table II.)

The actual mortality rate for men over 40 has declined but nevertheless the proportional increase was so great that the total mortality rose and reached very high levels in 1930. The fall in mortality in the past decade is undoubtedly due to the introduction of liberal feeding (therefore adequate fluids) and to the use of the drip blood transfusion of Marriott and Kekwick.

The controversy on haematemesis in past years was accentuated by Hurst and Ryle's (1937) contention during the 1930 period that the mortality was extremely low. Between 1919 and 1935 Hurst treated 82 cases of bleeding peptic ulcer in his wards at Guy's Hospital, and seven died. He excluded three cases—two perforated after admission.

and one had ptychocphritis. The latter complication developed a month after the haemorrhage and may legitimately be excluded. His corrected mortality of 7% represents a result that could be obtained by an interested physician who avoided the extreme dehydration which contributed to the high level of the mass hospital statistics at that time. Ryle (1937) reported a mortality of 1.6% in 258 patients seen in consulting practice, excluding six complicated fatal cases. It would seem that many of the patients were first seen in his consulting-room after the bleeding episode had resolved, and his cases are therefore entirely different from those seen when admitted to hospital for acute haemorrhage.

No attempt will be made to present a corresponding analysis of the American and Scandinavian series, as there are too many imponderables to allow a critical comparison with the British papers. Figures for the early years of this century do not appear to be accessible in the American and Scandinavian literature, but the recent fall in mortality can readily be discerned. The Scandinavian figures during the 1930 period were never as high as the British and American series, and the fall to 1% (Meulengracht, 1939) has not been reproduced in this country or in America in any series of over 100 cases. It seems probable that admission to hospital is easier in Scandinavian countries, and many more mild cases are therefore included in their series. Only 30% of Meulengracht's cases showed radiological evidence of peptic ulcer, against 60% in this series, suggesting a lower proportion of chronic ulcers than in this country.

Besides the many statistical pitfalls there are semantic difficulties which encumber the literature on haematemesis and melaena. Recurrent bleeding is used by some writers when referring to recurrent episodes of bleeding over the period of years, and by others to mean recurrent bleeding after admission with haemorrhage. Massive bleeding is used by some to mean exceptionally severe haemorrhage and by others to distinguish cases from those with occult blood in the stools. Some writers use "haematemesis" generally to comprise all cases of haemorrhage, including melaena only, while others exclude such cases of melaena. In earlier papers bleeding gastric ulcer often included cases of duodenal or jejunal ulcer. Finally, post-operative cases of melaena may refer to patients who had a gastric operation in the past or to patients immediately after operation.

It is insufficiently realized that a single mortality figure is an exceedingly dangerous symbol. The surgeon may reassure himself and the patient that the mortality of a partial gastrectomy is low, but the extremely small risk in men aged 30-40 is offset by much increased hazard in older age groups. To appreciate the prognosis of bleeding peptic ulcer it is essential to know the risk with different types of lesions and in different age groups. The present series is large enough to enable this information to be readily available.

### The Series

The 687 patients are a consecutive series admitted between June, 1940, and January, 1947, inclusive, mainly to the dietetic wards under my care. Patients who had a brisk haemorrhage in hospital while under treatment for some other condition have been included. Patients with dark blood-stained vomit, associated with intestinal obstruction, peritonitis, diabetic coma, blood dyscrasias, etc., were not included. Every patient had had evidence of frank recent haematemesis and/or melaena with good evidence of blood loss. The hospital, being municipal, serves a defined area in N.W. London only, and the admissions are therefore representative of the medical problems of that district. The statistics have not been influenced by problem cases from other parts of London.

The series has been divided into two groups to allow separate consideration of 14 patients who came into hospital with acute perforation of a peptic ulcer and who then bled during the first two weeks after operation. It was felt that the additional hazard of the prior perforation rendered comparison with other groups unreal. These cases of haemorrhage after acute perforation were all treated in the same wards, which are for surgical as well as medical cases of peptic ulcer. The five patients who perforated after admission for bleeding are regarded as having complications of the haemorrhage and are included in the main series.

The patients were treated on the general lines described by Witts (1937). They received an initial purée diet and drip blood transfusions. The aim of transfusion was to try to maintain the haemoglobin at such a level that further bleeding, if it occurred, would not cause severe anoxaemia. Approximately one-third of the patients were transfused; the amounts used are shown in Table III. The lowest haemoglobin readings were below 40% in 28% of the peptic ulcer group.

TABLE III.—Blood Transfusion

No. of Bottles (540 ml.)	No. of Cases	No. of Bottles (540 ml.)	No. of Cases
1	47	11	4
2	72	12	1
3	38	13	3
4	22	14	1
5	15	15	1
6	11	16	2
7	3	17	1
8	5	18	2
9	5	20	1
10	2	21	1

**Diagnosis.**—A detailed history and an examination were recorded in all cases, and a barium meal was given as soon as the patient could get up, usually during the third or fourth week, but sometimes sooner. Gastroscopy was carried out in selected cases between three and ten days after the bleeding had ceased. This examination was made as a clinical investigation into the cause of bleeding. Great care and discretion were exercised and no serious complications occurred. Gastroscopy was performed in 116 out of 217 cases which clinical and radiological investigations failed to diagnose. In 65 cases a rapidly healing gastric ulcer was found. The final diagnoses are listed in Table IV.

TABLE IV.—Final Diagnosis

Peptic Ulcer Group	Admissions	Deaths
Chronic G.U. group:		
Chronic G.U. diagnosis established by radiograph, operation, or necropsy	110	24
Chronic G.U. and D.U.	12	—
Chronic D.U. group:		
Duodenal ulcer	190	16
Pyloric ulcer	17	3
Previous G.-E. or P.G. for D.U.	34	1
Acute lesion group:		
Acute gastritis	5	—
"Gastrostaxis" (no lesion discovered at necropsy)	2	2
Acute G.U.	67	2
Other "x-ray" negative cases	143	—
Miscellaneous group:		
Oesophageal ulcer	2	—
Partial thoracic stomach	6	—
Not radiographed	27	—
	615	48
Gastric tumours:		
Simple	4	—
Malignant	18	6
Portal hypertension:		
Banti's syndrome	12	—
Cirrhosis hepatis	11	5
Portal thrombosis	2	2
Other causes	11	1
First series. Total	673	62
Second series	14	6
Haematemesis and melaena after admission for acute perforation of peptic ulcer		
	687	68

The diagnosis of carcinoma of the stomach was confirmed by histology or by the presence of metastases except in two cases where necropsy was performed at the coroner's office and the pathologists reported neoplastic gastric ulcer. A number of causes of massive haemorrhage have not yet been specifically diagnosed in these wards—for example, haemorrhage from localized arteriosclerosis of gastric vessels (Frank, 1946), which may cause repeated episodes of bleeding; hereditary telangiectasia, in which epistaxis is usually a feature of the previous history (Griggs and Baker, 1941); malignant or benign tumours of the oesophagus; multiple polyps of the oesophagus (Diekes *et al.*, 1942); small-intestine innocent tumours; leiomyoma; neurofibroma (Baker and Halley, 1946; Hanno and Mcnsh, 1944; Dudley, 1934; Klingenstein, 1938), haemangiomatosis, or carcinoma of the small intestine (Segal *et al.*, 1945); rupture of aneurysm of aorta, hepatic artery (Gordon-Taylor, 1943), or splenic artery (Murphy, 1942). The 12 admissions for Banti's syndrome were due to only two patients. The "other causes" included Meckel's diverticulum (2), renal failure (4), spurious haematemeses from pulmonary disease (2), and carcinoma of the pancreas (1).

**Age Distribution.**—Gastro-duodenal haemorrhage is more often fatal in the elderly, and the age distribution (Table V) must be taken into consideration in comparing

TABLE V.—*Peptic Ulcer Group: Age Distribution*

Age	Males		Females		Total Deaths	Mortality
	No.	Deaths	No.	Deaths		
10-19 ..	3	—	2	—	—	—
20-29 ..	24	1	11	—	1	3%
30-39 ..	63	—	18	1	1	1%
40-49 ..	109	5	37	1	6	4%
50-59 ..	90	6	55	2	8	6%
60-69 ..	81	11	47	5	16	12%
70-79 ..	34	10	28	3	13	21%
80+ ..	7	1	6	2	3	23%
	411	34 (8%)	204	14 (7%)	48 (7.5%)	

these results with other series. The proportion of patients over 60 is considerably higher than in previous series in this country or elsewhere (Table VI). The high proportion

TABLE VI.—*Cases over 60 Years of Age*

Name	Region	Period	No.	No. over 60
Bulmer (1927)	Birmingham	1902-26	460	9 (2%)
Burger and Hartfall (1934)	London	1921-30	137	13 (10%)
Cullinan and Price (1932)	London	1926-30	105	11 (10%)
Kirsner and Palmer (1939)	America	1929-39	230	30 (13%)
Meulengracht (1936)	Denmark	1932-6	206	36 (17%)
Clemmesen and Lund (1939)	Norway	1934-8	263	40 (15%)
Scott (1940)	Glasgow	1936-40	110	18 (16%)
Schiff (1944)	America	1937-44	160	34 (21%)
Present series	London	1940-7	615	203 (33%)

(33%) of elderly people in this series has been maintained since the end of the war and cannot be explained by the loss of younger patients into the Forces. Comparison with previous figures is difficult, as there are no pre-war series from municipal hospitals, and the bias towards sending the older and more decrepit patients to these hospitals is probably the cause of the high proportion. The figures nevertheless suggest that the age of the ulcer population may be increasing.

**Mortality.**—The total mortality of the peptic ulcer group is 7.8%. Under 45 the mortality remains at 2%, then rises to 6% between the ages of 45 and 59, 12% between 60 and 69, and finally 21% over 70.

#### Fatal Cases

There were 48 fatal cases among 615 patients in the peptic ulcer group, and an analysis of these cases is presented with reference to nature of lesion, presence of com-

plications, recurrent bleeding, and mode of death. Necropsy was carried out in 45 out of the 48 cases.

Bleeding (Table VII) accounted for 34 out of the 48 fatalities, the others being due to acute perforation (5), pulmonary embolus (1), coronary thrombosis (2), and exhaustion (6).

At necropsy it was usual to find one large open vessel in the floor of the ulcer, and it was remarkable that death had occurred usually not quickly but after several recurrent bleedings in the course of as many days. Bleeding with acute collapse must have occurred from the large exposed vessel, not once but perhaps six times. It would seem probable that in most cases bleeding from such a large vessel could have occurred for only a short period, perhaps 10 to 15 minutes, and then ceased. At operation it was more usual to find the vessel beginning to spurt when manipulated than when first seen.

TABLE VII.—*Time of Death from Bleeding*

	No.	Suddenly while in Hospital	Days						
			1	2	3	4	5	6	7
Acute lesion group ..	3	—	1	—	—	—	—	—	—
Chronic gastric ulcer group ..	14	1	2	2	2	2	1	2	1
Duodenal ulcer group ..	17	1	4	3	1	3	1	1	—

The distribution of the ulcer fatalities by diagnosis, age and sex is set out in Tables VIII and IX, which particularly indicate the prognosis in different age groups. It is apparent that the mortality of chronic gastric ulcer is twice as high as duodenal ulcer. There is, however, one fallacy; the duodenal ulcer group undoubtedly contains many more acute ulcers, whose presence is shown more readily in the constricted space of the duodenal cap than they would radiologically in the body of the stomach. The mortality of the acute lesions is extremely low.

TABLE VIII.—*Male Fatal Cases*

Age	Chronic G.U. Group		D.U. Group		Acute Group		Misc. Group	
	No.	Deaths	No.	Deaths	No.	Deaths	No.	Deaths
10-19 ..	—	—	2	—	1	—	—	—
20-29 ..	2	1	15	—	4	—	3	—
30-39 ..	12	—	25	—	20	—	6	—
40-49 ..	20	4	57	1	28	—	4	—
50-59 ..	24	4	41	2	24	—	—	—
60-69 ..	21	5	37	6	23	—	5	—
70-79 ..	6	3	14	7	9	—	—	—
80+ ..	—	—	2	1	5	—	—	—
All ages ..	85	17	193	17	114	—	19	—
Mortality	20%		9%		—		—	

TABLE IX.—*Female Fatal Cases*

Age	Chronic G.U. Group		D.U. Group		Acute Group		Misc. Group	
	No.	Deaths	No.	Deaths	No.	Deaths	No.	Deaths
10-19 ..	—	—	—	—	2	—	—	—
20-29 ..	3	—	4	—	3	—	1	—
30-39 ..	2	—	5	1	10	—	1	—
40-49 ..	4	1	11	—	21	—	4	—
50-59 ..	9	1	14	—	28	1	6	—
60-69 ..	10	3	8	1	23	1	2	—
70-79 ..	8	2	5	—	13	1	1	—
80+ ..	1	—	1	1	3	1	—	—
All ages ..	37	7	48	3	103	4	16	—
Mortality	19%		6%		4%		—	

The relation of death to brisk recurrent bleeding shows that there is a correlation between death and recurrent bleeding from chronic ulcer but not from acute lesions in which recurrent bleeding is almost as frequent and often as severe (Table X).

TABLE X.—*Brisk Recurrent Bleeding After Admission*

Age	Chr. G.U. Group			D.U. Group			Acute Group			Misc. Group		
	A	B	C	A	B	C	A	B	C	A	B	C
10-19 .. ..				1								
20-29 .. ..	1	1		1								
30-39 .. ..	4			3	1		5			2		
40-49 .. ..	7	3		6	1		12			1		
50-59 .. ..	9	4	2	5	2		9			1		
60-69 .. ..	7	4		5	3		11	1				
70-79 .. ..	7	4		6	4	2	5	1		1		
80+ .. ..	3	3		1		1	1	1				
	31	15	2	31	11	3	43	3	—	5	—	—
Total No. ..	122			241			217			35		
Proportion with A	26%			13%			20%			14%		
Mortality with A	45%			35%			7%			—		

A = Brisk recurrent bleeding. B = Died. C = Successful operations

Left ventricular enlargement was found in 10 out of the 45 necropsies and severe arteriosclerosis in 22. Oedema of the lungs was uncommon; massive oedema was present in only one case and terminal oedema of the bases in four. One chronic gastric ulcer was accompanied by an acute ulcer which had developed after laparotomy and simple suture of the bleeding vessel. An exposed vessel was seen in 32 out of the 45 cases and an aneurysmal swelling was noticed four times. The large size of the chronic ulcers was very striking; 75% were over 3 cm. in diameter, the largest being 13 cm.; but in spite of the large size there was no histological evidence of malignancy.

By the bedside the fatal cases could be clearly distinguished as those with a grave clinical complication which would essentially rule out the thought of surgical treatment. Thirty-five of the fatal cases had such complications as being over 75 years (8), severe emaciation (5), generalized oedema (4), cerebral thrombosis, heart failure, pneumonia on admission, gross bronchiectasis, etc. The general condition of the remaining 13 cases was sufficiently reasonable for surgical treatment to be contemplated.

### The Role of Surgery

During the first 400 admissions surgery was undertaken as a last desperate measure in three cases, all fatal. It was considered a legitimate clinical observation to try to determine which cases would still have died under modern medical treatment. During this time it became apparent that there was a small group of nine uncomplicated cases in which life might have been saved by timely surgery (Table XI).

TABLE XI.—*Uncomplicated Cases (Medical)*

Sex	Age	Ulcer	Surgical Risk
M.	25	Chronic G.U. (3 x 2 cm.)	Fair
F.	30	" D.U. (8 x 5 cm.)	"
M.	47	" J.U. (2 cm.)	"
Nl.	56	" G.U. (2 cm.)	Good
M.	60	" G.U.	Fair
M.	61	" G.U. (6 cm.)	Very poor
M.	70	" G.U. (1.5 cm.)	Fair
Nl.	70	" D.U. (1 cm.)	Poor
Nl.	72	" (5 x 3 cm.)	Fair

As a result of the analysis it was decided to undertake an emergency partial gastrectomy on those patients, particularly if over 50, with good clinical evidence of a chronic ulcer who were free from medical complications and who had a brisk recurrent haemorrhage after admission to hospital. Persistence of pain after admission and evidence of arteriosclerosis would be further points in favour of operation. Evidence of chronic ulcer has meant a history of known previous chronic ulceration or recent pain, particularly if severe, lasting more than three weeks. The temptation to lay down a hard-and-fast dividing line should

be resisted, as there is so much individual variation, and every case must be considered on its own merits.

In the past the mortality of delayed surgery has been high—for example, Finsterer (1939), 26.9%; Gordon-Taylor (1937), 36%—but a high mortality for delayed operation is not necessarily an argument against it if by waiting one can distinguish a group of patients who carry an exceptionally high mortality with medical treatment. It will be seen from Table X that such a group will carry a mortality of some 50% or more under medical treatment. Surgery, even at a risk of 20 to 30%, may still effect a saving in life. Among the past 267 admissions seven such patients have had an emergency partial gastrectomy performed by Mr. J. D. Fergusson, with one death (Table XII).

TABLE XII

Sex	Age	Diagnosis	Brisk Recurrent Bleeding in Hospital	Day of Operation after Onset of First Haemorrhage	Operation	Result
M.	51	Chr. G.U.	2	2nd	Part. gast.	Recovery
M.	57	Chr. G.U.	2	8th	"	"
M.	55	Chr. pyloric ulcer	4	8th	"	"
M.	58	Double chr. G.U.	1	1st	"	"
M.	66	Chr. D.U.	3	2nd	"	"
M.	70	Chr. G.U.	3	6th	"	"
M.	75	Chr. D.U.	1	1st	"	Died

\* This patient belonged to the second series—that is, he bled after admission for acute perforation.

There is therefore a small group of patients with chronic ulcer and brisk recurrent bleeding after admission in whom delayed emergency partial gastrectomy can be successful. Finsterer (1939) achieved a 5% mortality by operating on all cases within 48 hours. With the high age distribution and the frequency of associated medical complications in municipal hospital practice, it is extremely improbable that routine emergency surgery immediately on all admissions would result in a lower total mortality than from medical treatment together with limited surgery as proposed.

### The Role of Blood Transfusion

Although most clinicians use drip blood transfusions in the management of gastro-duodenal haemorrhage, there are still some who remain unconvinced of its value. Smith (1945) in a critical survey of 200 cases does not advise transfusion. The arguments for and against will be briefly considered.

The risk of reactions to blood is a real one, and mild rigors, fever, or slight jaundice may follow in a small proportion (under 5%) even when cross-grouped. Again, there is a risk of inducing Rh antibodies in the Rh-negative individual. This may lead to reactions during subsequent transfusions, and women who become sensitized may thereafter be incapable of bearing a live child. Normal pregnancy results in sensitizing about 4% of Rh-negative mothers with Rh-positive husbands. Therapeutic blood transfusions, however, sensitized about half those at risk (Wiener and Gordon, 1947). As 15% of women are Rh-negative, this aspect must be seriously considered when transfusion is contemplated for women during the reproductive period of life.

A blood transfusion may overload the circulation, increase the right auricular pressure, raise the cardiac output, and possibly lead to acute left ventricular failure and oedema of the lungs. Sharpey-Schafer (1945) has demonstrated graphically the embarrassment which may occur in the circulation after transfusion in severely anaemic patients, and has further demonstrated the risks of transfusion in relation to the changes in haemodynamics which follow an acute haemorrhage.

It has been thought that blood transfusion may perpetuate or restart the bleeding, but the incidence of recurrent bleeding has actually fallen since the introduction of drip transfusions and it has not been the experience in this series that they do restart the bleeding. It has been argued that blood transfusion may raise the blood pressure. Drip blood transfusions do not increase the blood pressure more than would occur without transfusion (Avery Jones, 1939a). There does not appear to be any reliable evidence that subsequent haemopoiesis is depressed by transfusion, and the risk of transmitting infective hepatitis, syphilis, or malaria is very small.

Against these arguments are cogent reasons for giving drip blood transfusions. Death from bleeding does not occur quickly in most cases, but follows two, three, four, or more brisk recurrent bleedings in as many days. Therefore there is time to replace lost blood by drip transfusion even if given at the rate of 540 ml. in four hours. If the blood lost is replaced, and if the haemoglobin level is maintained above 40-50%, the patient is in a much better position to withstand further bleeding, should it occur.

If the blood loss is by slow oozing it is quite feasible to keep pace with the bleedings by drip transfusion. If surgery becomes necessary the patient can be maintained at a much safer level than if no transfusions were given. Once the haemoglobin is below 30% there is a risk of anoxaemic manifestations with disorientation, restlessness, particularly at night, and lack of co-operation. Such manifestations may well induce a vicious circle, as the patient becomes intolerant of further transfusion and nursing. Cerebral anoxaemia is particularly serious in elderly patients, and a short period may induce irreversible cellular changes which cause coma and death. Occasionally a severe initial collapse, with great reduction of the circulating blood, may lead directly to a state of profound and persistent oligaemic shock and death, which might have been averted if the restoration of the blood volume had been assisted.

Again, severe anaemia will cause a sharp increase in the output of the heart (Sharpey-Schafer, 1945), and the accompanying high venous pressure may induce cardiac failure and oedema, and in the presence of these phenomena the risk of transfusion will be considerably increased. If the patient becomes severely anaemic he may be considerably distressed from headache, and his intense pallor is an added anxiety for the medical staff and relatives. Lastly, there is the small risk of permanent amaurosis, which may follow recurrent bleeding in an anaemic patient.

The available evidence supports the use of blood transfusion, but a bias in favour of transfusion must be exerted with discretion and not enthusiasm. All possible measures must be taken to minimize the known risks. Women in the reproductive period of life should be Rh-tested; severely anaemic patients should be under constant supervision during the transfusion and a watch kept on the jugular veins (with the patient propped up) and on the pulse rate. Blood should be cross-grouped, and the bottle carefully inspected before use. The same blood group should be employed whenever possible. The experience of this series has shown that blood transfusion is a most valuable therapeutic aid in the management of gastro-duodenal haemorrhage. If it is given as a drip transfusion the patient can often be maintained at such a level of haemoglobin that he is able to withstand any further bleeding without developing anoxaemic manifestations. In view of the work of Sharpey-Schafer it is clearly desirable to maintain the haemoglobin above 40%, and secondary cardiac embarrassment may thereby be avoided. The patient is spared the headache of severe anaemia, and the risk of amaurosis is minimized. The risk of acute cardiac failure

from careful transfusion is considerably less than that leaving the patient's haemoglobin below 40% when bleeding may recur.

Transfusions have been given with the M.R.C. blood transfusion set, and in very few cases has it been necessary to cut down on a vein. Usually 540-1,080 ml. has been transfused in four to eight hours, but on occasion 1,620-3,240 ml. has been given continuously at the same rate. Except in a few collapsed patients, the blood has never been given quickly. One patient died possibly as the result of the transfusion, but necropsy revealed the presence of coronary infarction. On the other hand, in several patients insufficient transfusion undoubtedly contributed to their death. Minor reactions, slight jaundice and urticaria have occurred in a very small minority of cases.

[The second lecture, with a list of references, will appear in our next issue.]

## GASTRO-ENTERITIS OF UNKNOWN AETIOLOGY

### AN OUTBREAK IN A MATERNITY UNIT

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In recent years increasing attention has been paid to the form of gastro-enteritis for which, despite improved methods of laboratory diagnosis, no known cause has been discovered. A number of such outbreaks have been described in this country,<sup>1-10</sup> in the U.S.A.,<sup>11-18</sup> and on the Continent.<sup>17-21</sup> The diagnosis depends on the recognition of a distinctive clinical picture differing from bacterial gastro-enteritis, on the presence of an epidemic and on negative laboratory findings.

These outbreaks, excluding "epidemic diarrhoea of the newborn,"<sup>22-24</sup> can be divided into two categories with rather different symptoms. On the one hand there is the epidemic nausea and vomiting described by Rischel, Miller and Raven,<sup>18</sup> and Bradley,<sup>10</sup> in which diarrhoea is not a predominant symptom; into this group falls, possibly the less well defined "winter vomiting disease" of American observers.<sup>15-16-20</sup> On the other hand there is a variety in which diarrhoea is the most striking and constant symptom as exemplified in outbreaks described by Smith and Davies Brown, Crawford, and Stent<sup>2</sup> in this country, and by Reimann *et al.*<sup>13</sup> and other observers<sup>11-12-14</sup> in the United States.

This paper is concerned with the second type of illness characterized by diarrhoea of abrupt onset, with frequent watery stools of a yellowish-grey colour without macroscopic blood or pus. Fatal cases have not been reported among adults, but the fatality rate among infants is variable.

Epidemiologically, though most of the outbreaks reported have occurred in selected groups in institutions both sexes and all age groups are susceptible, the incubation period is short, and the outbreak tends to be of the protracted rather than of the explosive "food-borne" type. The attack rate is often high in semi-closed communities and the disease is particularly troublesome in maternity wards. The outbreaks have a variable seasonal incidence. That described by Smith and Davies<sup>1</sup> was in the autumn



and winter months, but during 1944-6 outbreaks starting during the summer months seem, from a limited number of published reports<sup>1-6</sup> and other sources,<sup>7-9</sup> to have been more common (see Fig. 1).

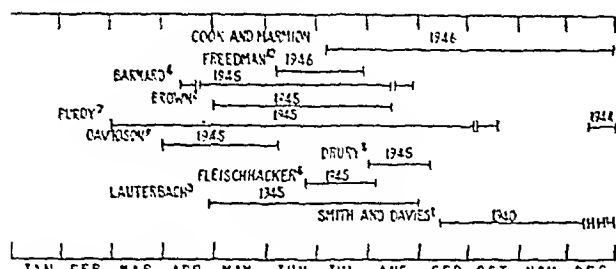


FIG. 1.—Seasonal incidence of outbreaks of gastro-enteritis. —=Period of outbreak. HHH=Exact date not stated.

In the absence of an outbreak the mildness of the disease makes its detection in the general population difficult, for probably many patients do not require medical aid. The replies of general practitioners in the Salford area to the circular of Brown *et al.*<sup>2</sup> suggest that an outbreak of the disease in an institution is a reflection of its increased incidence in the surrounding population. The correspondence,<sup>3-6</sup> following the report of Brown *et al.*,<sup>2</sup> from general practitioners and other doctors living in various, sometimes widely separated, localities indicates that the disease was widespread throughout the country during 1945, and it is probable that it was also prevalent during 1946. The present account deals with an outbreak in an Oxford maternity unit.

### The Outbreak

On Aug. 26, 1946, the medical officer of health and the Public Health Laboratory, Oxford, were asked to investigate an outbreak of diarrhoea and vomiting in the maternity section of an Oxford hospital. The hospital is mainly for the care and treatment of the aged and chronic sick, but part of it is used as temporary accommodation for a maternity unit run by the Oxford City health services.

The unit is housed on the first and second floors of one of the buildings and consists of seven rooms containing one to six beds, an admission ward, a nursery, labour ward, kitchen, and lavatory accommodation. The number of beds available in the unit is 26, and the staff consists of five midwives, six assistant nurses, and three domestic workers. The outbreak, which has involved patients, babies, and staff, and on occasion home contacts of these persons, started on July 7 and continued at the time of writing (June 25, 1947).

**Clinical Aspects of the Disease in Adults.**—The relative frequency of symptoms and signs and the mean duration of diarrhoea observed in a number of patients are summarized in Table I. The first indication of illness was usually diarrhoea of acute onset, with the passage of eight to ten stools in 24 hours in cases of moderate severity. The stools were unformed, very watery, free from blood and pus, resembled "milky tea"

TABLE I.—Symptoms and Signs in Adult Gastro-enteritis Patients

	Group A	Group B
Total No. of ill persons ..	23	35
Headache ..	No record	14 (40%)
Epistaxis ..	"	2 (5%) (14.3%)
Nasopharyngeal congestion ..	"	4 (11.4%)
Nausea ..	12 (52%)	17 (48.6%)
Giddiness ..	No record	6 (17.1%)
Vomiting ..	9 (39%)	14 (40%)
Diarrhoea ..	23 (100%)	35 (100%)
Abdominal colic ..	4 (17.3%)	23 (65.7%)
Temperature above 99° F. (37.2° C.) ..	10 (43.5%)	12 (34.3%)
Mean duration of diarrhoea ..	3-7 days	3-9 days
	(2-5 days)	(1-7 days)

Group A = data from case records (July and August, 1946).  
Group B = patients and six members of the staff interviewed by investigators (August to October, 1946).

\* One patient had both symptoms.

† Of 29 cases in which temperature was recorded.

in colour, sometimes contained mucus, and were very offensive in smell. The vomiting was usually of short duration and the temperature rarely exceeded 100° F. (37.8° C.). Direct questioning revealed respiratory symptoms in five out of the 35 patients, one having epistaxis, three nasopharyngitis, and one both symptoms (Table I); the true relation between respiratory and intestinal symptoms was indefinite.

**Diarrhoea and Vomiting Among the Newborn.**—The clinical condition of the infants was particularly difficult to assess because of the mildness of the symptoms. Study of the ward records revealed three varieties of bowel action: (a) passage of a formed or semiformed yellowish stool after each feed (well); (b) increased frequency of defaecation associated with the passage of looser yellow stools necessitating more frequent changes of napkin (Class I); and (c) passage of a loose, green, slimy, offensive stool, associated with increased frequency of defaecation and sometimes excoriated buttocks (Class II). The incidence of these grades of bowel activity in the infants of well and ill mothers is recorded in Table II.

TABLE II.—Incidence of Disease among Infants of Ill and Well Mothers

Infants	No. of Infants associated with		Total
	Ill Mothers	Well Mothers	
Class I ..	19 (21.6%)	29* (23.9%)	48
Class II ..	42 (47.7%)	24† (19.8%)	66
Well ..	27 (30.7%)	68‡ (56.2%)	95
Total ..	88	121	209

NOTE.—One pair of twins equals one child for purpose of table, as each twin in the two pairs reacted in the same way as its sibling.

\* Includes the infants of eight mothers who had diarrhoea after discharge from hospital and of two mothers with "doubtful" symptoms.

† Includes the infants of seven mothers who had diarrhoea after discharge from hospital and of two mothers with "doubtful" symptoms.

‡ Includes the infants of seven mothers who had diarrhoea after discharge and of two mothers with "doubtful" symptoms.

and their significance is assessed in the discussion. For convenience and brevity infants with Class II bowel signs are described below as suffering from gastro-enteritis. Such infants never became severely dehydrated, nor was their eventual progress affected.

**Epidemiology.**—The majority of patients were delivered soon after admission, but there was some contact at meal-times between cases awaiting delivery for any length of time and those about to be discharged. Infants spent most of the day in cots by their mothers' beds, and at night were transferred to a common nursery on the second floor. Washing, changing, and supplementary feeding were carried out in the nursery, and there was necessarily some contact between infants from different wards. An analysis is made below of the epidemiological data for all patients admitted during the period July 4 to Nov. 29, 1946, inclusive. During this period 216 women were admitted, of whom 209 gave birth to viable infants (207 single births and two pairs of twins).

The outbreak, which continued until the unit was closed on Nov. 29, was apparently started by the admission to the unit on July 4 of a patient suffering from slightly relaxed and offensive stools, which became more frequent and watery during the next three days. Fig. 2 shows the daily incidence

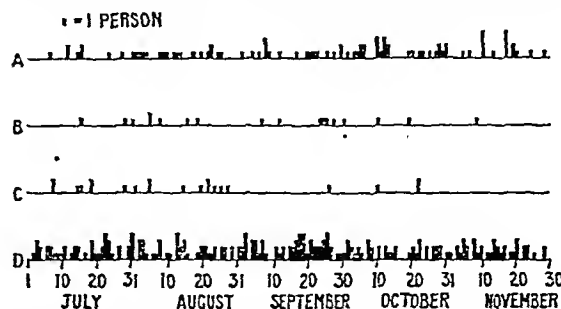


FIG. 2.—Daily incidence of new cases of gastro-enteritis among adult patients and staff, and daily number of admissions to the unit. A=Overt cases among maternity patients. B="Doubtful" cases among maternity patients. C=Cases among staff. D=Admissions of maternity patients.

of new cases among adult patients and staff and also the daily number of admissions to the unit during the period. In this figure the adult patients have been divided into overt and "doubtful" cases: the symptoms of the latter were so slight—consisting merely of a few loose stools on one day only—that it was difficult to know whether they were suffering from a bowel disturbance of a non-infective nature or were cases of true but mild gastro-enteritis. The staff in the unit at the start of the outbreak succumbed in the first weeks, the cases during the last months being new recruits who generally became ill within ten days of joining. Fig. 2 does not include "illness" among the babies, the first of whom became ill on July 11. The subsequent daily incidence of new cases among the babies resembled that of the mothers.

**Attack Rates among Adult Patients and Staff.**—The attack rate of all adult admissions during the period July 4 to Nov. 29 was 52.3%, including those patients whose illness began after discharge. The number of attacks per 1,000 patient-days of exposure for each of the five months was: July, 41.6; August, 46.4; September, 60.8; October, 93.3; November, 83.3. Of 211 infants born between July 4 and Nov. 29, 68 (32.2%) had gastro-enteritis. The nursing and domestic staff also experienced a high attack rate: of 32 persons employed during the period July to November, 21 (65.6%) had gastro-enteritis. Second attacks, one and two months after the first, were experienced by two members of the staff.

**Relation of Onset of Diarrhoea to Day of Admission.**—The majority of cases of gastro-enteritis among the mothers began between the fifth and ninth days after admission, the shortest and longest periods observed being three and 18 days. The usual length of stay in the unit was nine to 14 days for healthy women, and it was evident that some patients must have been discharged before the beginning of their illness. A "follow-up" in co-operation with the Oxford Health Visitor Service of 94 patients discharged during the period July 4 to Nov. 29 revealed that in 25 (26%) gastro-enteritis had started not later than three days after discharge.

**Incubation Period.**—Patients did not develop gastro-enteritis in less than three days after admission, and those discharged in the incubating stage of the malady were sometimes at home for a period of two days before having symptoms. In a sample of 216 persons some must have been infected very shortly after admission and on the day of their discharge. Hence the shortest period between admission and onset and the longest period between discharge and onset should approximate to the incubation period. These considerations suggest that the incubation period was two to three days. This estimate agrees in general with that deduced from "single contact" episodes involving the families of sick maternity patients and staff.

**Time Relation of Illness in Mothers and Infants.**—Fig. 3 has two curves: one (A) showing the number among 66 infants

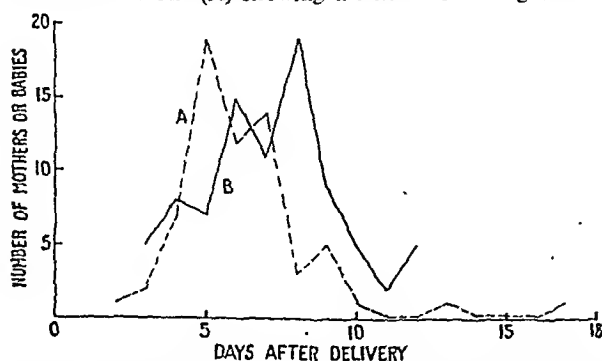


FIG. 3.—Time relation of gastro-enteritis in mothers and infants. A=Number among 66 infants. B=Number among 87 mothers starting gastro-enteritis on each day after delivery.

and the other (B) the number among 87 mothers starting gastro-enteritis on each day after delivery. It will be seen that the onset of gastro-enteritis in the infants was, in general, earlier than that in the mothers, for curve A reaches a peak some three days before curve B. In the group of 42 mothers and infants with gastro-enteritis the onset in the infant was either before (22), simultaneous with (5), or after (15) that in the mother.

**Gastro-enteritis Among Families of Maternity Patients.** Table III shows the number of patients in various categories whose discharge from the maternity unit was followed within a month by one or more familial cases of gastro-enteritis. There is a marked difference between the number of families having gastro-enteritis cases when the returning patient had

TABLE III.—Gastro-enteritis (G.E.) Among Families of Maternity Patients

Patient's Status Inside Hospital	Total	Followed Up	Families with One or More Cases of G.E. Within a Month of Return of Patient
Overt G.E. .. ..	88	83	13 (15.6%)
Doubtful G.E. .. ..	19	15	2 (13.3%)
Well .. ..	109	69*	1 (1.4%)
		25†	6 (24%)
Total .. ..	216	192	22

\* Remained well after discharge. † Developed gastro-enteritis after discharge.

had diarrhoea in the hospital (15.6%) or shortly after discharge (24%), and the number of families in which the returning member had never had symptoms (1.4%). A difference of this size of that existing between the families of the healthy patients and of patients who had gastro-enteritis in the maternity unit is unlikely to have arisen by chance alone ( $\chi^2_{\text{ Yates}} = 7.48$ ,  $N = 1$ ,  $P < 0.01$ ).

Several conclusions can be drawn from the occurrence of secondary familial cases. First, the number of patients who "caused" secondary familial cases was a small proportion of the total sick patients discharged from the unit (Table II). Secondly, familial contact cases were more frequent when the time between onset and discharge in the primary case was short, but periods up to 10 days were occasionally observed. Thirdly, the period between onset in the primary and in the first secondary case was variable and lay between four and 29 days, figures which include the incubation period of the secondary case. These data indicate that the period of infectivity in some patients is certainly as long as 10 days and possibly as long as 26 days.

**Gastro-enteritis in the Rest of the Hospital.**—A few sporadic cases of gastro-enteritis occurred in the chronic sick wards of the hospital, but the incidence of the disease was much greater in the maternity unit; for this reason spread of the disease by food from the central kitchen supplying the whole hospital seemed unlikely. Milk and water supplies to the maternity unit were sampled and did not show evidence of faecal pollution.

**Control Measures.**—Control measures, in the absence of exact knowledge of the mode of spread of the disease, were necessarily limited to ordinary hygienic precautions. Incoming patients were asked about outside contact with the diseased and were kept separate from those about to be discharged. Recently delivered patients were admitted to wards on the so-called "Boston" system, and, when possible, gastro-enteritis patients were transferred to the local isolation hospital at ward contacts isolated. Babies with gastro-enteritis were removed from the nursery and kept by their mothers' beds. The administration of mepacrine prophylactically and also therapeutically did not affect the occurrence of new cases in the unit—an experience contrary to that of Freedman.<sup>14</sup> The limited isolation accommodation available and the lack of staff specifically trained in barrier nursing made the application of control measures difficult, but even when such measures were rigidly enforced in a local isolation hospital four members of the nursing staff were cross-infected from a newly admitted maternity patient.

On Nov. 29 the medical officer of health, Dr. G. C. Williams, closed the home to new admissions, it being completely empty from Dec. 6 to 21. This decision had not been taken earlier because of the difficulty of arranging alternative accommodation for patients awaiting admission. During the period of closure fumigation and structural alterations were made, but in spite of these measures further cases of gastro-enteritis occurred 10 days after the home was reopened.

**Laboratory Investigation.**—The stools, usually obtained within one day of collection, were examined as follows:

**Microscopical Examination.**—A small piece of faecal material was suspended in a mixture consisting of equal parts of 1% eosin and iodine and examined for pus cells, red blood cells, ova, and cysts.

**Culture.**—All stools were plated direct on to desoxycholate-citrate agar and on to Wilson and Blair's medium. In addition a large loopful of a liquid stool or of a broth suspension made from a solid stool was inoculated into Kauffmann's tetrathionate broth and into selenite-F. After 18 to 24 hours' incubation a loopful from each of these enrichment media was plated out on both desoxycholate-citrate agar and Wilson and Blair's medium.

As some of the earlier specimens failed to produce growth on the selective media used, all stools were subsequently streaked on to MacConkey's medium. Many of the stools were also inoculated on to blood-agar plates and incubated aerobically and anaerobically.

**Results of Stool Examinations.**—Stools were examined on 77 occasions from 55 patients—namely, 40 mothers and four babies in the maternity unit, five affected members of the staff, and six contact cases. Microscopical examination of the faeces was carried out on specimens received from 52 patients. Pus cells, usually in small numbers, were found in nine cases, associated in one instance with red blood corpuscles. No protozoal cysts or ova were seen in any of the specimens. *Clostridium welchii* was present on only a few occasions on blood-agar plates, and Group D streptococci were never isolated. Organisms of the *Salmonella-Shigella* groups were not isolated from any case. The results of stool culture in 55 cases were as follows: sterile (4), lactose fermenters only (29), *Proteus* group (4), paracolon bacilli (18). The dissimilarity of the biochemical reactions of the paracolon bacilli and their failure to react significantly with patients' sera suggested that they were not responsible for the outbreak.

Other serological investigations included the testing of acute and convalescent phase sera for heterophil agglutinins (4° and 37° C.) to red cells of horse, rabbit, chick, rat, guinea-pig, and sheep, and for "cold" agglutinins to human Group O cells. Paired sera were also tested for a rise in the agglutinin titre to influenza viruses A and B. The influenza antibody titrations were kindly carried out for us by Dr. J. A. Dudgeon, of the National Institute for Medical Research. All of these serological tests were negative.

**Leucocyte Counts.**—We are much indebted to Mr. B. H. Ryalls, of the Radcliffe Haematology Department, for making the leucocyte counts. Leucocyte counts on 14 puerperal women with gastro-enteritis revealed that seven had a neutropenia below 3,600 cells per c.mm. within the first five days of the illness. The other seven patients had counts approaching the lower limit for normal non-puerperal cases. In a control series of 66 counts made on 28 normal women at exactly comparable stages of the puerperium no value below 3,600 neutrophil leucocytes per c.mm. was observed.

### Discussion

The clinical picture presented by the adults in this outbreak is similar in most respects to that described by other authors.<sup>1 2 11 12 13 14</sup> The mildness of the signs in the babies and the absence of a specific laboratory test made it difficult to decide whether the observed changes in the infants' bowel action were due to infection or not. Infants having Class I bowel activity were equally distributed among sick and healthy mothers (Table II), and it is likely that this change was of no significance.

Class II bowel activity, however, was more frequent (Table II) in the children of sick mothers than would be expected by chance alone ( $\chi^2_{\text{ Yates}} = 17.07, N = 1, P < 0.001$ ). The number of infants starting such signs rises to a maximum earlier after delivery than does the number of mothers commencing diarrhoea (Fig. 3); in a group of sick mothers and infants the onset in the infants may be before, simultaneous with, or after that of the mother. These facts are compatible with the view that Class II bowel activity is

due to infection of the infant and that the varying time relation of the onset of diarrhoea in mother and child represents a reciprocal spread of infection.

It is evident that the clinical aspects of infants in this outbreak are quite different from the severe diarrhoea, toxicity, and high case fatality rate characterizing "epidemic diarrhoea of the newborn,"<sup>23 24</sup> and also from the combination of stomatitis and diarrhoea in infants described by Buddingh and Dodd.<sup>25</sup> In the present series of 66 infants with gastro-enteritis only three had stomatitis.

The disease presents two main problems: aetiology and its mode of spread.

*Salmonellae*, *Shigellae*, paracolon organisms, or protozoa were not incriminated in this outbreak, and the possibilities remaining are infection with a bacterium of exacting growth requirements or with a virus. Reimann *et al.*,<sup>22</sup> using material from a clinically similar outbreak in Philadelphia, found that student volunteers could be infected by inhaling medium Mandler filtrates of stool or garglings. No significant result was obtained by feeding the filtrates or serum enclosed in gelatin capsules. The incubation period in the successful experimental inoculations was very variable: about half (58%) the volunteers became ill in two to five days, while the remainder did not succumb until nine to 21 days after inoculation. Reimann interpreted the results of these experiments to mean that the causative agent was filtrable, entered the body through the respiratory tract, and therefore was transmitted as an air-borne infection. This concept of air-borne infection was supported by the seasonal incidence of the outbreaks in Philadelphia (both the 1943 and the 1944 outbreaks took place in October and November) and by the occurrence of prodromal respiratory disease in a proportion of patients, although Reimann was uncertain whether the respiratory symptoms (38% in the 1944 outbreak) were due to the disease or concurrent "colds."

In our experience of this and seven other outbreaks prodromal respiratory disease has been a rare and unconvincing finding, and it would be remarkable, in a disease with such a short incubation period, if the site both of the invasion of the "virus" and that from which it was expelled as droplets should show no overt disease. The number of reported outbreaks in this country is not yet large enough to judge the seasonal incidence, and more data on this point are needed.

### Sources of Infection and Pattern of Spread

Leaving aside the unsettled question as to whether the disease is air-borne or transmitted by the intestinal-oral route, it was noted in the present outbreak that there were certain patterns of spread determined by the organization of the maternity unit.

A maternity unit is more complex epidemiologically than the ordinary hospital ward or institution, partly because its population is changing rapidly and partly because of the presence of the babies, who are susceptible to infection and whose discharges are difficult to control without an efficient aseptic technique. It is of interest to contrast the high infectivity of the disease in the maternity unit with its low infectivity in the chronic sick wards of the rest of the hospital. Deductions about the method of spread of infection from such high attack rates in the special circumstances of a maternity unit may therefore be misleading.

The admission of the first patient with diarrhoea was followed by a straggling series of cases among patients and staff with a steadily mounting number of attacks per 1,000 patient-days of exposure—a fact which, taken in

conjunction with the low number of admissions during the last two months, suggests that the rate of spread of the disease was not closely correlated with the rate of change of the maternity unit population. Some patients were probably infected from convalescent cases about to be discharged, and others from previous overt or possibly mild atypical cases in the same ward. Carriers among the staff must be regarded as a possibility because most of the staff had the disease, and in view of the data given on the duration of infectivity a few probably remained infectious for some time. This possibility is supported by the fact that cases occurred in the families of staff who were convalescent from the disease.

Lastly, though the significance of the sick infants is undecided and needs further investigation, the possibility of spread between mothers in different wards via their infants infected in a common nursery must be considered.

In this outbreak the association of sick mothers and infants and the time relation of their signs suggests that a reciprocal spread of infection may have occurred. On the other hand, if such a route of infection was important it might be expected that the sick mothers would more often be associated with a sick infant whose onset of illness preceded theirs than would be expected from the ratio of sick infants to healthy mothers; thus of the 88 sick mothers, 22 (25%) had an infant with signs starting before theirs, while of 66 entirely healthy mothers 10 (15%) had sick infants. Differences of this order would be frequently observed by chance alone. We feel that, although conclusive proof of the nursery spread is lacking, owing possibly to the difficulty of detecting "infective" infants on clinical grounds alone, it is a route that cannot be ignored. It is of interest that the data in Brown, Crawford, and Stent's paper,<sup>2</sup> not commented on by these authors, show that the babies were the first to become ill in the maternity wards, that illness in mother and infant was often associated, and, further, that in this group the babies, with one exception, became ill before their mothers, the average interval between them being 4.4 days.

### Summary

An outbreak of gastro-enteritis among mothers, staff, and babies in a maternity unit is described.

The disease was characterized in adults by diarrhoea, slight fever, a watery stool of light yellow colour, and, in some patients, by neutropenia.

The babies had milder symptoms consisting of loose green stools sometimes accompanied by excoriated buttocks.

Salmonellae, Shigellae, paracolon bacilli, and protozoa were not found to be responsible for the disease.

The incubation period in adults was one to three days. The period of infectivity appeared in a few adult patients to be as long as 26 days from the onset of diarrhoea.

A "follow-up" of the discharged maternity patients revealed that 26% developed gastro-enteritis after discharge and that 15 to 24% of the families of returning sick maternity patients became infected.

Epidemiological investigations indicate that new admissions could have been infected from overt, atypical, or convalescent cases of gastro-enteritis or from carriers of the disease in the staff. It is also suggested that infection of infants in a common nursery might account for the occurrence of sporadic cases among mothers in different wards in the unit.

The outbreak appears to be an example of a common and widespread disease in the special circumstances of a maternity unit which had apparently facilitated its spread.

It is a pleasure to record our thanks to Mr. Ian Sutherland (Institute of Social Medicine, Oxford) for statistical advice; to Dr. G. C. Williams (M.O.H., Oxford City) and Dr. H. C. Jennings (M.O.H., Oxford County) for their suggestions and co-operation; to Misses Brown and Owen, the heads of the

Oxford City and County Health Visitor Services, and their staffs for their painstaking investigations in the family "follow-up"; to Dr. J. Spence, physician-in-charge of the Maternity Unit, and Dr. R. B. Crail, R.M.O., whose co-operation and suggestions were of great value; to the sisters-in-charge in the Maternity Unit; to Dr. A. Menzies, superintendent of the Oxford City Isolation Hospital; and to general practitioners who collected blood samples and sent us information about cases.

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## SUPPURATIVE ARTHRITIS OF HIP-JOINT TREATED WITH PENICILLIN

### REPORT OF FOUR CASES

BY

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Acute staphylococcal suppurative arthritis of the hip-joint is luckily of comparative rarity. Four cases in close succession have recently been under treatment with penicillin in Suva, Fiji, and the good final results obtained may be worthy of record.

### Case 1

A male Fijian aged 6 was admitted to hospital with four days' history of pain in the right hip. Acute suppurative arthritis of the hip-joint was suggested by clinical examination, pyrexia, high leucocytosis, and absence of radiographic abnormality. Several septic skin spots were present. Exploratory aspiration of the joint yielded a very small amount of thick pus, which showed pure *Staphylococcus aureus* on culture.

Penicillin, 10,000 units in 5 ml., was injected into the joint aspiration and a similar injection being repeated twice on alternate days. Systemic penicillin, 20,000 units three-hourly, was administered for seven days. Extension was applied on Thomas' splint for ten days, followed by a hip spica plaster which was maintained for six weeks, the patient being allowed up during the last two weeks. He remained in hospital for a further five weeks, and on discharge (three months from onset of the disease) had a full range of movements to the hip-joint with complete absence of symptoms. Skiagrams after removal of the plaster showed definite evidence of localized bony infection of the upper acetabular rim; probably this primarily was osteomyelitis of the area with early infection of the joint. When seen five months later he was quite fit, with full movements of the joint.

### Case 2

A European girl aged 10 came with two days' history of pain in the right hip. Acute suppurative arthritis of the hip-joint was diagnosed. A septic spot was present on the right knee

The temperature was 104° F. (40° C.) and the pulse 120; her general condition was good. Exploratory aspiration of the joint yielded 2 ml. of thick pus containing pure *Staph. aureus*.

Penicillin, 9,000 units in 3 ml., was injected into the joint, and was repeated after re-aspiration in 48 hours. Systemic penicillin, 30,000 units, was given three-hourly for five days; then 60,000 units six-hourly on the 11th to 14th days for slight recurrence of pyrexia. Extension on Thomas's splint was applied. Plaster was not used, though originally intended, owing to development of a distressing urticaria (? late penicillin effect). Thomas's splint was maintained for four weeks and for the next two weeks she remained in bed without splinting. She was then allowed up, already having full movements to the hip-joint, and no pain or limp. Skiagrams throughout showed no evidence of bony involvement. The patient was discharged after 8½ weeks' stay in hospital, and 3½ months later she was fit, with full movements.

### Case 3

An Indian boy aged 11 was admitted with one day's history of pain in the left hip. Clinical examination suggested suppurative arthritis of the hip-joint with severe toxæmia. Temperature 104° F. (40° C.), pulse 106; high delirium. Exploratory aspiration yielded much thick pus containing *Staph. aureus* on culture. Penicillin, 15,000 units in 5 ml., was injected into the joint; this dose was repeated after aspiration on three subsequent occasions on alternate days. Systemic penicillin, 30,000 units three-hourly, was given for seven days. Delirium and high pyrexia continued for 48 hours, then marked improvement, but some pyrexia continued for ten days. Extension on Thomas's splint was applied for 17 days, followed by a hip spica plaster, which was removed after four weeks. The patient was discharged one week later, having been eight weeks in hospital; there was then slight limitation of flexion and rotation. Three weeks later full hip movements were present. Skiagrams throughout showed no evidence of bony involvement. Three months later he remained fit, with full movements.

### Case 4

This patient, a Fijian girl aged 16, gave a six-days history of increasing pain in the left hip. A low-grade paronychia of the finger had been incised seven days previously. Clinically, there was typical acute arthritis of the hip, with severe local symptoms but good general condition. Temperature 100.4° F. (38° C.), pulse 100.

Aspiration yielded 6 ml. of thin pus containing *Staph. aureus*. Penicillin, 30,000 units in 6 ml., was injected into the joint and 70,000 units intramuscularly, followed by 30,000 units intramuscularly three-hourly for seven days. Two days later re-aspiration yielded 4 ml. of pus, and 20,000 units in 4 ml. was injected into the joint. On the 14th day a secondary rise of temperature without symptoms occurred, and 30,000 units of penicillin was given three-hourly for three days. (This pyrexia was probably from mild influenza, which was travelling through the wards.) Extension on Thomas's splint was maintained for four weeks, and for the next two weeks the patient rested in bed; by this time movements of the joint were full and painless and she was allowed up. One week later (seven weeks from admission) she was discharged cured. Skiagrams showed no evidence of bony involvement. One month later she was fit, with full movements.

### Discussion

All four cases arose presumably from septic skin lesions by blood-stream infection. Blood cultures were not carried out. Cases 2, 3, and 4, which showed no radiographic changes throughout, were primary joint infections, whereas Case 1 was presumably a primary acetabular osteomyelitis with rapid spread to joint.

The cases varied considerably in virulence, Case 3 being severely toxic, Case 4 remarkably low-grade, Cases 1 and 2 intermediate. All were treated by repeated aspirations of the hip-joint with instillation of penicillin on alternate days, and by systemic penicillin; the average treatment was three local injections, after aspiration, of 13,000 units of penicillin each time, and 1,785,000 units systemically. The

anterior approach to the joint was adopted in all cases and no difficulty was experienced, "pentothal" or inhalation anaesthesia being used.

The relative values of the local and general penicillin are difficult to estimate. Systemic application is obviously indicated to combat the bacteraemia, and it is probable that aspiration and local penicillin reduce the degree of cartilage destruction and joint damage. It is probable that time is the most urgent factor, and that any suggestive case should be aspirated and penicillin injected into the joint immediately, this being the major element in obtaining full final movements.

Two cases were immobilized in plaster when acute symptoms subsided; two cases were confined to bed for a similar period without plaster. These last showed the earliest return of full movement, and suggest that plaster is perhaps unnecessary. The times of immobilization were probably longer than necessary, but (in children at least) it appeared safer to err on the side of discretion.

**Treatment.**—There was no standardization of treatment in these four cases, but the following would appear to give a reasonable line of procedure: (1) Immediate exploratory aspiration by the anterior route under pentothal anaesthesia; as much pus as possible to be removed, and replacement by an equal volume of penicillin solution (3,000 units per ml.). (2) Intramuscular penicillin, 30,000 units per ml., to be given three-hourly for a week. (3) Re-aspiration on alternate days with replacement by penicillin until there is local freedom from pain and examination of pus shows absence of degenerate forms only of staphylococci. One to three repetitions may be needed. (4) Immobilization with extension from the start, strapping extension with a Spanish windlass on Thomas's splint (applied under the first anaesthetic) being a simple method; this to be maintained until the patient is symptom-free and apyrexial. (5) Rest in bed to be maintained until the end of the fourth week; active movements of joint then to be encouraged. The patient should be allowed up at six weeks, when there should be a full range of movements and absence of symptoms. (6) The primary skin lesion should be treated as required, but it will probably regress under the influence of penicillin.

### Summary

Four cases of suppurative staphylococcal arthritis of the hip-joint which were treated by combined systemic and local penicillin are described.

All the cases were cured, having full final movements of the affected joints.

Some points in treatment are discussed.

I am indebted to Dr. J. C. R. Buchanan, Inspector-General, South Pacific Health Service, for permission to publish this report.

In the latest report of the Institute of Medical and Veterinary Science of South Australia three Adelaide workers recount an investigation they have been making over a period of four years into the connexion between rubella and congenital malformations. The total number of cases studied of rubella occurring in pregnancy was 120. Out of 20 in which the infection occurred in the first month of pregnancy it was followed by some congenital abnormality in 19; out of 42 in the second month a congenital abnormality appeared in 40; out of 23 in the third month it appeared in 21. The most frequent of the defects was microcephaly (62 cases), and the next most frequent were heart disease (52) and deaf-mutism (48). In the latest series of cases, numbering 25, the mother had contracted rubella during pregnancy in 17, and 15 of the babies born exhibited congenital defects, including cataract, deaf-mutism, heart disease, umbilical hernia, mental deficiency, epilepsy, and speech defect. In the remaining 8 cases the infectious diseases contracted during pregnancy comprised 3 of morbilli (one of the babies was born defective), 2 of mumps (both infants had abnormalities), 1 of scarlet fever (the baby was normal), 1 of "rheumatic influenza" (the infant was malformed), and 1 of pustular rash (the baby was defective).



# TREATMENT OF VARICOSE VEINS

## POSSIBLE DANGER OF INJECTION OF SCLEROSING FLUIDS

BY

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AND

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Our purpose here is to discuss the causes of unsatisfactory results of treatment of varicose veins. The veins have been studied by phlebography and also by direct examination at operation. The numbers so studied are small. This paper is a preliminary communication. Further anatomical studies and follow-up results will be incorporated in a future publication.

Examination of the whole problem of the treatment of varicose veins is well worth while. Patients complaining of varicose veins form a significant percentage of out-patients at any hospital. In military hospitals they compete with painful feet and piles as the principal cause of loss of man-hours. A soldier patient of one of us (A. M. B.) had spent 18 months out of two years' military service attending various hospitals for treatment of his varicose veins.

Are varicose veins a cause of disability? It is significant that 95% of patients attending civilian varicose vein clinics are women. In many instances they admit seeking advice for purely cosmetic reasons, occasionally from fear of future ulceration; only a small minority complain of pain. Where are the thousands of young men whose varicose veins gave rise to agony in the Services but who do not complain in civilian life?

These facts strongly suggest that varicose veins seldom cause serious discomfort. It is our contention that a very careful clinical assessment should be made in each case before advising operation. The most popular operation for varicose veins is ligation combined with retrograde injection of sclerosing solutions.

Unsatisfactory results fall into two main groups: (1) recurrence, and (2) deep thrombophlebitis.

### Recurrence

Recurrence of varicosities after operation is due partly to inadequate ligation and partly to subsequent development of valvular incompetence in deep perforating veins. The internal saphenous systems may be refilled at several levels.

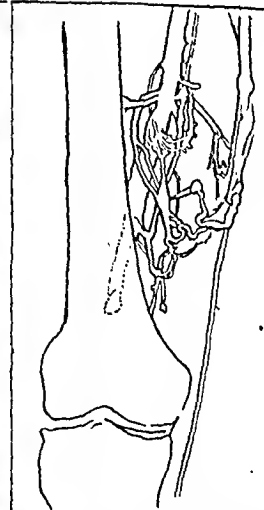


FIG. 1.—Dilated tributaries of saphenous vein refilling main trunk following inadequate ligation in groin.

(a) *Groin*.—The importance of ligation of all the tributaries entering the saphenous vein at the fossa ovalis has been stressed repeatedly by many authorities. Failure to do so may lead to rapid recurrence (Fig. 1). It is outside the scope of this paper to discuss the anatomical variations which occur at the fossa ovalis leading to inadequate ligation. This subject has been ably reviewed by McPheeters (1945) and Daseler *et al.* (1946). It should, how-



FIG. 2.—Phlebogram showing filling of femoral and upper third of popliteal vein following injection of pyclectan into the distal end of the divided saphenous vein.



ever, be mentioned that oblique incisions parallel to the inguinal ligament, while sound from the point of view of healing, may give inadequate access where the sapheno-femoral junction is abnormally placed. Vertical incisions may be enlarged upwards, or downwards where the sapheno-femoral junction is unusually high or low or where large tributaries enter further distally than normal.

(b) *Lower Third of Thighs*.—The internal saphenous vein communicates with the femoral vein in the lower third of the thigh through a large perforating vein. This vein was present in twelve consecutive phlebograms (Figs. 2 and 3). It is found 4 to 6 in. (10 to 15 cm.) above the adductor tubercle. The exact position of this perforator can be detected clinically, if it is a source of regurgitation from the deep to the superficial systems, by means of the tourniquet test of Mahorner and Oehsner (1938) combined with careful circumferential palpation of the limb. When a "blow out" is evident in the internal saphenous vein in the lower third of the thigh it is the rule to find a deep connexion related to it, usually within 1 in. (2.5 cm.) of the swelling.

(c) *Knee*.—A communicating vein is very commonly found passing from the external saphenous vein behind the internal condyle to join the internal saphenous vein. It can be easily detected by careful palpation. Failure to ligate this vein may lead to filling of the internal saphenous system from the external saphenous vein.

(d) *Below Knee*.—Perforating veins linking the superficial with the deep veins occur regularly below the knee. One large

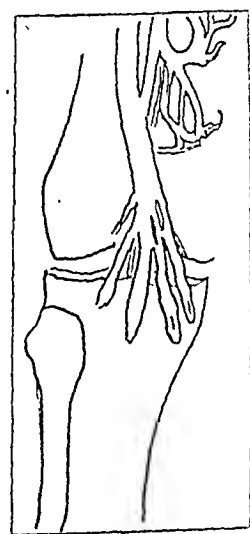


FIG. 3.—Popliteal vein well filled with pyclectan following injection into the distal end of the saphenous vein divided in the groin. Note all the injected solution has passed into the popliteal vein.

perforator is often present about 1 in. below the articular margin of the tibia.

Consideration of these facts suggests that in fully developed varicosities of the internal saphenous system ligation is required at four sites: (1) fossa ovalis—division of the saphenous vein and ligation flush with the femoral vein, together with ligation of all tributaries of the saphenous at this level; (2) ligation of the perforating vein in the lower third of the thigh; (3) ligation of the communication from the external saphenous vein, if present; and (4) ligation of the internal saphenous vein immediately below the internal condyle of the tibia.

### Deep Thrombophlebitis

Deep thrombophlebitis occasionally follows high ligation of the saphenous vein combined with injection, distally, of sclerosing solutions. A common practice is to pass a ureteric catheter down the saphenous vein to knee level and inject 5 ml. of sclerosing solution slowly as the catheter is withdrawn. A deep thrombophlebitis may also follow simple injection by subcutaneous puncture.

Disability varies with the extent of the phlebitis, ranging from some aching in the calf and slight oedema of the ankle at the end of the day to a full-blown "white leg." The frequency of this complication is hard to assess. One of us (A. M. B.), working in a large base hospital in Cairo, saw 12 patients with deep phlebitis following injection treatment between October, 1942, and February, 1943. The disability was such that discharge from the Army was recommended. A short paper drawing attention to this danger was read at the Middle East Surgical Conference in March, 1943. In the weekly recategorization boards held at this hospital at least one patient every week had to be down-graded for deep phlebitis. The latter condition was undoubtedly due to the sclerosing fluid entering the deep veins. In order to investigate this possibility, phlebographic studies have been made of the distribution of fluids injected into the saphenous vein at various levels.

### Thigh and Leg Segments

**Thigh Segment.**—The saphenous vein was ligated and divided in the usual way at the fossa ovalis. A plate, 12 by 14 in. (30 by 35 cm.), was placed beneath the thigh and 15 ml. of "pyelectan" was injected into the distal end of the divided vein, the injection taking about 10 seconds. A single exposure was taken at the conclusion of the injection. Twelve consecutive patients with typical dilatation of the internal saphenous system and varicosities below the knee were investigated in this manner. These phlebograms showed that most of the pyelectan had entered the femoral vein through a communicating vein in the lower third of the thigh. A large communication between the saphenous and femoral veins was found in all 12 cases; the vein was relatively constant in position 4 to 6 in. (10 to 15 cm.) above the adductor tubercle.

**Leg Segment.**—In a further series the saphenous vein was divided at the level of the internal condyle of the femur and pyelectan was injected into the distal segment. In one patient a large communicating vein was seen just below the articular margin of the tibia through which pyelectan passed into the popliteal vein (Fig. 4). In the remaining patients, however, most of the contrast medium remained in the superficial varicosities, only a small amount reaching the deep veins (Fig. 5). It would seem, therefore, that injection of sclerosing solutions distally, from the knee downwards, is relatively safe. The likelihood of significant quantities passing into the deep veins is remote, since the communicating veins below the knee, although numerous, are small.

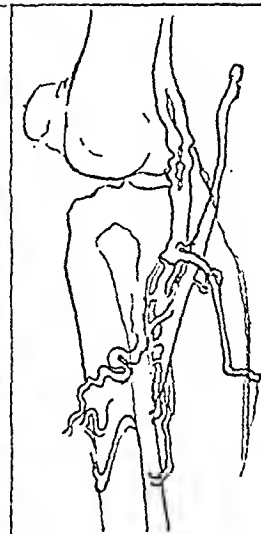


FIG. 4.—Saphenous vein divided at level of internal condyle of femur. Pyelectan injected into distal end. Some of the opaque solution has passed through a perforating vein just below the level of the knee-joint, filling the popliteal vein. This is an exceptional recurrence.

It would be possible, however, by subcutaneous puncture if made in close proximity to a deep communication, to inject sclerosing fluids direct into the deep veins.

### Summary and Conclusions

Unsatisfactory results of treatment of varicose veins are due to recurrence and to deep thrombophlebitis. Recurrence can usually be explained by inadequate ligation. Deep thrombophlebitis, although uncommon, is a serious disability.

This investigation demonstrates the possible danger resulting from high retrograde injection of sclerosing solutions. The obvious criticism is that a very small amount of sclerosing solution is used, and that if any reaches the deep veins it would be diluted and washed away.

The length of time contrast media remain in the femoral vein with the leg horizontal and at rest, coupled with the fact that the whole length of the popliteal vein is filled by fluid passing through the perforating vein in the lower third of the thigh, suggests that the blood flow in the femoral vein under these conditions is very sluggish. Very small amounts of irritant substances might cause intimal damage with subsequent venospasm and clotting. High retrograde injection of large quantities (20–30 ml.) of strong dextrose or salt solutions is undoubtedly dangerous.

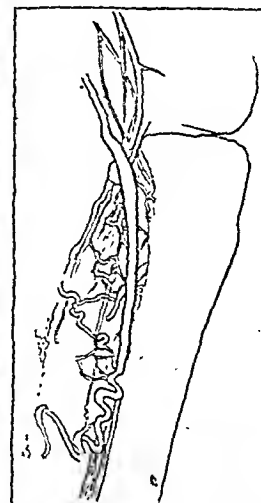


FIG. 5.—Phlebogram obtained by technique similar to that employed in Fig. 4. Insignificant quantities of the opaque solution have reached the deep veins.

# TREATMENT OF VARICOSE VEINS

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The ease with which fluids injected distally from the groin level pass into the femoral veins suggests that high injection of the thigh segment is unwise. There is much less risk below the knee. The large perforating vein immediately below the knee shown in one phlebogram appears to be inconstant. The remaining deep communications are small.

In our opinion operative treatment of varicose veins should consist of adequate ligation with, if necessary, distal injection from knee level of not more than 5 ml. of sclerosing solution.

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## PENICILLIN BY INTRA-ORAL DRIP

BY

G. RIDDELL ROYSTON, M.D., M.R.C.P., D.C.H.

This short paper describes a method for the continuous local application of penicillin to the mouth and fauces, together with some clinical impressions.

Penicillin has been used for the treatment of various pharyngeal infections by local applications in the form of sprays (Woodward and Holt, 1945), pastilles (MacGregor and Long, 1944, 1945a, 1945b), lozenges (Woodward and Holt, 1945), snuff (Meadley and Barnard, 1946), and swabbing (Schallenberger *et al.*, 1945), and by intramuscular injection (Schallenberger *et al.*, 1945; Schwartz, 1945; Bronstein, 1946) and injection of the pharyngeal tissues (Cone, 1945). Results have been encouraging for Vincent's infections (Woodward and Holt, 1945; MacGregor and Long, 1944; Schwartz, 1945). MacGregor and Long (1945a, 1945b), using pastilles containing methylene blue on healthy volunteers, were able to stain the uvula, anterior pillars of the fauces, and the tonsils and tonsillar fossae satisfactorily, but were unable to stain the posterior pharyngeal wall. These experiments gave some measure of support to the belief that when pastilles are allowed to dissolve in the mouth the therapeutic substance incorporated in them would reach the fauces and tonsillar areas. Treatment by pastilles, however, tends to be irregular during the day and necessarily ceases during sleep. State and Hart-Mercer (1945) in their work on acute ulcerative gingivitis found a distinct inverse correlation between the length of time penicillin persisted in effective concentration in the saliva after local application and the length of time elapsing before clinical cure. To overcome these difficulties penicillin has been administered by means of a continuous drip into the mouth, thus providing continuous contact between the penicillin and the infected tissues throughout the 24 hours.

The method previously described by Royston and Deverell (1945) had originally been used on about 70 patients. A further 20 have now been treated.

## Method

The apparatus is quite simple (see Diagram), consisting of a standard drip-transfusion set, with the needle replaced by a piece of soft thin rubber tubing 8 in. (20 cm.) long bent into the form of a J on a piece of dental wire in its lumen. The tubing is led into the mouth with the short limb of the J lying in the bucco-gingival sulcus and the long limb lying along the outside of the cheek, to which it is attached by a piece of strapping. The delivery tubing is then led over the side of the nose to the forehead and thence to the bottle suspended over the head of the bed. This arrangement enables the patient to lie comfortably on either side and to turn over in bed without disturbing the tubing,

thus not interfering with sleep. The solution used is made up from the impure calcium penicillin normally used for application to the skin, to contain 50,000 units to 1 pint (568 ml.) of normal or half-normal saline. The drip rate is adjusted to deliver 1 pint of the solution in 24 hours.

Patients tolerated the drip well and, except for two, did not find it interfered with sleep. A few were conscious of having to swallow more often than usual, but not to an uncomfortable degree, and while they were asleep the solution trickled down the pharynx, there being no leakage on to the pillow. Only one patient complained of nausea. There was no need to remove the drip while eating or drinking, and the patients were instructed not to remove the tube from the mouth except when cleaning the teeth.

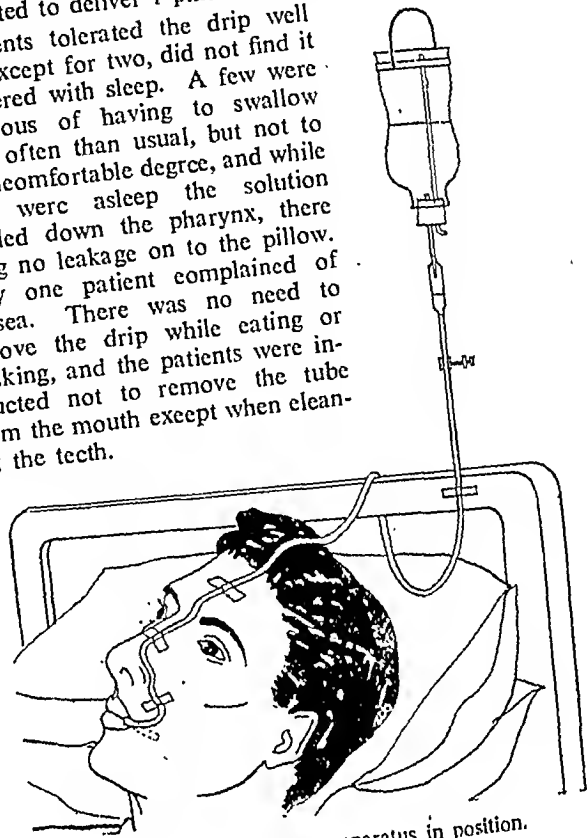


Diagram showing the apparatus in position.

## Results

It is not intended to discuss the clinical results in detail, because adequate control, notoriously difficult from both the clinical and the bacteriological standpoint, was not carried out. Certain clinical impressions were definite enough to warrant description.

1. Patients liked the treatment and stated that should they have a recurrence of their trouble they would prefer to have it again.
2. Patients suffering from infection of the tonsils and fauces by Vincent's organisms (18 cases) responded well, losing their pain and the foul taste in their mouths. This subjective improvement was well marked within six hours of beginning the drip, and compared favourably with 13 cases of similar severity treated by local applications of a weak solution of iodine and by gargles.
3. Two patients with glandular fever of anginous type and six with acute tonsillitis, peritonsillar swelling, oedema, and gross dysphagia who could scarcely articulate were made more comfortable within a few hours and enabled to get a good night's sleep.
4. Diphtheria carriers of three weeks' duration (seven cases) were rendered swab-negative after 72 hours of the drip, but all became swab-positive again within three days of cessation of treatment.

## Conclusions

It was noted that about a quarter of the patients developed a dark-brown fur on their tongues, associated in some cases with a metallic taste and in others with headache. No other toxic symptoms were observed. This is of interest, as Bedford (1946), Ellinger and Shattock (1946), and MacGregor (1947) have reported a similar condition of the tongue when using penicillin pastilles, but in their cases there were r

symptoms associated with the tongue lesion. Mutch (1947) found it also when using inhalations of a nebulized aqueous solution of penicillin. The pastille base has been blamed for the condition. In my cases, however, the only vehicle used was saline, and still the black tongue developed. I tried the method on myself and developed a typical tongue after running the drip for three successive nights (a total of 50,000 units of penicillin), but failed to produce any such change with saline alone. This suggests that penicillin itself, or some contained impurity, is responsible and may act by causing an alteration to the normal flora of the mouth.

I think this method of applying penicillin has a place in the treatment of faucial infections caused by Vincent's organisms and in certain other severe throat infections, including the first day or two of severe faucial diphtheria. Also, it may well be applicable to surgical conditions of the throat.

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## Medical Memoranda

### Impaction of Gentian Pill in Larynx of Child Aged 2

The following case is of interest in that the ability of a child of 2 years to swallow either an enteric-coated capsule or an oval pill is difficult to assess, but there is certainly a danger, since the reflexes controlling deglutition are imperfectly developed at this age.

## CASE HISTORY

A child aged 2 years was being treated with gentian violet pills for threadworms. On the evening of Dec. 20, 1946, she put a pill into her mouth and was then given a drink of milk, which was swallowed successfully. She was then given a piece of bread, but began to choke and became cyanosed and her breathing stertorous. Attempts to make her sick by placing a finger down her throat were unsuccessful. The father immediately carried the child to the doctor, who lived on the opposite side of the road. On arrival the child's breathing had ceased and the pulse could not be felt at the wrist. The doctor laid the child on a table and started artificial respiration, having previously smacked her back to try to dislodge the pill. Breathing restarted after about 30 seconds and was accompanied by a good deal of stridor. By the time the child reached hospital (accompanied by the doctor) the breathing was normal apart from a stridor. Cyanosis was present but not pronounced.

On admission to hospital the patient was suffering from stridor and cyanosis, and at each respiration the pill could be heard rattling in the larynx as it moved upwards and downwards. The child was taken to the operating theatre and chloroform anaesthesia was administered. By use of a direct laryngoscope the pill was seen to be travelling up and down the inside of the larynx between the cricoid and the true cords at inspiration and expiration. At expiration the pill could be clearly seen lying between the two cords. The pill was grasped from above with a pair of foreign-body forceps, but could not be pulled through the cords as these went into spasm directly they were irritated, and it was found impossible to remove the foreign body from above without damaging the cords. Tracheotomy was then performed, but the pill could not be removed from below, owing to its impaction in the cricoid ring. The question

then arose whether a laryngofissure should be performed, but it was decided to try to push the pill from above through the cricoid ring to the tracheotomy opening. This was successful and the pill was removed. The tracheotomy tube was left in position for twenty-four hours and the patient was given 30,000 units of penicillin at once and 15,000 units three-hourly. After another twenty-four hours the tube was removed and the patient made an uninterrupted recovery.

## COMMENTS

In your issue of Dec. 21, 1946 (p. 973), the reply to a query in the "Any Questions?" column in respect of threadworm therapy for a child of 2 years ran thus: "The best drug to date is gentian violet. It is given in enteric-coated capsules, the dose being 1/6 gr. (11 mg.) per year of apparent age, for each day for about a week."

The above case illustrates that there is a certain danger in giving a large capsule or pill to young children until the swallowing reflex is well developed, since it may be inhaled or forced through the cords, as may have happened in this case, and so cause laryngeal occlusion and immediate death. If the pill had not been oval in shape the larynx would have been completely occluded and death would have resulted. By smacking the child's back the doctor had dislodged the pill from lying with the long axis in the horizontal plane. This allowed air to pass the pill as it lay with the long axis in the antero-posterior plane and enabled enough air to pass into the lungs to keep the child alive.

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 Ear, Nose, and Throat Surgeon,  
 Eye, Ear, and Throat Hospital  
 for Shropshire and Mid-Wales.

### Expectoration of Shell Fragment after 29 Years

The long interval between the injury and the expectoration of the shell fragment in the following case is of considerable interest, but no support for the "conservative" treatment of foreign bodies in the lungs is inferred.

## CASE HISTORY

A soldier aged 18, while standing at the entrance of a dug-out in 1917, was hit by a fragment of metal from a high-explosive shell which dropped on a near-by road. The fragment entered his chest in the second left intercostal space, 2 in. (5 cm.) from the sternum; there was no point of exit. The site of entry healed in two weeks, but a left empyema developed which was satisfactorily cured by rib resection a month after the injury.

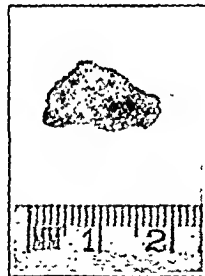
He was subsequently quite well, apart from a slight cough with up to 1/2 oz. (14 ml.) of inoffensive sputum daily, until 1932, when he had a haemoptysis of 5 oz. (142 ml.). After this, haemoptyses of not more than 1 dr. (3.5 ml.) occurred every month or two. In 1937, on his first visit to the Brompton Hospital, a radiograph showed a fragment of metal in the lower part of the left hilum, with some surrounding fibrosis; bronchograms revealed a filling defect of the bronchus to the lingular process just below its point of origin and adjacent to the fragment, all other bronchi being normal.

In April, 1946, he developed a sharp pain between the scapulae, particularly on coughing, which steadily became more severe for three days and terminated with the expectoration of the fragment, which measured 1.7 by 1 cm., together with a haemoptysis of 1/2 oz.

During the past year he has remained perfectly well; his sputum has never been more than a trace daily, and it has contained a streak of blood on two occasions only. Radiographs show no change compared with 1937, except that the shell fragment is no longer visible; bronchograms were not repeated owing to his sensitivity to iodine.

My thanks are due to Dr. F. H. Young for permission to publish.

NEVILLE OSWALD, M.D., F.R.C.P.



*Breast-Feeding* is an instructive little pamphlet obtainable from the National Association of Maternity and Child Welfare Centres, 5, Tavistock Place, London, W.C.1 (price 2d. or 1s. 9d. per doz.), which explains to mothers in simple terms the importance and technique of breast-feeding, care of the breast, test weighing, and weaning.

## Reviews

### EAR, NOSE, AND THROAT

*Lehrbuch der Hals-, Nasen-, Ohren- und Mundkrankheiten.* By A. Barraud (Lausanne), F. R. Nager (Zürich), L. Rüedi (Berne), E. Schlittler (Samaden) and J. P. Tailens (Lausanne), with the collaboration of E. Barbey (Geneva), F. Escher (Berne), E. Hanhart (Zürich), R. Luchsinger (Zürich), A. Montandon (Geneva) and W. Racine (Neuchâtel). (Pp. 609; illustrated. 60 Swiss francs.) Basle: Verlag von S. Karger.

All the teaching schools of Switzerland have contributed to the production of this textbook of diseases of the throat, nose, ear, and mouth. The production is excellent, particularly the illustrations, which include many clear line drawings. The skiagraph of the petrous pyramid in Stenver's position, though rather small, is particularly fine. The authors omit padding and discuss important emergencies and common diseases with common sense—for example, the section on tracheotomy. It is strange to us in Britain to see intubation discussed in detail, for we have always preferred tracheotomy. Accounts of rare diseases are appropriately included in small print.

Interesting and practical additions to the usual text of an E.N.T. book are the sections on hearing aids, speech therapy, the teaching of lip reading, and schools for the deaf. The profile sketches of noses of different races and types are amusing—and indeed important to the plastic surgeon. Plastic surgery of the nose and surrounding structures is not considered, however. The account of the signs in the mouth, pharynx, and larynx of the acute infectious fevers is most helpful. Routine histological examination of tonsils for tuberculosis is advocated—a procedure that would not find favour in Britain, at least not among the overworked laboratory staff. Typical of the authors' sensible approach is the reference to the indications for removal of tonsils and adenoids: "The indication for adenoidectomy is absolute; that for tonsillectomy is relative." They discuss simple infections of the larynx briefly and pointedly, omitting useless data traditionally handed down from one textbook to another. Rüedi, in his description of paralysis of the vocal cord, discusses an important discrepancy in Semon's law and explains how this occurs. The complicated paralysees of the cranial nerves in relation to lesions in the region of the jugular foramen are neatly clarified. Histological section of all benign vocal cord tumours after removal, even in children, is rightly advocated. This is an excellent reference book for a house-man beginning a study of E.N.T. diseases, or postgraduate student pursuing more advanced study, provided he can read German.

STEPHEN SUGGIT.

### RENAL TUBERCULOSIS

*La Tuberculose Rénale sous l'angle de la thérapeutique.* By Jean Cibert. (Pp. 533; illustrated. 1,150 francs.) Paris: Masson and Cie. 1946.

Renal tuberculosis has provided more pathological and clinical problems than any other disease of the urinary tract. A book written by Jean Cibert, based upon a thousand cases treated by him between 1928 and 1944, must be a valuable contribution to the literature. He has divided his book into three sections. In the first part he discusses the pathological, anatomical, and clinical basis upon which treatment is founded; in the second he describes the medical and surgical treatment; and in the final section he gives the indications for the treatment of unilateral and bilateral renal tuberculosis and for the treatment of bladder involvement persisting after nephrectomy. By confining the scope of this work mainly to the treatment of this disease the author has been able to consider more fully those problems that are constantly presented to the clinician. When discussing controversial matters, such as the route by which the organism reaches the kidney, the site of the initial lesion, or tuberculous bacilluria, the author widely reviews the experimental and clinical literature and gives a large number of references.

He gives a full pathological description of the changes in the kidney from the initial lesion to its final and complete destruction, and especially considers the modifications of treatment

requisite to each stage. Tuberculous infection extending to the rest of the urinary and genital tracts greatly affects the treatment of the disease; the author deals fully with such complications. A large number of excellent pyelograms are reproduced with the discussion on diagnosis and on ascertaining the extent of the disease, and he carefully describes the characteristic changes which occur at each stage of the infection. He deals with the medical treatment of renal tuberculosis concisely under the headings of general, specific (biological and chemical), and palliative methods of treatment. The results of vaccine and chemical treatment are described in a separate section—the vaccine of Vaudremer and the antigen of Nègre and Boquet more fully than tuberculin. The surgical treatment is divided into two parts: first, the radical treatment of nephrectomy; secondly, palliative operations. He pays special attention to the technique of nephrectomy, the treatment of the ureter, vascular pedicle, perinephric fat, and drainage, and the post-operative complications which may follow nephrectomy. In the section on palliative operations the author describes the details and technique of many operations that have been devised to relieve the patient of discomfort and which often receive only a brief mention in textbooks. His account of those operations which aim at interrupting the painful nerve impulses by injecting or resecting various parts of the nerve supply of the bladder is especially clear. The indications for nephrostomy, ureterostomy, and cystostomy, and the complications which may occur from such measures, complete this very instructive chapter. In the final section he discusses the indications and contraindications for treatment of unilateral and bilateral kidney lesions, and it is here that the author deals with such difficult decisions as whether to remove one of the kidneys in a bilateral involvement and other similar problems.

This book is a fine contribution to the literature on renal tuberculosis. It is to be hoped that it will be translated into English so that it may be more widely read.

J. E. SEMPLE.

### ALCOHOLICS ANONYMOUS

*Phases in the Drinking History of Alcoholics. Analysis of a Survey Conducted by the 'Grapevine,' Official Organ of Alcoholics Anonymous.* By E. M. Jellinek, Sc.D. Memoirs of the Section of Studies on Alcohol, Yale University, No. 5. (Pp. 88. \$1.00.) Published for the Section of Studies on Alcohol by Hillhouse Press, New Haven, Connecticut. 1946.

This little book may not be everyone's leisure-time reading, for it is packed with statistical figures and statistical arguments, but students of alcoholism will find much of interest in it. Dr. Jellinek sifts the material with a skill that commands admiration, distinguishing those attitudes and modes of behaviour which are significant for prognosis from those which are not.

The investigation suffers from the severe defect that neither Dr. Jellinek nor anyone with statistical experience planned it. Facts of primary importance, such as family and personal background, were neglected; those recorded were obtained from answers to a questionnaire given away with copies of the *Grapevine*, the official organ of "Alcoholics Anonymous." The replies were from reformed alcoholics of predominantly superior social and economic standing. Dr. Jellinek was asked to analyse the questionnaire returns, which provided a series of dates for each individual—those, for instance, of first getting drunk, attempting to control drinking by changing the drinking pattern, going on the wagon, the first black-out, the first week-end drunk, the first mid-week drunk, the first loss of a job, and so forth. By grouping these 36 separate dates Dr. Jellinek shows that the drinking history can be divided into three stages. Relatively little is known of the prodromal period. The first clearly established stage, which begins with loss of control of drinking habits, is associated with week-end drunks, "black-outs," "sneaking drinks," and extravagant behaviour. Characteristic of the next stage are "benders"—that is, staying drunk for a day or more without regard to social consequences—going on the water wagon, changing the drinking pattern. This acute compulsive phase passes gradually into a more chronic one, in which the personality of the alcoholic becomes disorganized; its most characteristic symptoms are a preoccupation with ensuring a regular supply of alcohol and the occurrence of tremors and un-



reasonable fears. Finally, about three years later, the alcoholic reaches his lowest point, where he may at last admit to himself or to others that his alcoholism is beyond control, signifying the defeat of his systems of rationalization. "Alcoholics Anonymous," remarks Dr. Jellinek, "are right in attributing great significance to this self-admission, because as long as the rationalization system affords sufficient support the drinker cannot sincerely feel that he has a disease which requires treatment."

ELIOT SLATER.

### PERIARTERITIS NODOSA

*La Périartérite Noduse. Maladie de Kussmaul.* By P. Nicaud. (Pp. 122; 21 figures. 255 francs.) Paris: Masson et Cie.

In this monograph on periarteritis nodosa Dr. P. Nicaud gives a detailed account of the clinical and pathological aspects of the disease. He writes authoritatively, for he has himself been interested in the subject for nearly twenty years. The book is for the most part based on carefully selected reports from the literature, beginning with the original account published by Kussmaul in 1866. The first part is in the best tradition of clinical descriptive writing, in which the greatest French teachers have rarely been excelled. The author distinguishes acute and chronic forms of the disease, which, while they resemble each other in their symptoms, differ greatly in their evolution, the one proceeding rapidly by a series of dramatic episodes to death, the other being characterized by long remissions interrupting the varied course of the illness, which may end in recovery. The vascular lesions are widespread, but the symptoms may predominantly arise from one particular system of the body; the author therefore distinguishes haemorrhagic, nervous, alimentary, and cardiac forms, in all of which disseminated lesions may complicate the picture. Cases with purely visceral manifestations are sufficiently common to be separately described. Only the brain and the lungs seem usually to be spared from the morbid process. The author carefully describes the lesions themselves, both their gross and microscopical features and their evolution from a purely adventitial lesion to a pan-arteritis.

The theme of the book is the natural history of the nodule that gives the disease its name. It may be seen in the skin, the mucosae, the various viscera, and on sigmoidoscopy as tiny "tapioca granules" lying along the course of the small vessels. Wherever they occur the appearance and development of the lesions are the same, but the pathological effects are as varied as the functions of the organs in which they arise. The author says nothing new on the problem of the aetiology of the disease. He reviews the experimental work on its transmission to animals, the results of which have been largely negative. A similar condition has been described arising spontaneously in deer, as well as in the pig and the calf, and the author believes that the disease is likely to be caused by an infection, possibly entering by the alimentary canal, where the lesions are most common. He pays scant attention to Rich's work, which suggests an allergic cause of the disease. It may be assumed that Selye's work was not available to the author when he wrote the book.

It is a fault of French reviews that theories based on speculation receive the same emphasis as serious experimental work, but this book is freer from it than most. Sections of the book on prognosis, diagnosis, and treatment only recapitulate points made earlier and include much repetition. The book is well produced; the illustrations are useful, particularly the colour reproductions of the cutaneous lesions; misprints are few, and the bibliography is adequate, though not exhaustive.

L. P. R. FOURMAN.

*Médicaments et Médications*, by Hervé Harant (Paris: Presses Universitaires de France; no price given), is an elementary introduction to pharmacy. It begins with a brief résumé of the history of pharmacy, defines terms in common usage such as therapeutics, pharmacognosy, etc., and surveys the natural and chemical origins of drugs often prescribed, their method of administration, actions, and uses. It concludes with a short chapter on physiotherapy and radiotherapy, and a bibliography taken mainly from books in the same series—*Que Sais-je?* This book is one of an elementary educational series covering many subjects.

### BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

*Psychopathology.* By J. Ernest Nicole, O.B.E., L.M.S.S.A., D.P.M.R.C.P.&S. 4th ed. (Pp. 268. 15s.) London: Baillière, Tindall and Cox. 1946.

An exposition of modern theories of psychopathology.

*Secretarial Practice and Office Administration for Hospitals.* By Capt. J. E. Stone, C.B.E., M.C., F.S.A.A., F.R.Econ.S., F.S.S., F.H.A. (Pp. 204. 21s.) London: Faber and Faber. 1947.

A guide to the routine of office management in hospitals.

*Atlas of Cardiovascular Diseases.* By I. J. Treiger, M.D. (Pp. 180. 50s.) London: Henry Kimpton. 1947.

Illustrations, some in colour, show diseased organs of the cardiovascular system, skiagrams, and electrocardiographs; summarized case histories included.

*The Advertiser's Aid, 1947* (No price.) London: The Newspaper Society. 1947.

Provides information for newspaper advertisers.

*Surgery of the Ear.* Renewal pages. Edited by S. J. Kopetzky, M.D., F.A.C.S. New York and London: Thomas Nelson. 1947.

Includes chapters on surgery of the external ear, chronic otorrhoea, brain abscess, the facial and acoustic nerves, and plastic surgery.

*Surgical Applied Anatomy.* By Sir Frederick Treves, Bart. 11th ed. Revised by Lambert Rogers, M.Sc., F.R.C.S., F.R.C.S.Ed. (Pp. 560. 20s.) London: Cassell and Co. 1947.

This popular manual has been completely revised for this edition.

*The Rehabilitation of the Injured.* Vol. 2. By J. H. C. Colson, M.C.S.P. (Pp. 556. 30s.) London: Cassell and Co. 1947.

A textbook on the application of specific remedial exercises, intended for physiotherapists and remedial gymnasts.

*Man and Animals: What They Eat and Why.* By Ben Dawes, D.Sc., A.R.C.Sc. (Pp. 100. 7s. 6d.) London, Longmans, Green and Co. 1947.

A brief account of the chemical constitution of food for students of biology and nutrition.

*Sigmund Freud: An Introduction.* By Walter Hollitscher, D.Phil. (Pp. 119. 8s. 6d.) London: Kegan Paul, Trench, Trubner and Co. 1947.

An outline of Freud's theories and their significance to sociology.

*Opportunity and the Deaf Child.* By I. R. Ewing, O.B.E., M.Sc., and A. W. G. Ewing, Ph.D., M.A. (Pp. 252. 9s. 6d.) London: University of London Press. 1947.

The education of deaf children described for medical men and laymen.

*What People Are.* By Clark W. Heath. (Pp. 141. 52 or 11s. 6d.) Cambridge, Mass: Harvard University Press. London: Geoffrey Cumberlege, Oxford, Oxford University Press. 1946.

Records investigations into the physique and mentality of a number of "normal" young men.

*Hey Groves' Synopsis of Surgery.* Edited by Sir Cecil P. G. Wakeley, K.B.E., C.B., D.Sc., F.R.C.S., F.R.S.Ed. 13th ed. (Pp. 637. 25s.) Bristol: John Wright. London: Simpkin Marshall (1941), Ltd. 1947.

Includes new material on vascular surgery, chest surgery, neurosurgery, and the surgery of the ductless glands.

*Dental Education Today.* By H. H. Horner. (Pp. 420. 33s.) Chicago: The University of Chicago Press. London: Cambridge University Press. 1947.

A systematic account of education for the dental profession in the U.S.A.

*Preoperative and Postoperative Care.* By W. J. Tourish, M.D., F.A.C.S., and F. B. Wagner, Jr., M.D. (Pp. 338. \$6.00 or 33s.) Philadelphia: F. A. Davis Company. London: H. K. Lewis. 1947.

An introductory manual on the care of patients before and after operation.

## BRITISH MEDICAL JOURNAL

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## CHILDREN'S DIETS

A considerable number of surveys have been made of the amount of food eaten by families, though we still have much to learn about the variations according to income, employment, and locality. But very little is known about the amounts eaten by individuals. In this country we have had the studies of the diets of middle-class adults, and of pregnant women made more than ten years ago by Widdowson<sup>1 2 3</sup> and her colleagues, and more recently Bransby and Wagner<sup>4</sup> have investigated the diets of school-children in industrial towns, but we have no information about the diets of children under 5 or of adolescents. Yet information about the amounts of food eaten at various ages has more than an academic value, for the Governments of most countries in which food has been rationed have graduated the rations according to age, though they have had no firm knowledge of the variations of food-consumption with age.

Widdowson<sup>5</sup> began to investigate the diets of children in May, 1935, and went on collecting data until May, 1939. The 916 children studied included 333 of the "professional class," 474 of the "upper working class" (accountants, bank clerks, shopkeepers, and the like), and 109 of the "artisan class" (fitters, skilled labourers, lorry drivers, factory hands). The method used was the same as that employed in studies of the diets of adults. A spring balance, weighing by 1/4-oz. (7-g.) divisions up to 2 lb. (907 g.), was provided, with a sheet of instructions and a set of forms on which to enter the results. The food as served was weighed, and any edible portion, but not waste, that was not eaten was deducted. The record was kept for a week. All methods of surveying food-consumption have their faults. When the housewife keeps a record of food bought and eaten the inaccuracy of the weighing provides the highest and the change from the normal pattern of the family's diet the lowest source of error. When an investigator comes into the house and weighs all the food eaten and all the waste, the weighing is accurate, but there is a change in the food pattern. With the method used by Widdowson the accuracy of weighing is intermediate, but there is still some likelihood that the diets of the subjects are modified for the occasion. Mothers may, unconsciously, avoid what they consider may be faults and aim at a desirable diet, and the children, knowing that their performance will make dietetic history, may set out to show what they can do. The amount of food eaten may

vary enormously during the week. One child consumed the equivalent of 4,226 calories on Sunday and 2,619 calories on Friday. It may be asked whether a week is sufficiently long to give an estimate of the average consumption by an individual. Four children weighed their week's food twice at intervals of about one year. The difference between the two weeks ranged from 62 to 275 calories. Widdowson also quotes the calorie intakes of 8 children studied each week for four weeks. The maximum differences between the average intake of an individual over the four weeks and the average of the same individual during any one week were +258 and -218 calories.

Our first reaction to this study is to compare the food eaten before the war with the food to-day. Few families in the classes studied can get more than their ration of any foodstuffs, except eggs. The average amount of milk taken by children up to the age of 12 before the war was about 6 pints (3.4 l.) a week; children supplied with milk at school now get about 5 pints (2.8 l.). Boys over 12 used to drink about 5 pints; adolescents now get only 3.5 pints (2 l.) unless they get milk at school. The average amount of butter eaten on bread by children over 5 was more than 6 oz. (170 g.) a week, and boys of 16 ate as much as 10 oz. (284 g.). The average amount of meat eaten by children over 9 years old was not less than 20 oz. (568 g.) a week, and boys over the age of 14 ate about 40 oz. (1.1 kg.); three-quarters of this was butcher's meat. To-day a child eating school meals is allowed about 24 oz. (682 g.) of butcher's meat. Children from 6 to 11 years old ate from 2 to 3 oz. (57-85 g.) of bacon, and those over 12 ate 4 oz. (114 g.) or more. The average amount of raw fruit eaten was between 20 and 30 oz. (568-852 g.) a week, but the average amount of cooked green vegetables was little more than 1 oz. (28 g.) a day up to 16 years, and then about 1½ oz. (42 g.). Comparison of the pre-war intake of calories, which was over 2,000 a day for children aged from 7 to 13 years and over 3,000 for those aged from 14 to 18 years, with estimates made by Bransby and Magee<sup>6</sup> of the amounts obtainable from rationed foods and other sources, shows that it is difficult to maintain this pre-war level unless children eat meals away from home.

There is another side to the picture. In 1944-5, before bread was rationed, Bransby and Wagner<sup>4</sup> surveyed the diets of children aged 5 to 13 years attending elementary schools in Stoke-on-Trent and in Salford. These children must have come from families that were poorer than most of those included in Widdowson's 1935-9 survey, but the average calorie values of their diets in 1944-5 were as high as those of Widdowson's 1935-9 group. The average amount of milk consumed was equivalent to about 5 pints (2.8 l.) a week. The average daily calcium was higher than in the 1935-9 survey. The amount of animal protein in 1944-5 was only a few grammes a day less than in 1935-9 and, even more remarkable, the amount of fat was not much less. Widdowson also studied the diets of children whose fathers were unemployed; in their diet the average amounts of milk, of animal protein, and of calcium were well below those in the diets of 1944-5. Since 1939 the diets of middle-class children have deteriorated, but those of the poorer classes have improved considerably.

<sup>1</sup> *J. Hyg., Camb.*, 1936, 38, 269.

<sup>2</sup> *Ibid.*, 1936, 38, 293.

<sup>3</sup> *Ibid.*, 1938, 38, 596.

<sup>4</sup> *British Medical Journal*, 1945, 2, 682.

<sup>5</sup> "A Study of Individual Children's Diets," 1947. Med. Res. Cncl. Sp. Rep. Ser., No. 257. London: H.M.S.O.

<sup>6</sup> *British Medical Journal*, 1947, 1, 525.

Among the children studied in 1935-9 differences between the calorie intakes of individuals of the same age were as great as or greater than those found among adults. These differences among adults cannot be accounted for by variations in the intake of an individual from week to week, differences in basal metabolic rates, differences of physical work, or differences in the specific dynamic action of foodstuffs. As a rule bigger children ate more food, but the differences in size would not account for the differences in the amount eaten by individual children. However, the average consumption of protein and the average calorie values of the diets, age by age, corresponded very closely with the requirements proposed by the National Research Council of the U.S.A.<sup>7</sup> The calcium available was, throughout, below this standard.

What do these estimates of requirements mean, in view of the wide range of intakes which seem to be compatible with health and with an average rate of growth? Widdowson considers this question at some length. The average heights and weights of these children were close to those arrived at by Baldwin and Wood.<sup>8</sup> The levels of haemoglobin in the blood of those children examined compared favourably with haemoglobin levels estimated elsewhere. It is highly probable that the diets which the older children were eating in 1935-9 were similar to those that they had eaten in early childhood. But children with a small appetite might be big and children with a large appetite small; children taking over 1 g. of calcium a day might have very bad teeth and children taking under 0.5 g. have relatively good teeth. An average diet of the type eaten by these children was compatible with a good average standard of growth, a fair haemoglobin level, and very bad teeth. But how the physique, haemoglobin levels, or state of the teeth could be improved by changes in the diet we do not know.

### HEALTH SERVICES BILL FOR NORTHERN IRELAND

Like its prototype for England and Wales, this Bill is designed to provide a free comprehensive health service. The Ministry of Health and Local Government is given general responsibility for the organization of the Service and it will secure this partly through certain new agencies and partly by the reorganization and co-ordination of existing services. The Bill does not provide for the appointment of a permanent statutory advisory body corresponding to the Central Health Services Council, but the Minister is empowered to set up health advisory committees for the purpose of obtaining advice upon any matters arising in connexion with the duties of the Ministry. These will be *ad hoc* bodies appointed, and dissolved, by the Minister when, and for what particular purpose, he pleases.

Under Part II of the proposed Act a General Health Services Board is given the duty of making arrangements for general medical, dental, and pharmaceutical services throughout Northern Ireland. Regulations to be made later will define the personal medical services to be provided, but it is clear from the Bill that no direction, positive or negative, of general practitioners is contemplated. The

Board is required in performing its functions to consult with local representative committees of doctors, dentists, and pharmacists "to such extent as appears to the Board to be practicable." These local medical, dental, and pharmaceutical committees may be formed for the area of any health authority (counties and county boroughs). The Board will be appointed by the Minister after consultation with the various interests concerned—the medical, dental, and pharmaceutical professions, the hospital services, the county and county borough health authorities, and other organizations. Any medical practitioner resident in Northern Ireland will have the right to have his name included in the list of any local medical committee area. In brief, he may practise where he chooses.

The principle of remuneration by capitation fee has been embodied in the Bill. Therefore, a general practitioner's income from the Service will depend upon the number of persons who select him as their doctor. For areas where by reason of the small population the capitation fee provides remuneration which, in the opinion of the Board, is inadequate, the Bill authorizes additional remuneration. Superannuation benefits are also to be provided.

Although the buying and selling of the goodwill of public practices is to be prohibited and compensation is to be paid to those who enter the Service, as in the case of the English Act, the detailed penal provisions of the latter, which have caused such bewilderment and apprehension, do not appear in the Northern Ireland Bill. The numerous complicated penal clauses of the English Act are replaced in this Bill by a simple paragraph, that it shall be unlawful to sell the goodwill of the practice of a general practitioner who enters the Service, followed by a statement of the penalties for offences. The Bill authorizes the maintenance of lists of general practitioners who will undertake to provide medical assistance for midwives. On this point the English Act includes a provision enabling the Minister of Health to prescribe conditions as to the qualifications of medical practitioners called in to assist midwives. A special tribunal is to be set up to investigate cases where representations are made that the continued inclusion of any doctor, chemist, dentist, or optician in the lists drawn up under the Act would be prejudicial to the efficiency of the Service. There is an appeal from decisions of this tribunal not to the Minister but to the Supreme Court.

A hospitals authority will be set up by the Minister to survey, plan, and administer the new hospital and specialist services; its functions will include, by arrangement with the Queen's University of Belfast, the provision of facilities for clinical teaching and for research. Members of the hospitals authority, to which all existing hospitals are to be transferred, will be appointed by the Minister after consultation with the universities, the medical profession, the Northern Ireland Tuberculosis Authority, the county and county borough health authorities, and the rate-aided and voluntary hospitals. The actual management of hospitals will remain in the hands of local management committees. One of the first tasks of the new authority will be to submit to the Ministry a general scheme for the appointment of management committees for each hospital or group of hospitals. The authority will appoint the management committees after consultation with the health authority for the area, with the General Health Services Board, with the senior medical and dental staff of the hospital, and with

<sup>7</sup> National Research Council (1943). Reprint and Circular Series, No. 115. Washington, D.C.

<sup>8</sup> Weight-height-age Tables for Boys and Girls of School Age (1923). New York: American Child Health Association.

any other organizations concerned. The Bill provides that at least a majority of the new management committee must be chosen from the members of the existing committee or board of governors. Management committees will act in their own right within the schemes approved by the Ministry, and will have full legal status and power to accept gifts. The endowments of voluntary hospitals will be transferred to the new management committees. A Hospital Endowments Commission will determine whether the endowments of a voluntary hospital are "general" and therefore available for general purposes, or "special" and therefore to be applied to a specific purpose.

Finally, every county and county borough council is required to submit to the Ministry a scheme for the provision in their areas of the following services: maternity and child welfare, health visiting, home nursing, vaccination and immunization, and health education. These local authorities are also empowered, with the Ministry's approval, to make arrangements for ambulance services, for the prevention of illness, for the care or after-care of persons suffering from illness, and for domestic help in cases of illness. The provision of health centres but is included in the duties of the local health authorities but is the function of the General Health Services Board, the body responsible for the general practitioner service. The board may, however, delegate its duties in this respect to a local health authority.

### ON THE TRACK OF DISSEMINATED SCLEROSIS

Disseminated sclerosis is by far the most common demyelinating disease of the central nervous system. Indeed it is the commonest disease arising within the brain and spinal cord and causing structural changes in them. Its aetiology remains unknown in spite of many attempts to explain its lesions on the basis of vascular degeneration, virus infection, organic or inorganic toxins, or deficiencies of essential substances in the food. Certain features suggest a familial defect; cases have occurred in two or more siblings, and the condition has been described in uniovular twins. Some neurologists have held that two factors are responsible, one inborn and the other acquired, but they have been unable to hazard a guess as to their nature.

Chance has now thrown up an entirely new approach to the problem and one which may open the way to a complete understanding of the cause of disseminated sclerosis and perhaps to its prevention and even cure. Four members of a group of seven laboratory workers who, led by Innes,<sup>1</sup> were studying the aetiology of swayback in sheep have developed disseminated sclerosis. Russell and his collaborators<sup>2</sup> have described the four cases, and there can be little doubt—in a condition where doubt is so often justified—that the cases are clinically characteristic examples of the disease. As over half the workers have been so affected the probability that the affliction is related to a common environmental factor experienced by them all is great, and it seems reasonable in the circumstances to incriminate their common interest in swayback.

Swayback is a most interesting condition. It occurs in newly born lambs with healthy mothers, and it will affect both twins or all three triplets. The affected lambs become

progressively ataxic and spastic and then die. Their mothers have lived in an "affected" area for at least a year before their birth, and in many discrete areas of country, particularly in Derbyshire, Yorkshire, Buckinghamshire, and Wales, the incidence is very high. A similar disease is found in Australia, South America, and New Zealand. Innes showed that swayback resembles Schilder's encephalopathy in its gross pathological appearance, but is not like disseminated sclerosis at all, for though demyelination is seen it is widespread through the cerebral hemispheres; large patches of symmetrical degeneration of white matter and lead to gross enlargement of the cerebral ventricles and to extensive cavitation of the brain.

No one has been able to transmit swayback from lamb to another, or to any other animal, but Bennett and Chapman<sup>3</sup> found that the administration of copper to ewes during pregnancy prevented the disease. This is the whole story, however, for swayback has been observed in areas where the copper content of the grass is adequate so that some other set of factors must also be operative. Although perivascular zones of demyelination of the brain, brain stem, and cord in disseminated sclerosis, similar demyelinating lesions can be caused by agents, according to Hurst,<sup>4</sup> and none has so far been found to be responsible for the lesions of disseminated sclerosis. Now the possibility has arisen that a deficiency of a trace metal in the mother may predispose the lamb to exposure to some other agent in life, which in turn may give rise to perivascular demyelination. The administration of copper to the cases of disseminated sclerosis has been without benefit, but this, on the face of it, was perhaps hoping for too much. At least it looks as if the search has begun to narrow down.

### SOME FACTS ABOUT CHILD-BEARING

The economic and general aspects of child-bearing have been studied recently by a joint committee of the Royal College of Obstetricians and Gynaecologists and the Population Investigation Committee.<sup>5</sup> Information about the week of births in England, Wales, and Scotland during the week March 3-9, 1946, was collected by the health visitors of the local authorities eight weeks after the confinement. A questionnaire was completed by 13,687 of the 15,130 women concerned; 424 local authorities co-operated, and 34 found it impossible to do so. With such a high proportion of successful interviews the results may be taken as typical of present conditions in this country. Legitimate births were classified, according to the occupation of the father, into five broad groups. No information could be obtained for over one-third of the illegitimate births. This probably introduces a bias and therefore the results for unmarried women may not be typical.

More than half of these confinements took place in an institution. For the first births the proportion was 67.8% for all groups, varying in the different occupational classes from 85.2% for the wives of professional or salaried workers to 64.1% for the wives of manual workers. Differences between the occupational groups were more marked for the higher birth orders. Thus, for the fourth and higher birth orders over half the deliveries of wives of professional and salaried workers occurred in an institution compared with only one-seventh for the wives of agricultural workers. The reasons given for choosing the place of confinement varied. Unsuitable home conditions

<sup>1</sup> *Proc. roy. Soc. Med.*, 1940, 33, 169.  
<sup>2</sup> *Brain*, 1947, 70, 50.

<sup>3</sup> *Bull. Coun. sci. Industr. Res. Aust.*, 1937, No. 147, 13, 133.  
<sup>4</sup> *Brain*, 1944, 67, 103.  
<sup>5</sup> *Population Studies*, No. 1, 99.

accounted for the largest proportion of deliveries in hospital, and for a large proportion of confinements in nursing homes; the proportion of families living more than two to a room ranged from 4.6% for professional workers to 22% for manual workers. Half the women confined at home gave preference as their reason, while in only one-sixth of the hospital (booked public ward) and slightly over one-quarter of the nursing home confinements was this reason recorded. Despite the shortage of hospital accommodation only 13% of the mothers confined at home said that they had been unable to book a bed.

Only 62 women (0.9%) received no antenatal care; 71.7% were under the supervision of local authorities and 27.4% had made private arrangements. The wives of professional and salaried workers sought antenatal care earlier than the other groups (25.5 weeks before delivery), while the wives of agricultural workers had the shortest period of antenatal supervision (20.1 weeks). Domiciliary deliveries were undertaken by a medical practitioner in 19% of cases and by a midwife in 67.6%; for confinements in hospital the proportions were 19.2% and 51.5%, respectively, and in nursing homes 65.4% and 33.9%. Students delivered 28.8% of the hospital cases. Anaesthesia was administered in one-fifth of the deliveries at the mother's home and in nearly three-quarters of the confinements in nursing homes. Chloroform was used in 67.4% of domiciliary and 60.3% of nursing home cases delivered under anaesthesia. In the hospital (public ward) group 69.8% of these cases were given gas and air; in the private wards of hospitals 35.1% had gas and air and 43% chloroform. The average length of stay in hospital varied from 13.4 days for the wives of professional workers to 12.5 days for the wives of manual workers; in nursing homes the corresponding figures for these two groups were 14.6 and 13.7 days.

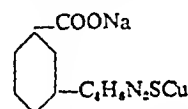
The number of women who had had a post-natal examination during the eight weeks after delivery was small, probably less than one-third. Only 48% of the mothers having their first child in hospital had had a post-natal examination. The proportion of mothers who sought advice on the welfare of their babies was small: 57.1% had attended an infant welfare clinic and 4.6% had sought other medical advice. Of the wives of manual workers 61.5% had taken their infants to a welfare centre, but only 31.5% of the wives of agricultural workers had attended a clinic. The cost of a confinement varied with parity and economic status. The total average expenditure for a first birth was £39.5, decreasing to £17.6 for the fifth and higher birth orders. The professional classes expended an average of £57 on a first birth compared with £31.3 spent by agricultural workers. Expenditure on medical care formed only a small part of the total cost of a confinement; for first births the average medical and institutional fees were £3.5 for domiciliary confinements, £5.1 for hospitals (booked public ward), and £22.8 for nursing homes. Expenditure on the baby did not differ very much between the five occupational groups, owing to rationing and price controls. For the first birth the largest and smallest mean sums spent on baby clothes were £11.2 and £9.3, and for cots, prams, etc., the range was £14.4 to £9.7.

Most of the differences between the occupational groups are mainly of economic origin, but all the differences may not be solely due to economic reasons, as this report tends to suggest. The fact that the more prosperous mothers had a slightly longer stay in hospital (booked public ward) than the poorer mothers, and that they were given analgesics or anaesthetics more often, may be due to a larger proportion of abnormal confinements in this group. This explanation is suggested by the higher average age of the mothers and the larger proportion of primiparous women.

This report adds to the impression gained from medical officers of health that full use is not made of the facilities for post-natal care and infant welfare; over one-third of the mothers had not sought any advice on infant welfare during the most critical weeks following birth.

## TREATMENT OF ARTHRITIS WITH SALTS OF COPPER

The beneficial results obtained by the use of gold salts in the treatment of rheumatoid arthritis have led to the action of other heavy metals in this disease being studied, especially in cases intolerant of gold or those in which, after improvement in the earlier courses, the remedy has ceased to benefit. The organic salts of bismuth have given encouraging results, though they are less effective than gold; and antimony has also helped a few cases. Before the war Continental observers had been trying organic salts of copper in the treatment of pulmonary tuberculosis, and, since gold therapy in this disease first led to its being tried in arthritis, Fenz in 1941<sup>1</sup> treated some cases of chronic infective rheumatic disease with an organic copper salt. Some improvement resulted. Forestier in 1942,<sup>2</sup> following this lead, made more extensive investigations, which have recently been published. He used the cuproallyl-thio-urea-benzoate of sodium of the formula:



This substance, which contains 19% of copper, is a yellowish brown powder readily soluble in distilled water. It is administered intravenously, since it was found that intramuscular injection caused painful reactions lasting eight to ten hours. A solution of the strength of 0.25 g. Cu in 10 ml. of distilled water was used, and the treatment began with a dose of 0.1 g. of the salt, which was increased gradually to 0.25 g. A total amount varying from 2.5 g. to 5 g. constituted a course; it was repeated after an interval of one to three months, the injections being given twice a week. No untoward results occurred, and in a series of fifty cases arrest of the disease was recorded in 50%; in a further 30% the effect was encouraging, and in 20% indifferent. The results were especially encouraging in the type of arthritis with marked effusion into the joints, which Forestier inclines to regard as a distinct form of arthritis more resistant to gold than other forms. As with gold therapy the results in spondylitis were less satisfactory than in rheumatoid arthritis.

These observations call for wider investigation of a remedy which seems to afford advantages over gold, being equally beneficial yet without toxic manifestations. It cannot be claimed, however, that the administration of copper is always free from toxic effects, and Forbes<sup>3</sup> has recently discussed those of the inorganic salts; they cause cirrhosis of the liver, which, developing slowly, may show years after the courses given for arthritis have been completed. The whole problem of the action of the heavy metals in the system requires fuller investigation. It would appear to be equally important to investigate the place of the liver functions in arthritis in view of the improvement reported by Hench and others when jaundice has occurred in cases of arthritis.

<sup>1</sup> *Munch. med. Wschr.*, 1941, 88, 1101.

<sup>2</sup> *Presse med.*, 1946, 64, 884.

<sup>3</sup> *British Medical Journal*, 1947, 1, 367.



INTERNATIONAL CONFERENCE OF  
PHYSICIANS

(Continued from p. 431)

## SURGERY OF CONGENITAL HEART DISEASE

The outstanding event of the Conference on Sept. 9 was an all-day discussion on the surgery of congenital heart disease, for which the Sections of Paediatrics and Cardiology combined. The diagnosis and treatment of the cyanotic group was introduced by two workers from the famous Baltimore Clinic—Dr. Helen Taussig and Dr. Alfred Blalock. Dr. Blalock has worked out a technique for the anastomosis of one of the systemic arteries to the pulmonary artery, thereby increasing the circulation to the lungs; in other words, an operation designed virtually to create another ductus.

Dr. Taussig said that in diagnosing the condition of cyanosis a history of squatting on the part of the child was very helpful. These children tended to sit down on their haunches, with their weight on their heels. The cyanosis was of varying degrees; the heart was not greatly enlarged, the basal systolic murmur was characteristic, though a number of the patients had extreme pulmonary stenosis with no murmur, and there were helpful electrocardiographic and especially fluoroscopic signs. Infants were generally less cyanotic than older children. Some might have lips of normal colour and only slight abnormalities of the fingernails, and yet be extremely incapacitated, with an oxygen saturation which fell rapidly during exercise. The degree of incapacity varied from day to day and from season to season. Conditions essential for operation were: (1) inadequacy of circulation to the lungs; (2) availability of systemic arteries; (3) existence of a pulmonary artery to which to anastomose the systemic artery; (4) greater pressure in the systemic artery than in the pulmonary. The greatest concern in the clinical diagnosis was with the structure of the pulmonary artery, and in many children diagnosis was difficult because the pulmonary artery was not very large and the pulsations not easy to detect.

In the first 350 operations which Dr. Blalock had carried out according to this procedure the number of excellent results was 248, or 71%. The deaths numbered 60, cases unimproved 8, much improved 18. In 16 of the cases the operation was exploratory only. Infants stood the operation less well than older children, and children under two were not recommended for operation if there was an even chance of survival. There had not yet been opportunity to answer the question how well the anastomosis would adjust itself to the growing child. Arterial oxygen circulation, which before operation might be 65%, rose post-operatively to perhaps 85%, and was maintained at about that level for the one or two years over which observation had so far extended. Some cases showed cardiac enlargement in the first three weeks after operation, due to adjustment to the altered circulation, and thereafter the size of the heart remained stationary; only 8% showed a progressive cardiac enlargement.

## Technique of Arterial Anastomosis

Dr. A. Blalock followed with a colour film illustrating the details of his operation. Anastomosis between the right pulmonary and the right subclavian was favoured. It was possible either to do an end-to-end anastomosis or, as he preferred, an end-to-side; the latter allowed the blood which was to be oxygenated to go to both lungs, and also it permitted with greater safety the performance of further procedures at a later date should this be necessary. The anaesthetic used was cyclopropane throughout. More attention was paid to pressure within the pulmonary artery than to the turns of the vessel. A transverse opening was made in the upper surface of the pulmonary artery of approximately the same size as the opening of the end of the subclavian. Many peculiar anomalies were found. In one case a strand of tissue connected the pulmonary to the carotid and the subclavian; there was apparently no innominate artery. The strand was destroyed and anastomosis carried out between the junction of the carotid and the subclavian and the pulmonary artery, and this patient did very well. Up to now he had carried out the operation in 474 cases,

with 86 deaths. The mortality with the various procedures was as follows:

Anastomosis	Cases	Deaths	Per cent
Subclavian and pulmonary artery:			
End to side .. .. .	331	37	11
End to end .. .. .	23	4	17
Carotid and pulmonary:			
End to side .. .. .	30	9	30
End to end .. .. .	1	1	100
Innominate and pulmonary:			
End to side .. .. .	47	13	28
End to end .. .. .	1	1	100
Aorta and pulmonary:			
Side to side .. .. .	2	1	50
Subclavian artery to pulmonary vein (unintentional)	2	2	100
Exploratory thoracostomy .. ..	37	18	49

In not one of the patients in whom the subclavian artery had been ligatured and who had survived the operation had there been any difficulty with the circulation in the arm. Ages of the patients varied from 2 months to 44 years. The ideal age for operation was from 3 to 9 years. Heparin and dicoumarol had been very rarely used; one death was attributable to the latter drug.

The discussion was continued by Dr. James W. Brown (Grimsby), who said that he had had to care for over a hundred cyanotic children; many of them had existed rather than lived. About a quarter managed to survive until school-leaving age. If an extremely bad prognosis was justification for surgery the cyanotic group was a challenge; but operation was not a cure—it was a physiological readjustment which allowed a greater circulation to the lungs.

## Patent Ductus Arteriosus and Coarctation

Dr. C. Crafoord (Sweden), who claimed a mortality as low as 1% in the surgery of these conditions, and Dr. Rae Gilchrist (Edinburgh) opened a discussion on this subject. Dr. Gilchrist said that with increasing experience he felt that cases of patent ductus in childhood, with very few exceptions, should be given the benefit of surgery. He would hold his hand until the child had reached the age of 7 or 8, because up to that time it was possible that the ductus might close spontaneously, which he had seen happen in two or three cases. Over the age of the difficulties in the way of thoracic surgery were greater, the technique a little more hazardous, the arteries less resilient, and the mortality from intrathoracic interference increased. He doubted the wisdom of recommending surgery for the young person of 20 or 22 if he or she was not incapacitated; certainly the dangers should be explained to the patient. If a person with patent ductus developed a fever that fever should be watched very carefully, and the possibility of infective endocarditis should be borne in mind. On the results of surgical measures he had nothing but encouragement to report. The mortality in this country and in America was under 5%. The follow-up in Edinburgh had been encouraging also. He recalled a letter from the schoolmaster of a boy of 13 who had had the ductus ligated eight months previously stating that he was entirely different boy since his operation, that his thrust and resourcefulness were now much more positive and sustained alike in play and work. Another boy in the two years after this operation had gained nearly 20 kg. in weight and 20 cm. in stature, and on the second anniversary of his operation covered seven miles (11.2 km.) on foot in an hour.

Two surgeons—Mr. O. S. Tubbs and Mr. Holmes Sellar recounted their experience, and Prof. Crighton Bramwell (Manchester) spoke of middle-aged patients with coarctation. In his series there were 13 who were over 30 years of age when the first came under observation. The three oldest were dead, all had lived to over 50 and had died from conditions unrelated with the defect of the vessels. Of the remaining several were able to undergo severe physical exertion without the production of symptoms. The third decade was a dangerous period because people with good muscular development might be subject to physical strain and women childbearing.

Dr. Maurice Campbell spoke of blood pressure in cases of coarctation. Sir Thomas Lewis in his classical paper in 1914 had said that there was no rise in blood pressure for a num-

of years. In some statistics which Dr. Campbell had collected, relating to children between the ages of 7 and 16, it appeared that on the average the blood pressure rose in these cases from about 140 to 180-200 at the later age. His impression was that during the period of most rapid growth the constricted part of the aorta failed to grow in the same way as the rest of the arterial trunk.

### SOCIAL MEDICINE IN THE CURRICULUM

In the Section of Social Medicine, under the chairmanship of Sir Wilson Jameson, three discussions took place—one of them, opened by Sir Ernest Rock Carling, on the care of the aged and infirm, a second on social surveys, and a third on social medicine in the curriculum. Dr. John B. Grant, in introducing this last subject, described developments which were taking place in the U.S.A., particularly the organization by the medical schools themselves of comprehensive health care for groups in the community. The two medical schools in Baltimore were organizing health centres of this kind, providing medical care within their own area and, of course, offering material for teaching purposes. The same thing was taking place in New York and elsewhere. The positive aspects of health would be explored, social therapy be integrated with clinical therapy, and families—not individuals merely—would be afforded a preventive and rehabilitative service.

Prof. John Ryle (Oxford) said that it was a curious reflection that the emphasis, in medical teaching should have been so predominantly pathological, with very little attention paid to the subject of health, and, further, that the teaching of pathology should have been concentrated upon the individual and not upon the community. Everyone said that prevention was better than cure, and yet the seven years' curriculum of the medical student had embodied hitherto only a relatively few hours' instruction in public health. Many had become dissatisfied long ago with this imbalance, and their colleagues in the public health field had insisted that it required correction. Ten years ago the General Medical Council made a recommendation on the subject, which had been postponed owing to the war, that throughout the whole period of studies the attention of the student should be directed to the importance of the measures by which health might be assessed and maintained and disease prevented. At last there was an awakening on this subject, and what had come to be called social medicine, with its related disciplines, social pathology and social physiology, might be considered as having the G.M.C. recommendation in view. But up to the present this occupied only a minor part in the teaching programme, and the teaching of medicine was still very largely concentrated upon the state of the sick individual considered in complete detachment from his personal and social environment. For one like himself, bred in the clinical tradition but always interested in the broader natural history of disease, it had been a stimulating experience to play a small part in the development of social medicine at Oxford, with, as essential corollaries, the inauguration of a research department and association with colleagues in the fields of public health and industrial medicine. He gave a description of the Oxford courses. Prof. Axel Strom (Norway) and Prof. J. M. Mackintosh continued the debate.

### INFECTIVE HEPATITIS

The Section of General Medicine held a symposium on this subject. Dr. A. M. McFarlan discussed the epidemiology. A study of the epidemiological curve over recent years in different countries revealed a steady rise in incidence, followed by a slow fall, and in the course of years a further rise. There was also a seasonal fluctuation in line with the respiratory rather than the intestinal group of diseases. The incidence was highest during school age; in East Anglia it was highest between the ages of 5 and 10 in the towns and between 10 and 15 in the rural districts. Taking some 900 villages in which cases had been notified over two years, there was only one case in each of about half the villages. Protein deficiency did not seem to have had much to do in England with the occurrence of the disease. Something in the Middle East environment appeared to make people more susceptible to the disease even after they had returned to Britain.

Dr. J. H. Dible described the pathology, which he said had been established on a sound basis as a result of the liver biopsy technique. Restoration of the histological appearance readily took place even where there had been a severe lesion. Dr. F. O. MacCallum mentioned transmission experiments. There was no universally susceptible animal, and therefore use had to be made of human volunteers. A Danish visitor, Dr. M. Jersild, gave an account of a recent severe epidemic in Copenhagen. In the years 1944-6 there were 160 chronic cases (duration over three months), and 98% of the patients were women. Acute hepatitis (less than three months) also increased in Denmark during the war, but in this condition there was no pronounced sex difference. The chronic state was sometimes marked by intense pain at the right costal margin and varying degrees of icterus.

### Army Experience

Dr. E. R. Cullinan said that in both world wars infective hepatitis had crept in like a stealthy enemy and made its greatest ravages in the armies massing around the Mediterranean. The clinical description given in the official history of the war of 1914-18 could be repeated almost exactly for the war of 1939-45. A second attack occurring even within a month bore no relation to the first in duration or severity. Treatment in the British Army overseas was empirical—adequate rest, liberal diet, especially proteins, and prolonged convalescence. In the winter of 1942-3 infective hepatitis cost the British Army in the Middle East over half a million man-days. Officers were twice as often attacked as other ranks. The epidemiological puzzle remained unsolved.

An account of infective hepatitis in British West Africa was given by Dr. G. M. Findlay. Among West African soldiers during the years 1941-5, out of 1,397 deaths from medical causes 85 were from infective hepatitis.

Finally, Dr. W. N. Pickles made some observations on infective hepatitis in general practice. He gave an account of an epidemic occurring in Yorkshire in 1929 among a population of 5,700 in which there were 270 sufferers, of whom he himself attended 115. The disease ran a mild course in the great majority of his patients. In this and succeeding epidemics he believed he was justified in attributing the spread to droplet infection. Contact sufficient to reproduce the disease was very casual, and there were no explosive outbursts such as would occur from contamination of food or water, although, of course, he would not deny that the disease could arise in that way.

### ELECTRO- AND PHONO-CARDIOGRAPHY

The Section of Cardiology devoted a full day to electrocardiography. Dr. F. N. Wilson (Michigan), in a long and impressive contribution on the clinical value of chest leads, said that British physicians and physiologists had done more than those of any other nation to make electrocardiography a useful clinical method, and Sir Thomas Lewis had done more than any one man to establish the principles and methods of analysis upon which the interpretation of the electrocardiogram depended. He added, however, that, except in rare instances, clinical diagnosis should not be made on the basis of electrocardiographs alone. He sometimes wondered whether electrocardiography as practised in the States was not doing more harm than good. It was essential that the man who interpreted the electrocardiogram should have a clear idea of the clinical history and laboratory findings, and if the electrocardiographic interpretation was not confirmed by these other findings it had better be discarded. He was followed by two British exponents of chest leads—Dr. Curtis Bain and Dr. Terence East.

The use of the phonocardiogram in clinical cardiology occupied another session. The subject was introduced by Dr. William Evans (London Hospital), who said that phonocardiography was born soon after electrocardiography, but, while the latter had gained ground rapidly in clinical medicine, phonocardiography had languished. There were signs of a revival, however, and he predicted that this method was likely to have a place in cardiology not far behind the other. He went on to suggest certain ways in which the phonocardiogram helped in the clinical classification which had to be constructed for triple heart rhythm—a classification very necessary

on account of the confused terminology in the literature. In triple heart rhythm there were three sounds; the additional sound might come after the second or in front of the first or immediately before the second, and he proceeded to discuss the significance of the various indications.

He said that in 74 consecutive cases of mitral stenosis submitted to phonocardiography a mid-diastolic murmur had been heard in every instance. In the patient with emphysema the triple heart rhythm was in his belief the first physical sign of right heart failure. It might disappear for a time under treatment, but it was of bad prognostic significance; the prognosis was quite different for the patient with dual heart rhythm. He mentioned innocent triple heart rhythm, but declared his belief that the third heart sound did not occur physiologically after the age of 40. This test, Dr. Evans added, had come to stay. Seven years' experience had taught him the advantage in clinical diagnosis of finding and placing the added sound, also that the quality and intensity of murmurs mattered far less than their place in relation to the cardiac cycle. Directly they placed a stethoscope on the chest they should ask whether the first heart sound or the second heart sound showed accentuation or splitting, whether more than two heart sounds were heard, and whether a murmur, presystolic or systolic, was connected with the first or second heart sounds, or a murmur with the third heart sound—the mid-diastolic murmur of mitral stenosis.

Prof. C. Lian (Paris) described his telestethophone with which it was possible to record the heart sounds while hearing them reproduced by a loud-speaker. Triple rhythm, he said, was the principal indication for employing phonocardiography in the clinic. In the variety of triple rhythm in which the second sound was single a distinction had to be made between gallop rhythm and reduplication of the first heart sound. The clinical distinction might be difficult, but phonocardiography was decisive because in presystolic gallop rhythm the first constituent of the double sound preceded the summit of the R-wave in the electrocardiogram, whereas in reduplication of the first heart sound both constituents fell after the summit of the R-wave. In healthy subjects no part of the vibrations belonging to the first sound occurred before the summit of the R-wave. He indicated other ways in which phonocardiography assisted in the differentiation of the varieties of triple rhythm. A long argument developed between the French and British schools as to the precise significance of some of the findings.

### SYMPOSIUM ON PAIN

In the Section of General Medicine symposium on pain, in which various speakers dealt with cutaneous, deep, visceral, cardiac, and gastric pain, and headache, a philosophical introduction was given by Prof. E. D. Adrian. As a physiologist he confessed that the contribution which physiology had to make to this subject of pain was not as important as it ought to be. There was always a tendency to take pain too much for granted. So far as the surface of the body was concerned, the common factor in pain was that it proceeded from a cause which was likely to bring about injury. It was a danger signal; the function of the pain mechanism was to prevent damage, but it was not always very effective for this purpose. Pain usually continued after the damage was done. To understand an attack of pain it was necessary to keep in mind the different levels of the nervous system at which pain messages could take effect. Automatic brakes came into play when the danger signal operated and prevented the damage from becoming worse. They were low-level reactions, and, as the lower levels of the nervous system were under the control of the higher levels, the danger signals must come into consciousness to some extent. If one trod on sharp stones the pain signals reaching the higher levels of the brain would prevent one from continuing to walk on such a surface; but as often as not some damage had been done before it could be avoided. While the pain in the foot, however, might not prevent the immediate damage, yet in the higher levels of consciousness there would remain a warning against walking on sharp stones.

In general the appearance of pain in a particular situation would label that situation as dangerous and to be avoided. Pain signals, therefore, could only have this value if they

appealed to the highest levels of total activity, levels at which consciousness came into play. Only at such levels could the brain abstract the significant features of the situation. Without the higher powers of the mind we should not realize that the discomfort following the eating of unripe plums was due to their unripeness. Thus man was helped to escape the recurrence of damage. He could analyse the situation and plan a complicated course of action to prevent the situation arising in future. He could plan hospitals and anaesthetics and medical care so as to free himself from pain and put the alarm bell out of action, relying on his intelligence to prevent the damage from getting worse. Pain had therefore a far greater survival value for man than it could have for creatures with smaller brains.

Considerations of this kind, of course, could be pressed too far. It did not follow that experience of pain was a necessary ingredient in intelligent behaviour or knowledge of good and evil. The central nervous system of man was so highly organized as to make him uneasy in certain sensory situations—noise, for example—and to tend to make him avoid them, without any actual experience of pain. Prof. Adrian turned to the less speculative ground of detailed study of the nervous mechanism responsible for pain. Ambitious attempts to distinguish sharply between the sensory apparatus of pain on the one hand and that for finely graded discriminatory sensations on the other had had to be given up, and the tendency now was to think of sensory fibres and endings as forming more or less a continuous series in which sharp distinctions could not be enforced. Pain mechanisms employed few if any of the largest nerve fibres, which seemed to be concerned with touch and muscle sense, but there was no one size or variety of fibre devoted to pain.

Lord Moran, who presided, pointed out how often the pain symptom led to mis-diagnosis, deep somatic pain being attributed to a local lesion.

### B.C.G. VACCINATION

On the last day of the Conference the Sections of Disorders of the Chest, Paediatrics, and Social Medicine combined for a discussion on B.C.G. (*Bacillus Calmette-Guérin*) vaccination under the chairmanship of Sir Wilson Jamson. Dr. W. H. Tytler gave reasons why the success obtained with this vaccination in some other countries could not be expected to be repeated in Great Britain, with a relatively low child mortality from all forms of tuberculosis. Moreover, any attempt to introduce a new general measure of vaccination would arouse opposition and would prejudice, for example, diphtheria immunization, for which there was urgent need. The vaccination of children exposed individually to special risks was a different story. Altogether, the subject was worthy of attention, but it must not be regarded as likely to revolutionize the tuberculosis situation in this country. More was to be expected of it in some other parts of the world, as, for example, in Eastern Europe and in Africa.

Three Scandinavian workers—Prof. A. Wallgren (Stockholm), Dr. J. Heimbeck (Oslo), and Dr. J. Holm (Copenhagen)—then described the situation in their respective countries. Prof. Wallgren claimed that experimental research work and clinical experience alike had shown that vaccination conferred an increased resistance to subsequent infection. In addition to specific immunity there was created a non-specific resistance which in the long run was more valuable. Dr. Heimbeck gave an account of the immunization of hospital nurses, and said that the Norwegian experience had definitely proved the efficacy of B.C.G. vaccination. The morbidity due to tuberculosis had been reduced to one-sixth and the mortality to one-tenth. Of 13,000,000 Scandinavians, more than 1,000,000 had now been voluntarily vaccinated. Dr. Holm said that in Denmark as a result of B.C.G. the morbidity rate had been reduced to one-fourth or one-fifth. He added that in Denmark the vaccinations were carried out by specialists; only a few of the 100,000 vaccinations in 1946 were by general practitioners. The mortality in Denmark was now 32 per 100,000 population; this was for all forms of tuberculosis, and was believed to be the lowest in the world. Dr. Holm said that the Danish authorities would be prepared to send by air supplies of the vaccine to Great Britain if necessary.

**Advocatus Diaboli**

Dr. G. S. Wilson (Medical Research Council) said that it was almost heresy to question the value of this vaccination, but he was bound to make some criticism of the published experiments. He felt that while B.C.G. might be of value in the early stages of a campaign against tuberculosis it would be subject to the law of diminishing returns, and when applied to a population with a fairly high level of genetic immunity the result was likely to be of much less value. He proceeded to dissect four recent inquiries—one by Rosenthal, Bland, and Leslie in 1945 concerning infants in Chicago, another by Levine and Sackett in 1946 concerning infants in New York, a third by Heimbeck concerning Norwegian nurses, and a fourth by Aronson and Palmer in 1946 concerning North American Indian children and young adults.

The results in some of these surveys looked impressive, but closer examination showed that there were gaps in the statistics. In the first of the surveys the workers had not begun their observations on the infants until between three and seven months after vaccination, by which time a number in both the vaccinated and unvaccinated groups had died. It was not stated whether the controls were observed for the same length of time as the vaccinated, nor was there any exact information whether the control children in the contact group were isolated under the same conditions and for the same length of time as in the vaccinated group. In the second series it was not clear whether there had been any endeavour to ensure that the two groups were identical in every respect except for vaccination, or whether the children were of the same age and sex, belonging to the same economic level, and with parents similarly co-operative. He pointed out certain hiatuses in the other surveys which prevented them from being taken quite at their face value. This did not mean that B.C.G. was useless, only that its value was not yet statistically proved. It was, moreover, a live vaccine, subject to considerable variation. Its administration sometimes caused abscess formation, and it involved separation of infants from tuberculous mothers, with risk of cross-infection. All these objections were small individually, but collectively they were formidable. He asked whether it was wise to vaccinate these infants at birth. Infants were not vaccinated against smallpox at birth, because it was known that the antibody did not reach maturity until later.

In the ensuing discussion Dr. David Nabarro (London) and Dr. W. R. F. Collis (Dublin) suggested that a controlled experiment be tried, the latter saying that it was not his experience in Ireland that any ill effects followed upon administration. Dr. Philip Ellman praised the work done in Scandinavian countries, but thought that enthusiasm ought to be tempered with caution. Certainly other anti-tuberculosis measures ought not to be superseded by B.C.G. prophylaxis. He had been struck in Scandinavia by the different pattern of tuberculosis, in particular the high incidence of erythema nodosum, which was comparatively rare in this country. He hoped the Ministry of Health would facilitate clinical trials with a view to arriving at the best means of active immunization. Prof. Wallgren said that vaccination of the newborn was really at the dictate of convenience; but it was no easy task, and occasionally four times the dose used for adults had to be given. He added that personally he had never seen a vaccinated infant who had tuberculous meningitis.

Among the contributions to the Conference proceedings by visitors from abroad were papers by Prof. W. Löffler (Switzerland) on transient pulmonary infiltrations, Prof. L. M. Pautrier (France) on sarcoidosis, Dr. S. Lomholt (Denmark) on vitamin D in the treatment of cutaneous tuberculosis, Prof. J. A. Barré (France) on pyramidal syndromes in the presenile dementias, Dr. G. Rylander (Sweden) on the results of frontal lobe operations assessed by psychological tests, Dr. F. J. Kallman (U.S.A.) on genetical aspects of schizophrenia, Prof. E. Stromgen (Denmark) on his Bornholm social survey, and Prof. W. S. Dawson (Australia) on depression, this last being part of a discussion in the Section of Psychiatry in which the psychodynamics of depression were considered, its psycho-analytical aspects, and the relationship between depression and obsessive-compulsive symptoms. The meetings, which were held in ten different halls, were invariably crowded and the discussions well sustained.

## MR. CHURCHILL AND THE PHYSICIANS

### INTERNATIONAL CONFERENCE DINNER AT GUILDHALL

A dinner in connexion with the International Conference of Physicians was held at the Guildhall on Sept. 10. Lord Moran presided, and the distinguished guests included the Lord Mayor and Sheriffs, the Belgian, Chinese, and Egyptian Ambassadors, Mr. Winston Churchill, M.P., Lord Woolton, Viscount Hall, the Presidents of the Royal Society, the Royal Society of Medicine, the Royal College of Obstetricians and Gynaecologists, the General Medical Council, and the British Medical Association, the Master of the Society of Apothecaries, and the Masters of several of the City Companies. Nearly 500 were present.

Mr. Winston Churchill, in proposing the health of "The Medical Profession," spoke as follows:

A third of a century has passed since the last International Congress of Physicians was held in London. I was reading a few days ago the reports of that meeting in 1913, and the speeches which were delivered by my two great friends and political colleagues of those days, Lord Morley and Sir Edward Grey. Reading them again, it was impossible to resist the impression of the sedate, orderly, progressive, and liberal-minded world in which they dwelt or of the splendour of Europe rolling in culture and wealth and also, alas! in pride, on the eve of the great catastrophe which overwhelmed the human race and in the aftermath of which we are still involved. I say to our foreign friends from so many countries now 34 years later how warmly we welcome you back to the banks of the Thames and how proud we are to do our best to entertain you in the City of London amid the ruins we have not yet been able to repair, and in this ancient hall which bears in every aspect the scars of honourable and victorious conflict. What a fearful journey we have all made since the Congress of Physicians in London in 1913, and what a contrast is the shadowed world of to-day to the hopeful though already anxious society of men and nations which then represented our national and international life, and what a change we have in all the doubts and confusions of the present time from the glittering structure of society which in so many lands had been built up across the centuries by so much toil and skill.

I noted in reading those speeches that both John Morley and Edward Grey spoke in 1913 of the advance of science with unquestioning faith in its wholly beneficent mission. Now, however, when mankind, without having improved at all, in fact having lost the sense of many of its most precious values, has got control of the most terrible agencies of destruction, and when many of its ablest brains are working night and day for the annihilation of the human race—or such portions of it as they may be temporarily opposed to at any time—working on these methods of annihilation both by the devastation of explosions and by the organized spreading of disease among men, cattle, and crops, when we look at these manifestations of scientific "progress" it is evident that a certain amount of discrimination must be mingled with our satisfaction at our triumph over nature and our piercing of her secrets.

But to-night all our thoughts are turned to healing and not destruction, and we can unfeignedly and unreservedly rejoice in the progress of medicine and—if I am allowed to mention it here—of its close and faithful companion, surgery. Medical science and surgical art have advanced unceasingly and hand in hand. They have certainly had no lack of subjects for treatment. The medical profession at least cannot complain of unemployment through lack of raw material. The genius of mankind is stirred and spurred by suffering and emergency, and a long succession of noble discoveries in the application of the healing art stand forth with all the greater brilliance against the dark and hideous background of hatred and chaos. The miseries of the population have given opportunities to the medical profession of rendering service to their fellow mortals on an unexampled scale, and at the same time unfolding science in many other spheres offers an ever broadening outlook for the toil and devotion of those who follow the practice of medicine. There is no profession or calling whose members can feel greater or deeper conviction of duty of lasting value to be done. There is no profession in which they can feel a surer confidence in an expanding future than those who have gained a command over pain and disease. This, my lords and gentlemen, must be at once an intense and lively inspiration to those who devote their lives to the study and practice of medicine, and I am very glad to offer those who are gathered here in this most distinguished assembly my respectful congratulations on the path in life that they have chosen.

I have been inclined to feel from time to time that there ought to be a hagiology of medical science. One ought to have saints' days to commemorate the great discoveries which have been made for all mankind and perhaps for all time—whatever time may be left to us. Nature, like many of our modern statesmen, is prodigal of pain, and I should like to find a day when we could talk aloud—a day of



It seems to me that the medical profession has endless worlds to conquer. An eminent American freethinker was once asked how he would have made the world different if he had been God. He replied, "To begin with, I should have made health infectious instead of disease." I throw that out as a constructive suggestion. We are all out nowadays for constructive suggestions. At any rate, it would be a great reform in politics if wisdom could be made to spread as easily and rapidly as folly. I asked Lord Moran to tell me what I ought to say in this discourse. He suggested that I might compare the professions of medicine and politics. But I was bound to reject that suggestion, finding it impossible to make such comparison, because medicine requires study and the experience of a lifetime, while everyone in a free country, as part of his birthright, knows all about politics after leaving the infant school and on every occasion when he is released from the asylum.

Go forward, then, gentlemen, members of this great vocation, upon your upward path, and strive for ever greater, sharper, and more powerful weapons against the suffering and weakness which afflict us here below. I wish you all success in your noble endeavours, and it is with the greatest sense of honour that I propose the health of "The Medical Profession" and couple the toast with the name of Lord Moran.

**Lord Moran's Reply**

In replying to the toast Lord Moran, taking up the reference to a hagiology of medicine, said that the medical profession had found it easier in the past to excommunicate heretics who had deviated from the narrow path than to canonize saints. He paid a high tribute to Mr. Churchill, who, he said, possessed the scientific mind—a mind characterized by two qualities in particular—namely, fertility of ideas and an insatiable curiosity. Of Mr. Churchill's fertility in ideas he cited President Roosevelt, who, in referring to the Churchillian project of making artificial harbours by means of sunken ships, said: "He has about a hundred brilliant ideas a day, and four of them are good." As for curiosity, it was only necessary to call in medical evidence, for Mr. Churchill as a patient was extraordinarily inquisitive when, during his wartime illness, he was given penicillin. The sensitiveness or otherwise of the "bug" and the prospect of its "unconditional surrender" interested him vastly. Indeed, Mr. Churchill himself had said that science was only organized curiosity.

Lord Moran went on to say that he thought there was an increased respect for science among the public, though he doubted whether the educated public when in difficulties turned instinctively to the scientist for succour, or whether the Government or industry had as yet made full use of the help which the scientist could give. When the Cabinet was in need of legal advice it turned to the Law Officers of the Crown; when in doubt about the defence of the realm, to the Chiefs of Staff; when in financial difficulties, to the directors of the Bank of England; but when Ministers were at a loss in some matter affecting the health of the people they had not yet elaborated a suitable machinery for bringing to their help the best brains in the profession. In saying that he did not think a committee of thirty or forty doctors, such as the Negotiating Committee, fulfilled the point he had in mind. He also compared the public acclamation which had always greeted triumphs in arms with the comparative indifference to the achievements of the healing art; yet it had been said that Lister had saved more lives than had been lost in all the battles since there were records of war. Lister was one of the only two medical men who had been made freemen of the City of London, the other being Edward Jenner, and apart from these there had been only two other scientists similarly honoured—Sir George Airy, a former Astronomer Royal, and Sir Henry Bessemer, the engineer—a small recognition as compared with the honours properly accorded to the profession of arms.

"In looking, as a doctor, for a prescription for the social malaise of our time," said Lord Moran in conclusion. "I find that Pascal, writing in 1655, said that most of the evils of life arise from a man's being unable to sit still in a room. Thought

is still the prerequisite to sound action. Ages of quiet, sedentary, thinking men have done what has been worth doing in the world. It is a matter for regret that, owing to the increasing tyranny of routine, leisure has gone out of the lives of men in the learned professions, so that they are in danger of losing their culture."

**INTERNATIONAL TWELFTH CONGRESS IN LONDON**

The twelfth congress of the International Society of Surgery was opened in London on Sept. 14 under the presidency of Dr. Leopold Mayer, of Brussels. There was an attendance of about 400 members of the Society, including seventy official delegates from the national committees in more than forty countries. The only previous occasion on which the congress was held in London was in 1923, when Sir William Macewen, at that time president of the British Medical Association, presided.

**Inaugural Ceremony**

The ceremony took place in the Great Hall of Lincoln's Inn.

**Inaugural Ceremony**

The inaugural ceremony was held in the Great Hall of Lincoln's Inn, adjacent to the Royal College. Sir Alfred Webb-Johnson, Bt., P.R.C.S., after reading a telegram from Balmoral Castle expressing to all assembled the best wishes of the King, the patron of the congress, for the success of the meeting, extended a warm welcome to the delegates. The importance of such a congress in the advancement of surgery, he said, was obvious, but such meetings had a further value. By virtue of their calling surgeons were patriots of humanity and, as such, knew no frontiers; and by virtue of their citizenship they were also ambassadors from their several countries and, as such, could help to promote peace, concord, and understanding between nations. Ordinarily such a meeting would have been held at the College, and, thanks largely to the sympathy, encouragement, and generous help of surgeons from all parts of the world, this would be so again. But as some of their amenities had been destroyed they were specially grateful to the Honourable Society of Lincoln's Inn for placing its beautiful hall at their disposal. It was a worthy stage for that important assembly. Prof. Dos Santos (Lisbon) briefly responded for the delegates, and short speeches were made by Prof. Jean Verhoogen, and Prof. Grey.

and further short speeches were made by the president of the International Committee, the chairman of the British Committee, and the president of the congress.

and further short speeches were made by the president of the International Committee, Dr. Mayer, the president of the congress, before declaring it open, delivered an address partly in French and partly in English. He recalled some of the great names which had brought renown to the International Society—Theodore Kocher, of Berne, whose name would always be associated with the treatment of goitre; Czerny, of Heidelberg, whose researches on cancer would make his name for ever famous; Lucas-Championnière, of Paris, immortalized for his publications on orthopaedic surgery; his own master, Antoine Forel, of Brussels, whose organizing powers and military foresight were equalled only by his surgical skill; William Keen, of Philadelphia, whose treatises on surgical technique were still referred to; Macewen, of Glasgow; Giordano, of Venice; Hartmann, of Paris; Matas, of New Orleans; and a number of others. "To-day we rejoice that we can still count among our members several of these famous predecessors, and we remember the mastery of those who left us too soon." It was right and fitting that the country so valiantly led by Mr. Churchill should now witness the first post-war international congress of surgery, just as the French Republic, saved by the fierce energy of Georges Clemenceau, had kindly received them in 1920.

The president then proceeded to a brief review of the advances in surgery in recent years, referring particularly to the developments in vascular surgery (René Leriche, of Paris) and cerebral surgery (Cairns), and also to the work on organotherapy, chemotherapy, on vitamins, the improvements in anaesthetics and the new technique of rehabilitation after industrial accidents. Finally, he contrasted the results of the treatment of casualties in the two wars.

**Penicillin in Surgical Practice**

... on Monday afternoon  
... Sir Alexander

The first scientific session was held on Monday afternoon in the Great Hall of the British Medical Association. Sir Alexander



Fleming introduced a discussion on the role of penicillin in surgery. His remarks were almost a repetition of those which he had made to the International Conference of Physicians the previous week (*British Medical Journal*, Sept. 13, p. 430). Many attempts had been made, he said, to slow down absorption, the most popular being to disperse the penicillin in an oil-wax mixture. In such conditions the penicillin might be found in the blood 24 hours after administration, whereas with a similar dose when saline only was used it would disappear for the most part in 12 hours and wholly in 18. Another method was to delay excretion by the kidney, and although nothing final could be said on this technique it promised well. As to the interval between doses, doses of 15,000 units had been given every three hours, but such doses did not last in most cases for such an interval, so that there was a period of half an hour or longer when there was virtually no penicillin in the blood. He showed, however, that while the penicillin in the blood fell to a very low level it remained at a considerably higher level in the tissues. He also mentioned that pure penicillin applied sub-conjunctivally in eye conditions remained at a fairly high level in the cornea and aqueous. It was not easy to make micro-organisms resistant to penicillin, but with indiscriminate use by unskilled people it could be done.

Thirty speakers had put down their names for the subsequent discussion, but only a few of them were reached. Sir Hugh Cairns said that in June, 1943, Sir Howard Florey and he took 30 million units of penicillin to North Africa, where four British hospitals and one New Zealand hospital took part in trials, during which it was conclusively shown that soft-tissue wounds could be completely closed with perfect safety and that probably compound fractures could be closed. Penicillin on injection should be active and sterile. One still found surgeons treating wounds by applying hydrogen peroxide and flavine with inactivated penicillin. There had also been cases where penicillin contaminated with *Ps. pyocyanea* had been injected into the subarachnoid space, with a fatal result. The synergic action of the sulphonamides and penicillin should not be neglected; it had proved useful in treating cases of relapsing meningitis. A remarkable testimony to the non-toxicity of penicillin was afforded by one patient who had received 40 million units. Nevertheless, given intrathecally, it could be toxic, and it was clear to him that in England there were doctors who had used penicillin in a most indiscriminate way. It was not their fault but the fault of their teachers. Pharmacology and therapeutics were not taught precisely enough to students to enable them to deal with these higher chemotherapeutic agents which now came into their hands.

#### Experience of the Mayo Clinic

Dr. Waltman Walters, of the Mayo Clinic, Rochester, U.S.A., said that the initial work on penicillin in the United States was carried out in the spring of 1941, at about the same time as the first clinical report from Oxford on the use of penicillin suitable for injection. Early results in surgical cases at the Mayo Clinic emphasized the role that penicillin could play in bacteraemia. At one time, before the advent of modern chemotherapy, if bacteraemia was encountered in a surgical patient over 40 years of age, he had only a 10% chance of recovery. The coming of the sulphonamides increased the chance to 60%, and now with penicillin in addition it was 80 or 90%. The pre-operative and post-operative use of nebulized penicillin in the management of surgical bronchiectasis had resulted in diminished risk and much less difficulty in handling the patient's secretions. It was the opinion of his colleagues that for such cases nebulized penicillin was far superior to the sulphonamides administered orally. In general surgery it had been customary to use penicillin in doses of 25,000 units injected every three hours. That method was preferred to the use of penicillin in oil. In his own service, when there was intra-abdominal contamination as a result of infection, penicillin was used hopefully as a preventive. Penicillin in these fields had done more than anything else in recent years to contribute to better surgery.

Dr. M. G. Neff (Switzerland) demonstrated the value of local applications of penicillin in operations on the hand; Dr. P. Novak (Czechoslovakia) spoke of the value of penicillin used quite economically in countries where supplies were short, and other speakers were Dr. A. Borjas (Venezuela), Dr. A. Bertocchi

(Italy), and Dr. J. Chavannaz (France). On the programme a Russian lady, Mme. Bourdenko, of Moscow, was announced to speak on the work of Prof. Bourdenko on antibiotics, but she did not answer to her name.

The first day concluded with a demonstration by Prof. Dos Santos (Portugal) of some extraordinarily graphic arteriography and venography. Two exhibitions were held in connexion with the congress, one of surgical instruments at University College.

Members, accompanied by their ladies, attended a reception by the President of the Society, Dr. Mayer, at the Savoy Hotel, on Monday, Sept. 15, and enjoyed a pleasant social evening.

#### HISTORICAL EXHIBITION

The exhibition illustrative of the history of surgery, arranged by the director of the Wellcome Historical Medical Museum, was opened on Sept. 15 at the Science Museum, South Kensington, by Sir Alfred Webb-Johnson, President of the Royal College of Surgeons of England. The chair was taken by Sir Henry Dale, the Chairman of the Wellcome Trustees.

The exhibition is arranged to illustrate the whole of the general history of surgery up to the early post-Listerian epoch, and also the many specialties before and after that date. In the section of pre-history and primitive medicine there are a number of important skulls showing the results of trephining. The surgery of the Assyrians, the Egyptians, the Chinese, and the Hindus is briefly touched on. In the section on classical medicine there are some important collections of instruments, together with the first printed editions of the writings of the classical authors. The section on the Middle Ages includes some beautiful manuscripts of the Articulæ, of Lanfranc, of Theodoric, of William of Saliceto, and of Henri de Mondeville. The 16th century collection contains a copy of the works of John Vigo which belonged to William Clowes. The surgeons of later centuries are dealt with comprehensively, and a number of collections of instruments are shown. The 19th century exhibits deal with the history of anaesthesia, and with the experiments of Pasteur and Lister in relation to surgery. Autograph letters of Lister are shown, together with the manuscript of an essay on osteology written when he was a schoolboy.

Special sections are devoted to cranial surgery, neurosurgery, the surgery of the ear, nose, and throat, ophthalmology, plastic surgery, abdominal surgery, lithotomy, orthopaedics, the control of haemorrhage, and the history of blood transfusion.

The exhibition will be open to the medical profession and the general public from Monday, Sept. 22, until mid-January. The hours of opening are 10.30 a.m. to 6 p.m. on weekdays and 2.30 to 6 p.m. on Sundays.

*The Report on the Salaries and Conditions of Work of Social Workers*, published by the National Council of Social Service, Inc., 26, Bedford Square, London, W.C.1 (2s. 6d.), suggests that many organizations offer their employees conditions of employment which are now outdated. Only devotion to the work itself holds the "great majority of social workers" in posts offering "from £200-£400 a year." Even so, despite a sense of vocation, large numbers of experienced social workers—and this applies particularly to men—are forced by financial necessity to move to different spheres of work. The strength of social service has been and is being constantly weakened by the loss, in this way, of first-rate people. The joint committee of the British Federation of Social Workers and the National Council of Social Service, which, under the chairmanship of Prof. T. S. Simey, has prepared this report, recommends that agencies unable to pay adequate salaries to their staffs should put themselves in a position to do so by limiting the work they undertake to the money available. Whether they are organized on a statutory or voluntary basis, the efficiency of the rapidly extending social services of this country will depend on the supply of good personnel, and the Report suggests that this cannot be achieved without substantial changes in conditions. The Report covers a wide range: there are sections which define social work and describe the considerable influence which tradition still continues to wield. It touches on the relationship between public authorities and voluntary agencies, discusses specialized training, and refers to a recent advance for the betterment of social workers in the establishment of the Social Workers' Pension Fund.

## Correspondence

## Poliomyelitis

SIR,—Dr. C. Conyers Morrell does well to draw attention (Sept. 6, p. 397) to the "circumstantial" evidence that is provided by vital statistics regarding the significant factors in the spread of acute anterior poliomyelitis. But the other side of the picture, the evidence of bacteriologists who have traced the virus in the body and its discharges, is just as much in urgent need of recognition by the medical public. No less an authority than A. B. Sabin, in America, recommends (and is so reported in your leading article of Aug. 9, p. 215) that our tactics should be based on the assumption that the disease is spread by faecal contamination. He believes that such tactics are unlikely to check an epidemic, but that they may prevent the infection of a few persons who might otherwise be paralysed. Presumably his hopes are limited because we have so very far to go (and this is particularly the case in this country) in translating into public conduct our now considerable knowledge of these matters. But surely a few people saved from paralysis is enough to go on with.

The bacteriological evidence suggests very strongly that, at any particular time in an epidemic period, faeces are by far the largest source of virus available for distribution, particularly in the case of groups of persons round cases; and, of course, such groups are all the time being distributed more widely by travel. The virus remains in the nasopharynx of cases (both abortive and paralytic) for a few days on the average; it remains in the faeces, however, for a period of weeks on the average, and this is so for contacts as well as cases. All the evidence on the matter is well summarized by Rhodes, A. J. (*Bulletin of Hygiene*, 1947, 22, 353).

Since the virus is normally found in the nasopharynx, and not usually in nasal secretions or saliva, it cannot be held that droplet infection is relatively much more potent than faecal. It is not necessary to expect that a day of nasopharyngeal infection will do as much harm in the way of distributing virus as a week of faecal. It is more reasonable to make time the significant factor. Consider, indeed, the spread of Group A haemolytic streptococci, where a significant factor is the presence of a carrier state that is nasal.

No doubt we should think of a paralytic case as the last link in a chain of events. As one possible link there is the factor so well discussed by F. M. R. Walshe: a sort of "Open Sesame" in the form of a non-specific enteritis which happens to occur when the virus is present in the bowel (*Journal of the Society of Arts*, 1945, 93, 525). What all the links are between the presence of the virus in the community and the full-blown case we have yet to discover; but some are "personal," some "environmental," and some links may be subtle ones, and there may be different combinations of the factors. It is not suggested that the virus invades by the bowel in all cases, but only that this way is important. In inter-epidemic periods the chain is being begun, or completed, rarely. One of the links in epidemic times is probably climatic conditions of a certain type, sequence of such conditions of a certain pattern. As crude example of parasitisms of a "chain" type we have *Botulism*, *cephalus latus* and plague.

More action is needed in this country in "getting across" our knowledge of intestinal sources of infection, especially as applied to food handlers; and in the matter of the present epidemic this is doubly urgent. The Central Council for Health Education is to hold a conference on the subject in October. But by then, of course, the prevalence will be passing; unless, indeed, this epidemic behaves queerly (like the expected outbreaks of disease in air-raid shelters) and the usual continuation in late September and early October is lacking. This may be hoped for, but is not to be expected, for it is more reasonable to fear that the epidemic curve will follow its normal morphology. Let us follow the prescription of Sabin. The evidence is strong enough to justify us; and you have done well to give his views prominent mention in the *Journal*.—I am, etc.,

E. C. H. HUDDY.

Reading.

SIR,—Prof. H. J. Seddon (Aug. 30, p. 319) is to be congratulated on his able summary of the orthopaedic and mechanical aspects of the treatment of poliomyelitis—that is, the treatment of paralysed muscles. He states: "On the whole, therefore, it seems best to admit cases of poliomyelitis to a fever hospital in the first place, on the clear understanding that someone skilled in the treatment of the disease—which generally means an orthopaedic surgeon—is asked to see the patient within twenty-four hours of admission and is given a free hand to order such treatment as he deems necessary."

One is tempted to ask what part Prof. Seddon would allow the physician and the neurologist to play in the diagnosis and handling of cases. The neurologist and physician, trained in the examination of the nervous system and experienced in systemic disease, are surely as well qualified as the orthopaedic surgeon to diagnose and to plan the early treatment of the disease. Customarily it has been their practice to call in the orthopaedic advice when they consider it necessary—that is, at a time when the necessity of special appliances for avoiding stretching of muscles has appeared. I would suggest that, as about two-thirds of the cases never develop paralysis and as the differential diagnosis may be difficult, involving a consideration of other systemic disorders, the clinical care of cases should fall mainly within the province of the physician and the neurologist, at any rate until definite weakness of muscles appears.

Clinical experience has shown that in no other illness is the psychological aspect of treatment more important than in poliomyelitis. It is in this field that the physiotherapist, in constant touch with the patient, is perhaps best able to give encouragement and to restore activity to weakened muscles. But a great deal may still be done in this field by the practitioner who has had the case under his care from the onset, quite apart from measures to prevent stretching of muscles outlined by Prof. Seddon and discussed in your leading article on page 338. —I am, etc.,

PHILIP H. WILLCOX.

Windsor.

## The Extent of Neurosis

SIR,—Few general practitioners will quarrel with Dr. L. F. Donnan's figures (Sept. 6, p. 396) in the survey he details in his letter. Sixteen years of industrial practice in Liverpool left me with the impression that the figures for neurosis among all cases seen were if anything higher, and I innocently accepted the aetiological factor usually blamed—viz., the speed and high pressure of modern city life. *Experientia docet*.

Fifteen months ago I left Liverpool and took up practice in this area, one of the most thoroughly rural districts in England, where our nearest factory is 12 miles away and all workers are engaged in agricultural occupations. Here, I thought, among the sons and daughters of the soil will be found a minimum of "nerves" and a maximum of pure unadulterated physical illness. But a very short trial caused me to remark to my partner that I believed there was more neurosis in my country patients here than in my former city patients, and the longer I practise the more I am convinced that this is the truth.

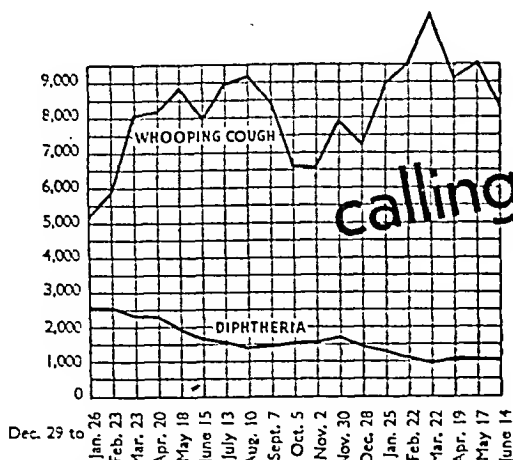
At present this is no more than an unconfirmed impression but, with Dr. Donnan as a guide, I shall attempt to obtain figures on the same basis of assessment. If they prove to be as I expect, what are we to blame for the result? Is neurosis truly a modern disease, or can our older brethren in general practice tell us that there was just the same or greater prevalence in the day? The same effect can hardly be produced by the high speed struggle of the industrial city and by the much slower tempo of the agricultural speed. Surely we must look elsewhere for the answer to an important and widespread problem.—I am, etc.,

H. G. ST. M. REES.

Mildenhall, Suffolk.

SIR,—Certain phrases and statements in Dr. L. F. Donnan's letter (Sept. 6, p. 396) indicate a standpoint which one had hoped was becoming out of date—"rationally physical disorder," "more emotionally ill than actually so." The patient whose condition Dr. Donnan assessed at 100% "emotional

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STATISTICS: United Kingdom figures for reported cases; Dec. 29, 1945 to June 14, 1947, in 4-weekly periods, from the Registrar-General's returns.

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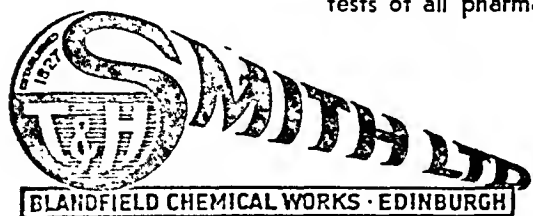


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anxiety" received a bromide mixture, but the man with tonsillitis was more fortunate; he was given "appropriate treatment," apparently, because he was accommodating enough to have "a normal ailment," whatever that means. So long as "adequately physical disorder" continues to be regarded as more "actual" and more in need of "appropriate treatment" than psychoneurotic illness, "the extent of neurosis" will remain considerably greater than it need be.—I am, etc.,

Glasgow.

D. YELLOWLEES.

### Neurosis in Industry

SIR.—Dr. Russel Fraser's report, *The Incidence of Neurosis among Factory Workers*, is of considerable interest, and the number of workers investigated—3,000—ensures reasonable sampling of the population involved. I recall that in 1938 I completed a smaller survey of an out-patient medical dispensary in Glasgow where most patients were industrial workers. Over 300 people were examined and treated at that time, and it was found that 11% of them (men and women mixed) were suffering from what I regarded as primary psychogenic neurosis. This approximates very nearly to Dr. Russel Fraser's figures of 10% men and 13% women found in 1947 in factory workers.

It is of interest to note that the war stresses made little difference between the figures I gave in 1938 and those given now in 1947. This helps us in our evaluation of the factors causing the neuroses, and some of us have seen many swings of opinion between heredity, predisposition, and environment as causal factors. The conclusion which arises from comparison of the figures quoted suggests that environment or working conditions have only a minor role in such causation.—I am, etc.,

North Shields, Northumberland.

CHARLES SHEARER.

### Divorce after Temporary Insanity

SIR.—Your medico-legal correspondent in the issue of July 26 (p. 154) gives a most interesting description of the anomalies in Herbert's (Divorce) Act revealed by the recent case of *Whitley v. Whitley*. However, the following statement of your correspondent appears to contradict some of his other comments: "If a patient starts his treatment as a temporary patient under the Mental Treatment Act and then changes to voluntary status he does not come within the Act, and the partner cannot have a divorce for insanity." Such a change of status in fact does not prohibit the granting of a decree, provided that the strict letter of the law is observed in regard to the original detention of the patient on temporary status, and which apparently was not so in the case of *Whitley v. Whitley*, in that the visiting committee failed to sign an order for the patient's detention within one month of the patient's admission to hospital.

Your medico-legal correspondent's plea for a revision of Herbert's Act so as to bring its provisions more into line with common sense is emphasized by the features of the case *Williams v. Williams* (1946), in that the Williams case illustrates the varying degree of importance which the Act attaches to the detention factor in different stages of a patient's treatment. In the Williams case the respondent had been continuously detained in a mental hospital under a reception order for five years prior to the presentation of the petition for divorce, but subsequently the respondent was discharged from hospital under Section 79 (1890), and at the time of the hearing of the case was not under any institutional care. The medical evidence was that at the time of being discharged from hospital the respondent was a person incurably of unsound mind, and a decree nisi was granted, notwithstanding the fact that the respondent then, from the legal aspect, enjoyed full civic liberty.

Admittedly the Williams case differs from the Whitley case described by your medico-legal correspondent in that the respondent had been detained in the strict legal sense, but it is surely a cumbersome law which lays such emphasis on the importance of the initial treatment of the respondent being accompanied by detention, and which apparently regards detention as an irrelevant factor at the very time when the respondent's incurability calls for social readjustment.—I am, etc.,

Shenley, nr. St. Albans, Herts.

OTHO FITZGERALD.

### The Lazy Eye

SIR.—Dr. William Moodie in his letter on the lazy eye (Aug. 23, p. 310) lays himself open to certain obvious criticisms both of his facts and of his argument. It is difficult to discuss the facts in the brief compass of a letter; but, in general, the proper use of an occluder is for the purpose of overcoming amblyopia or a false projection system of abnormal retinal correspondences. The expression "a lazy eye" is a convenient translation from medical jargon intended to make the position intelligible to laymen, and particularly to the patient's parents. Like all such conventional translations it is an analogy, and the analogy must not be overstrained.

Let us assume the expression means an amblyopic eye, as it usually does. Amblyopia in children, usually associated with squint, is generally due to a process of active suppression of the visual images of the amblyopic eye, with the formation of a central scotoma, and a depression of central vision which may be extreme—e.g., to less than 6/60. Dr. Moodie begs the question by stating the condition "is nearly always optical in origin." It depends upon what is meant by the expression "optical."

Once amblyopia of this kind is established, the only means of cure is by compelling the child to use the amblyopic eye; and this can only satisfactorily be done by completely covering the other eye. In favourable cases recovery of visual acuity to 6/6 may result in a short time. But if treatment is withheld the amblyopia becomes in time permanent and irreversible; it is rare to achieve much success in children aged 10 years; and in adult life the total loss of the useful eye is rarely if ever followed by any noticeable improvement in the amblyopia of the survivor.

Does Dr. Moodie seriously suggest, then that these amblyopic children should be allowed to grow up with one useful eye when there is a reasonable chance of having two? Of course occlusion means some interference with school work for a time; the greater the degree of amblyopia, the greater the interference; but this is a small price to pay for the chance of recovery of useful sight in an eye otherwise doomed to lifelong uselessness as regards central vision. The answer is early diagnosis of amblyopia and early efficient treatment (which need not be unduly lengthy), not the abolition of occlusion.

There seems to be some danger of confusion between those cases with normal binocular vision who are naturally left-handed who show nervous disturbances if forced to use the right hand, and cases of squint with amblyopia in whom binocular vision has already broken down. It must be remembered too that psychological disturbances are sometimes a factor in the production of a squint, and so is uncorrected hypermetropia; but, if the squint results in a threat of amblyopia and occlusion is prescribed, it is not rational to blame the psychological disturbances upon the treatment. This is to put the cart before the horse.

Dr. Moodie's claim that the lazy eye "is nearly always optical in origin, often a hypermetropia," is totally misleading and quite unjustifiable, and his suggestion that "the rational treatment is optical" similarly begs the question. The rational treatment is occlusion; whether this is an "optical" treatment or not it is difficult to say. If Dr. Moodie means to imply that all cases of amblyopia in hypermetropic eyes—or even a majority of them—could be cured simply by the provision of suitable correcting lenses, then the answer is that experience shows complete failure can be expected in about 75% of cases unless occlusion is also employed.—I am, etc.,

Lincoln.

ALLAN H. BRIGGS.

### Contact Lenses

SIR.—It seems possible that the article on contact lenses by Dr. C. G. Kay Sharp (Aug. 16, p. 261) may give a too optimistic impression to the profession about the indications for fitting these lenses. How many of the patients wear the lens for which they have paid a tidy sum of money will never be known, for when we have made a mistake over a purchase we do not always admit it lest we should be criticized for extravagance.

While all are agreed that these lenses serve a useful purpose in many cases, it would be a mistake to think that any ametropes may wear them. A lens worn inside the eyelids constitutes a foreign body. With perfect grinding the irritation from this



foreign body may be reduced to a minimum, but some irritation remains. Whether the patient will tolerate this small annoyance depends upon his temperament, and upon the degree and kind of incentive which led to their adoption. If he can obtain vision through contact lenses which he cannot do by any other means, there is a good chance of his wearing them; but if they are desired in order to improve one's personal appearance by giving up spectacles, then only a small proportion of those who obtain the lenses for this reason will wear them. The rest, when the first enthusiasm has died down, will abandon them, consoling themselves for the financial outlay by a mental promise to wear them on a "special occasion"—which usually does not arise.—I am, etc.,

London, W.1.

SEYMOUR PHILPS.

### Manifestations of Malnutrition

SIR,—Regarding epileptiform fits and anorexia occurring in conditions of thiamine deficiency, I feel it important to bring to notice findings which do not accord with those expressed by Dr. R. G. S. Whitfield in his informative article (Aug. 2, p. 164) and Lieut.-Col. Lenox MacFarlane in his letter (Aug. 23, p. 311).

Records were kept of 6,998 Australian and British prisoners of war (designated "F" Force by the Japanese) during 12 months April, 1943, to April, 1944. These men were force-marched through some 300 kilometres of hilly jungle and monsoon weather and through cholera-infected localities, and immediately put on heavy labour, to complete the section of the Burma-Thailand Railway in the Three Pagodas Pass area at the Burma-Siam border. Conditions were appalling, the diet ill-balanced and, on an average, below normal metabolic requirements. 3,087 men died during the year. Beriberi overshadowed most other diseases responsible for the mortality, and was predominantly oedematous in type. It was the main clinical feature in 413 deaths. On return of the survivors to better conditions at Kanchanaburi, the experience of the various Australian and British medical officers engaged was correlated.

We found that (1) anorexia was almost invariable—so much so that nursing personnel were specially detailed to spoon-feed the large numbers unwilling to eat what little there was for their support; (2) epileptiform fits were relatively common among the ill men and often of grave prognostic significance. They were often heralded by nocturnal faecal and urinary incontinence occurring in hitherto stable, well-inhibited subjects. It was a danger signal of sudden death.—I am, etc.,

JOHN HUSTON,

Edinburgh.

Sometime S.M.O., "F" Force.

### Hypoglycaemia following Partial Gastrectomy

SIR,—May I make a few remarks on the above article in your current number of Aug. 30 (p. 330), in which Drs. Gilbert and Dunlop demonstrate and draw attention to the hypoglycaemic state that sometimes follows this surgical procedure. Many years ago I noticed the appearance of glycosuria after gastro-enterostomy and in some cases of duodenal ulcer, demonstrated that this was due to a brief hyperglycaemia from abnormally rapid emptying of the stomach and absorption of sugar, reproduced the condition in students by duodenal intubation of glucose, and called the condition "oxyhyperglycaemia" instead of the Maclean term the "lag-storage" curve—all this published in your *Journal* (1936, 1, 526). Evensen, O. K. (1942, *Acta med. scand.*, Suppl., 126) confirmed this, quoting 223 references, but omitting any reference to my article—which I thought naughty.

However, although 10 of my cases developed hypoglycaemia (55 to 65 mg. in arterial blood) after the brief hyperglycaemia, only two felt mild hypoglycaemic symptoms. And I would point out that many normals, with a normal blood-sugar curve without oxyhyperglycaemia, show only 50–65 mg. of glucose in venous blood after 1½–2 hours without any symptoms of hypoglycaemia (see Lawrence, R. D. and Keeping, J. A., *Lancet*, 1947, 1, 901). Therefore, although by far the chief factor in producing hypoglycaemic symptoms is the absolute level of the blood sugar, some other individual and obscure factors probably come into play. Gilbert and Dunlop's article is a valuable contribution to the problem of the quick-emptying stomach causing a swing from hyper- to hypo-glycaemia, especially as they suggest a possible remedy.—I am, etc.,

London, W.1.

R. D. LAWRENCE.

### Ourselves and the Russians

SIR,—I was much interested to read your leading article headed "Ourselves and the Russians" (Aug. 30, p. 339). This is to remind you that I wrote a letter (Jan. 20, 1945, p. 96) entitled "Aggressive Impulses in Progressive Society" in which after reading Dr. Williams's book *Soviet Russia Fights Neurosis* I praised what I understood was the Russian realistic approach to neurosis in their attempts to avoid exploitation by one individual or one section of society of another. I believed then and still believe now that such a condition is invariably to be found in every case of neurosis as one of the precipitating factors. I am of the opinion that unrest (or mass neurosis) in industry and between nations is certain so long as exploitation by the more powerful of the less so continues to be rife. There is unfortunately no doubt that in many ways the employer class exploited the working classes in days gone by. The seeds of the hate then generated still are in evidence in the fact that nowadays there is a strong temptation for the position to become reversed. The workers are unduly suspicious, and in some cases tend to make impossible demands.

It is unfortunate that the Russian *Medical Worker* accuses the B.M.J. of taking political sides, whereas in having published my letter, which is surely rather more pro- than anti-Russian, the B.M.J. would appear to have contradicted Mr. Radbil's accusations, at any rate in this one instance. On reading my letter the Anglo-Soviet Medical Council wrote to ask if I would care to become a member of their society, which I was very pleased to do.—I am; etc.,

London, W.1.

A. CYRIL WILSON.

### POINTS FROM LETTERS

#### Case of Smallpox with Minimal Lesions

Dr. E. MISKIN (Hove, Sussex) writes: I have been interested in the letters in the *Journal* concerning cases of smallpox with minimal lesions, especially the one of Sept. 6 (p. 395) where a case diagnosed as variola turned out to be herpes simplex. I can distinctly remember a case I attended during the severe epidemic in London at the end of 1901 of a woman who only had three spots—two on one arm and one on the other. . . . She had been revaccinated three years previously, was confined four months before the attack of variola, and was feeding the child herself. So mother and the child (who had been vaccinated one month previously) were both taken into the hospital and again the diagnosis was confirmed.

#### Acute Non-specific Diarrhoea and Dysentery

Dr. G. R. KERSHAW (Leamington Spa) writes: Permit me to reply to my critics, Dr. G. L. Morgan Smith (Aug. 2, p. 189) and others. Their criticisms contain little with which I am not in agreement or indeed which was not acknowledged in my original communication. Both illustrate exactly, however, that unscientific attitude which it was my purpose to decry—namely, that criteria which they rightly require to be applied to one theory of causation should be demanded of others. Although we cannot nowadays insist on all Koch's postulates being satisfied in their entirety, the principles underlying them remain our yardstick, so that to ascribe a disease of which we are so ignorant to infection caused by an unknown organism which has never been demonstrated, isolated, cultured, or transmitted is the epitome of myth and mumpsimus. Whether we believe infection to be the cause or not, we must acknowledge the experiences of others and admit that we don't know.

#### Poliomyelitis

Dr. DESMOND URWICK (London, S.W.1) writes: In all articles on poliomyelitis I have read stress has been laid on avoiding crowded places like cinemas and on the importance of infection being conveyed through excreta. Yet, despite the above, apparently the schools are to open this month as usual, although notifications still number 600 or more each week. . . . If an epidemic breaks out at a school and it has to close, who is to be responsible for railway fares and other expenses involved by the children returning home, and what compensation and from whom is a child who may be affected and left paralysed to claim? Why should not the opening of schools be postponed three weeks, and a week added to the spring term and a fortnight to next summer term rather than risk an increase in this pitiful epidemic? Or has it been found in other countries where the disease has been more prevalent that the opening of schools makes no statistical difference? If the decision to open schools is based on this latter consideration, has sufficient attention been paid to the question as to whether the schools in these other countries are as crowded as some of our English schools?

## Obituary

L. CARNAC RIVETT, M.CHIR., F.R.C.S., F.R.C.O.G.

Mr. W. Gilliatt, President of the Royal College of Obstetricians and Gynaecologists, writes: I first met Louis Rivett at the Middlesex Hospital in 1911, when he became a dresser on the surgical firm in which I was the house-surgeon. It was perhaps not unusual to discover a dresser who finished his ward work in less than an hour, but it was unusual to find that that dresser's work had been very thoroughly and carefully done. This speed and efficiency, omitting all but essentials, was characteristic of him throughout his life. He collected higher degrees with the same ease and rapidity; later he acquired hospital staff appointments just as quickly, and still later through his speed and dexterity in operating he acquired wide renown. He was a representative of the members of the Royal College of Obstetricians and Gynaecologists on the first Council of the College, and though a junior in years he soon gained the reputation of holding strong views of his own. No help that he was asked to give the College found him wanting, and to suggest that he should write a memorandum or act as chairman of a subcommittee was to ensure that the matter would be thoroughly and quickly dealt with.

Rivett had the happy gift of making friends. He loved the good things of life, and his tall, spare frame, friendly smile, and happy chatter were seen to advantage at the meetings of hospital dining clubs (often created by him) and of the Gynaecological Club. He displayed the same enthusiasm in filling up his hours of leisure as he did in surmounting the problems inherent to professional life. The last years of his life were clouded by the death of his wife, followed shortly by that of his only son in the Far East, and, as if this were not enough, within a few months he was stricken with an incurable disease which he treated with a contempt that was amazing. To visit him during his illness was a lesson in courage and fortitude.

Dr. ISAAC GIBSON MODLIN died on July 25 at the age of 82, and the county borough of Sunderland lost one of its most devoted sons and the profession on Wearside its respected senior member. Modlin, who was a native of Sunderland, spent his working life in practice there after a spell afloat as ship surgeon. He died in harness after a remarkably full life of notable public and professional service. He had been an active member of the local council, a far-seeing chairman of its health committee, and mayor of the town in 1928-30. He joined the British Medical Association in 1893 and served with enthusiasm on the executive committee and as divisional secretary, representative, and later chairman. He was president of the North of England Branch in 1931-2, and at the annual meeting at Newcastle-upon-Tyne in 1921 he was vice-president of the section of preventive medicine. For many years he was honorary surgeon at the Monkwearmouth and Southwick Hospital. As long ago as 1906 he began to lecture to ambulance workers and he fostered and encouraged the growth of the St. John Ambulance Brigade and Association for a period of fifty years. He was an examiner in first aid and home nursing and continued this work up to the time of his death. One can safely say that the Sunderland Ambulance Corps owes its prominent position to Dr. Modlin's exertions. From August, 1914, to April, 1919, Modlin was commandant and honorary surgeon to a Voluntary Aid Hospital staffed by V.A.D. nurses. He was also trustee for the properties which, through his efforts, became the local headquarters of the St. John Ambulance corps. For these services he was raised to the knighthood of the Order of St. John of Jerusalem, and he was also admitted to the Order of the British Empire. The recent war found him as keen as ever, though physically less capable, and his aid post at Whitburn, of which he was very proud, worked with smooth efficiency through the war years. He was an enthusiastic supporter of Sunderland's Association Football Club, of which he became a director.

Dr. DONALD CAMPBELL died on Aug. 7 at the age of 60. He had been a general practitioner of outstanding merit in the Western Isles. While still very young he left his native parish of Ness and settled in New Zealand. During his stay there he cherished the ambition of studying medicine, and ten years later

returned to Edinburgh, where, after a successful academic career, in which he gained many distinctions, he graduated M.B., Ch.B. in 1921. He then practised for a time in a mining area and later was appointed medical officer of the extensive district of Loehs, Lewis, where his outstanding physique helped him to battle against the uncharted depths of Loch Erisort or manipulate his motor-cycle over hazardous tracks to distant villages. Dr. Campbell was much esteemed by his fellow practitioners. He was of a quiet, gentle, retiring nature, of few words but very much to the point when he did express himself on any subject. Humility was the key note of his personality, and only when meeting him in the circle of his own home did one fully appreciate the greatness of his character. He had been a member of the British Medical Association for 24 years, and chairman of the Outer Isles Division of the B.M.A. He is survived by Mrs. Campbell, his son, and two daughters, to whom the Island community extend their sympathy.—A. M.

Dr. WILLIAM GLASSE WATSON, after a short illness, died on Aug. 10 in Cambridge, where he had been practising ophthalmology since 1939. In that year he left his general practice in London, following an attack of coronary thrombosis, and, after acting as a locum tenens in an ophthalmic practice for four years, stayed on in Cambridge in practice on his own. Born in Ayrshire in 1895, Watson was educated at Kilmarnock Academy, and on the outbreak of war enlisted in the Highland Light Infantry. He was commissioned in December, 1915, and served in France for three years, afterwards becoming an instructor in the Royal Flying Corps. In 1919 he began his medical studies in the University of Glasgow, but because of a threatened tuberculous infection he was advised to transfer to Aberdeen. He graduated M.B., Ch.B. there in 1924, and became assistant medical superintendent at the Ayrshire Sanatorium, New Cumnock. As a result of his work there he published in *Tubercle* a paper on the prognostic significance of the von Pirquet reaction in adults. Watson practised in Blackheath from 1927 until 1939, and also attended at the Westminster Ophthalmic Hospital. In 1938 he obtained the diploma in ophthalmic medicine and surgery. Ill-health forced him to abandon general practice, and the outbreak of war presented him with the opportunity of specialized practice in Cambridge. He was appointed clinical assistant to the ophthalmic department of Addenbrooke's Hospital, a position he held up to the time of his death. He was a craftsman of an extraordinarily high order. Not only was he skilled as an operator, but his manual dexterity, resourcefulness, and inventiveness extended even to violins and trout flies. The latter he tied with a brilliance of technique second to none, and he was skilled in luring the shyest trout to its doom. He produced melodies from his self-fashioned instruments, and he could make a fishing-rod, knit a sock, keep an apiary under proper control, and write a detective novel. His varied interests and intense good humour brought him many friends, who remember him with real affection as a loyal and generous man. As a doctor he was always painstaking, conscientious, and kind. He leaves a widow and three young daughters.—E. G. R.

Dr. JOHN WILLIAM HUNTER died suddenly at Ipswich on Aug. 26 at the age of 47. Dr. Hunter was a student at Edinburgh University and he took the M.B., Ch.B. in 1924, proceeding M.D. in 1929, after taking his D.P.H. at Durham a year previously. Dr. Hunter was in general practice for two years and he was also on the staff of the Hebburn-on-Tyne Accident Infirmary. He entered the public health service in Newcastle-upon-Tyne in 1926 as assistant tuberculosis officer and was later appointed resident medical officer in the City Hospital for Infectious Diseases. In 1929 he went to Norwich as assistant medical officer of health and he was also in charge of the infectious diseases hospital there. He held the same appointment in Blackburn and then at Walsall. He left Walsall for Portsmouth in 1934 and did valuable work there. A year later, however, he was appointed medical officer of health and school and port medical officer at Ipswich. Dr. Hunter had been a member of the British Medical Association for over twenty years and he served on the Insurance Acts Committee during the war. He was responsible for a number of articles in the medical press on scarlet fever antitoxin, diphtheria, and dysenteric infections.

J. F. writes: With the sudden and unexpected passing of John William Hunter preventive medicine has lost one of its most able practitioners. Although the hospital claimed his first attention, his interests were wide and he did not spare himself in the cause of public health in Ipswich. He gave himself to the war effort unstintingly and won the admiration of his council by his organization of the medical side of civil defence. Perhaps,

his neglect of himself in his devotion to Ipswich during the war may have had some bearing on his early death. It is said in Ipswich that John Hunter attended every "incident" throughout the war and personally directed the medical services on the spot. All through the war he was the chairman of the local medical war committee. Of those activities outside official duties which interested him, the Society of Medical Officers of Health took precedence. The Eastern Branch, owing to the large area covered, had not been able to secure well-attended meetings, and did not display that life which he wished. He threw himself into the task of revivifying the branch, and at an early stage his colleagues made him the honorary secretary. It is largely due to Hunter's boundless enthusiasm that the Eastern Branch now represents a very active section of the Society. He served the Branch on the parent council of the Society, and was also a member of the council of the Royal Sanitary Institute, being one of their examiners.

It was only necessary to know Hunter to like him. All those under whom he worked were impressed by his loyalty. He had a kindly nature and did much to help those subordinate to him. He endeavoured to find good in everybody and was one of those few men who have no enemies. Dr. Hunter died just as he had acquired rich experience in all sections of public health work, and had been acknowledged by his colleagues as a man of sound judgment. In these days of great changes and upheavals the public health service can ill afford to lose a man of such wide experience as Hunter, who, at the age of 47, was at the height of his capacity for administrative effort and had so much before him. In thinking of that loss, we must not forget the far greater tragedy which has befallen a devoted wife and two fine boys. To Mrs. Hunter and her sons we extend our deep sympathy.

Prof. THEODOR FRÖLICH, who was born in 1870 and who died on Aug. 14, was well known for his work on experimental scurvy. This was carried out in co-operation with Prof. Axel Holst, and they gave the first classic account of these investigations jointly in 1907. Frölich was professor of paediatrics at the University of Oslo till he retired on reaching the age limit in 1940. He was also for many years President of the Norwegian National Association against Tuberculosis, and in 1930 he presided over the congress in Oslo of the International Union against Tuberculosis.

## Medico-Legal

### LESBIANISM AS CRUELTY

[FROM OUR MEDICO-LEGAL CORRESPONDENT]

The law takes no direct account of sexual perversion in women. Lesbian practices are not criminal acts unless they involve assault, and they do not afford ground for divorce. The House of Lords would not even discuss the amendment moved by Lord Dawson to Herbert's Bill to have them included in the new grounds. Legal authorities have, however, suggested that perversion in a wife might conceivably amount to legal cruelty, and the court has just confirmed this view in *Gardner v. Gardner*.<sup>1</sup>

The parties were married in 1938, and even before the marriage the wife had been living with another woman in what the husband alleged to have been an unnatural relationship, though this, together with all the other allegations, was denied by the wife. Letters showed that her attitude to sex was one of repulsion. Several months before the marriage, for instance, she wrote: "Couldn't you read between the lines and realize that I wanted no sexual contact with you? I hate being pawed about—I loathe to have the abhorrent fact that I am a woman accentuated." Also, before the marriage, she made arrangements to live with her former companion instead of her husband. The husband acquiesced in the hope, he said, that under the influence of his affection the association might die with the lapse of time. After the marriage he visited her from time to time and tried without success to persuade her to leave the woman and join him. He said in court that the two women actually discussed the details of their relationship in his presence. Next year the wife returned to him for a

short time, but formed further unnatural friendships with women, and remained away from him until 1942, by which time his health had been affected by the worry which her conduct had caused him. After her return in that year the couple had intercourse several times and she became pregnant. During her pregnancy she became infatuated with another woman. She took little interest in the child, but the couple lived together until 1944, when they were bombed out and had to go to the country; even so the wife persisted in sleeping in London part of the week and wearing male clothing all the time—according to the husband, to ridicule his family. He started divorce proceedings and, being distressed at the idea of divorce, she gave up the men's clothes and had intercourse with him once; then she went back to the bombed house and soon afterwards left him for good. She wrote him some letters about a project to have herself changed into a man by hormone treatment and operation.

The judge found that the husband's evidence of her sexual perversion was corroborated by these letters, and that her explanation that the statements were a fantastic form of shock treatment designed to extort money did not destroy the inference to be drawn from them. He believed the husband's statement that he had been so patient because he was desperately fond of his wife and regarded himself as the only person in a position to try to get her back to normality and to keep a contact which made persuasion possible. His lordship found that the husband had proved a course of conduct consisting of wilful and unjustifiable acts on the part of the wife directed towards him which not only did injury to his health but also caused reasonable apprehension of such injury; and he accordingly granted the husband his divorce.

**Correction.**—The Secretary of the Pharmaceutical Society of Great Britain writes: The attention of the Society has been drawn to your issue of July 19 last on page 114 of which your medico-legal correspondent reports on the decisions delivered in a recent test action taken between this Society and Potter and Clarke, Limited, concerning the interpretation of the Pharmacy and Medicines Act, 1941. At the end of the second paragraph of this report it appears that the learned correspondent has misunderstood the judgment given in the Chancery Court so far as it concerns the use of the word "linctus." Reference to the judgment will show that Mr. Justice Wynn-Parry held that the word "linctus" was in itself a recommendation within the meaning of the Act, a finding which was not disputed by the plaintiffs in the action in the subsequent Appeal.

## Universities and Colleges

### ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW

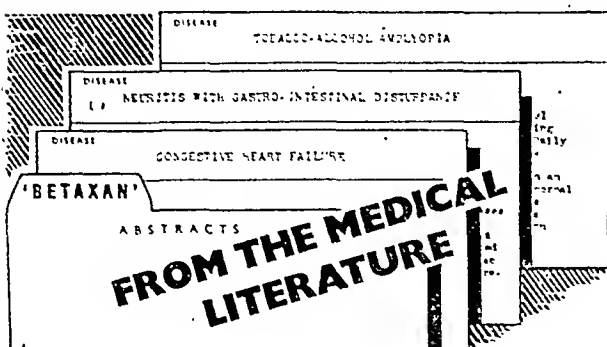
At a meeting of the Faculty held on Monday, Sept. 1, with Prof. Geoffrey B. Fleming, the President, in the chair, the Right Honourable Colonel Walter Elliot was admitted as an Honorary Fellow. In introducing him the President said that the Faculty's roll of Honorary Fellows was almost entirely made up from those who had distinguished themselves in some branch of medicine, and although Colonel Elliot had done notable scientific work his greatest claim to distinction arose from services to the State in many high Government offices.

At the same meeting the following were admitted Fellows of Faculty *qua* Physician: T. Anderson, M.D., O. T. Brown, M.B., R. W. Carslaw, M.D., R. S. Duff, M.B., R. A. K. Harper, M.B., D. Jamieson, M.B., J. Leckie, M.B., E. McC. McGirr, M.B., D. Macrae, M.B., E. S. Monteiro, M.D., J. M. Smith, M.B., B. M. Steen, L.R.C.P.&S.Ed.

The following were admitted Fellows of Faculty *qua* Surgeon: J. Aitken, M.B., R. Barnes, F.R.C.S., L. Baumann, L.R.C.P.&S.Ed., Y. Bodhe, M.B., D. B. Brown, F.R.C.S., A. H. Bruce, M.R.C.S., D. H. Clark, M.B., T. Graham, M.B., S. Horowitz, L.R.C.P.&S.Ed., V. V. McCusker, M.B., K. H. Shubbar, M.D., W. Sillar, M.B., A. Young, M.B.

### ROYAL COLLEGE OF SURGEONS OF ENGLAND

Prof. Alfred Blalock, Professor of Surgery, Johns Hopkins University, will deliver a Moynihan Lecture at the College (Lincoln's Inn Fields, W.C.) on Friday, Sept. 26, at 5 p.m. His subject is "Congenital Cardiovascular Defects with Particular Reference to Coarctation of Aorta" (motion picture).



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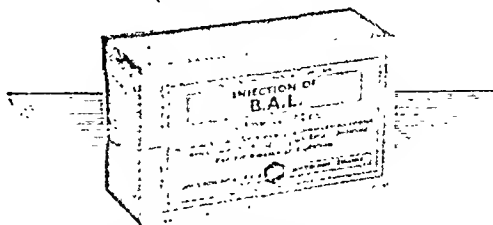
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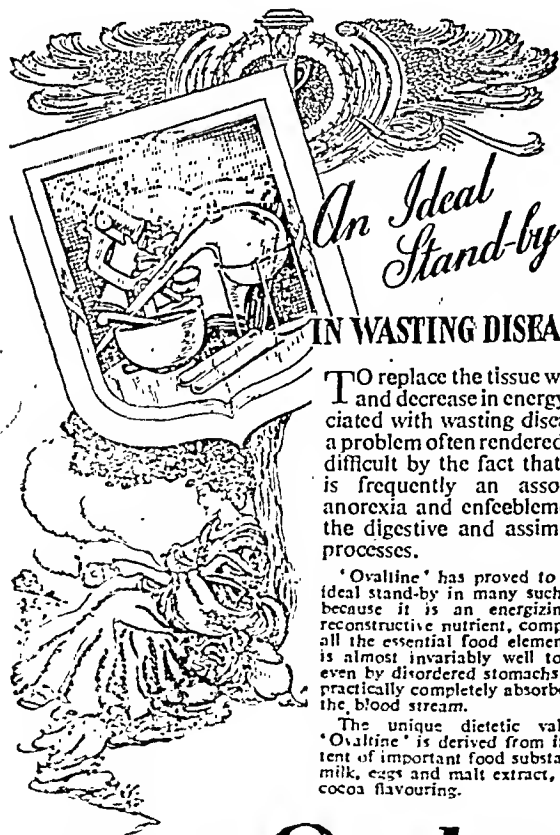
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No. 35

## INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Aug. 30.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included), (b) London (administrative county), (c) Scotland, (d) Eire, (e) Northern Ireland.

Figures of Births and Deaths, and of Infant Mortality, for the week and those for the corresponding week last year, for: (a) The 126 great towns in London, (b) London (administrative county), (c) Scotland, (d) Eire, (e) Northern Ireland.

The 13 principal towns in Eire. (e) 7

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1947					1946 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	32	4	32	2	2	41	5	23	1	1
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Diphtheria .. ..	164	15	37	10	3	262	26	92	31	15
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Dysentery .. ..	85	8	12	—	—	74	14	45	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Encephalitis lethargica, acute .. ..	2	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Erysipelas .. ..	—	—	35	5	2	—	—	36	10	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Infective enteritis or diarrhoea under 2 years .. ..	—	—	—	—	—	—	—	—	—	—
Deaths .. ..	69	7	20	6	2	31	5	8	14	2
Measles* .. ..	2,114	110	49	155	3	1,565	125	73	28	4
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Ophthalmia neonatorum .. ..	51	5	21	—	—	98	7	8	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Paratyphoid fever .. ..	33	4	4(B)	—	2(B)	44	—	2	81(B)	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal .. ..	229	10	3	1	1	279	11	5	1	1
Deaths (from influenza)† .. ..	4	—	—	—	—	6	—	—	—	—
Pneumonia, primary .. ..	—	19	112	14	7	—	18	104	19	3
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Polio-encephalitis, acute .. ..	45	3	1	—	—	4	1	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Poliomyelitis, acute .. ..	612	77	172	10	15	21	—	—	4	3
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Puerperal fever .. ..	—	3	16	—	—	—	3	15	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Puerperal pyrexia‡ .. ..	122	11	12	—	—	131	9	10	1	1
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Relapsing fever .. ..	—	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Scarlet fever .. ..	436	34	83	18	18	744	62	136	30	22
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Smallpox .. ..	—	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Typhoid fever .. ..	11	3	3	2	1	27	4	3	—	2
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Typhus fever .. ..	—	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Whooping-cough* .. ..	1,618	193	75	59	6	1,976	124	91	38	27
Deaths .. ..	9	1	3	—	—	9	—	—	2	3
Deaths (0-1 year) .. ..	330	44	70	24	16	318	34	46	28	12
Infant mortality rate (per 1,000 live births) .. ..	—	—	—	—	—	—	—	—	—	—
Deaths (excluding still-births) .. ..	3,678	578	561	159	106	3,712	567	520	172	94
Annual death rate (per 1,000 persons living) .. ..	—	—	—	—	—	—	—	—	—	—
Live births .. ..	8,377	1,331	1,001	392	259	8,699	1,311	979	386	268
Annual rate per 1,000 persons living .. ..	—	—	—	—	—	—	—	—	—	—
Stillbirths .. ..	227	25	37	—	—	277	40	34	—	—
Rate per 1,000 total births (including stillborn) .. ..	—	—	—	—	—	—	—	—	—	—

\* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

## EPIDEMIOLOGICAL NOTES

## Poliomyelitis and Polio-encephalitis

The number of cases of poliomyelitis in England and Wales notified during the week ended Sept. 6 was 662 and the number of notifications of polio-encephalitis was 46, as against 612 and 45 in the week ended Aug. 30. In spite of the increase in the country as a whole the London figures continue to decline a little 69 (77). The chief increases were in Bedfordshire 9 (4), Durham 38 (29), Essex 30 (21), Lincolnshire (Lindsey) 17 (5), Surrey 31 (25), Warwickshire 40 (25), and Glamorganshire 17 (7). The chief decreases were in Northumberland 12 (21), and Southampton (Hampshire) 5 (19). It will be remembered that in the relatively high prevalence of 1938 there were two peaks, one late in July and a higher one in mid-October. Between these two peaks prevalence remained high but fluctuated somewhat from week to week. It is well known that in the period of high prevalence notifications of many diseases have been too high because of the inclusion of cases in which the diagnosis is doubtful and is not subsequently confirmed. Certain indications from hospital experience suggest that the notifications of poliomyelitis are now particularly subject to this source of error, in fact reports from two hospitals suggest that as many as half the notified cases do not develop signs supporting the diagnosis of poliomyelitis and a large proportion are found to be suffering from other diseases.

Final figures of deaths are not yet available but provisional figures show that there were 74 deaths from poliomyelitis and polio-encephalitis together in July and 741 notifications (uncorrected). In London since the beginning of April there have been 29 deaths and 660 notifications (uncorrected). It must be emphasized that these figures are provisional and that final conclusions as to fatality rates cannot be drawn from them.

## Discussion of Table

In England and Wales decreases were recorded in the notifications of measles 1,164, whooping-cough 200, scarlet fever 53, cerebrospinal fever 17, and acute poliomyelitis 14; there were small rises in the incidence of diphtheria 17, dysentery 10, and paratyphoid 10.

For the fourth consecutive week the notifications of measles have declined by over 1,000. The largest falls during the week were those of Yorkshire West Riding 175, Lancashire 157, and Glamorganshire 101. Except in London and the North, where the incidence remained unchanged, a decline was also recorded in the incidence of whooping-cough, and the largest decrease was Kent 50.

The incidence of scarlet fever during the past month has been at a record low level; notifications were only from one-quarter to one-half those in the corresponding weeks of the war years. No large local variation in the trend of scarlet fever was recorded during the week. The chief feature of the returns for diphtheria was an increase of 9 in Birmingham C.B.

The incidence of paratyphoid in Bedfordshire increased: 18 cases were notified during the week, compared with 9 and 8 in the preceding two weeks. The largest returns of dysentery were Surrey 10 and Wiltshire 10.

An outbreak of gastro-enteritis has been reported from Birch Hill Maternity Hospital, Rochdale, with six fatal cases.

In the Clatterbridge Hospital, Wirral, 7 newly born infants have died from pneumonia.

In Scotland an increase occurred in the notifications of poliomyelitis 52, and measles 19, while decreases were reported for acute primary pneumonia 23, scarlet fever 18, and diphtheria 4. The rise in the incidence of poliomyelitis occurred in the south-eastern area, where the cases rose from 8 to 22, and in the western area, where the increase was from 86 to 125.

In Eire the chief features of the returns were an increase in the notifications of diarrhoea and enteritis 22 and decreases in the incidence of whooping-cough 24 and measles 69.

## Quarterly Returns for Scotland

The birth rate for the second quarter was 23.7 per 1,000 and was 4.4 above the average of the June quarters for the five preceding years. The infant mortality was 53 per 1,000 registered live births, being 6 above the rate for the corresponding quarter of 1946 but 3 below the five years' average. The general death rate was 12.5 per 1,000 and was 0.4 below the five years' average. Deaths attributed to the principal infectious diseases numbered 159 and included 71 from whooping-cough, 31 from influenza, 30 from cerebrospinal fever, 13 from diphtheria, and 13 from measles. The death rate from all forms of tuberculosis was 88 per 100,000, that from respiratory tuberculosis being 70.

Both rates were 6 more than the corresponding rates for the second quarter of 1946.

### Week Ending September 6

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 540, whooping-cough 1,683, diphtheria 145, measles 1,447, acute pneumonia 215, cerebrospinal fever 36, acute poliomyelitis 662, acute poliomyelitis 46, dysentery 64, paratyphoid 29, and typhoid 6.

## Medical News

### Infantile Paralysis Film

The film on infantile paralysis, which lasts about 15 minutes, will be shown by courtesy of the Central Office of Information at the Lecture Hall of the Royal Institute of Public Health and Hygiene, 28, Portland Place, London, W.1, on Sept. 24 at 1, 2, 3, 4, 5, and 6 p.m. Admission is free without ticket.

### Royal Medical Foundation of Epsom College

The Conjoint Committee of Epsom College invite applications for a Christie Pension of £89 per annum from medical practitioners in need of help. Candidates must be not less than fifty-five years of age and must have been registered for at least five years. In addition there are available other pensions and grants of varying amounts for medical practitioners, widows, and spinster daughters, as well as scholarships, exhibitions, and grants for children of public school age. Full information and forms of application may be obtained from the Secretary's Office, Epsom College, Surrey.

### Fellowships and Research Grants

Leverhulme Research Grants have been awarded to Dr. J. Grant (medical officer of health for the County Borough of Gateshead) for a study of epidemic diphtheria; to Mr. J. S. Gittins, B.Sc., M.A. (Principal, Aycliffe Approved School, Darlington), for a survey of the mental characteristics of delinquent boys; and to Mr. P. Slater, M.A. (principal research officer, The Social Survey), for work on the use of statistical methods in forecasting human behaviour. Application forms and further information regarding fellowships and research grants may be obtained from the secretary, Leverhulme Research Fellowships, 7, Bedford Row, London, W.C.1.

### Foot-and-Mouth Disease Research Committee

The Minister of Agriculture and Fisheries has reconstituted the Foot-and-Mouth Disease Research Committee with the following membership: Dr. A. N. Drury, F.R.S. (Chairman); Dr. C. H. Andrewes, F.R.S.; Prof. S. P. Bedson, F.R.S.; Sir Daniel Cabot, M.R.C.V.S.; Mr. T. Dalling, M.A., M.R.C.V.S.; Dr. R. E. Glover, F.R.C.V.S.; Dr. Russell Greig, F.R.S.E. Dr. I. A. Galloway, Director of the Foot-and-Mouth Disease Research Station, and Mr. F. A. Eveleigh, of the Ministry of Agriculture, have been appointed secretaries to the committee. The terms of reference of the committee remain as follows: "To initiate, direct, and conduct investigations into foot-and-mouth disease either in this country or elsewhere, with a view to discovering means of rendering the invasions of the disease less harmful to agriculture."

## COMING EVENTS

### Middlesex County Medical Society

The annual general meeting of the Middlesex County Medical Society will be held at the Central Middlesex County Hospital, Park Royal, Middlesex, on Friday, Sept. 26, at 4 p.m., when Dr. F. Avery Jones, the Chairman, will deliver an address on "The Full-time Specialist."

### Surgeons' Conference of St. John Ambulance Brigade

Arrangements have been made for the annual conference and dinner of surgeons of St. John Ambulance Brigade to take place at Bonnington Hotel, Southampton Row, London, W.C., on Saturday and Sunday, Sept. 27 and 28. Speakers at the conference, which opens at 2 p.m., will include Sir Hecage Ogilvie and Dr. A. Leslie Banks, with Sir Cecil Wakeley as the principal guest at the dinner at 7 p.m.

### Rehabilitation

The British Council for Rehabilitation will hold a short course on rehabilitation at Manchester on Oct. 7-9. There will be visits to the Orthopaedic Department of the Manchester Royal Infirmary, the Dock Workers' Rehabilitation Centre at Salford, the East Lancashire Tuberculosis Colony, and elsewhere. The fee of three guineas includes lunch and tea each day and transport from Manchester to the places visited. Vacancies are limited and applications should be sent in not later than Sept. 30. Those interested should write to the Organizing Secretary, The British Council for Rehabilitation, 32, Shaftesbury Avenue, London, W.1.

### Metabolism and Endocrines

This year's Graduate Fortnight of the New York Academy of Medicine will be held from Oct. 6 to Oct. 17. There will be discussions, demonstrations, and lectures on disorders of metabolism and of the endocrine glands, including such topics as hypertension, obesity, intermediary metabolism, and old age.

### Gastro-enterology

A postgraduate course in gastro-enterology is to be held at the Hospital de la Santa Cruz y San Pablo, Barcelona, from Oct. 6 to Dec. 15. Diseases of the oesophagus, stomach, intestines, liver, and pancreas will be the subject of lectures, practical demonstrations, and discussions. A maximum of 30 students will be admitted, and the course will cost 500 pesetas. For a supplementary fee courses in radio-diagnosis (10 students), laboratory work (12 students), and gastroscopy (5 students) may be attended.

## SOCIETIES AND LECTURES

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.—Monday, Sept. 22, 5 p.m. Moynihan Lecture by Mr. Arthur W. Allen, President-Elect of the American College of Surgeons, Duodenal Ulcer: A Comparative Survey of Two Groups of Patients, One treated by Sub-total Gastric Resection and the Other by Vagus Nerve Interruption. Tuesday, Sept. 23, 5 p.m. Cecil Joll Lecture by Dr. Frank H. Lahey, Director Lahey Clinic, Boston, U.S.A., Hyperthyroidism. Wednesday Sept. 24, 5 p.m. Moynihan Lecture by Mr. William E. Gallie, Professor of Surgery in the University of Toronto, Recurring Dislocation of the Shoulder. Thursday, Sept. 25, 5 p.m. Lister Oration by Mr. Ewatts Graham, Professor of Surgery in the University of Washington, Some Aspects of Bronchogenic Carcinoma.

## POSTGRADUATE DIARY

GLASGOW UNIVERSITY:—DEPARTMENT OF OPHTHALMOLOGY.—Wednesday, Sept. 24, 8 p.m., Mr. F. Ridley: Contact Lenses.

A series of meetings will be held in the Department of Ophthalmology of the University of Glasgow on Wednesdays, at 8 p.m. from Sept. 24 to Oct. 22, both dates inclusive, and will be open to all medical practitioners and senior students interested in ophthalmology. Details will be published in the diary column week by week.

A clinico-pathological demonstration will be held in the Meyerstein Lecture Theatre of the Westminster Hospital School of Medicine Horseferry Road, S.W., on Monday, Oct. 6, at 5 p.m., when the subject under discussion will be Anterior Poliomyelitis.

## APPOINTMENTS

Dr. W. G. Patterson, County Medical Officer of Health for Surrey, has been appointed to the Newcastle-upon-Tyne Regional Hospital Board.

Dr. Donald Paterson has been appointed Consultant Paediatrician to the Westminster Hospital and Consultant Physician to the Hospital for Sick Children, Great Ormond Street.

HULL ROYAL INFIRMARY.—Honorary Surgeon, J. R. Blackburne, M.B., F.R.C.S. Honorary Assistant Surgeon, Peter Walton, M.B., F.R.C.S.Ed.

MANCHESTER ROYAL INFIRMARY.—Honorary Orthopaedic Surgeon in charge of Department of Orthopaedics (appointment extended for further four years): Prof. Harry Platt, F.R.C.S. Joint Honorary Assistant Orthopaedic Surgeon, John Charnley, F.R.C.S., and D. Li. Griffiths, F.R.C.S. Honorary Physician in charge of Department of Haematology, J. F. Wilkinson, M.D., F.R.C.P. Honorary Assistant Surgeon, H. T. Simmons, F.R.C.S.

SUNDERLAND ROYAL INFIRMARY.—Senior Physician and Director of the Medical Unit: A. A. McIntosh Nicol, M.D., F.R.C.P. Assistant Physician: R. H. Vasey, M.D., M.R.C.P., D.R.C.O.G. Dermatologist: Peter Inman, M.D., M.R.C.P.

WARD, A. I., M.B., B.S., D.A., Assistant Anaesthetist, Norfolk and Norwich Hospital and Jenny Lind Hospital for Children.

## BIRTHS, MARRIAGES, AND DEATHS

The charge for an insertion under this head is 10s. 6d. for 18 words or less. Extra words 3s. 6d. for each six or less. Payment should be forwarded with the notice, authenticated by the name and permanent address of the sender, and should reach the Advertisement Manager not later than first post Monday morning.

### BIRTHS

FATTI.—On Aug. 11, 1947, at Hillington, wife of L. Fatti, F.R.C.S., a son. INGLIS.—On Sept. 6, 1947, at York, to Irene, wife of Dr. James McNaught Inglis, a son—Timothy Christopher.

KAMILL.—On Sept. 12, 1947, at Northgate Nursing Home, to Joan (née Hirth), wife of Dr. M. Kamill, 1, Orrell Lane, Liverpool, a son.

LANOE.—On Sept. 8, 1947, at Southampton, to Joyce (née Giles), wife of Mr. M. J. Lanoe, F.R.C.S.E., a daughter.

MILNES.—On Sept. 5, 1947, at Ipswich, to Deirdre Milnes, M.R.C.V.S., wife of Dr. J. N. Milnes, a son.

REES.—On Sept. 6, 1947, at Cardiff, to Catherine, wife of Linford Rees, M.D., M.R.C.P., D.P.M., a daughter.

RUSHTON.—On Aug. 27, 1947, to Joyce (née Newman), wife of Dr. E. D. F. Rushton, Pilning, Gloucestershire, a daughter.

SHERRY.—On Sept. 3, 1947, to Kathleen M. (née Robinson), F.R.C.S., the wife of Dr. Vincent F. Sherry, a son.

### MARRIAGE

BALL—RYAN.—On Sept. 10, 1947, at Crief, Geoffrey L. Ball, London, to Dr. Sheila Ryan, L.R.C.P.&S., Crief.

## Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

### Poliomyelitis

**Q.**—About 1932 two Australian doctors stated that by giving serum from convalescent patients in the pre-paralytic stage, they had prevented serious paralysis in cases of poliomyelitis. Modern textbooks cast doubt on this statement. What is the accepted view to-day?

**A.**—The above-mentioned paper by MacNamara and Morgan appeared in the *Lancet* (1932, 1, 469). Their series, like those of many others who have reported good results from the serum treatment of poliomyelitis, was inadequately controlled. In all large series where convalescent serum has been given in the pre-paralytic stage, with a corresponding group of untreated controls, there has been no difference between the rates of residual paralysis and mortality in the two groups. More recently, Bahlke and Perkins (*J. Amer. med. Ass.*, 1945, 129, 1146), have used the gamma globulin fraction of pooled adult plasma in which poliomyelitis antibodies have been found in concentrations at least ten times as great as in whole plasma. Alternate patients admitted in the pre-paralytic stage during the 1944 epidemic in U.S.A. were given a single large intramuscular dose of gamma globulin ranging from the equivalent of 360 to 500 ml. whole plasma for infants under 1 year to 1,800 to 2,500 ml. for patients aged 12 years or more. There was no difference in the course of the disease or in the end results in the 56 treated and 55 untreated cases. See also our leading article of July 26 (p. 135).

### Sensitivity to Insulin

**Q.**—I have a patient in whom the smallest dose of insulin produces violent allergic reactions at the site of injection. I have tried all kinds of insulin and followed carefully the technique recommended. The use of strong solutions of insulin with the object of diminishing the quantity of o-cresol preservative injected did not lessen the reaction. Is there a remedy?

**A.**—The effect of "benadryl" should first of all be tried. (1) A dose of 100 mg. should be given by mouth about half an hour before the insulin is injected. This should reduce the size of the local reaction, and may in a mild case be discontinued in a week or so. (2) If the local reaction is very severe, as in this case, insulin, say 10 units, and 0.5 ml. of a 1 in 1,000 solution of benadryl in the same syringe should be injected. This should prevent all local reaction (Gastineau, C. F., and Leavitt, M. D., *Proc. Mayo Clin.*, 1946, 21, 316). Care must be taken to inject the solution into the subcutaneous tissues and not into a venule. An intravenous injection may cause a severe general reaction. To prevent this accident the plunger of the syringe should be slightly withdrawn so as to be certain the point of the needle is not in a venule. The dose of benadryl should be gradually reduced after a week, and may in the end be discontinued.

If the condition is very severe and if the benadryl does not relieve it, an attempt should be made to desensitize the patient with the insulin which gives the least reaction. It is better to use a quick-acting insulin, and the three on the market should be diluted 1 in 10, 1 in 100, 1 in 1,000, and 1 in 10,000. About 0.05 ml. of each solution is then injected intradermally, a separate syringe being used for each solution. A weal will be formed on the skin; the solution which gives the least reaction is chosen. The patient is then given six injections a day at two-hourly intervals. The initial dose should be 0.1 ml. This should not cause any local irritation. If it does, the solution should be diluted ten times and another attempt made. If the local reaction is negligible the same amount is given for three doses and then 0.2 ml. for three doses. The next day 0.3 ml. is given for three doses, and then 0.4 ml. and so on. When 1 ml. is tolerated, a stronger solution is then used in the same dosage until the undiluted insulin can be given without

ill effects. Sometimes the desensitization is easy, but sometimes local reactions appear with, say, 0.5 ml. The dose must be reduced until the injection is painless, and kept at this level for one or more days before a further increase is made. The same procedure may have to be repeated one or more times in difficult cases before the undiluted insulin can be used to control the diabetic condition. It is possible that benadryl may be of assistance in shortening the time which the desensitization takes. The site of the injections should be the front and sides of the thigh and upper arm and should be varied as much as possible, otherwise the subcutaneous tissues of the arm may be desensitized and not those of the legs. Once the desensitization is accomplished it is permanent.

### Hay-fever

**Q.**—What are the present views on the treatment of hay-fever? What is the dosage of "benadryl," and can it be safely used over a long period?

**A.**—The most satisfactory treatment of hay-fever is still by desensitization with pollen extract. The pre-seasonal method is usually employed, and should be repeated each year for several years, until there has been at least one season, during which the pollen count has been high, completely free from symptoms. The new anti-histamine drugs, "antistin" and "benadryl," give good to moderate relief in the majority of patients. Side-effects are common with benadryl, and in dosage the drowsiness is usually the limiting factor; the best dosage is that which gives the maximum of ease with the minimum of side-effects—usually 50 or 100 mg., rarely 150 mg., as required, up to three-hourly. It can be used safely over a long period.

### Psoriasis of Scalp

**Q.**—Is there a clean and effective treatment for psoriasis of the scalp?

**A.**—The use of liquor picis carbonis in water (1 in 4) or 0.5% dithranol in ung. aquosum B.P. or the following pomade, or the alternate use at night of these last two measures, is effective and should be combined with a shampoo once a week:

R. Acid. salicyl.	..	..	..	gr. x (0.65 g.)
Hydrarg. ammon.	..	..	..	gr. x (0.65 g.)
Liq. picis carb.	..	..	..	℥ss (1.2 ml.)
Ung. aquosum	..	..	..	ad oz. i (31 g.)
Ft. ung.				

### Penicillin in Cardiac Infections

**Q.**—A female aged 45 years had occasional precordial pain, palpitations, and slight breathlessness on exertion about two years ago. When I undertook treatment six months ago her blood pressure was 160/100; the pulse was 110, regular, and of moderate volume. It is still regular though it may rise under emotional stress. Urine normal. Electrocardiography indicated signs of myocardial damage. She responded well to rest in bed, bromides, digitalis, and large quantities of vitamin B complex. She sleeps well. There is enlargement of the liver and spleen; bowels regular; temperature normal. There are no signs of calcareous degeneration in the blood vessels. May I have your advice regarding the use of penicillin in this case; also can twice-daily injections of 5 million units be given?

**A.**—The description of this case does not suggest an infection of the heart; it points rather to autonomic imbalance associated with mild hypertension. The combination of chest pain, palpitation, and tachycardia related to emotional disturbance in a woman of 45 suggests, further, the possibility of an endocrine factor. The only infections of the cardiovascular system in which penicillin is known to be effective are infective endocarditis and possibly syphilitic aortitis. Whatever be the exact diagnosis in the present case, both of these would seem to be most unlikely. Enlargement of the liver and spleen in countries such as India might well be of malarial origin, and consequently of less significance in a differential diagnosis of infective endocarditis. It is most unlikely that penicillin therapy would be useful in the circumstances described. The dosage mentioned is in any case excessive, the usual quantity in infections of the heart being 500,000 units every twenty-four hours in divided doses.

### The Fatherless Child

**Q.**—*It is universally recognized that adopted children should be told the truth concerning their adoption, but I should be grateful for advice on what an illegitimate child should be told about his father. My maid, whose fiancé deserted her during pregnancy, has a son aged 15 months. The father of the child, who has not seen the mother since the pregnancy was discovered, is still living in the local market town, so a meeting is always possible, though unlikely; this prevents our telling the child his father is dead.*

**A.**—The difficulty in this case is, to a great extent, that of all mothers who have sole charge of their children, whether the absence of a father be due to death, desertion, or divorce. Fortunately, there is in the mind of the very young child no distinction between absence and death, so that the phrase "Daddy has gone away" covers all contingencies up to the age of at least 3 years. It is usually best to begin to instil this idea gently between 18 months and 2 years, so that it becomes accepted as a matter of course, thus avoiding the sudden shock of realizing the lack of a father in the home. When later there comes the inevitable question: "Is daddy coming back?" this can be answered by, "I don't think he will," and gradually explaining the truth as the child becomes old enough to understand.

Much more important than the actual telling is the manner of doing so. When a mother is the only parent known to her child, she will, if she is wise, accept a dual identity to him, since his relationship to her must be coloured by his conception of the missing father. If the latter is said to be a bad man who deserted his wife the child will also feel rejected, and will probably develop fantasies that this happened because he himself was bad. When guilt feelings so precipitated become intolerable he may well swing to the other extreme, passionately identifying himself with his father as a good figure and rejecting his mother. It may be very hard for this mother to speak of the father only with kindness and without apparent anxiety or self-pity, especially when she has to tell that they parted before her son was born, but if she can bring herself to do this she will avoid many troubles in his upbringing. Her generosity will be repaid by a secure mother-child relationship unlikely to be seriously shaken should the father meet his son in later years.

### "Happy Feet"

**Q.**—*A patient who was a Japanese prisoner of war for 3½ years and had severe dysentery and beriberi still suffers from leg pains and the condition referred to as "happy feet." His cardiovascular system and chest are sound. Is there any specific treatment apart from aneurine for the feet? Crystalline vitamin B<sub>1</sub> is mentioned in the literature—what are the dose and the route, and for how long should I try it?*

**A.**—It is unlikely that vitamin therapy will improve the patient at this stage. Presumably he has been under treatment some time. If deficiency of the vitamin B complex is sufficiently prolonged, irreversible changes occur in the nervous system. It is very doubtful if aneurine will have any effect. "Happy feet" has been treated by various B vitamins, including riboflavin, nicotinic acid, and vitamin B<sub>6</sub>. The dosages of these are 5 mg., 300 mg., and 100 mg., daily, respectively. If flushing occurs with nicotinic acid, nicotinamide can be used instead. If some improvement does not occur within a week or two, either the condition is not one of deficiency disease or irreversible nerve changes have occurred.

### Toxicity of the Chlorobenzenes

**Q.**—*What are the toxic effects of para-dichlorobenzene, which is used as an insecticide in the form of a paste pressed into tablets? I am interested in any possible toxicity conveyed to workers handling this substance during its manufacture from a grey powder into tablet form.*

**A.**—As a general rule the introduction of chlorine into an aliphatic compound increases its toxicity, while in the case of an aromatic compound the reverse is true. Thus, the chlorobenzenes are less toxic than benzene. There is evidence, however, to suggest that the substitution of chlorine in the benzene ring increases toxicity with each successive chlorine atom up to

two, while further chlorination reduces toxicity. The structural position of the chlorine atom also influences toxicity, but there is conflicting evidence as to whether para- or ortho-dichlorobenzene is the more toxic. The more recent work seems to favour the view that the ortho preparation is more toxic than the para isomer. Some of the chlorinated benzenes are solids and insoluble in water; thus the potentialities of the solvent must be considered also. There is sufficient evidence to justify strict measures to prevent ingestion or inhalation of dust or fume of the chlorobenzenes. Headache, dizziness, and unconsciousness are the result of acute poisoning; the later manifestations of ill effects might be those associated with damage to the liver, and possibly kidneys, while the blood might show leucotoxic effects. Much of this summary of the ill effects of chlorobenzenes is based on animal experiments, and there seems no reason why work with this compound, which has been used extensively in veterinary therapeutics and as an insecticide, should not be undertaken with safety under reasonable conditions. Variations in individual susceptibility are likely.

### Gangrene of Toes

**Q.**—*I have two patients: (a) an old man of 78 with gangrene of two toes from senile arteriosclerosis only; and (b) a man of 46 with previously undiagnosed diabetes who has moist gangrene of three toes of one foot and severe skin changes to the region of the instep. When his diabetes has settled, at what site should amputation be carried out if the dorsalis pedis is not pulsating palpably on that foot?*

**A.**—In both patients amputation is indicated—more urgently in the diabetic case. In this latter the diabetes must first be stabilized by insulin and a suitable diet. In both cases to wait for natural separation of the gangrenous tissue is to subject the patient to much unnecessary pain and to an unjustifiably long stay in hospital; in the diabetic case delay is definitely dangerous—the risk of infection being so great. If the dorsalis pedis artery is impalpable, the correct site for amputation is the lower third of the thigh (supracondylar femoral)—the most distal point at which the main arterial diameter is appreciably larger than that of the dorsalis pedis.

### NOTES AND COMMENTS

**Fissured Lip.**—Dr. R. E. HADDEN (Portlown, N. Ireland) writes: Following on the "Any Questions?" note on "Fissured Lip" in your issue of July 5 (p. 40), you may think it worth while publishing the following. I have found that a satisfactory cure of fissured lip results from injections of riboflavin, 10 mg., repeated after 3 or 4 days, and continuing if necessary; but in my experience 2 or 3 doses are sufficient. Tinct. benzoin. eo. is an excellent local application.

**Funds for X-ray Plant.**—Dr. E. S. (Hove) calls attention to the special need of a hospital in South India (Chikka Ballapura) under the care of Dr. Cecil Cutting, of the London Missionary Society. An efficient x-ray plant is needed, and though the building is waiting, the cost—£1,000—is not to hand. A wide area with a native population is covered, and emergency and accident cases are many. There may be some of our B.M.A. members who would like to help a fellow-member with donations towards the £1,000 needed. If so, would they communicate with Dr. Cecil Cutting through the London Missionary Society, 42, Broadway, London, S.W.7? At this crisis of affairs in India the need and opportunity for continuing sympathy and help to the population is great, and the help of medical work is gratefully accepted.

**Correction.**—In Dr. W. Howlett Kelleher's paper on acute poliomyelitis in the *Journal* of Aug. 23 the figure "37%" in the fifth line of the second paragraph on p. 292 should read "27%."

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: Allottery, Western, London. ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the British Medical Journal alone unless the contrary be stated. Authors desiring REPRINTS should communicate with the Publishing Manager, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs. Authors overseas should indicate on MSS. if reprints are required, as proofs are not sent abroad. ADVERTISEMENTS should be addressed to the Advertisement Manager, B.M.A. House, Tavistock Square, London, W.C.1 (hours 9 a.m. to 5 p.m.). TELEPHONE: EUSTON 2111. TELEGRAMS: Brimmedad, Western, London. MEMBERS' SUBSCRIPTIONS should be sent to the SECRETARY of the Association, TELEPHONE: EUSTON 2111. TELEGRAMS: Mediseca, Western, London. B.M.A. SCOTTISH OFFICE: 7, Drumheugh Gardens, Edinburgh.

# SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY SEPTEMBER 20 1947

## British Medical Association

### ANNUAL REPRESENTATIVE MEETING, 1947

The following statement, embodying the more important decisions of the Annual Representative Meeting, 1947, is published for the information of members.

#### President of the Association

Sir Hugh Lett, Bart., was re-elected President for the year 1947-8. Sir Lionel Whitby, Regius Professor of Physic, University of Cambridge, was elected President for the year 1948-9.

#### Annual Meeting of the Association, Cambridge, 1948

The Annual Meeting of the Association, with scientific sections, will be held at Cambridge in 1948.

#### Vice-Presidents of the Association

Dr. J. C. Matthews (Downton, Wilts) and Dr. H. W. Pooler (Ashover, Derby) were elected as Vice-Presidents of the Association as an appreciation of the exceptional services they have rendered to the Association.

#### Alien Doctors

The A.R.M. endorsed the following views expressed by the Council:

(a) That the establishment of alien doctors in independent private practice should continue to be subject to approval of the alien's choice of locality;

(b) That no objection should be raised to alien doctors with British medical qualifications being allowed the same professional freedom as "quoia" doctors;

(c) That no objection should be raised to temporarily registered practitioners who have been approved, as outlined in paragraph (d), being placed on the permanent Register, and consequently being treated in the same way as other permanently registered alien practitioners;

(d) That a scheme should be worked out by the General Medical Council, in conjunction with representatives of the Ministry of Health, the Home Office, and the Central Medical War Committee, for the "screening" of temporarily registered practitioners to be transferred to the permanent Register;

(e) That no objection should be raised to the reopening of the Medical Register to admit Polish medical officers enlisted in the Resettlement Corps, and ex-R.A.M.C. alien doctors.

#### NATIONAL HEALTH SERVICE ACT

##### Nominations for Statutory Bodies

The meeting demanded that the profession's nominations to all statutory bodies under the new National Health Service be approved by the Minister of Health. The meeting also demanded that general practitioner representation be assured on the various statutory committees and councils set up under the Act, with particular reference to Regional Hospital Boards, Hospital Management Committees, and the Health Committees of Local Health Authorities. The holding of part-time appointments with the local authority shall not debar members from service on the local health committees.

#### Plebiscite

The clearest possible exposition of the Association's policy should be circulated by the Council on all important and

appropriate occasions. The actual voting paper should be sent to the voter under separate cover and unaccompanied by any expression of opinion.

#### Meetings of Local Units

In the event of the Negotiating Committee failing to secure the Minister's agreement to the declared principles, all Divisions of the Association should be asked to meet, in order to instruct their representatives before a special meeting of the Representative Body is held to discuss the action to be taken. Further, the Council of the Association should then give a strong lead to the profession in the light of the findings of this Special Representative Meeting when issuing the plebiscite forms.

#### Whole-time Medical Officers Employed by Central, Regional, or Local Authorities

The Ministry of Health to be informed that the Representative Body is of the opinion that all whole-time medical officers employed by the Central, Regional, or Local Authorities should have a right of appeal to a suitably appointed committee when an appointment has been determined on grounds that reflect adversely on a practitioner's professional reputation or procedure.

#### Distribution of the Profession

It was resolved that, in view of the reason given by the Minister at the Second Reading of the Act for the abolition of the buying and selling of practices, as being necessary in order to correct maldistribution of practitioners, the Council formulate and publish a positive plan showing how this object could be achieved by other means.

#### Midwifery Services

(1) All practitioners registered under the present Medical Acts shall be entitled to undertake domiciliary obstetrics under the National Health Service Act. (2) Ten years' experience in domiciliary obstetrics is an adequate preliminary condition of entry to an examination for a postgraduate diploma in obstetrics. (3) If the conditions governing examination for existing diplomas cannot be varied in this respect, an appropriate diploma should be newly established.

It was decided that the above recommendations be conveyed to the Negotiating Committee.

#### Superannuation for Specialists

The Negotiating Committee is requested to examine the claims for superannuation for specialists retiring from hospital service on the inception of the National Health Service and that in computing any superannuation for specialists consideration be given to periods of service in the armed Forces.

#### GENERAL PRACTICE

##### Fees for Medical Examinations in connexion with Life Insurance

It was decided: (1) That the following "Short" form of medical report be approved for use in the case of all insurances where the amount of the policy does not exceed £300, the fee for the completion of this form of report to be 10s. 6d.

(a) Does the Proposed appear in good health? Is his/her appearance consistent with the age stated?



(b) Is there any reason to suspect irregular or intemperate habits?

(c) Are there any abnormalities of the heart or lungs or pulse?

(d) Are there signs or symptoms of kidney disease? Result of urine examination. Albumin . . . Sugar . . .

(e) Height of the Proposed. Weight of the Proposed. (If possible the Proposed should be weighed and measured by the Examiner.)

(f) Are there any other circumstances not covered by the questions with which the Company should be acquainted? (e.g.: In female cases, is she in an obvious state of pregnancy?)  
(g) In which of the following classes would you place the risk? First; Second; Third.\*

(2) That for a medical examination and report in cases where the amount of the policy exceeds £300 the fee shall be £1 11s. 6d.

(3) That no attempt be made to standardize the £1 11s. 6d. form of report, but that where the form required by the Life Office is exceptionally extensive a fee of £2 2s. should be payable.

(4) That where, in the case of an insurance for an amount not exceeding £300, the Office requires a fuller examination than is provided in the "Short" form, the Office may use its ordinary form at a fee of £1 11s. 6d.

(5) That in all cases the fee appropriate to the examination, and the amount of the policy, should be printed on the form.

\*Classification: 1st Class, lives acceptable on ordinary terms; 2nd Class, assurable, but only on special terms; 3rd. Class, unassurable.

#### Fees for Police Calls and for Attendance on Members of Police Forces

The following is to be substituted for the existing policy of the Association regarding remuneration of practitioners called in by the police:

Where a medical practitioner is called in by the police in one of the following circumstances a fee not less than that stated below should be paid:

(a) To examine a person charged with being in charge of a motor vehicle whilst under the influence of drink or a drug to such an extent as to be incapable of having proper control of the vehicle:

Between the hours of 9 a.m. and 8 p.m. . . £1 1s. 0d.

" " " " 8 p.m. and 9 a.m. . . £2 2s. 0d.

For report to the prosecuting solicitor . . £1 1s. 0d.

(If the examination takes an unusually long time, or the practitioner is required to remain at the police station for longer than three-quarters of an hour in order that the defendant's own medical attendant may be called, a supplementary fee of £1 1s. should be paid.)

(b) To examine a witness or person charged with or suspected of sexual offences:

For the examination:

Between the hours of 9 a.m. and 8 p.m. . . £1 1s. 0d.

" " " " 8 p.m. and 9 a.m. . . £2 2s. 0d.

exclusive of the collection and examination of pathological specimens, for which a higher fee should be paid.

For report . . . . . £1 1s. 0d.

(c) To examine a witness or person charged with common assault:

For the examination:

Between the hours of 9 a.m. and 8 p.m. . . 12s. 6d.

" " " " 8 p.m. and 9 a.m. . . £1 5s. 0d.

If a special report is required an additional fee of £1 1s. should be paid therefor.

(d) To examine a witness or person charged with assault with intent to commit grievous bodily harm; including suspected murder or manslaughter:

For the examination:

Between the hours of 9 a.m. and 8 p.m. . . £1 1s. 0d.

" " " " 8 p.m. and 9 a.m. . . £2 2s. 0d.

For report . . . . . £1 1s. 0d.

(e) To render emergency treatment to a person taken ill in the street, or a prisoner confined in the cells; to certify death in cases of "sudden death"; and to examine a prisoner as to fitness for Borstal treatment:

Between the hours of 9 a.m. and 8 p.m. . . 12s. 6d.

" " " " 8 p.m. and 9 a.m. . . £1 5s. 0d.

The payment of the appropriate fees for the foregoing services should be irrespective of any subsequent action, and should not be combined with or included in the fee for attendance at court.

Mileage should be paid at the rate of 1s. per mile or part of a mile (each way) after the first two miles.

#### Fees for Medical Certificates under the Lunacy and Mental Deficiency Acts, and for Recommendations under the Mental Treatment Act

(1) *Fees for Medical Certificates under the Lunacy Acts:* A fee of at least two guineas should be paid.

(2) *Fees for Medical Certificates under Mental Deficiency Act:* The fee for medical certificates under the Mental Deficiency Act, signed by the "usual medical attendant," should not be less than two guineas.

(3) *Fees for Recommendations under Mental Treatment Act:* In cases where a "recommendation" is made under the Mental Treatment Act for a private patient the fee should be a matter of arrangement between the relatives and the practitioner concerned, but in public assistance cases a fee of not less than two guineas would appear to be appropriate.

#### Fees for Certificates under the Cremation Act, 1902

The fee for completing Form B (certificate of medical attendant) and Form C (confirmatory medical certificate) under the Cremation Act should be a matter for private arrangement.

#### Surgical Corsets

The meeting was of the opinion that medical certification for surgical corsets should be completely abolished.

#### Allowances to Medical Witnesses in Civil Cases

While noting the recommendations of the Departmental Committee on the up-grading of allowances payable to medical witnesses appearing in criminal cases (upon the adequacy of which comment is withheld temporarily) the Representative Body was firmly of the opinion that any new scale of fees officially prepared for the guidance of taxing masters in assessing the sums payable to medical witnesses in civil cases should be fixed at a rate higher than that recommended as suitable for similar witnesses in criminal cases.

#### The Scope of General Practice

The Council was instructed to resist to the utmost any attempt to diminish the present scope of general practice.

#### Doctors' Cars

The meeting expressed itself as dissatisfied with the present arrangements made by the Association for obtaining doctors' cars, and urged the Council to take appropriate action to secure definite priority.

#### Examination of Candidates for Civil Service

Where in an examination of a candidate for the Civil Service the fee is paid by the patient, the patient should be entitled to a copy of the examiner's report.

#### NATIONAL HEALTH INSURANCE

##### Certification

Where certification is required, it shall only appertain to the witnessing of a signature and not vouch for the accuracy of the material contents of the said certificate.

#### SPECIAL PRACTICE

##### Post-mortem Facilities

The A.R.M. approved the following principles for the provision of a satisfactory post-mortem service which had been agreed by the Council with the Association of Clinical Pathologists, the Coroners' Society, and the Medico-Legal Society:

(a) That arrangements be made to ensure that all necropsies undertaken at the request of coroners be performed by competent practitioners having special experience and training in the performance of necropsies and, further, having at their disposal

facilities of a pathological laboratory, always providing that the selection of the practitioner shall be made at the discretion of the coroner.

(b) That all necropsies should be made in properly equipped post-mortem rooms, such as are found in hospitals.

(c) That the performance of coroners' necropsies should be centralized and so arranged that the cadaver be brought to the practitioner rather than the practitioner to the cadaver.

(d) That mortuaries for the temporary housing of cadavers near the place of death will continue to be required, but these should not be equipped for the performance of necropsies.

(e) That arrangements be made for a copy of the coroner's report on a necropsy to be sent to the practitioner in previous attendance on the case.

(f) That the date and time of a necropsy be notified by the coroner to the practitioner in previous attendance on the case, in order that he may be given an opportunity to attend the examination.

#### Scales of Fees for Radiological Cases referred by Local Authorities to Voluntary Hospitals

The A.R.M. approved the following scale of fees for radiological cases referred by local authorities to voluntary hospitals:

	£	s.	d.
Examination of chest, upper and lower extremities (one area) .. .. .	2	2	0
Pelvimetry, antenatal examinations without pelvimetry, examinations of teeth, hip, pelvis, spine (one area), skull, urinary tract, and gall-bladder .. .. .	3	3	0

In cases requiring special examinations—e.g., stercography, tomography, and all examinations requiring contrast media—the fee shall be arranged between the radiologist and the local authority.

This is a special scale of reduced terms for contract work and should not be taken as constituting the fee for private practice.

#### Access to Ancillary Departments of Hospitals

The A.R.M., 1946, passed a resolution to the effect that, experience having shown that the advantages of the policy of the "open door" outweigh the disadvantages, it should be adopted as a uniform system throughout the country.

The A.R.M., 1947, approved a report from the Council on this matter that a distinction should be made between diagnostic and therapeutic facilities, and that facilities for diagnosis and treatment control should be made directly available to general practitioners, whether in hospital or elsewhere.

#### Fees Paid by Government Departments for Services of Medical Specialists

The A.R.M. approved the view expressed by the Council that the scale of fees which had been agreed with the Ministry of Health and with associations of local authorities was an appropriate one for adoption by all Government Departments employing specialists on a sessional basis. The scale in question is set out in detail below.

### PUBLIC HEALTH

#### Practitioners Employed Part-time by Local Authorities

The scale set out below was approved as an interim measure dating from Nov. 1, 1946, and without prejudice to future negotiations:

#### REMUNERATION ON A SESSIONAL BASIS FOR SESSIONS OF, NORMALLY, 1½ TO 2½ HOURS

1. *Consultants and Specialists.*—For all regular consultant and specialist sessions at hospitals and clinics, including (a) administration of anaesthetics, (b) treatment of venereal diseases, (c) x-ray examination and treatment, including ringworm, (d) adenoid and tonsil operations, (e) examination and certification of blind school-children, (f) ophthalmic work for school-children. Regular weekly individual, occasional, or additional sessions and emergency attendances: £4 4s. per session or attendance. These rates are intended for application to all persons possessing the necessary qualifications and experience, and it is recognized that higher remuneration should be paid where senior consultants are required for work carrying special responsibilities. A reduced fee of 2½ guineas should be paid for sessions of not more than one hour—i.e., which do not normally exceed one hour.

*Mileage.*—A mileage allowance of 1s. per mile each way should be paid a medical practitioner for every mile outside a radius of two miles calculated from his home or from any centre from which he practises, whichever is the less, and provided that no charge shall be made in respect of any distance travelled for which he receives or has claimed an allowance otherwise.

2. *General Practitioners.*—Regular weekly individual, occasional, or additional sessions and emergency attendances: £2 5s. per session or attendance. A reduced fee of £1 10s. should be paid for sessions of not more than one hour—i.e., which do not normally exceed one hour.

3. *Refractions.*—Where a local authority enters into an arrangement with any medical practitioner to perform clinical refraction work only, the rate of pay for such work should in all cases be £2 17s. 6d. per session.

#### REMUNERATION ON A PAYMENT-PER-CASE BASIS

##### Consultants and Specialists

4. *Surgical Operations.*—The fee payable to a surgeon not under contract with the local authority and called in to operate in an emergency, including emergency domiciliary obstetrical operations, should be related to the services rendered, and should not in any case be less than £5 5s. for a minor operation and £10 10s. for a major operation, with a mileage allowance as proposed in section 1. Where an emergency operation is performed as an immediate result of a consultation and during the same visit, only the operation fee, and mileage as proposed in section 1, shall be paid.

5. *Consultations.*—The fee payable for a consultation at the request of a local authority for work not covered under section 1 should be £4 4s. and a mileage allowance as proposed in section 1 shall also be paid.

6. *X-ray Treatment of Ringworm.*—Where the local authority refers cases to the radiologist at his private clinic: £4 4s. per case.

7. *Blind Persons Act: Certificates.*—In all cases where sessional arrangements are impracticable the fee should be £2 2s. and a mileage allowance as proposed in section 1.

##### General Practitioners

8. *Antenatal and Postnatal Examination.*—(i) 7s. 6d. for each antenatal or postnatal examination. (ii) 12s. 6d. for each examination and report to the local authority if requested by the local authority.

9. *Diphtheria Immunization.*—(i) The material to be supplied without cost by the local authority. (ii) Fee for immunization at a doctor's surgery: 3s. 6d. per injection. (iii) Fee for visiting a child at home and giving injections there: 6s. a visit. (iv) Mileage would not usually be paid in respect of visits to the patient's home, it being contemplated that normally such visits will occur in the course of the doctor's practice, but in exceptional cases there should be a mileage allowance as proposed in section 1.

##### Administration of Anaesthetics

10. For the administration of an anaesthetic the fee should depend on the length of the operation and on the anaesthetic used and be from £1 10s.

##### Other Services

11. For services not mentioned above, for example, lectures, in respect of consultants, specialists, and general practitioners, the rate of remuneration should be arranged after consultation between the local authority and the local Division or Branch of the British Medical Association.

##### Advisory Committee

12. The Advisory Committee established under Part X of the Askwith Agreement shall hear and advise upon any applications for the settlement of differences or the clarification of points of obscurity.

##### Saving for Better Conditions

13. Nothing in these recommendations shall prevent a medical practitioner from continuing his present contractual arrangements with a local authority in lieu of those enumerated above.

##### Trade Union Membership

The following statement was approved as the policy of the Association in relation to compulsory membership of trade unions and other organizations, so far as medical officers are concerned:

1. The B.M.A., representing the great majority of doctors and enjoying a membership of over 55,000, is the negotiating body for the medical profession, recognized as such by the Ministry of Health and the Associations of Local Authorities in England and Wales.

2. In the view of the Association it is undesirable on principle that any practitioner should be required to join any body, B.M.A.

## HEARD AT HEADQUARTERS

## Canadian Criticism

At the Trades Union Congress at Southport a fraternal delegate from the Trades and Labour Congress of Canada, Mr. D. A. Dunlop, told the assembly that in Canada there is now an agitation for a National Health Insurance Act to cover the whole of the Dominion. Then he went on to say that in Canada they were finding, "as you have found, that the medical profession consider themselves apart from the rest of the community, and while they have a monopoly over life and death they consider that any Health Insurance Scheme can only operate providing we are willing to supply the funds and they are permitted the right to administer them." No doubt our Canadian colleagues can sufficiently answer charges of this kind so far as they relate to the situation there. It would be interesting to know when in this country the medical profession has ever claimed to administer the funds of National Health Insurance—funds, incidentally, which are not provided exclusively by the trade unions, as the speaker seemed to imply. Altogether, the statement is about as wild as the remark that doctors have "a monopoly over life and death," whatever that may mean.

## Initial Overloading

It is interesting to have an American view of what is likely to happen when the National Health Service comes into operation. A recent number of *Public Health Reports*, a periodical issued weekly by the United States Public Health Service, in discussing the future of voluntary health insurance in Great Britain, foresees an excessively heavy load on the medical facilities and personnel of the new Service. People who are at present not covered, or not covered adequately, by National Health Insurance or voluntary insurance will seek medical attention not only for current illnesses and disabilities but also for pre-existing conditions and for preventive treatment which they had neglected or postponed for financial reasons. In other words, there are likely to be many people who are at present "saving up" their illness until the National Health Service comes in.

## Fees for Operations

Should the fee for an operation bear relation to the gravity of the operation or to the length of the stay of the patient in hospital? The board of one provincial hospital has sent round a memorandum according to which the charging of fees to private patients is related to the length of stay in the institution. This point recently came before the Consultants and Specialists Committee, which expressed the view that the amount of fee charged should bear relation to the gravity of the operation and not to the time that the patient remained in hospital.

## Medical Witnesses

The recent Annual Representative Meeting passed a resolution that fees for medical witnesses in civil cases should be fixed at a higher level than those recommended as suitable for medical witnesses in criminal cases. The reason for the distinction is that in criminal cases the doctor, like other witnesses, is held to be performing a public duty in giving evidence, and consequently the scale of fees may justifiably be on the low side. In civil cases this consideration can scarcely apply. A letter from the Lord Chancellor's Department received by the Association some time ago stated that in the High Court general practitioners are allowed approximately five guineas for a whole day's attendance and three guineas for half a day, while a specialist may get up to ten or twenty guineas for attending court all day, and that in the County Courts any doctor giving professional evidence appears to be regarded as coming within the scale for expert witnesses—namely, three guineas for qualifying and up to eight guineas for giving evidence. The Association has prepared a memorandum to place before the committees now reviewing procedure in the High Court and County Courts respectively, and is asking that an established scale should be adopted, broadly with the above figures fixed as a minimum.

## Correspondence

## Working Hours in the N.H.S.

SIR,—I whole-heartedly agree with Dr. Joseph Bell's letter (*Supplement*, Aug. 30, p. 63) and previous letters on this subject as quoted by him. I was disappointed, in fact disgusted, to see that the Representative Meeting turned down the motion for fixed working hours for doctors. It seems to me that one of the principal objects of the National Health Service is to provide better conditions for the doctors as well as for their patients, and I think that proper working hours, allowing time for relaxation, is one of the essential conditions for which we should fight.

The profession has endured most outrageous working hours up till now, but there is no reason why, if we are to be regulated as regards our work, we should not be "compelled" to take time off at regular intervals. At long last, thanks solely to the Minister of Health, we have an opportunity of getting regular hours and time for rest and relaxation. Let us grab this opportunity with both hands.—I am, etc.,

Chesterfield.

JOHN F. FLANAGAN.

## National Health Service

SIR,—May I please be permitted to draw attention to two aspects of the proposed National Health Service which, as far as I am aware, have not received attention. First, as regards midwifery in the new Service: the B.M.A. appears to be very pleased that the Government have conceded the principle that every woman should be allowed to choose her own doctor to attend her during her confinement, but does it realize the implications? In our practice at present my partner and I estimate that we attend less than 10% of our patients in their confinement. The remaining 90% are being attended by municipal midwives, but we realize that it would be quite impossible for us to attend all our patients. If we attempted to do so we should never spend a night in our beds. If, however, every woman is entitled to the services of a doctor in her confinement without payment, she will naturally demand this, and, in industrial areas at any rate, an impossible situation would arise.

Secondly, as regards night work: it is generally realized that the inauguration of the new Service will involve extra work on the part of doctors, who are now in many cases grossly overworked. It is, therefore, in my view essential that night work and "emergency" visits should be cut down to a bare minimum. At the moment the majority of night calls are quite unnecessary, and when the population can obtain these visits free of charge the volume of such work will increase. I suggest that visits requested at night and outside the usual working hours should be excluded from the Service, and the doctor should be permitted to use his discretion either to refuse these calls or to make an appropriate charge for doing them. Even then I think a rota system will be essential.—I am, etc.,

H. JOSEPHS.

Birmingham.

SIR,—I shall be much obliged if you will permit me to occupy a few lines in the *B.M.J.* A lot has been said and written about the coming medical Service and yet the doctors seem to be all at sea (at least, I am) about conditions of service, salary, hours of work, centres, etc. Surely when everyone is entitled to free medical service there must be some centre in which they can be seen and examined and not in the small consulting-room which most doctors possess at present? Will there be settled hours of service or will we have to do twenty-four hours per day for seven days per week as is the procedure at present?

In medicine work seems to be getting harder as one gets older. As regards visits and packed surgeries, this summer has been the heaviest that I can ever remember, in spite of the sunshine, which seems to have had a bad effect on numerous patients. If we are to be Civil Servants—which terrifies the elderly doctors—at least we will have some rest and perhaps a holiday from the everlasting fatigue of the "surgery" and visits. We will then be able to give better service, and not only we but the patient will benefit.

I have been to several meetings about the "State Medical Service" but always departed just as wise as when I entered. Now is the moment when doctors should be instructed and told where they stand and given full details of the coming State Service.—I am, etc.,

Begun Hill, Kent.

J. J. ROHAN.

## H.M. Forces Appointments

### ROYAL NAVY

Temporary Acting Surgeon Lieutenant-Commander (R.N.V.R.) J. Glass has been transferred to the Royal Navy in the rank of Surgeon Lieutenant.

Temporary Surgeon Lieutenants (R.N.V.R.) J. P. Griffiths, D. Craddock, and F. I. F. Mackenzie have been transferred to the Royal Navy.

### ROYAL NAVAL VOLUNTEER RESERVE

Temporary Surgeon Lieutenant-Commander F. H. Robarts has been transferred to List I of the permanent R.N.V.R.

Temporary Surgeon Lieutenant-Commander J. W. Buchanan has been transferred to List II of the permanent R.N.V.R.

Temporary Acting Surgeon Lieutenant-Commander I. F. Logan has been transferred to List II of the permanent R.N.V.R. in the rank of Surgeon Lieutenant-Commander.

Temporary Surgeon Lieutenants D. R. Tipping and J. F. McHarg have been transferred to List II of the permanent R.N.V.R.

### ARMY

Major-General W. C. Hartgill, C.B., O.B.E., M.C., K.H.S., late R.A.M.C., has retired on retired pay.

### ROYAL ARMY MEDICAL CORPS

Lieutenant-Colonels R. A. Anderson, O.B.E., and B. C. O. Sheridan, M.C., have retired on retired pay, and have been granted the honorary rank of Colonel.

Lieutenant-Colonel A. D. Low has retired, receiving a gratuity. Major (War Substantive Lieutenant-Colonel) J. P. Douglas, O.B.E., to be Lieutenant-Colonel.

Major H. C. M. Walton to be Lieutenant-Colonel. Major G. E. Gray has retired, receiving a gratuity.

War Substantive Majors J. B. Neal, N. G. G. Talbot, O.B.E., E. G. Wright, J. B. Evans, R. L. Marks, P. H. Shorthouse, W. R. W. West-Watson, M.B.E., M. M. Lewis, C. E. Stuart, A. B. Dick, T. P. H. McKelvey, R. M. Johnstone, M.C., P. C. Mitchell, D. W. Davies, and D. S. Milne to be Majors.

Captain H. M. Rice to be Major.

Short Service Commission, Specialist.—War Substantive Captain T. D. S. Oswald, from Emergency Commission, R.A.M.C., to be Captain. The notification regarding J. L. Middlemiss in a *Supplement* to the *London Gazette* dated July 25 is cancelled.

Short Service Commission.—Captain J. H. Bennett has been appointed to a permanent commission.

### REGULAR ARMY RESERVE OF OFFICERS

#### ROYAL ARMY MEDICAL CORPS

Captain (Brevet Major) H. G. Dresing, M.C., having exceeded the age limit of liability to recall, has ceased to belong to the Reserve of Officers, on ceasing to be employed.

### TERRITORIAL ARMY

#### ROYAL ARMY MEDICAL CORPS

War Substantive Major M. H. Evans, M.B.E., to be Major.

Senior Training Corps (Medical Unit).—War Substantive Captain J. Whillis, supernumerary for service with the University of London Senior Training Corps (Medical Unit), has resigned his commission and has been re-granted the rank of Major.

Captains F. H. Hunnard and H. F. Whalley to be Majors.

War Substantive Captains J. W. Wilson, S. Freeman, and E. H. Hanson to be Majors.

### LAND FORCES: EMERGENCY COMMISSIONS

#### ROYAL ARMY MEDICAL CORPS

Short Service Emergency Commissions, Specialists.—War Substantive Captains F. Post, J. M. Pullan, and A. Brown have relinquished their commissions and have been granted the honorary rank of Major.

War Substantive Captain A. C. Woodmansey has relinquished his commission on account of disability and has been granted the honorary rank of Major.

War Substantive Captains E. H. Horton and J. A. Mathers have relinquished their commissions on account of disability and have been granted the honorary rank of Captain.

Lieutenant J. Price has relinquished his commission on account of disability and has been granted the honorary rank of Lieutenant.

To be Lieutenants: M. A. Ansari, A. P. Bentley, W. Boyes, C. K. Brown, J. F. Cogan, A. J. F. Crossley, A. H. Dawes, J. O. Doyle, J. Hewet, A. C. Jacob, C. S. Kirkham, J. M. Lewis, J. B. Lynch, M. G. McEntegart, J. T. Marcfort, W. Marshall, A. Mack, Mathewson, S. Mattingly, D. R. Morgan, F. M. Parsons, B. W. Pay, J. H. S. Perrett, R. Pracy, A. G. Quinlan, W. Rodger, M. R. Sheridan, A. E. Smith, L. F. Tinckler, D. M. Zausmer.

### WOMEN'S FORCES

#### EMPLOYED WITH THE R.A.M.C.

War Substantive Captain P. Eskell has relinquished her commission on account of disability and has been granted the honorary rank of Captain.

To be Lieutenants: Barbara M. Parker, Mary M. J. Roberts.

### ROYAL AIR FORCE

Group Captain W. G. L. Wambeck has reverted to the retired list, retaining the rank of Air Commodore.

Squadron-Leader (Temporary Wing Commander) L. N. Trethowan has retired on account of medical unfitness for Air Force service, retaining the rank of Wing Commander.

Squadron-Leader (Temporary) F. D. Campbell to be War Substantive Squadron-Leader.

To be War Substantive Squadron-Leaders: G. R. Gunn, O.B.E., and R. M. Cross.

To be Flight-Lieutenants: D. G. Jones, J. K. McCabe, A. J. Barwood, R. O. M. Jones, E. O. Barnes, and D. G. Jarman.

Flying Officer J. N. C. Cooke to be War Substantive Flight-Lieutenant.

The notification concerning H. C. Thomas in a *Supplement* to the *London Gazette* dated July 8, p. 3125, column 2, has been cancelled.

### DENTAL BRANCH

D. C. P. Battersca, M.R.C.S., L.R.C.P., to be Flight-Lieutenant (Short Service).

### ROYAL AIR FORCE VOLUNTEER RESERVE

P. Jardine to be Squadron-Leader (Emergency).

Flight-Lieutenant J. C. Davidson to be War Substantive Squadron-Leader.

Flight-Lieutenant J. Q. Craig has relinquished his commission on account of medical unfitness for Air Force service, retaining the rank of Squadron-Leader.

Flight-Lieutenant J. C. Mellor has relinquished his commission on account of medical unfitness for Air Force service, retaining his rank.

War Substantive Flight-Lieutenant E. Rosenberg has resigned his commission, retaining his rank.

War Substantive Flight-Lieutenant B. Alhadeff has relinquished his commission on reversion to the Southern Rhodesian Air Force.

T. J. Wilmot to be Flight-Lieutenant (Emergency).

Flying Officers H. H. Slack, R. Ellam, E. A. Harris, A. G. Hayter, P. G. Jagger, F. F. Jerichower, A. G. Pollacchi, A. E. Pritchard, G. P. Reed, R. M. E. Seal, S. D. K. Stride, T. C. D. Whiteside, D. N. Baron, B. Dover, J. Y. Moore, T. R. E. Pilkington, C. Clarke, G. Clayton, E. J. L. Davies, J. H. Edworthy, A. S. Hughes, J. G. Jackson, D. Anthony, W. H. R. Auld, T. S. L. Beswick, J. L. Braithwaite, J. H. Gibson, J. D. J. Glanville, T. Harvey, E. P. G. Housse, mayne du Boulay, J. D. Jack, A. T. Johnson, M. Mattinson, K. W. Oldham, D. Richardson-O'Keefe, R. A. Sladden, G. P. Sutherland, M. Thomas, W. Ritchie, M. C. Joseph, A. C. Parry, M.C., E. R. Smith, T. Taylor, K. Baker, A. D. Charnley, K. S. Clarkson, A. C. Dresser, S. Edelman, D. Fox, K. L. G. Goldsmith, W. H. Graham, R. Harrison, G. L. Hindson, C. Houghe, C. A. Houlder, J. A. Jamieson, P. R. B. Jones, A. C. Kennedy, J. D. Lacon, W. R. MacCrossan, E. W. F. Mack, J. G. Millers, D. A. Watkins, and R. R. Trussell to be War Substantive Flight-Lieutenants.

Flying Officer G. K. Thomas has relinquished his commission on account of medical unfitness for Air Force service, retaining his rank.

To be Flying Officers (Emergency): R. D. Eastham, D. S. M. Graham, J. A. Huckbody, I. J. M. Lumsden, H. W. Macintyre, J. D. S. Rowntree, and A. MacR. Whittington.

### DENTAL BRANCH

Flying Officer W. D. Clarkson-Webb, M.R.C.S., L.R.C.P., L.D.S., to be War Substantive Flight-Lieutenant.

### WOMEN'S FORCES

#### EMPLOYED WITH THE MEDICAL BRANCH OF THE R.A.F.

Flying Officer E. M. A. Milne to be War Substantive Flight-Lieutenant.

### INDIAN MEDICAL SERVICE

Colonel K. S. Master, M.C., K.H.P., to be Major-General. Lieutenant-Colonel S. C. H. Worseldine has retired on account of ill-health.

Majors L. G. Backhurst, J. Singh, O.B.E., P. C. Dutta, O.B.E., E. A. R. Ardeshir, H. S. Waters, G. Milne, C. F. J. Cropper, O.B.E., E. S. S. Lucas, J. P. J. Little, E. A. O'Connor, P. L. O'Neill, G. R. M. Apsey, B. Temple-Raston, A. K. Gupta, V. E. M. Lee, G. B. W. Fisher, E. P. N. M. Early, S. Lal, D. Tennant, D. P. Mitra, N. J. U. Mather, T. D. Ahmad, M. Jafar, and B. N. Khan to be Lieutenant-Colonels.

Captains (War Substantive Majors) J. A. M. Cameron and J. G. Fife have retired, receiving a gratuity, and have been granted the honorary rank of Lieutenant-Colonel.

## TRADE UNION MEMBERSHIP

The following is a list of local authorities which are understood to require employees to be members of a trade union or other organization:

*County Borough Councils:* Barnsley, Barrow-in-Furness, Gateshead.

*Metropolitan Borough Councils:* Finsbury, Fulham, Hackney, Poplar.

*Non-County Borough Councils:* Dartford, Leyton, Radcliffe (limited to future appointments), Tottenham, Wallsend.

*Urban District Councils:* Denton, Droylsden, Houghton-le Spring, Huyton-with-Roby, Portslade, Redditch (restricted to new appointments), Stanley (Co. Durham), Tyldesley.

*Scottish Burghs:* Motherwell, Wishaw.

## Association Notices

## Sir Charles Hastings Clinical Prize

The Sir Charles Hastings Clinical Prize, which consists of a certificate and a money award of fifty guineas, is again open for competition. The following are the regulations governing the award:

(1) The prize is established by the Council of the British Medical Association for the promotion of systematic observation, research, and record in general practice; it includes a money award of the value of fifty guineas.

(2) Any member of the Association who is engaged in general practice is eligible to compete for the prize.

(3) The work submitted must include personal observations and experiences collected by the candidate in general practice, and a high order of excellence will be required. If no essay entered is of sufficient merit no award will be made. It is to be noted that candidates in their entries should confine their attention to their own observations in practice rather than to comments on previously published work on the subject, though reference to current literature should not therefore be omitted when it bears directly on their results, their interpretations, and their conclusions.

(4) Essays, or whatever form the candidate desires his work to take, must be sent to the British Medical Association House, Tavistock Square, London, W.C.1, not later than Dec. 31, 1947. The prize will be awarded at the Annual General Meeting of the Association to be held in 1948.

(5) No study or essay that has been published in the medical Press or elsewhere will be considered eligible for the prize, and a contribution offered in one year cannot be accepted in any subsequent year unless it includes evidence of further work. A prize-winner in any year is not eligible for a second award of the prize.

(6) If any question arises in reference to the eligibility of the candidate or the admissibility of his or her essay, the decision of the Council on any such point shall be final.

(7) Each essay must be typewritten or printed, must be distinguished by a motto, and must be accompanied by a sealed envelope marked with the same motto and enclosing the candidate's name and address.

(8) The writer of the essay to whom the prize is awarded may, on the initiative of the Science Committee, be requested to prepare a paper on the subject for publication in the *British Medical Journal* or for presentation to the appropriate section of the Annual Meeting of the Association.

(9) Inquiries relative to the prize should be addressed to the Secretary.

## Nathaniel Bishop Harman Prize

The Council of the British Medical Association is prepared to consider a first award of the Nathaniel Bishop Harman Prize in the year 1948. The value of the prize is approximately £100.

The purpose of the prize is the promotion of systematic observation and research among consultant members of the staffs of hospitals who are not attached to recognized medical schools. It will be awarded for the best essay submitted in open competition. The work submitted must include personal observations and experiences collected by the candidate in the course of his practice. A high order of excellence will be required. No study or

essay that has previously been published in the medical Press or elsewhere will be considered eligible for the prize.

Any registered medical practitioner who is a consultant member of the staff of a hospital in Great Britain or N. Ireland and is not attached to a recognized medical school is eligible to compete. If any question arises in reference to the eligibility of a candidate or the admissibility of his essay, the decision of the Council shall be final.

Should the Council of the Association decide that no essay submitted is of sufficient merit, the prize will not be awarded in 1948 but will be offered again the year next following this decision, and in this event the money value of the prize on the occasion in question shall be such proportion of the accumulated income as the Council shall determine.

Each essay must be typewritten or printed in the English language, must be distinguished by a motto, and must be accompanied by a sealed envelope marked with the same motto and enclosing the candidate's name and address.

The writer of the essay to whom the prize is awarded may be requested to prepare a paper on the subject for publication in the *British Medical Journal* or for presentation to the appropriate section of the Annual Meeting of the Association.

Essays must be forwarded to reach the Secretary, British Medical Association House, Tavistock Square, London, W.C.1, not later than Dec. 31, 1947. The prize will be awarded at the Annual Meeting of the Association to be held in 1948. Inquiries relative to the prize should be addressed to the Secretary.

CHARLES HILL,  
Secretary.

## PROPOSED WEST WIGTOWNSHIRE DIVISION

Notice is hereby given by the Council of the Association of the formation from the date of this notice of a West Wigtownshire Division attached to the Glasgow and West of Scotland Branch, the area of the Division being defined as follows: Wigtownshire, with the exception of the parishes of Glasserton, Whithorn, Sorbie, Kirkcinner, Wigtown, and Penninghame. The area of the Dumfries and Galloway Division has been consequentially amended.

CHARLES HILL,  
Secretary.

## Branch and Division Meetings to be Held

**GUERNSEY AND ALDERNEY DIVISION.**—At Lukis House, Thursday, Sept. 25, 8.30 p.m., Lecture by Sir Heneage Ogilvie: Post-operative Treatment.

**NORTH OF ENGLAND BRANCH.**—At Royal Victoria Infirmary Newcastle-upon-Tyne, Thursday, Sept. 25, 5 p.m., Second Rutheford Morison Lecture by Dr. F. H. Lahey (U.S.A.): Thyrotoxicosis. Thyroidectomy, Thiouracil.

## Meetings of Branches and Divisions

## AYRSHIRE DIVISION

A large meeting was held at Glasgow on Sept. 7. The new film on the early history of the Ayrshire Division was shown, and this was followed by an address by Dr. J. G. Macdonald. The speaker were Drs. Nisbet, Grant, Naismith, and Cameron.

## WESTMINSTER AND HOLBORN DIVISION

A scientific evening was held at Westminster Hospital Medical School on Sept. 4, with Dr. A. J. Struthers, M.O.H. for Holborn in the chair. Dr. Struthers briefly introduced the Ministry of Health film, produced by the C.O.I., on the diagnosis of early cases of acute anterior poliomyelitis. The film met with great applause. After the showing Dr. S. P. Meadows and Mr. H. E. Harding, of the staff of the hospital, spoke on the general medical and orthopaedic aspects of the disease, and Dr. Ursula Blackwell of the staff of the Western Fever Hospital, who had been active in the production of the film, answered a number of questions. A film on penicillin was then shown.

Dr. Struthers proposed votes of thanks to the Central Office of Information and Ministry of Health for supplying the films and unit the Medical School for its hospitality, and to Drs. Blackwell and Meadows and Mr. Harding for their part in a most successful evening. The votes were carried with acclamation.

## RETURN TO PRACTICE

The Central Medical War Committee announces that the following has resumed civilian practice: Dr. R. B. Niven, at 58a, Wimpole Street, W.1 (Welbeck 8615).



# BRITISH MEDICAL JOURNAL

LONDON SATURDAY SEPTEMBER 27 1947

## HAEMATEMESIS AND MELAENA\*

WITH SPECIAL REFERENCE TO BLEEDING PEPTIC ULCER

BY

F. AVERY JONES, M.D., F.R.C.P.

Physician in Charge of Dietetic Department, Central Middlesex County Hospital;  
Consultant in Gastro-enterology, British Postgraduate Medical School

[WITH PHOTOGRAPHURE PLATE]

### Effect of Early Feeding and Liberal Transfusion on Mortality

The more recent statistics, particularly from America and Scandinavia, show a considerable fall in mortality in the past ten years. The Scandinavian figures were never as high as the English and American were, possibly because there is easier admission to hospital and a lower proportion of chronic ulcers. The present series shows a definite fall, and if allowance is made for the older age distribution the reduction is impressive. The figures in this series are compared with those of Cullinan and Price (1932), whose paper is the best-documented one in the literature. Their patients were treated on a restricted fluid intake and only small transfusions. They took a five-year period, 1925-9, and the total number of cases of haematemesis and melaena was 165, but in many the bleeding was associated with diseases other than peptic ulcer, such as cirrhosis of the liver, carcinoma of the stomach, and other morbid conditions. These were rejected and so were cases of melaena only. The total number of cases of haematemesis from proved or probable peptic ulcer in the series was 105. To obtain a comparable series the peptic ulcer group has been taken and cases with melaena only were excluded. The scales are probably weighted against the present series, as 56% had radiological evidence of peptic ulcer, against 44% in Cullinan and Price's series. The amount of surgery performed is not sufficient to affect the main issues of comparison.

A comparison of the two series reveals an impressive fall in the mortality in the men, particularly under 60; it is less obvious, though present, in the female cases. The difference in the age distribution in the two series is well demonstrated.

### Reasons for Fall in Mortality

There are important reasons for the reduction in mortality. Recurrent haemorrhages are fewer and, thanks to early feeding and liberal transfusions, the patients are in a much stronger position to withstand further bleeding. With drip transfusions fewer patients become anoxaemic, making them restless and difficult to nurse; to-day, patients no longer die from therapeutic dehydration.

The incidence of recurrent bleeding in this series may be compared with Cullinan and Price's cases. Taking patients admitted with haematemesis and showing evidence of brisk haemorrhage after admission, the figures shown in Table XIV are obtained.

TABLE XIV.—*Recurrent Haemorrhages*

	Cullinan and Price (1932)		Present Series (1947)	
	No.	Deaths	No.	Deaths
All admissions .. .. .	109	19 (18%)	530	42 (8%)
Those which recurred .. .. .	39	16 (40%)	103	26 (26%)
Those which recurred more than once	21	12 (60%)	57	17 (30%)

TABLE XIII.—*Proportion of Fatal Cases in each Age Group*

Age	Cullinan and Price (1932)		Present Series (1947) (Haematemesis only)	
	Males	Females	Males	Females
10-19 ..	0/1	—	0/1	—
20-29 ..	0/9	—	1/21	0/8
30-39 ..	2/7 (30%)	1/8	0/56	1/16
40-49 ..	5/24 (20%)	1/5	2/88 (2%)	1/30
50-59 ..	5/25 (20%)	1/12	6/79 (8%)	1/49
60-69 ..	4/8 (50%)	0/3	9/63 (14%)	6/46
70-79 ..	—	—	9/32	3/29
80+ ..	—	—	1/6	2/6
Total ..	16/74 (21%)	3/31 (10%)	28/346 (8%)	14/184 (7%)

Males:  $\chi^2 = 11.875$ ,  $n = 1$ .  $P = < 0.01$  (highly significant).  
Females:  $\chi^2 = 1.0554$ ,  $n = 1$ .  $P = 0.3$  (not significant).

\*The second Goulstonian Lecture given at the Royal College of Physicians of London on March 20, 1947. Lecture I appeared in last week's issue.

TABLE XV.—*Statistical Analysis: Comparison between the Two Series (n=1)*

	$\chi^2$	P	Comment
(1) Frequency of recurrent haemorrhage	13.9757	0.01	Highly significant
(2) Frequency of multiple haemorrhages	6.1115	0.014	Significant
(3) Mortality (all admissions) .. .. .	9.4624	0.01	Highly significant
(4) Mortality (single recurrence) .. .. .	3.3831	0.075	On the border of significance
(5) Mortality (multiple recurrences) .. .. .	4.9034	0.03	Significant

Table XV shows very clearly that liberal drip transfusion and early feeding actually reduce the risk of further bleeding and the mortality of recurrent haemorrhage.

The greater interest in feeding of patients has eliminated fatalities resulting from inadequate fluid intake. An examination of the post-mortem records of fatal cases of

haemorrhage from simple peptic ulcer (1931-5) showed that in 18 out of 39 cases the haemorrhage had ceased at the time of death and that many had not bled for some days previously (Avery Jones, 1939b). In seven of these cases the blood or cerebrospinal fluid urea was determined at death, and all showed uraemia, the readings being 860, 710, 540, 380, 368, 330, and 272 mg. per 100 ml. Except in one case, the kidneys did not show sufficient changes to account for the azotaemia. These patients did not die exsanguinated; nor were they old enfeebled people, for five were under 50 and one was only 28. They died from uraemia between the eighth and the sixteenth day after admission. The common factor in these cases was dehydration, and an estimate of their fluid balance from their charts showed a gross deficit. They became dehydrated because the routine treatment provided insufficient fluids, and their symptoms were probably masked by heavy sedation.

The giving of a purée diet after haemorrhage from a peptic ulcer has the advantage of supplying available water as well as calories. Although much of the improvement in mortality may be due to the elimination of dehydration the better nourishment at a time of crisis must also have helped.

### Clinical Observations

The diagnosis of haematemesis and melaena would not appear to present any difficulties, but nevertheless errors can arise. Patients have been admitted with the diagnosis of congestive heart failure, angina of effort, or coronary thrombosis. These patients were mainly elderly. Disorientation from cerebral anoxia may have made it impossible to get an adequate history, and melaena has been first discovered in hospital. Pallor may have been masked by dark skin or by wartime "black-out" conditions of lighting, if admitted at night. An ill-cared-for pigmented senile individual with severe dyspnoea, oedema, and distended jugular veins may legitimately deceive the admitting physician. Cardiac pain from recent acute anaemia twice led to an erroneous initial diagnosis. Patients have been admitted direct to a surgical ward because of red blood passed per rectum, and haemorrhoids were presumed. Dark-red fluid stools have often been observed after a brisk recurrent haemorrhage in the ward, and the absence of the classical "tarry" characteristic may be misleading if observed on arrival at hospital. Schiff *et al.* (1942) have made observations on the effect of oral administration of citrated blood in man, and they found that it was necessary to give 100-150 ml. of blood to get a tarry stool. They then studied the effect of giving 1,000-2,000 ml. through a Rehfuß tube into the fasting stomach in a period of 30-60 min. The 2,000 ml. was given in three doses—700, 700, and 600 ml.—at four-hourly intervals. Three out of the six subjects had stools entirely bloody and never tarry, presumably from intestinal hypermotility. None of the subjects vomited the blood.

It was of interest to note that, whereas haematemesis occurred in all the fatal duodenal ulcer patients, melaena only was present in six of the chronic gastric ulcer patients. A common feature of these six cases was their extremely poor general condition. Three had extensive oedema, two were irrational on admission, and one had severe purulent bronchitis. It almost seemed as though they were too weak to vomit. It has been assumed in many previous papers that melaena only is less serious than haematemesis, but taking the whole peptic ulcer group there is no real difference in mortality. Thompson *et al.* (1946) noted a mortality for melaena similar to that for haematemesis in their series.

The appearance of the patient on admission soon after haemorrhage is extraordinarily misleading. Profound

circulatory collapse and deathly pallor of the lips may disappear within an hour, with great clinical improvement in those whose subsequent course is uneventful and in whom the haemoglobin had fallen only to 70%. The initial pallor is probably due to the intense vasoconstriction which may occur as a response to haemorrhage. The blood pressure during this initial phase may be moderately increased (Avery Jones, 1939a). Following a haemorrhage the pulse may be unusually full and bounding, the diastolic blood pressure cannot be registered as the sounds are still audible at zero, and capillary pulsation may be demonstrated. These changes are usually particularly marked the day after a haemorrhage and may persist for several days. The haemodynamics of the circulation after haemorrhage has been recently studied by Howarth and Sharpey-Schafer (1947).

Fever after gastro-duodenal haemorrhage is common and may persist for some days. In one fatal case the temperature rose steadily over four days. Schiff (1944) has shown that the fever is not due to the presence of blood in the intestine, and it is possibly related to the endogenous breakdown of body protein which may occur after haemorrhage (Black, 1942). Leucocytosis may accompany the fever, which is usually found after any gastro-duodenal bleeding, except in cases of cirrhosis hepatitis. Leucocytosis after haemorrhage in Banti's syndrome has been observed in this series.

Persistence of pain after admission for haemorrhage is well known to be uncommon, and patients may appreciate the relief which the bleeding has brought them. The mechanism of this relief is unknown. Bonney and Pickering (1946) suggest that it may be due to blood in the crater increasing the thickness of the protective layer of slough, which may cover the pain-nerve-endings and hinder their excitation by changes in acidity in the cavity of the stomach. Gastroscoically, the slough may be obscured by blood soon after bleeding, but another explanation of the initial loss of pain may be that the large protein meal with delayed emptying which occurs after bleeding (Van Lier *et al.*, 1936) may effectively neutralize the acid in the stomach. For seven to ten days after a haemorrhage, gastroscopy usually reveals only a small haemorrhagic area in the stomach, presumably the site of the vessel; very occasionally a vessel or an aneurysmal dilatation on a vessel may be identified. At this stage pain is still very uncommon and may not be precipitated by meat, which will often bring on pain in the early days after admission for an uncomplicated gastric ulcer. Pain persisting after admission is a bad prognostic sign, and severe persistent pain has been seen only in cases which have proved fatal. Discomfort may be present if there is an associated stenosis with continued pain. Two possibilities always to be considered are subacute perforation (a plain radiograph of the diaphragm may confirm this by the presence of air under the diaphragm) and coronary thrombosis.

Coronary thrombosis was precipitated by the gastro-duodenal haemorrhage and caused death in two cases. The first of these patients had severe pain after admission, but lapsed into a coma and died on the third day. The second had persistent pain for ten days, and during this time he had three transfusions of 1,080 ml., but his haemoglobin did not rise above 43%. Following his third transfusion he developed acute left heart failure and died. Necropsy showed complete occlusion of the right coronary artery. This complication has been reported by McLaughlin *et al.* (1940), Blumgart *et al.* (1941), McKinlay (1943), and Kinney *et al.* (1945). Electrocardiographic changes may occur after acute haemorrhage without subsequent evidence of coronary artery disease. Rasmussen and Foss

942) report flattening, isoelectric, or negative T-waves, and lowering of the S-T interval in about half the cases. Amaurosis is a well-recognized and tragic complication of gastro-duodenal haemorrhage. One patient aged 70 twice had a transient amaurosis lasting ten minutes following recurrences of bleeding from a duodenal ulcer. No changes were seen in the fundus. A second patient, aged 55, was admitted with brisk haemorrhage from a duodenal ulcer; he had severe recurrent haemorrhages and became blind in his only functioning eye on the eighth day. Amaurosis has been described following severe haemorrhage after parturition, abortion, and epistaxis, but it is most unknown after trauma in primary anaemias. It is probable that recurrent haemorrhage in an already anaemic subject is the first condition necessary for its development. The vasoconstriction following bleeding may so severely reduce the blood supply to the optic nerve that irreversible damage from anoxia ensues.

The association of acute emotional stress with the haemorrhage, as described by Davies and Wilson (1939), has often been observed and cases are readily recalled to mind: the young man so perturbed by his wife's confinement that he had a severe haemorrhage just before and soon after the birth of a son; the man blown into the air by a "land-mine" who bled a few days later; the patient due to attend court over a possession order on the day of admission; the woman badly upset by a horrific film. Cases of repeated episodes of haemorrhage at times of particular stress, as noticed by Gainsborough and Slater (1946), have also been seen. Under wartime conditions of work it was impossible to make a psychological assessment of every case, but the impression left after fairly detailed inquiries in many cases is that the emotional factor was an impressive factor in only a minority of admissions. The work of Wolf and Wolf (1943), showing the engorging effect of sustained resentment, frustration, and anxiety on the gastric mucosa, gives a clue to the mechanism whereby emotional factors can promote ulceration. Such a background acting over weeks may possibly lead to peptic ulceration. The precipitation of bleeding or perforation by the final environmental upset may be through the same mechanism, but the acute anxiety often causes missed meals and extra smoking or drinking, which may be enough to cause a sudden extension of the ulceration.

Pregnancy is known to have a beneficial effect on peptic ulcer, and symptoms of active ulceration are extremely rare during that period. Sandweiss *et al.* (1943) reported only one death, from a perforated ulcer, among 70,310 women during pregnancy. Over the period of the present series there were approximately 10,000 women who attended the antenatal clinic and were confined in the hospital. Only one had a slight haematemesi, and no ulceration could be demonstrated. Among the very few referred to the dietetic clinic on account of dyspepsia none were found to have peptic ulceration. During the same time over 2,000 women were admitted with abortions and only one had haematemesi; she had an associated acute renal failure. The acute anxiety of pregnancy in unmarried women does not precipitate gastro-duodenal haemorrhage.

Certain isolated cases stand out in reviewing this series: the patient with proved duodenal ulcer whose haemoglobin did not rise satisfactorily and whose stools remained positive for occult blood and who eventually was found to have a carcinoid tumour of the caecum; a man with recurring episodes of bleeding who developed marked koilonychia after each bout of haemorrhage; a woman with Simmonds's disease who had haemorrhage from gastric carcinoma. In spite of the extreme collapse of many of the patients no case of pituitary cachexia has been observed in the follow-up

clinic. It is possible that the cases following post-partum obstetric shock are conditioned by vascular changes present in the pituitary as the result of pregnancy.

### Gastroscopic Study of Patients without Radiological Proof of Peptic Ulcer

The "acute-lesion group" included 217 admissions, all of whom showed no radiological evidence of gastric ulcer and all but three had no changes in the duodenal cap. These three patients also had acute gastric ulcers, and are included for simplicity of classification. It is well recognized that a good proportion of admissions for haematemesi and melaena fail to show any evidence of peptic ulcer when a barium meal is given during convalescence. It has been tacitly assumed that these cases are due to acute ulceration or gastrostasis, as sometimes no abnormality may be noticed at necropsy. The mortality of these "acute-lesion" patients is low; only four died—all women, aged 51, 69, 73, and 84—two showing very small acute ulcers and two not revealing any adequate source of bleeding, but autolytic post-mortem changes had occurred in the stomach.

An attempt has been made to investigate the cause of bleeding in this group, and early gastroscopy has been undertaken with great caution. This has been performed mainly between the third and the tenth day, but sometimes in the second or third week, after the cessation of bleeding. Gastroscopy is not recommended as a routine investigation soon after the haemorrhage and without previous barium-meal examination, but in this series it has been undertaken as a definite clinical investigation. No ill effects have been observed from this cautious investigation. Gastroscopy was successful in 116 out of the 217 cases. The results are shown in Table XVI.

TABLE XVI.—*Acute-lesion Group (X-ray Negative)*

	Peptic Ulcer Symptoms		Vague Dyspepsia		No Dyspepsia	
	Male	Female	Male	Female	Male	Female
No. of admissions	63	52	20	20	31	31
No. of successful gastroscopies	49	25	6	6	16	14
Gastroscopic findings:						
Gastric ulcer	34	17	3	3	5	3
Acute gastritis	—	—	3	—	2	1
Atrophic mucosa only	1	—	—	3	1	—
Hypertrophic mucosa only	5	2	—	—	2	—
Normal mucosa	9	6	—	—	6	9

The patients have been divided into three classes: (1) those with symptoms suggesting a peptic ulcer, particularly a remitting dyspepsia with epigastric discomfort or pain related to food and relieved by alkalis; (2) patients with a vague indefinite mild dyspepsia; and (3) those with no digestive symptoms at all. It will be seen that the gastroscopy contributed information of special interest in 86 of the 116 cases, and a gastric ulcer was found in 65 cases.

Gastroscopically, every gradation of ulcer from a superficial red-rimmed ulcer to a deep penetrating crater can be found in this group of x-ray-negative cases. For convenience they can be divided arbitrarily into four groups.

**Group I.**—These are superficial flat ulcers, mainly less than 1 cm. in diameter, often with a red rim of hyperaemia but little or no oedema. Usually there is no generalized change in the gastric mucosa. These ulcers would almost certainly not be demonstrated radiologically even if x-rayed the same day.

**Group II.**—These are larger ulcers, probably 1–2 cm. in diameter, with the slough apparently a little depressed and with moderate or gross redness and swelling around the ulcer. These would probably be demonstrated radiologically if radiographed the same day, but are not seen one to three weeks later on account of rapid healing.

**Group III.**—These are still larger ulcers, probably more than 2 cm. in diameter, with much swelling around them and marked depression of the slough. They correspond with "chronic" gastric ulcers seen normally, but they heal rapidly after the haematemesis, and may not be observed radiologically one to three weeks after the gastroscopy.

**Group IV.**—These are scars of ulcers. These patients have either had gastroscopy later than usual or the bleeding has come from a duodenal ulcer.

The majority of these acute ulcers are found in Group I; five patients had multiple ulcers—two having three ulcers and three having two. In three others there was an unassociated scar of an ulcer. These small acute ulcers were particularly common on the posterior wall. Healing might occur even within five to twenty days, and six out of 13 left a visible scar. The important findings are summarized in Table XVII.

TABLE XVII.—"Acute" Gastric Ulcers

	Group I	Group II	Group III	Group IV
No. . . . .	38	14	5	8
Male . . . . .	21	11	4	6
M/F ratio . . . .	1.2:1	4:1	4:1	3:1
Multiple ulcers . .	5	2	—	—
Position:				
Anterior wall . .	4	1	—	—
Posterior wall . .	27	8	1	2
Lesser curve . . .	11	9	4	5
Greater curve . .	1	—	—	—
Pyloric antrum . .	—	—	—	1
Atrophy of mucosa .	16	1	—	1
(13 female)				
Final scar . . . .	6	5	3	8
No scar visible . .	7	2	—	—

Evidence of atrophy of the mucosa was present in 18 of the 65 cases, 17 had a pre-histamine achlorhydria, and five were histamine-fast. These acute ulcers occurring in atrophic mucosae with achlorhydria have been previously reported by Rodgers and Avery Jones (1938) and confirmed by Hurst and Lintott (1939). The remaining cases all had acid curves rising not higher than 60 units of free acid.

### Case Reports

The following cases are illustrative of these acute ulcers causing haemorrhage.

#### Group I

Male aged 58. No dyspepsia. Admitted after sudden haematemesis and melaena. Haemoglobin fell to 38%, and he received 540 ml. of blood. Gastroscopy on the eighth day showed a small flat ulcer on the posterior wall; this had completely healed by the 13th day (Plate, Fig. 1). A barium meal on the 24th day showed normal stomach and duodenum. A fractional test meal revealed free acid rising to 22 units.

Female aged 61. For many years slight indigestion, with tight feeling in chest after meals; never any pain. No recent symptoms. Sudden haematemesis. Recurrent bleeding on first and third days. Blood transfusions totalled 2,160 ml. Gastroscopy on the 11th day showed three flat ulcers—one on the lesser curve, one on the posterior wall, and one in the region of the greater curve, but situated on a mid-gastric constriction ring (Plate, Fig. 2). On the 25th day the first two ulcers had healed and the other two were much smaller; these had healed by the 39th day, but the ring constriction persisted, and was seen radiologically as an incisura on the 31st day. The acid curve rose to 32 units.

Female aged 48. History of 30 years' remittent dyspepsia with epigastric pain one hour after meals. She had had four haematemeses, the last one 16 years ago. An attack of dyspepsia began two weeks before admission and haematemesis three days before. Gastroscopy on the second day after admission showed an organic hour-glass constriction with an acute ulcer just above it, and there was gross atrophy of the mucosa. The lower sac was seen (using the Hermon Taylor instrument) and no further ulcer found. On the 16th day the

ulcer had healed, leaving a small scar. A radiograph on the 11th day showed a mid-gastric stenosis only. Haemoglobin fell to 50%.

#### Group II

Male aged 39. Three days' left epigastric pain. Sudden haematemesis. Haemoglobin fell to 40%. Gastroscopy on the eighth day showed an ulcer just above the angulus (Plate Fig. 3), and this had healed by the 22nd day (Plate, Fig. 4). A radiograph on the 19th day showed normal stomach and duodenum.

Female aged 72. For 20 years she had had occasional attacks of indigestion lasting two weeks. Epigastric pain occurred after meals for the past six weeks. She was admitted with haematemesis and had a recurrent haemorrhage next day. Haemoglobin fell to 30%, so 1,620 ml. of blood was given. Gastroscopy on the seventh day showed a medium-sized ulcer high up on the lesser curve (Plate, Fig. 5), which had almost healed by the 21st day (Plate, Fig. 6). A test meal revealed a pre-histamine achlorhydria, and a barium meal in the fourth week showed normal stomach and duodenum.

#### Group III

Male aged 68. Eight years' history of recurring bouts of epigastric pain after meals, attacks lasting one to two weeks. Haematemesis seven years and three years previously. On the second occasion he was admitted to hospital, and gastroscopy on the third day showed a small ulcer on the posterior wall (Plate, Fig. 7). This was almost healed two weeks later and did not appear radiologically. He had had pain again, this time severe for one month, and a radiograph had shown a gastric ulcer high up on the posterior wall. He was admitted with haematemesis, and had four severe recurrent bleedings in the next four days and at one time was profoundly anoxaemic. He had 4,860 ml. of blood. Gastroscopy on the 19th day after admission showed a large active ulcer high up on the posterior wall (Plate, Fig. 8), but the radiologist, though aware of its presence, was quite unable to demonstrate it the following day. The patient had a second severe episode of repeated bleeding in the sixth week and received a further 4,320 ml. of blood, but the ulcer eventually healed. He was a frail, wizened man, and operation would have been impracticable because of his poor general condition.

It is possible that the acute ulcer may sometimes be the result of and not the cause of the bleeding, which has occurred as a diapedesis from the stomach mucosa or from intramucosal haemorrhages. Ulcers have twice been seen to develop from intramucosal haemorrhages, and this occurred in the following case:

Female aged 49. Two years previously she had had a haematemesis without previous dyspepsia and the barium meal was negative. No pain since. Admitted with sudden melaena and haematemesis. She had brisk recurrent bleeding on the first and fourth days. On the third day gastroscopy showed multiple intramucosal haemorrhages, and on the 10th day these had all disappeared, but there was a flat acute ulcer (0.5 cm.) on the posterior wall lower down where there had been a particularly large haemorrhage (Plate, Figs. 9 and 10). The mucosa on the anterior wall had the appearance of being atrophic. Barium meal on the 40th day showed a normal stomach and duodenum. The capillary fragility platelet count, bleeding time, and clotting time were all normal on the fourth day. A fractional test meal showed acid rising to 36 units. The haemoglobin fell to 38%, and she was given 1,080 ml. of blood.

#### Gastritis

There are many difficulties in the diagnosis of gastroscopic gastritis (Avery Jones, 1944), and a bias against the diagnosis has become greater with increasing experience of gastroscopy. It is true to say that minor changes in the gastric mucosa have been discounted. An appearance which with the Wolf-Schindler gastroscope would suggest mucopurulent exudate may often be demonstrated as fine froth with the better vision and greater mobility of the

ermon Taylor instrument. Nevertheless, five patients did show an apparent generalized acute inflammatory reaction with hyperaemia, oedema, and erosions. The differential diagnosis from a submucosal infiltrating carcinoma is important, but was excluded in these cases by the follow-up. One case is described below.

Male aged 53. In hospital for treatment for infected hydrocele and urinary infection. Sudden haematemesis occurred. Lowest haemoglobin 55%. Gastroscopy on the eighth day showed an intense erosive gastritis, particularly in the upper part of the stomach. By the 15th day the erosions had nearly healed and there was much less mucosal swelling; by the 29th day the mucosa appeared normal. A barium meal showed no abnormality. At no time did he have any abdominal discomfort or pain.

In two cases of acute ulcer the gross irregularity of amillation with patchy atrophy suggested a diffuse chronic gastritis. A number showed some degree of atrophy, but the appearance did not suggest a previous inflammatory reaction.

These gastroscopic studies on the cases which do not reveal any radiological evidence of ulceration have clearly shown that acute rapidly healing ulcers are a common cause of haemorrhage and that acute gastritis is rare. As many of the patients have had precisely similar bouts of epigastric pain lasting from a few days to three weeks, but without haemorrhage, it is reasonable to assume that these episodes have been due to a previous similar acute ulcer and that a negative radiograph in such patients must not be declared as evidence against peptic ulcer.

#### Comparison of Acute and Chronic Gastric Ulcers

In view of the much better prognosis of acute ulcers it is necessary to be able to distinguish them so far as is possible by the bedside, especially when the question of surgical intervention arises. The acute rapidly healing ulcers in Group I, together with the two fatal cases of acute ulcer, have been contrasted with forty consecutive cases in the chronic gastric ulcer group.

The ratio of males to females was 3.5:1 for chronic gastric ulcer and 1:1 for acute ulcer. There was no appreciable difference in age distribution or in the length of history of dyspepsia. The acute ulcer cases did not give histories of protracted spells of pain, but gave short intermittent attacks lasting a few days to three weeks. The recent pain, if present, is never severe with acute ulcers and has seldom lasted more than two weeks. Absence of pain is a common history (Table XVIII). Recurrence of bleed-

Many had had excessive fatigue, anxiety, sustained resentment, or frustration. In a few an acute emotional upset had precipitated the bleeding. The general impression left was that these acute ulcers were essentially due to the same factors as chronic ulcer, but as they occurred in people

TABLE XIX.—*Recurrence of Bleeding after Admission to Hospital*

	Chronic Gastric Ulcer (40)	Acute Gastric Ulcer (40)
No. with recurrence ..	13	11
Total No. of brisk recurrent bleedings ..	31	30
Days of first recurrence:		
1st .. .. .	4	5
2nd .. .. .	2	5
3rd .. .. .	1	1
4th .. .. .	2	—
5th .. .. .	1	—
Later .. .. .	3	—

with a low or absent acid secretion the ulcer developed in a medium favourable for healing and therefore resolved quickly.

#### Management

Early reassurance of the patient is essential and lessens the anxiety which may reflect itself adversely on the stomach. Sedation with morphine or sodium phenobarbitone should be used only to reinforce mental calmness, and heavy sedation must be avoided. The patient should be made comfortable, with sufficient pillows to suit his personal wishes. A detailed history should be taken as soon as possible. A severely ill patient must not be considered an excuse for delaying this essential step. It is necessary to interview relatives at once, as essential points can often be elicited. In hospital practice there is a tendency to focus attention entirely on the patient; but relatives also need reassurance, and the opportunity to enrol them for the blood bank must not be missed.

Having obtained a full history, it is essential to decide whether operation should be considered if the patient bleeds again. The nursing staff should keep an hourly pulse chart, and blood-pressure readings should be recorded when the patient is seen by the medical staff. In addition 5 ml. of blood should be obtained for initial haemoglobin, blood urea, and blood-grouping tests, including Rh-screening, and plasma for direct testing of blood if transfusion becomes necessary. Caution must be exercised in interpreting the initial haemoglobin, as haemodilution may not have been complete.

The patient should be allowed a semi-solid purée diet with two-hourly feeds or 7-oz. (200-ml.) milk feeds if preferred. The great majority enjoy a soft diet from the onset. Thirst may be entirely prevented by allowing as much one-third normal saline, flavoured with fruit juice, as desired, and this should be readily available at the bedside for the first three days. Antacids are not essential, but nevertheless it is reasonable to diminish proteolytic activity in the stomach, and aluminium hydroxide may depress acidity and also peptic activity—1/2 oz. (14 g.) (6% emulsion) two-hourly by day and a double dose at 10 p.m. The bowels are usually constipated for several days, and no steps other than reassurance are necessary for at least four days, when a simple enema may be given.

For severely ill patients there are certain procedures which may be of value. In cases with a long history of duodenal ulcer a continuous milk drip with 6 pints (3.4 litres) daily may be of value initially, or, alternatively, 2 pints (1.1 litres) may be given by drip during the night. In very ill patients in whom the vomiting reflex is decreased and the stomach is very distended with blood the emptying of it with an oesophageal tube and a Senoran's evacuator may much improve the general condition.

TABLE XVIII.—*Period of Recent Pain before Haemorrhage*

	Chronic Gastric Ulcer (40)	Acute Gastric Ulcer (40)
3-12 months .. .. .	2	—
4-13 weeks .. .. .	10	4
2-4 " .. .. .	11	1
1-2 " .. .. .	9	12
1 week .. .. .	4	7
None .. .. .	—	14
Not recorded .. .. .	—	2
Character of recent pain:		
Severe pain .. .. .	14	0

ing after admission is just as common with acute as with chronic ulcer. Recurrence after the third day is in favour of a chronic ulcer (Table XIX). Bleeding may be extremely severe from the acute ulcers, but the average severity is greater with chronic ulcer, judging by the fall in the haemoglobin and the amount of blood transfused.

The same aetiological factors seemed to be at play in these acute ulcer patients as in those with chronic lesions.



Cellular respiratory processes may be greatly depressed by anoxia and irreversible changes sometimes develop. Efficient oxygen therapy and the administration of vitamins B and C may be of some value and are recommended—for example, ascorbic acid, 500 mg.; aneurin, 25 mg.; nicotinic acid amide, 200 mg.; riboflavine, 10 mg. daily. These may be given intramuscularly or in a saline transfusion.

Apart from its use in gravely ill patients, ascorbic acid is a valuable routine therapy, as the patients may have had a deficient intake, which impairs the healing reaction of their tissues. The dosage recommended is 200 mg. for five days and then 50 mg. daily. Other medication will usually include "fersolate," 3 gr. (0.2 g.) thrice daily, or iron and ammonium citrate, 30 gr. (2 g.) thrice daily, when the stools have become light in colour again. Sedatives—for example, phenobarbitone, 1/2–1 gr. (32–65 mg.) two or three times a day—are usually advisable for patients with probable duodenal ulceration.

### Conclusions

The general observations which may be drawn from this study are fourfold. First, the potentialities of municipal hospitals as a source of large-scale clinical investigations are demonstrated. Secondly, the number of cases reflects the magnitude of the morbidity from peptic ulcer in the general population. Survey studies in industry and transport by my colleague Dr. R. Doll show that 5–7% of these working-men have, or have had, peptic ulcer. A morbidity of this degree, from a recurring disease certainly demands further research into its causation and improved facilities for its treatment. Thirdly, there are considerable advantages in concentrating the gastro-enterological emergencies into special wards. The senior nursing staff become particularly expert in treating them, and an especially interested physician has the opportunity of rapidly acquiring a wide experience of the particular medical problems. Cases of acute perforation are also admitted to these wards and post-operative care is undertaken there after elective surgery. A complete perspective of peptic ulcer is therefore obtained.

Fourthly, the conclusions concerning haematemesis and melaena are: (1) there are fallacies in many of the past statistics on bleeding and peptic ulcer; (2) there is still an appreciable mortality (8%) among cases admitted to a municipal hospital; (3) associated complications, giant ulcers, and old age are important factors contributing to death; (4) it is important to consider prognosis in relation to type of lesion and age of patient (the prognosis in different age groups in this series of 687 patients may be ascertained from the tables); (5) the incidence of brisk recurrent bleeding after admission, and also the mortality, have fallen since the introduction of early feeding and drip blood transfusion; (6) there is scope for emergency partial gastrectomy in the management of haematemesis and melaena; (7) acute gastric ulcer is an important cause of bleeding and can be demonstrated in 60% of the patients who have no x-ray evidence of peptic ulcer and in whom gastroscopy has been carried out; and (8) these acute gastric ulcers may cause severe and recurrent bleeding, but they carry a very low mortality.

This work has not been done alone, and I wish to express my thanks to my assistant, Dr. H. Pollak, for the able help he has given me; to my medical colleagues for allowing me to treat all admissions for haematemesis and melaena; to my surgical colleagues for their excellent co-operation; to my pathology colleague, Dr. Pagel; to Dr. Discombe for statistical advice; to Dr. R. Doll, Dr. S. Ransom, and Dr. Antia for help in the preparation of these lectures; to Dr. G. Graham for valuable criticism; and to Prof. L. J. Witts for the initial stimulus which he gave me in this problem. I should also point out that these two articles have been presented in an abridged form. Full details about the surgical cases will be published elsewhere.

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To further its campaign against poverty, ignorance, and disease Unesco has published a book, *Fundamental Education: Common Ground for All Peoples*, written by authorities of various nations who worked in the Preparatory Commission of Unesco during 1946. The book gives an account of problems in different parts of the world and describes the notable measures taken against ignorance and illiteracy in such countries as the U.S.S.R. and Mexico.



FIG. 1.—Small acute ulcer, healed five days later.



FIG. 5.—Subacute ulcer.



FIG. 9.—Multiple intramucosal haemorrhages.



FIG. 2.—Acute ulcer on a mid-gastric constriction ring.



FIG. 6.—Same ulcer as Fig. 5, almost healed after two weeks.

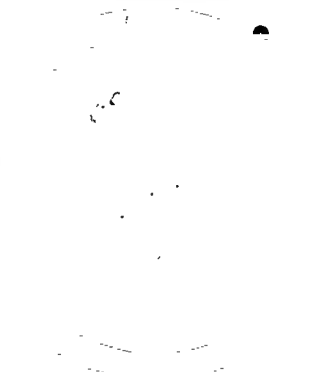


FIG. 10.—Haemorrhages disappeared in one week, leaving small acute ulcer.



FIG. 3.—Subacute ulcer.



FIG. 7.—Subacute ulcer, posterior wall.



FIG. 4.—Same ulcer as Fig. 3, healed after two weeks.



FIG. 8.—Large ulcer, posterior wall.

CASE OF PINEAL CYST:  
SIMON SEVITT AND J. SCHORSTEIN

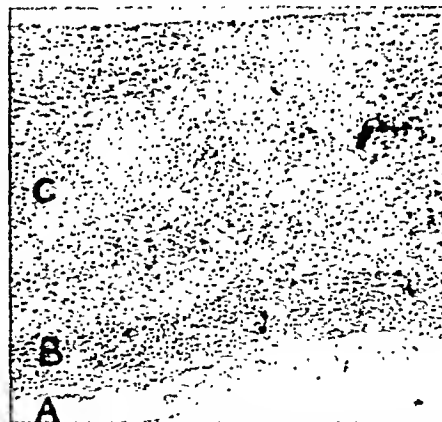


FIG. 1.—Thin glial layer externally (A), middle epithelial layer of pineal parenchyma (B), and internal pigment-containing gliotic layer (C).

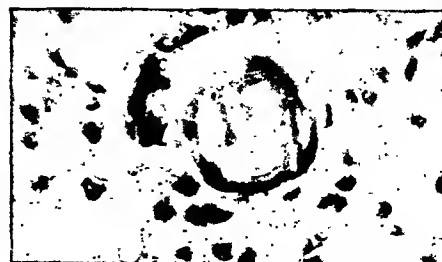


FIG. 2.—High-power view of B, showing epithelial cells and one corpus arenaceum.

**TUBERCULOSIS OF THE GREAT TROCHANTER:  
BARRY McMURRAY**



FIG. 1.—Erosion of great trochanter following tuberculosis of the bursa with secondary infection. Typical peripheral erosion with some sclerosis.



FIG. 2.—Long-standing tuberculous erosion; sclerosis and new bone formation due to secondary infection.



FIG. 3.—Tuberculosis of great trochanter arising in the bone. Extensive destruction of centre of trochanter but no involvement of soft tissues.

**MILIARY APPEARANCES IN LUNGS IN MITRAL  
STENOSIS—HAEMOSIDEROSIS: T. E. GUMPERT**

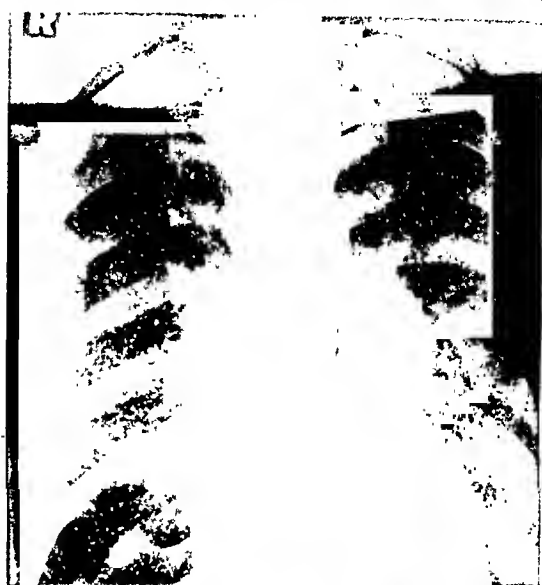


FIG. 1.—Radiograph of the chest.



FIG. 2.—Radiograph ten years before Fig. 1.

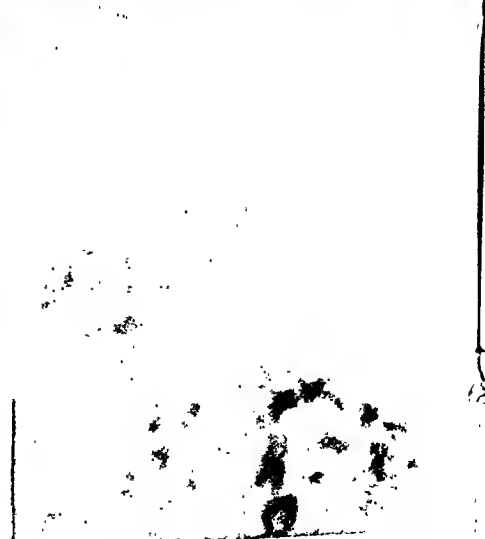


FIG. 3.—Infraclavicular area magnified.

CONGENITAL DEFECT OF LEFT DIAPHRAGM WITH VOLVULUS OF STOMACH AND TRANSPOSITION OF VISCERA: E. OWEN-LLOYD AND DEINIOL ROBERTS

FIG. 1.—Lateral radiograph after barium meal, showing large intestine in thorax. (Sept. 17, 1946.)

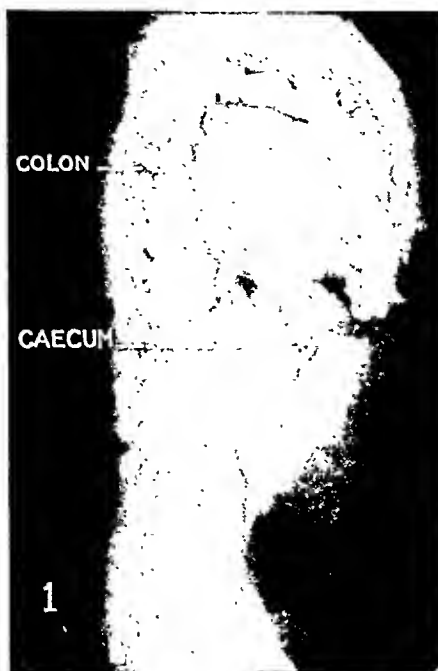


FIG. 2.—Small intestine leading into thorax appears taut. Considerable increase in size of stomach. (Feb. 26, 1947.)

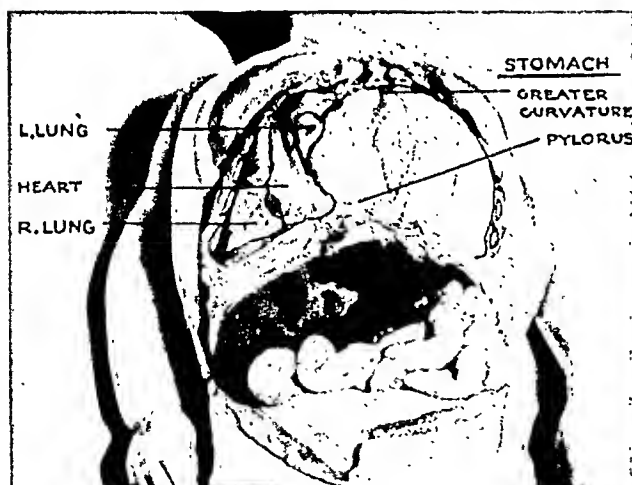


FIG. 3.—Note size of liver and position of greater curvature.

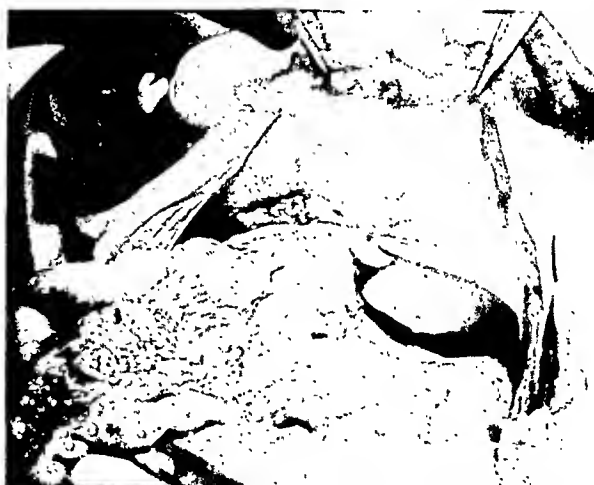


FIG. 4.—Opening in diaphragm from below.

ACUTE INTERSTITIAL POLYMYOSITIS TREATED WITH PENICILLIN: I. FRIEDMANN AND F. POR

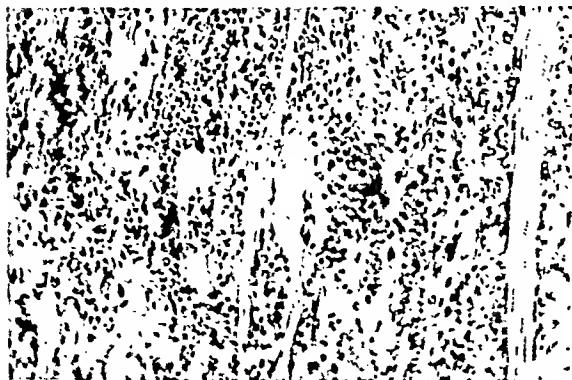


FIG. 1.—Section of sternomastoid before penicillin therapy, showing extensive inflammatory changes ( $\times 160$ ).

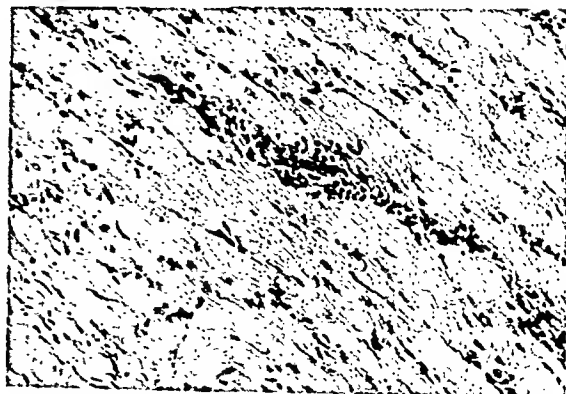


FIG. 2.—Same muscle fourteen days after treatment. Note disappearance of inflammation.

SEPT. 27, 1947

RHEUMATOID ARTHRITIS AND AMYLOID DISEASE: W. YEOMAN AND J. V. WILSON



FIG. 1.—Kidney. Showing degenerative changes in glomeruli, tubules, and interstitial tissue.

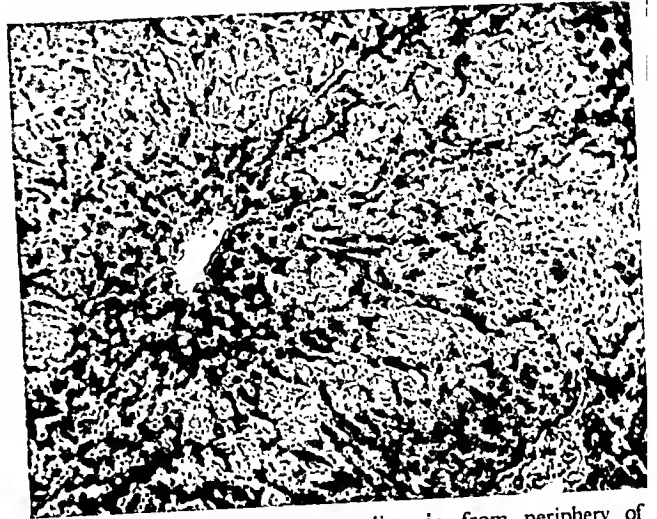


FIG. 2.—Liver. Amyloid spreading in from periphery of lobule. Liver cells show degenerative changes.

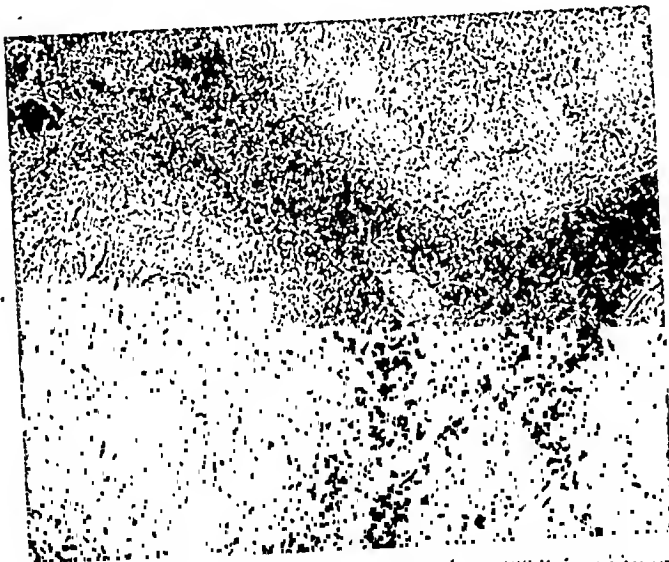


FIG. 3.—Spleen. Malpighian corpuscle showing amyloid infiltration.

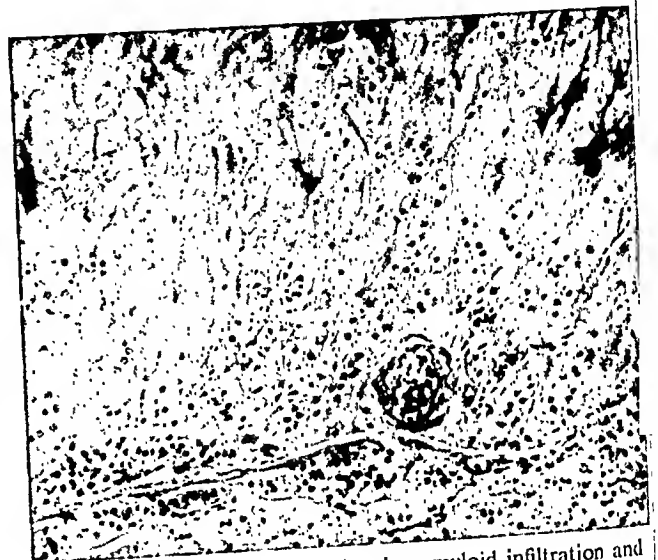


FIG. 4.—Suprarenal cortex. Showing amyloid infiltration and some cellular degeneration.

AMYOPLASIA CONGENITA ASSOCIATED WITH HYPEROSTOSIS FRONTALIS INTERNA: R. N. HERSON



FIG. 1.—The patient at the age of 61.



FIG. 2.—Lateral radiograph of skull showing hyperostosis on internal surface of frontal bone and calcification of base of pituitary fossa. The frontal sinuses are large and the mastoids over-pneumatized.



# RHEUMATOID ARTHRITIS AND AMYLOID DISEASE

## REPORT OF A CASE

BY

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AND

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*Pathologist to Harrogate General Hospital and to  
Royal Bath Hospital, Harrogate*

[WITH PHOTOGRAPHURE PLATE]

The occurrence of amyloid disease as a complication of chronic sepsis is well known. It can also occur as a primary systemic disease process. As a complication of rheumatoid arthritis it is still rare enough to warrant the publication of the following case, especially as the majority of cases published in England where amyloidosis has been associated with rheumatism have been in children with Still's disease.

As Trasoff *et al.* (1944) have reviewed the literature no attempt will be made to do so here. Suffice it to say that the first mention of the association of these two conditions is in 1903, when almost simultaneously Whitman and Fitzly each reported a case where arthritis was complicated by amyloidosis. The next case to be reported was by Carroll and Nelson (1927). Since then just over thirty cases have appeared in the literature.

### Clinical History

The patient was a female, unmarried, aged 28, and weighed 12 lb. (50 kg.). She was admitted to the Royal Bath Hospital for the first time on June 27, 1946. She had no unusual illness as a child, and there was no history of "growing pains." There was no family history of rheumatism. She left school at the age of 16 and worked in an office until she was 22, when in March, 1940, her knees began to swell, and she was treated with rest in bed, first at home for two months and then in hospital for six months. In January, 1941, she had an attack of acute appendicitis and her appendix was removed. In November, 1941, her left hip became painful and she was given injections of gold, about fifteen in all, and her knees and legs were put in plaster.

In 1943 the patient had a severe attack of "enteritis." No details of this illness are available, but she seems to have had attacks of diarrhoea and to have been confined to bed for some weeks. After recovering from this she was reasonably well, apart from the rheumatic condition, until April, 1945, when she had a severe uterine haemorrhage. She stated that she was given an anaesthetic and taken to the operating theatre and afterwards had a transfusion of 3 pints (1.7 litres) of blood. It would thus appear to have been of considerable gravity. The uterus was not removed. After this her periods were very regular, and in fact ceased altogether for several months. She had a slight menstrual loss just before admission to the Royal Bath Hospital.

At this time she was not emaciated. She had a peculiar sallow pigmentation over the face and was obviously very anaemic. The joints of her arms and legs were affected with rheumatoid arthritis and showed typical deformities. Her hips were fixed in full extension and there was a considerable amount of fluid present in both knee-joints. She was able only to stand or walk with difficulty and generally needed some assistance.

On clinical examination no oedema was found and no evidence of jaundice. Her heart was enlarged to the left, her apex beat being 5 inches (12.5 cm.) from the midsternal line. There were no valvular murmurs and her blood pressure was not raised. The lungs were normal. There was no tenderness over

the abdomen. The liver and spleen were both just palpable. No other abnormalities were discovered clinically. It was then obvious that the most important finding was the anaemia, which was out of all proportion to that usually associated with rheumatoid arthritis. This, together with the enlarged liver and spleen and history of haemorrhage, attracted our attention rather than the joint condition, which appeared to be reasonably quiescent.

Examination of her blood on admission gave the following results: haemoglobin, 20%; red blood cells, 1,700,000 per c.mm.; packed cell volume, 12%; white blood cells, 9,500 per c.mm.; polymorphs 70%, eosinophils 7%, small lymphocytes 19%, large lymphocytes 4%. The red blood cells showed slight poikilocytosis and anisocytosis, but there were no immature red cells present. The reticulocyte count was 1.5%. The erythrocyte sedimentation rate was 40% (Spa Hospital method: normal, 0-15%) on admission and remained high throughout her stay in hospital. The red cell fragility was within normal limits, and there was no evidence of haemolysis. The platelets were low, being only 104,000 per c.mm. The bleeding time (Duke's method) was three minutes, and the coagulation time (Lee and White's method) four and a half minutes. The capillary resistance test of Hess was negative. Other investigations included the serum colloidal gold liver function test, which was strongly positive. The urine contained only traces of albumin and a few casts.

At this time something in the nature of a splenic anaemia (so called) or an atypical thrombocytopenia was suggested as a provisional diagnosis. She was given a blood transfusion, large doses of iron, and faradic stimulation to the quadriceps group of muscles and light massage to retain the joint movements which were present. She improved slightly, but on July 15 began to complain of nausea and epigastric pain, and passed dark-coloured stools. Examination revealed the presence of red blood cells in the faeces, and the occult blood test was strongly positive. A fractional test meal investigation was carried out. No charcoal was found in the resting juice, which measured 30 ml. Both the free and combined acid curves were high. There was no bile present in any specimen apart from the fasting juice. A barium meal examination was carried out, and the report from the radiologist (Dr. Hitchcock) was as follows: "Oesophagus normal. Stomach and duodenum—a large gastric residue 7 hours after food. If patient had had no food or drink since taking the meal (I am not sure on this point) it is pathological and due to partial pyloric stenosis. The duodenal bulb is well formed. No colon stasis." A skiagram of the chest taken at the same time showed slight generalized fibrosis of both lung fields.

On July 29 the blood count had again fallen, the figures being: haemoglobin, 47%; red blood cells, 2,700,000 per c.mm. Blood transfusion was again indicated. The patient improved slightly after this, but on Aug. 1 she became much worse. She began to vomit small quantities of blood and dark-stained food material almost continuously, and a few days later profuse bleeding from the gums started. The patient was kept alive by blood transfusions; large doses of vitamins C and K were given and the gums were painted with snake venom. Vitamin C was given in excess because an ascorbic acid estimation of the blood showed a very low figure. The diagnosis was still much in doubt, and on account of the possibility of the case being one of acute essential thrombocytopenic purpura she was seen by a surgeon (Mr. T. V. Pearce) and transferred to the Harrogate General Hospital for a possible splenectomy.

On admission she was still bleeding profusely from the gums and appeared weak and collapsed. A blood urea estimation showed 96 mg. per 100 ml. of blood. There was, however, no clinical evidence of renal failure, breathing was normal, and there was no diminution of consciousness. Unfortunately the plasma proteins were not estimated, and since amyloid disease was not suspected the congo-red test was not performed. Continuous intravenous blood transfusions were given, but the patient died a few hours later.

### Post-mortem Findings

Necropsy was performed six hours after death. The body was not emaciated and there was no oedema or jaundice. There was an old abdominal scar in the right iliac fossa. The gums

were oedematous and there was some ulceration. The tongue was normal. The tonsils were not enlarged, but were slightly inflamed though not grossly septic. The thyroid was of normal size, and section showed the structure to be homogeneous and of normal appearance. The oesophagus contained blood-clots, but the walls were not thickened and no ulcers were present. There was no evidence of enlarged blood vessels around its cardiac end. A large blood-clot was found in the larynx, but neither this organ nor the trachea was inflamed. The bronchi were also filled with blood. The lungs were congested, especially at the bases, and blood was present in the smaller bronchioles; there were some areas of patchy consolidation throughout both lower lobes. The pleural spaces were free and there was no excess fluid in the pleural cavity. The pericardium was normal and contained no pericardial effusion. The heart was slightly enlarged and dilated; it weighed 320 g. The myocardium was pale but was otherwise normal. The enlargement was due chiefly to left ventricular hypertrophy. The heart valves were all normal. There was some slight atheroma in the aorta throughout its course. The coronary arteries showed no gross degenerative change.

There was no free fluid in the peritoneal cavity and no evidence of inflammation. The stomach was distended with blood. The gastric mucosa was rather atrophic but there was no evidence of definite ulceration; there were, however, small pinpoint areas of haemorrhage scattered over the mucosa. The intestines were filled with dark faecal matter but contained no fresh blood. The bowel wall was of normal thickness and there was gross evidence of disease.

The liver was enlarged and weighed 1,920 g. It was pale and was definitely waxy. There were no glands at the hilum and no evidence of portal obstruction. The spleen was of normal size and weight; it was also rather pale but was not really waxy. In the cut surface the Malpighian corpuscles were rather prominent. The kidneys were contracted (weight, 110 g. each); the capsule was adherent and the surface very granular. On section the cortex was also seen to be contracted. The vessels were prominent and the pelvic fat was increased. The suprarenals were of normal size and shape.

The uterus was small and the endometrium appeared to be atrophic. The ovaries were of normal size and structure and the Fallopian tubes were normal. The bladder was distended but the walls appeared normal. There was no evidence of cystitis. The pelvic vessels were normal.

Macroscopically the brain was normal. The cerebrospinal fluid was clear. The vessels at the base of the brain were not thickened or atheromatous. The meninges were normal.

The significant findings, then, at necropsy were the contracted granular kidneys, the left ventricular hypertrophy, the enlarged liver, and evidence of intestinal haemorrhage. When tested with iodine for amyloid degeneration the kidney, liver, and spleen gave a positive reaction.

**Histological Report.**—The tissues were fixed in a solution of formaldehyde (10% concentration) and in Zenker's fluid. The stains used were haematoxylin and eosin, congo red (method of Bernhard), and methyl violet. Turnbull's stain for iron was also employed for certain organs. The muscles of the tongue were separated by oedematous fluid and there were small areas of haemorrhage. The epithelium was regular. There was no amyloid present. The mucous membrane of the gums was ulcerated. There was an infiltration chiefly of round cells, but no evidence of an acute ulcerative process. The oesophagus was normal. The gastric mucosa was extremely congested. The mucous membrane was destroyed in places, but there was no inflammatory exudate. The process appeared to be a simple necrosis rather than infective ulceration. There were also small areas of mucous membrane erosion scattered along the small intestine, but again no definite ulceration. The mucous membrane of the large intestine was normal. There were no amyloid deposits anywhere along the course of the alimentary tract, except for some slight deposits in a few of the blood vessels in the pyloric region.

The heart muscle showed fatty degeneration, but there was no amyloid degeneration. The aorta was the seat of early atheromatous degeneration, and the coronary arteries showed slight atheroma.

The kidneys (Plate, Fig. 1) showed marked amyloid degeneration. The afferent arterioles were universally affected. Their walls were thickened and their lumina narrowed. The capillaries of many glomeruli were more or less converted into a homogeneous bloodless mass of thickened and often obliterated capillaries. The glomerular tufts were swollen, at times completely filling Bowman's capsule. The interlobular arterioles were also involved, as were some of the glomerular arterioles. The tubules showed advanced degeneration, and most of them contained fatty and hyaline casts. The interstitial tissue was atrophic and infiltrated with round cells.

In the liver (Plate, Fig. 2) the hepatic arterioles were thickened and the walls contained a heavy deposit of amyloid. As seen in the photomicrograph, the deposit of amyloid had spread in from the periphery of the lobule along the hepatic sinuses. In places the liver cells had completely atrophied and were replaced by amyloid deposit. In the centre of the lobule the cells showed fatty degeneration.

The spleen (Plate, Fig. 3) showed a patchy type of amyloid degeneration. The sinuses and pulp had to some extent escaped, and the deposit of amyloid was chiefly confined to the Malpighian bodies. The reticular fibres of the Malpighian corpuscles had become thickened and filled with amyloid deposit, so much so that in many corpuscles the lymphocytes had disappeared and nothing remained but a solid mass of amyloid. In many cases the central arteriole was affected. The suprarenal (Plate, Fig. 4) also contained amyloid deposit, the vessels of the cortex being affected. In places the amyloid had infiltrated into the tissues, causing degeneration of cortical cells. In the pancreas the amyloid was confined to the vessels; the normal structure of the pancreas was maintained throughout. The histological structure of the brain was normal, and there was no amyloid to be detected in its vessels.

The joints of the limbs were the seat of typical advanced rheumatoid arthritis. The bone marrow was active and showed normal normoblastic proliferation, though this was not as pronounced as the degree of anaemia would warrant.

### Discussion

Our knowledge of the aetiology of amyloid disease still remains incomplete. Its association with chronic infection is well known, but the exact causative factor is ill understood. The fact that it occurs in multiple myeloma gives us a clue as to what this factor may be, as in myeloma we get an increase in the plasma globulins. Such a disturbance may account for the deposit of amyloid material in other diseases. Reimann and Eklund (1935) suggest that amyloid disease may follow long periods of hyperglobulinaemia, and have produced experimental results to support this idea. These workers also report a case which suggests that amyloidosis may follow prolonged vaccine therapy. Since our case was not diagnosed clinically no study of the plasma proteins has been made, but there is no history of vaccine therapy. There was nothing in the clinical history of the arthritis or in its morbid anatomy to give an aetiological clue in this case.

Various classifications of amyloid disease have been adopted. Many writers speak of two groups of cases—atypical and typical amyloidosis. The so-called typical amyloidosis occurs after prolonged suppuration or following such chronic diseases as syphilis and Hodgkin's disease. The organs chiefly affected are the liver, spleen, kidney, and possibly the intestinal tract. In atypical amyloid disease there is no recognizable cause and the tissues affected are different. There may be a localized tumour in the tongue, nose, lung, skin, or heart, or a generalized involvement may occur, the mesodermal tissues, such as the intestinal tract or the heart, being affected. Reimann *et al.* (1935) suggested the following classification: (1) primary amyloidosis; (2) secondary amyloidosis; (3) tumour-forming amyloidosis; and (4) amyloidosis associated with multiple myeloma. Tumour-forming amyloidosis really belongs to the primary group.

The association of amyloid disease with multiple myeloma has been stressed by Magnus-Levy (1933). In the cases he described the amyloid either was localized or had affected the tissues characteristically involved in atypical amyloidosis. It is better, then, to speak of two types—primary or atypical, and secondary or typical. Indeed, the simple terms "primary" and "secondary" seem better. Primary amyloidosis occurs without any known cause, with the apparent exception of multiple myeloma, affects mesodermal tissue, and may be localized, forming a tumour, or generalized. It is possible that the deposit is not really true amyloid. Secondary amyloidosis follows certain well-known chronic diseases, and affects the abdominal organs, such as liver, spleen, and kidneys; true amyloid is present. Our case belongs to this secondary group, following as it does the chronic disease of rheumatoid arthritis.

The clinical findings in this case conform in general to those of the other reported cases. The history of enteritis at the age of 25 is interesting, as attacks of diarrhoea are common in these cases. The poor general condition with marked loss of weight is to be noted. The anaemia is also to be expected, but the tendency to haemorrhage is in some ways unusual. In most of the cases reported where haemorrhage has taken place the bleeding has been from organs affected by the amyloid process. Haematemesis, for instance, has occurred in systemic amyloidosis of the alimentary tract. In this case bleeding started sixteen months before death and took the form of a severe menorrhagia. When in hospital haematemesis occurred, ending in a terminal severe bleeding from the gums. None of the organs concerned had amyloid deposits. The liver and spleen were clinically enlarged. At necropsy the spleen had contracted and its weight was within normal limits. The liver, however, was definitely waxy and slightly enlarged. Albuminuria is generally regarded as a definite sign of amyloid disease of the kidneys but is not always present. In our case it appeared to be intermittent. This is very surprising in view of the state of the kidneys and the raised blood urea.

#### Summary

A case of amyloid disease complicating rheumatoid arthritis is reported in a female aged 28.

Several unusual clinical and pathological features of the case are noted.

The post-mortem findings are detailed, and a full report of the histological examination, with illustrations, is given.

The aetiology of amyloid disease is discussed, and a simple classification into "primary" and "secondary" is suggested.

We are indebted to Mr. T. C. Dodds, F.R.P.S., F.I.B.P., for the illustrations.

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A useful guide to current French medical literature is published by Editions Cartier, 13, rue Puits-Gaillot, Lyon, in the form of a journal entitled *Diagnostiques et Traitements*. Each number contains brief abstracts in French of articles arranged in alphabetical order according to subject. For example, a current number contains abstracts on subjects from "F" to "H," beginning with "ferments" and ending with "hysteria." Presumably the entire alphabet is covered in a year. The majority of articles are from French sources, though foreign literature receives some attention. Some original and review articles are also scattered through the text. Two special journals are also published by Editions Cartier, *Revue de Diététique* (monthly) and *Archives de Rhumatologie* (quarterly). In these greater emphasis is laid on publication of original articles, although abstracts of current literature are included.

## CONGENITAL DEFECT OF LEFT DIAPHRAGM WITH VOLVULUS OF STOMACH AND TRANSPOSITION OF VISCERA

BY

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AND

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[WITH PHOTOGRAPHURE PLATE]

Whilst the various abnormalities which may cause the abdominal organs to be placed in the thoracic cavity have been described by many observers, much confusion exists on the subject, the different types of anomaly being so mixed that a careful study of the reported cases often leaves one in doubt as to which one the author is describing. The clearest classification of the various diaphragmatic abnormalities is that given in several articles by LeWald (1924, 1927, 1928). There are true congenital diaphragmatic hernia in which developmental defect of varying size occurs and the hernia is contained within a sac; false diaphragmatic hernia, either congenital or traumatic, in which no sac is present; eventration of the diaphragm, in which an attenuated half of the diaphragm is arched so high that the abdominal organs are in close proximity to the heart; congenital absence of half of the diaphragm; and the rare condition of thoracic stomach, which, according to Bailey (1919), is a term used to indicate the presence of the stomach in the chest cavity without evidence of any abnormal opening in the diaphragm. The shortened oesophagus opens into a stomach placed above the diaphragm, and the pylorus or duodenum passes through the oesophageal opening in the diaphragm.

The case described below is of particular interest by reason of (1) the difficulty in establishing by radiology the exact size and nature of the congenital defect, and whether the condition was amenable to surgical intervention; and (2) a sudden and inexplicable volvulus of stomach together with equally sudden transposition of viscera—resulting in death, which occurred while the case was under review—whereby the herniated small and large intestines underwent spontaneous reduction into the abdominal cavity, and the dilated stomach, which had previously been normally placed in the abdominal cavity, became transposed into the thorax.

#### Case Report

The patient, a male infant aged 8 weeks, was admitted to the Cardiganshire General Hospital, Aberystwyth, on Sept. 4, 1946, stated to be suffering from congenital pyloric stenosis. There was a history of normal delivery, the weight at birth being 6½ lb. (3.06 kg.). This was the mother's second pregnancy, and a sister aged 2 years was healthy and free from known congenital defects. The mother had noticed that the breathing was very difficult from birth. There were frequent attacks of cyanosis with aggravation of dyspnoea, which appeared to be worse after feeding. The baby was bottle-fed, and vomiting was an early symptom. Sometimes the vomit occurred immediately after the feed; at other times it was delayed and projectile. Invariably the act of vomiting relieved the cyanosis and dyspnoea. The mother had found that nursing usually aggravated the dyspnoea, and that the most comfortable position appeared to be lying down. On admission the baby's weight was 7 lb. 12 oz. (3.5 kg.); its colour was normal; the respiration

rate was 72, pulse rate 150-160, and temperature 101° F. (38.3° C.). There was a suggestion of asymmetry of the chest wall, with the left side possibly a little more prominent than the right. There was a dull tympanitic note to percussion over the whole of the left chest back and front, with absent breath sounds and occasional harsh grating sounds, together with numerous gurgling sounds somewhat similar to but not identical with those of intestinal peristalsis. The maximum intensity of the heart sounds was in the nipple line of the right thorax. The day after admission he was referred for radiography of chest.

An A.P. film of the chest showed a marked displacement of the heart to the right side. The whole of the left side of the thorax showed loculated radiolucent shadowing and there was a complete absence of any normal lung pattern. The medial half of the left dome of the diaphragm appeared normal in position, but the outline of the lateral half could not be defined. The air bubble in the cardiac end of the stomach was seen below the diaphragm and showed a normal rounded outline. The appearances were suggestive of a cystic lung condition or the presence of bowel in the thorax. Later the baby was given a barium meal of about 3 oz. (85 g.). The oesophagus was displaced to the right, but appeared to open into the cardiac end of the stomach in the normal position. The stomach was large but showed good contraction, and was empty in about four hours. The duodenum led direct into the thoracic cavity at a point just lateral to the centre of the left dome, and it appeared to be taut. The left side of the thorax was later seen to contain all the remaining bowel except part of the descending colon leading down to a normally situated rectum (Plate, Fig. 1). The whole of the meal was in the large bowel at 24 hours and almost completely evacuated at 48 hours. On screening, the right dome of the diaphragm moved normally. The diaphragmatic movement on the left side, as outlined by the barium-filled bowel and upper margin of liver, was limited but was not paradoxical.

The patient was given small feeds of humanized milk, and with careful nursing but without the adoption of any special measures his condition gradually improved, and within four weeks of admission he was taking 5-oz. (140-g.) feeds three-hourly. There was occasional slight vomiting and the post-prandial dyspnoea remained a marked feature, but he continued to thrive. An attempt was made to keep him at an angle of 45 degrees, but it was noticeable that this aggravated his distress and that the most comfortable position was the recumbent one.

On Feb. 23, 1947, at the age of 7 months, he was taking 8-oz. (225-g.) feeds three-hourly, alternating with groats, custards, etc., and his weight was 14 lb. (6.35 kg.). He was an extremely contented infant provided he had his feeds regularly, and he raised no objection to repeated x-ray examinations. A detailed examination of his condition on this date revealed the following: The cardiac rate was about 150 a minute, with maximum intensity in the right nipple line; the respiration rate 62. There was marked asymmetry of the chest, the left side being more prominent. The circumference of the right half of the thorax was 8½ in. (20.6 cm.) and of the left half 8⅞ in. (21.9 cm.). There was an exaggerated inspiratory divergence of the left costal margin from the median line in the epigastrium, with consequent greater widening of the left than the right side of the subcostal angle, and there was inspiratory retraction of the epigastrium. Breath sounds were absent over the whole of the left chest, and there was an abundance of gurgling sounds. Breath sounds appeared to be normal on the right side. The measurement of the abdomen was 14½ in. (36.18 cm.), and its contour appeared normal; the liver dullness extended downwards for two fingerbreadths below the right costal margin. For the week commencing Feb. 23 he had a bout of diarrhoea. He refused to take his full feeds, and vomiting, non-projectile in nature, occurred more frequently. On Feb. 26 he was given another barium meal. This showed a considerable increase in the size of the stomach but otherwise no change. The position of the small and large intestine had remained constant over a period of five months (Plate, Fig. 2). He continued to be reluctant to take his full feeds, there was occasional vomiting, and he lost a little weight. On March 7, in conjunction with the other infants in the ward, he developed rubella, and was transferred to the Isolation Hospital. We were informed that his condition there did not give rise to anxiety until March 11, when

he was very fretful and reluctant to take his feeds. After a 4-oz. (114-g.) feed at 10 p.m. he appeared to be in definite pain. Nursing and rubbing his back seemed to comfort him, but with an increasing respiration rate he died at 3 a.m. on March 12.

### Post-mortem Findings

We are indebted to Dr. M. V. N. Sudds for the necropsy report:

"The whole of the small and the large bowel was situated in the abdominal cavity together with the spleen and the liver, which was greatly enlarged. The right kidney was congested. The duodenum was in its normal situation. An enormously distended stomach occupied the whole of the left and encroached on the right thorax. There was a volvulus of the stomach, the pyloric end having rotated a half circle, so that the stomach was inverted, with its posterior surface facing forwards and its greater curvature lying underneath the first rib, and with its fundus resting on the thoracic aspect of what was present of the left diaphragm (Plate, Fig. 3). The oesophageal opening in the diaphragm was normally placed, but the abdominal portion of the oesophagus was elongated, and it curved to the left and upwards around the right margin of an abnormal opening in the posterior half of the left diaphragm, so that the cardiac orifice lay within the thoracic cavity.

"Adjoining the abdominal portion of the oesophagus as it entered the hiatus was the twisted and elongated pyloric end of the stomach (Plate, Fig. 4). In the illustration the liver and spleen have been removed and the intestines drawn aside. The stomach had to be aspirated of a large portion of its contents before it could be reduced into the abdominal cavity. It contained 450 ml. (16 oz.) of milky fluid in addition to an abundance of gas. Partly emptied of its contents, it measured 5½ in. (13.6 cm.) from fundus to greater curvature, and its greatest width was 4½ in. (11.1 cm.).

"The heart lay well over in the right thorax, with a small strip representing the left lung compressed between the mediastinum and the right edge of the stomach, and with the right lung situated in, but by no means filling the remainder of, the right thorax (Plate, Fig. 3). In view of the fact that the weight of the left lung was only 12 g. (2/5 oz.) and that it was completely airless and sank in water, the size of the right lung was surprisingly small. From apex to base it measured 4½ in. (11.5 cm.), its base was 3½ in. (9.94 cm.), its maximum thickness 1½ in. (3.17 cm.), and its total weight 87 g. (3 oz.). There was a large oval-shaped opening in the left diaphragm measuring 2½ in. by 1½ in. (5.7 by 2.85 cm.); it admitted six fingers, and occupied most of its posterior half. Its right edge was situated about ¾ in. (1.9 cm.) from the oesophageal opening, and its right margin curved to its origin from the medial lumbo-costal arch. Its left margin was curved and ended as a thin strip attached to the inner surfaces of the ribs. The anterior half of the left diaphragm appeared to be strong and well developed. The edge of the hiatus was lined with serous membrane so that the peritoneum and parietal pleura formed a continuous sheet."

### Embryology

The hernial opening in this case was the result of lack of closure of the pleuro-peritoneal hiatus of the diaphragm, and a better understanding of the nature of the defect is obtained from the following description of the development of the diaphragm by Shanks (1938).

"In the early embryo the pleural cavities, protrusions of the primitive coelom, communicate freely with the peritoneal cavity. The diaphragm which eventually separates them is a composite structure embryologically (see Diagram). The ventral half is formed from the septum transversum, a mesodermic partition separating the heart from the abdominal

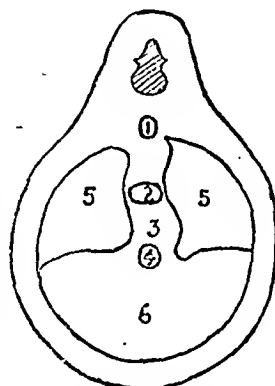


Diagram showing components of the diaphragm: 1, Aorta; 2, Oesophagus; 3, Medial mesentery; 4, Inferior vena cava; 5, Pleuro-peritoneal folds; 6, Septum transversum.

viscera. It first lies obliquely in the neck, but gradually moves down and assumes a transverse disposition. It reaches its final position opposite the level of the 12th rib at about the fourth week. In its descent downwards it carries with it its nerve supply from C.3, 4, and 5—the phrenic nerve. The point of entry of the latter into the adult diaphragm marks the posterior limit of the portion formed from this septum. The posterior half of the diaphragm is formed from three structures: the primitive mesentery of the foregut, stretching between the dorsal coelomic wall behind and the septum transversum in front; and the pleuro-peritoneal folds, one growing inwards from each lateral coelomic wall to fuse with the septum transversum and the medial mesentery. The last portion to fuse is the postero-lateral, where for a time there persists, on each side, the pleuro-peritoneal canal or hiatus. Failure of this hiatus to close accounts for a common type of hernia."

### Discussion

**Subcostal Angle.**—According to Lord (1927), the observations of Hoover (1913, 1919, 1920a) on the functions of the diaphragm suggest that in the presence of eventration important evidence may be obtained by comparison of the respiratory movement of the two sides of the chest. His clinical and experimental observations indicate that the diaphragm acts as an antagonist to the intercostal muscles, which enlarge the transverse and antero-posterior diameter of the base of the thorax and widen the subcostal angle. According to him, the extent to which the diaphragm is capable of opposing the intercostal muscles depends on its arch, and the more nearly the curve approaches a plane the greater its mechanical advantage. If the diaphragm is at a mechanical disadvantage by upward displacement or if its musculature is impaired, the pull of the intercostal muscles is accentuated. Lord (1927) reports two cases of eventration of diaphragm which presented exaggerated inspiratory widening of the subcostal angle due to a greater divergence of the left costal margin, and he quotes Funk and Manges (1920), Korns (1921), and Reifstein (1925) as having made similar findings. Hoover (1920b) attaches equal importance to this physical sign, and he states that the observation of increased movement of the costal margin on the affected side is of service in the differentiation between hernia and eventration, and that in hernia the movement of the costal margin is not modified. Korns (1921) explains the absence of this physical sign in a case of hernia on the grounds that in this condition the diaphragm is not aplastic and in a high position, but has intact muscles and an approximately normal position. Their writings suggest that these authors regard it as being diagnostic of eventration of diaphragm. The clinical findings in this case appear to be at variance with their views, since the exaggerated inspiratory divergence of the left costal margin was a marked feature in the case we quote, as also were the inspiratory retraction of the epigastrium and increase in circumference of the chest on the affected side. It would thus be reasonable to conclude that the extent to which the diaphragm is capable of opposing the intercostal muscles does not depend solely on the level and strength of its arch, but that the accentuated pull of the intercostal muscles will produce these physical signs if the diaphragm is at a mechanical disadvantage by reason of impaired musculature from any cause.

**Mode of Death.**—It can be inferred that the cause of death was cardiac embarrassment caused by the pressure of the twisted, obstructed, and distended stomach. What was the sequence of events which led up to the fatal condition? During his five months' stay in hospital a series of five x-ray examinations were carried out, and in all of them the relative position of the stomach and bowel had remained constant. What was the factor which suddenly induced such a complete transposition of these organs?

(a) Did the herniated intestines first undergo spontaneous reduction into the abdominal cavity and then the increased intra-abdominal pressure result in the stomach being forced into the thorax and in so doing undergo a volvulus? This would not appear to be likely, since in none of the films taken during this period was there any evidence of the slightest change in position of the small and large intestines within the thorax, or of the descent of any portion of them into the abdominal cavity. It would be difficult to explain why they should suddenly decide to migrate spontaneously on this particular day.

(b) A more reasonable explanation would be that the partially emptied stomach underwent a volvulus and insinuated itself through the abnormal opening into the thorax, and that for a short time it remained in the thorax with the intestines. Then when the stomach, with its pyloric end obstructed, became more distended as the result of further feeding and fermentation, its presence in the thorax gradually forced down the intestines into the abdominal cavity.

(c) If the latter was the case, was the increase in size of the stomach that was noticeable in the last series of films of any significance? And did the apparently taut first part of small bowel running obliquely upwards into the thorax as shown in Fig. 2 play any part in the causation of the volvulus?

### Summary

A case of hernia through the pleuro-peritoneal hiatus is described.

It is shown that the clinical signs of exaggerated inspiratory excursion of the costal margin with consequent greater widening of the subcostal angle, together with inspiratory retraction of the epigastrium on the affected side, are not to be regarded as diagnostic of eventration of the diaphragm, but as evidence of imperfect diaphragmatic function by reason of impaired musculature from any cause.

An untimely death, with subsequent necropsy, revealed an unexpected interchange of position of the stomach and intestines, with a volvulus of the former as the cause of death.

An attempt is made to outline the sequence of events which led up to this volvulus and transposition of viscera.

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Speaking on the early diagnosis of pulmonary tuberculosis at a clinical meeting of the East Sussex Medico-Chirurgical Society held at St. Leonards-on-Sea on June 24, Dr. E. A. Wood said that he wanted to make a few suggestions on discovering cases while they were still curable—preferably before either symptoms or cavitation had developed. His first suggestion was to encourage routine x-ray examination of the apparently healthy. So also they should arrange for the x-ray examination (and, in young children, tuberculin testing) of every household contact of a case of pulmonary tuberculosis. Furthermore, disease would not necessarily show itself on first examination; contacts must be x-rayed—not less often than annually—over a period of years, particularly at those times of life, such as the late teens and early twenties, when the disease seemed most likely to appear. Saying that in February they went into the surgery and found twenty or thirty patients with coughs, he suggested the following cases most needed x-ray examination of the chest: (1) All cases of haemoptysis; (2) all cases of pleurisy (dry or wet) not obviously due to acute pneumonia; (3) patients convalescent from any serious "chest" illness; (4) those who had had any chest illness not clearing up in the expected time; (5) anyone still with a cough after efficient treatment for four weeks; (6) cases of vague ill-health not yielding to ordinary treatment; (7) cases of dyspepsia not yielding to ordinary treatment; (8) patients who lost weight without other cause being found. As soon as his trouble had been diagnosed, the tuberculous patient should be put strictly to bed while he awaited sanatorium treatment. "Avoid that futile, ambiguous, but oft-repeated instruction, 'Go home and take things quietly, and come and see me in two months' time.'"



# MILIARY APPEARANCES IN THE LUNGS IN MITRAL STENOSIS: ENDOGENOUS PULMONARY HAEMOSIDEROSIS

BY

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[WITH PHOTOGRAPHIC PLATE]

Aggregations of so-called heart-failure cells in the alveolar spaces and interstitial tissues of the lungs have been known to pathologists and physicians for many years, but their recognition by means of radiographs in certain cases of mitral stenosis is a relatively new achievement and correspondingly little known. The following is a clinical record of such a case and also a consideration of the factors which may have been responsible for certain remarkable radiological appearances closely simulating miliary tuberculosis.

## Case History and Clinical Details

The patient, a spare man of average height aged 36, was admitted to the Sheffield Royal Hospital on Sept. 2, 1946, with a partial left hemiparesis of sudden onset which cleared up very quickly. He had a history of several attacks of rheumatic fever between the ages of 7 and 13. His heart was alleged to have been affected in the first attack, and he was known to have had mitral stenosis and auricular fibrillation ten years before, when he was last admitted to the hospital. He had had pneumonia at the age of 23, and haemoptysis on four occasions during the past ten years.

**Condition on Admission.**—He was a thin man, sitting up in bed with orthopnoea. The respiration rate was 36. There was no cyanosis, oedema, or engorgement of cervical veins, but increased carotid pulsation. No hepatic enlargement or tenderness was present, the spleen could not be felt, and there was no ascites. He had slight clubbing of the fingers, but no capillary pulsation in the nails or lips. The pulse (92) was completely irregular, with a tendency to the water-hammer type. The cardiac impulse was 6 in. (15 cm.) from the midline in the sixth interspace. Percussion revealed about 1 in. (2.5 cm.) enlargement to the right. There was a systolic thrill at the apex, coinciding with a squeaking systolic murmur transmitted into the left axilla; and a mid-diastolic rumble at the apex, accentuated by exercise. A constant early aortic diastolic regurgitant murmur was present, loudest in the third and fourth left interspaces close to the sternum. The blood pressure was 140/60. No abnormal lung signs or adventitious were noted, and no further abnormalities other than partial left emiparesis with increased tendon reflexes, slight facial weakness, and up-going toe, all on the left side.

Electrocardiograms showed typical auricular fibrillation: the fibrillary rate was about 500 a minute and the ventricular response approximately 101 a minute before digitalization. There was marked right axis deviation. A radiograph of the chest (Plate, Fig. 1) revealed the typical mitral configuration of the heart with a prominent pulmonary artery shadow, a small aortic knuckle, a well-rounded and enlarged right auricular shadow, and a hypertrophied left ventricle with a straightish left border. Both lung fields were uniformly stippled from apex to base and closely resembled in appearance the punctate mottling of miliary tuberculosis or a finely disseminated pneumoconiosis. The pulmonary artery shadows were prominent, but there was no gross evidence of pulmonary congestion. A radiograph taken ten years before (Plate, Fig. 2) showed a typical mitral heart with increased vascular shadows but no nodulation.

The patient's progress was excellent. He made a rapid recovery from the hemiparesis, and the ventricular rate was well controlled with "digoxin." He was discharged from hospital on Oct. 23, 1946.

## Discussion

So far as the heart was concerned the case was perfectly straightforward. It was an old-standing case of mitral stenosis with a small aortic leak and auricular fibrillation. The arresting finding was the radiological appearance of the lung parenchyma, which bore an extremely close resemblance to that of miliary tuberculosis or a fine discrete nodular pneumoconiosis. This was exactly the sort of case in which our forefathers first described heart-failure cells in brown induration of the lung.

The mechanism would appear to be as follows: The mitral obstruction causes an increase of pressure in the left auricle and its ultimate tributaries the alveolar capillaries. These become engorged to such an extent that repeated intra-alveolar haemorrhages occur with or without clinical haemoptysis. The intra-alveolar haemoglobin disintegrates and is converted into relatively soluble iron-free haematoidin and relatively insoluble particles of iron-containing haemosiderin. The latter act as foreign bodies, and are treated as such by the phagocytic alveolar histiocytes, which engulf them just as though they were inhaled particles of a fine dust. Their transport, however, via the lymphatics of the alveolar wall, the peribronchial, perivascular, and subpleural lymphatics to local aggregations of lymphoid tissue scattered throughout the lung substance and finally to the bronchial lymph glands is probably not so readily achieved as in a true pneumoconiosis because of the chronic pulmonary venous congestion and consequent obstruction to the lymphatic drainage, with the result that most of the phagocytic haemosiderin-laden heart-failure cells remain in the alveoli, and, being radio-opaque, give the characteristic radiological alveolar stippling we see in this case. Larger aggregations in the lymphatic apparatus of the lung are thus prevented and a coarse nodulation such as is seen in a typical pneumoconiosis (silicosis) does not occur.

This view is supported by the resemblance of the stippling to the familiar radiological appearance of intra-alveolar lipiodol and still more to that of miliary tuberculosis, where lesions of a similar size and distribution occur. Moreover, if the individual nodules are examined closely with a magnifying glass, certain of them (Plate, Fig. 3) seen end-on appear to be ring-like in structure with the form of a rosette—the central hole being the terminal respiratory bronchiolus beset with the rosette-like iron-containing acini.

## Review of the Literature

Similar radiological appearances have been described in other cases of mitral stenosis by Ryder and Reinecke (1945), by Hanson (1945), and by Pendergrass and Leopold (1945). Kerley (1938), writing about passive hyperaemia of the lungs in mitral stenosis, states that "occasionally the combination of swollen end-on vessels and alveoli filled with heart failure cells causes a miliary appearance in both lungs." Hanson's case was proved post mortem, and the radiological appearances were those of a diffuse fibrosis of the lung resembling silicosis; but there was no nodulation, and, in spite of an industrial hazard of sandblasting for five years, microscopically and histologically the lung showed no silicosis—merely a fine fibrosis together with passive congestion. Pendergrass and Leopold refer to pseudo-nodulation limited to the upper two-thirds of both lung fields occurring in a case of mitral disease within a year of an attack of acute rheumatism with rheumatic pneumonitis. They consider the pseudo-nodulation to be due to shadows cast by iron pigment—the end-result of the haemorrhagic perivascular infiltration of rheumatic

fever—and refer to a personal communication received from Sostman, who had observed several patients with long-standing passive pulmonary congestion from mitral stenosis in whom a finely nodular radiographic appearance simulating the nodulation stage of silicosis had developed. At necropsy the individual nodules proved to be fibrotic and to contain much blood pigment, which took the specific stain for iron. In the discussion which follows their communication Enzer refers to the pseudo-nodulation which he has observed in a few cases of mitral stenosis. He considers that the lesions may be due to the organization of macrophages filled with haemosiderin. And, finally, there is the excellent recent clinical, radiological, and pathological account by Scott, Park, and Lendrum (1947) of eight cases, examined post mortem. They state that "in rare cases of mitral stenosis the radiological picture is one of miliary opacities in both lungs. These opacities do not alter in appearance over long periods of time, in contrast with the changes produced by pulmonary oedema. Pathological examination shows that the opacities are due to focal deposits of haemosiderin. A number of these cases have been reported in the literature, but the changes are frequently attributed to congestion of the lungs."

Similar appearances are also described by Pileher and Eitzen (1944) and Reye (1945) in severe (haemolytic) anaemias of childhood, where the haemosiderosis is due to repeated intra-alveolar haemorrhages.

### Clinical Investigations

I was not aware at the time of our patient's admission that mitral stenosis with chronic pulmonary venous congestion could produce radiological signs of this description and therefore did not associate the two conditions. In fact, the radiograph of the chest was so arresting and unusual that it dominated and confused the issue. A dual pathology seemed to be the only solution to the problem and miliary tuberculosis was seriously considered. Acute miliary tuberculosis was clearly out of the question: there was no pyrexia, no sweating, no hectic flush of the face, no splenic enlargement, and none of the cachexia invariably associated with this condition. The Mantoux test was negative and the cerebrospinal fluid normal in all respects. Chronic miliary tuberculosis appeared to be the answer, *faute de mieux*, but the association of mitral disease and tuberculosis is very rare and the two conditions are usually considered to be mutually antagonistic. Pulmonary sarcoidosis had to be considered, but there were no other lesions of this condition—no involvement of the skin, bones, or uveal tract. The lack of any occupational hazard negated the pneumoconioses. The yeast and mould infections of the lungs, moniliasis, aspergillosis, and coccidiosis—all of them capable of giving appearances similar to those of miliary tuberculosis—were next considered, but none of the characteristic yeasts or moulds could be seen or cultured from the sputum. There were none of the suffocative phenomena of bronchiolitis, nor did the patient seem ill enough for this condition to be seriously entertained. Similarly untenable was a diagnosis of miliary carcinomatosis of the lungs. It was not, in fact, until Dr. Grout had given me his opinion of the x-ray appearances that I was able to correlate the miliary appearances of the lungs with the mitral stenosis. It was then a simple matter for the pathologist to stain the sputum for the Prussian-blue reaction and to discover heart-failure cells in the expectoration.

### Conclusion

Miliary appearances in the lungs in mitral stenosis occur from time to time. They are considered to be due to

an endogenous pulmonary haemosiderosis. It might be objected that mitral disease with chronic pulmonary venous congestion is so common in medical practice that the radiological appearances under discussion would be widely known, but this is a facile argument and of no validity. In fact, Scott, Park, and Lendrum, having become interested in the condition in 1943, have been able to collect eight cases of mitral disease showing post-mortem evidence of haemosiderosis. Only two of them, it is true, showed the typical miliary x-ray appearance during life, but one with equivocal radiological signs showed quite definite radiological (and pathological) evidence of haemosiderosis in the isolated lung after death. Conditions must obviously be peculiarly favourable to permit of this orderly deposition of pigment throughout the lung substance, and it is only by further observation and investigation that one is likely to discover the precise set of circumstances leading to a diffuse punctate pulmonary haemosiderosis in mitral disease.

### Summary

A case of mitral disease with a small aortic leak and auricular fibrillation is described in which the radiological appearances of the lungs simulated miliary tuberculosis.

The case is considered to be one of endogenous pulmonary haemosiderosis due to the deposition of haemosiderin in the lung substance.

Heart-failure cells rich in haemosiderin were recovered from the sputum.

Allusion is made to strictly comparable cases and to cases in which haemosiderin is similarly deposited in certain anaemias of childhood.

The radiological appearances are reproduced and a previous radiograph, taken ten years earlier, is also shown by way of contrast.

ADDENDUM.—A not dissimilar condition is described by Elkeles and Glynn (1946) in the literature recently of a disseminated parenchymatous ossification in the lungs in association with mitral stenosis, but the radiological appearance is different in texture and distribution (in that the apices are spared) and the pathology likewise differs.

I thank Dr. J. L. A. Grout for his interpretations of the radiographs, Dr. T. Lodge for his analysis of the finer lung details, Dr. H. E. Harding of the Department of Pathology at the University for help with the pathological mechanism, and Dr. H. J. Barrie for the laboratory investigations.

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Among the many books intended to instruct the mother in bringing up her children *The Pocket Book of Baby and Child Care*, by Benjamin Spock, M.D., is outstanding for the common sense that its author displays. It is obtainable from Messrs. Delisle, Ltd., 122, City Road, London, E.C.1, at the remarkably low price of 2s. 6d. (or 2s. 10d. including postage). Dr. Spock does not describe an ideal baby, or even a "normal" one, and imply that all should be like that. He points out that a baby can be perfectly healthy and yet sleep very little, or have a bad temper, or cry a lot. He also gives many practical instructions for understanding the minor ailments of infancy and childhood, including a brief account of mental development and disturbances. The book is enlivened by some delightful sketches, one of them depicting how to perform that difficult operation—getting a teat on to a feeding-bottle.

## A CASE OF PINEAL CYST

BY

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[WITH PHOTOGRAPHIC PLATE]

Neither Cushing's (1932) collection of over 2,000 verified intracranial tumours, nor that reported by Walshe (1931), contained a case of a simple pineal cyst. Prof. D. Russell in a personal communication stated that she had occasionally seen a small pineal cyst at necropsy, but that this had been an incidental finding and had not caused symptoms. In our own case the cyst was large and caused signs and symptoms of an intracranial tumour.

## Clinical Details

The patient, a female aged 21 years, had been well until August, 1946, when she began to suffer from frontal headaches. One day during the same month she was suddenly seized by a feeling of numbness and coldness in the right side of the face, neck, and the right upper limb. When the arm was pinched she felt no pain. The right arm was weak and shook when she attempted to grasp anything. A few minutes later a similar condition developed in the left arm; normal sensation and power returned within about half an hour and she was left with severe frontal headache and nausea. She stayed in bed all that day and returned to duty on the following morning. During the next four weeks the frontal headache increased in severity and frequency. During September she had another attack, very similar to the first, but this time it lasted three to four hours and was followed by vomiting. From then on attacks of "pins and needles" and numbness in the right arm lasting a few minutes became frequent. A few days before her admission to this hospital on Oct. 18, 1946, diplopia and mistiness of vision had developed, and she now complained of almost continuous severe headache with frequent vomiting.

Examination revealed early papilloedema, bilateral external rectus palsies, and diminished perception of pin-prick and light touch in the right trigeminal area. She could not maintain posture with the right arm as well as with the left. Recognition of pin-prick, light touch, and vibration was impaired in the right upper limb and, to a lesser extent, in the left lower limb. Position sense and two-point discrimination were not affected. Power and tone were equal and normal in all limbs. X-ray examination showed no abnormal calcification. Ventriculography was performed on Oct. 21. The lateral ventricles were moderately dilated, the left being slightly larger than the right. There was a rounded filling defect of the posterior part of the third ventricle, and neither the aqueduct nor the fourth ventricle could be visualized.

An operation under general anaesthesia was performed on the same day. A right occipito-parietal bone flap was raised. The intracranial tension remained high in spite of ventricular punctures, and in order to reach the posterior portion of the third ventricle the occipital lobe was removed; after a little retraction of the parietal lobe a rounded tumour came into view. It lay just beneath the splenium of the corpus callosum and its lower portion was hidden by the tentorium. Dissection of the tumour was not difficult; the capsule was tough and well defined, and no vessels were seen entering it. Until the final removal the patient's general condition remained good, but as the tumour came away her breathing stopped, and although it was resumed after a brief period of apnoea she died as the wound was being closed.

## The Cyst

The cyst, preserved in 10% formal saline, was grey, oval, and was 3.2 cm. long by 2 cm. wide. It had been opened before arrival in the laboratory and was empty when received. It had contained a light-yellow fluid. The wall, which varied from 3 to 5 mm. in thickness, was apparently in two layers; externally

there was a paper-thin and slightly granular layer of greyish tissue, whilst internally and forming most of the wall was a soft but firm yellowish-brown material.

Histologically (see Plate) the wall was really formed of three layers. Externally was a very thin network of glial fibres (Fig. A) covering a middle cellular layer (Fig. 1, B; Fig. 2), which varied in thickness and was interrupted in places. In general this layer was 10 to 30 cells in depth, but in some areas was up to 100 cells thick. The cells, which were moderately closely packed, had round or slightly oval nuclei with fine or coarse chromatin stippling and thickened nuclear membranes. The cytoplasm was abundant but the cell outlines were indistinct. Some hyaline, concentrically striated, irregularly round bodies (corpora arenacea) were present. Internally was a thicker continuous layer of dense gliotic tissue (Fig. 1, C) containing numerous brown pigment granules mostly within macrophage cells. These granules and some areas of gliotic tissue gave strong Prussian-blue reaction for iron.

## Post-mortem Examination

A necropsy was performed nineteen hours after death. The summarized findings are as follows:

The brain weighed 3 lb. (1.36 kg.). Recent right occipital lobectomy. Subarachnoid haemorrhage on the ventral surface of the brain stem. Blood-clots present in the anterior horns of both lateral ventricles and in the third ventricle. The Sylvian aqueduct was patent, the fourth ventricle natural, and no hydrocephalus was noted. The tectum of the midbrain was distorted on the right side it was compressed, and the left dorsal surface which projected posteriorly more than the right, was irregular. The superior and inferior colliculi were indistinct. Two small recent haemorrhages were seen in the substance of the pons and midbrain. No pineal gland visible. Histology of the midbrain showed a loss of ganglion cells and a partial demyelination in the region of the colliculi in addition to the distortion. The periaqueductal grey matter was reduced in thickness and cell density but chromatolysis was not observed. Both lungs were partially collapsed. The liver weighed 2 lb. 3 oz. (995 g.) and was darker and firmer than usual. Histologically some excess of fibrous tissue was seen around Glisson's capsules possibly an early periportal cirrhosis. The uterus was pregnant and enlarged to 1 in. (2.5 cm.) above the symphysis pubis; it contained a normal male foetus 16 to 18 weeks old. Large corpus luteum in right ovary, secondary areolae of the nipples, mammae firm and containing hypertrophic glands.

## Discussion

The symptoms and signs were due to pressure of the cyst on the tectum of the midbrain in combination with internal hydrocephalus. This latter was probably intermittent and was not apparent at necropsy. Prof. D. Russell, who examined sections of the cyst, suggested that it was of pineal origin but of unusually large size. The presence of corpora arenacea, the character of the epithelial cells in the middle layer of the cyst wall, the situation of the cyst, and the absence of the pineal gland at necropsy support this opinion.

It is difficult to say how the cyst arose, but it is likely that intrapineal haemorrhage was responsible, if not for the origin of the cyst, at least for its unusual size, and that the gliosis was secondary to the haemorrhage. As the cyst enlarged, the pineal epithelium became thinned out in a layer surrounding the internal haemorrhage and gliosis. The cyst first caused signs of increased intracranial pressure when the patient was six to eight weeks pregnant. The association between the two conditions—a large pineal cyst and pregnancy—may be no more than a coincidence, but it is interesting at least to speculate whether the pregnancy might have caused a change in a pineal cyst present before, but too small to produce symptoms.

## Summary

A case of an unusually large pineal cyst in a young woman is described.

The cyst was large enough to produce local midbrain pressure symptoms and internal hydrocephalus, probably intermittent.

Details of the histology are given.

Our thanks are due to our colleagues, particularly to Major R. C. Connolly, R.A.M.C., to Prof. Dorothy Russell for giving us her opinion on the sections, and to Dr. P. Daniel for taking the photomicrographs. We are grateful to our commanding officer, Col. G. D. Gripper, for permission to publish this case.

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## AMYOPLASIA CONGENITA ASSOCIATED WITH HYPEROSTOSIS FRONTALIS INTERNA

BY

R. N. HERSON, M.B., B.S.

[WITH PHOTOGRAPHURE PLATE]

The absence of any reference in the literature to the combination of amyoplasia congenita and hyperostosis frontalis interna and the striking clinical picture resulting from this compound syndrome prompt me to record the following case.

### Case Report

The patient was a woman aged 61 years. Since birth her lower limbs had been abducted at the hips and flexed at the hips and knees, her arms had been extended at the elbows and flexed at the wrists, and movements at all the joints had been severely limited. She learnt to shuffle round the floor, to feed herself, write, sew, knit, and do other forms of handiwork. She went to school from the age of 7½ to 9 years, was fond of reading, and was as apt as children of her own age. She was of a cheerful disposition, being despondent only when afflicted by pain. She had had headaches behind the eyes and over the frontal region as long as she could remember, the more severe attacks being accompanied by nausea and vomiting, but had never complained of her sight or of seeing double. At the age of 9 she had measles. Menstruation started when she was 11, and, although at times periods were regular every 28 days, she was subject to long spells of amenorrhoea even up to four years. She ceased to menstruate at the age of 54. When she was 19 she gained weight rapidly, and soon attained a weight of 11 stone (70 kg.). At the same time she developed in the beard area and on the upper lip a growth of hair which became sufficiently noticeable to require the use of a razor or depilatories.

At the age of 41 she began to get severe attacks of colicky pain in the upper part of the right side of the abdomen, radiating round to the right scapula. A diagnosis of gall-stone colic was made. Eighteen months later she was found to have a duodenal ulcer. This required two years' medical treatment. When 50 years old her gall-bladder was drained but not removed. Through the operation scar there developed a large incisional hernia, which has been a constant source of pain and distress.

At the age of 52 she complained of excessive thirst; sugar was found in her urine. She was given 15 units of insulin morning and evening, without any special diet, for four months. In 1941 she was admitted to Southmead Hospital, Bristol, on account of an abscess in the pubic region. Three years later she was again admitted with multiple boils and an anal fistula, for which she was operated on. Sugar was again found in the urine, and she was discharged on 40 units of insulin a day but no dietary restrictions; this did not render her sugar-free. She was readmitted to Southmead Hospital on June 6, 1946, because of recurrent attacks of severe pain in the incisional hernia associated with vomiting. There was heavy glycosuria but no ketosis. In the surgical ward, in an attempt to control the glycosuria, the insulin was increased to 40 units four-hourly, but in spite of this each specimen of urine was loaded with

sugar. She never had an overdose. So far as can be ascertained from the notes she has never had ketonuria.

**Family History.**—Her father died at the age of 80. Her mother, who died at the age of 84, had nine pregnancies. The first was a boy, who died at 14 months after an accident; the second child was a girl, who is still alive, and whose only complaint has been cholecystitis. The next in the family was the patient, who was born when her mother was 36. There is no knowledge of any complications during the pregnancy or confinement. All the remaining pregnancies ended in miscarriages at the fourth month. There was no consanguinity either in the parents or in the grandparents.

**Physical Examination.**—The gross obesity coupled with the limb deformities made a striking picture (Plate, Fig. 1). Sitting height 32 inches (81 cm.), weight 11 st. 9 lb. (74 kg.). She had a large fat ruddy face with hair on the chin and upper lip. The lobes of both ears were webbed. The neck was short, and the neck and body were grossly obese, which contrasted with the thin upper and lower limbs. Abdominal fat sagged down and partially covered the drawn-up legs. The breasts were normally developed, and the hair on the head and body was of normal female distribution. The skin was greasy and subject to acne, but there were no striae or abnormal pigmentation.

Passive and active movements of the joints were approximately equal. Abduction of the shoulder-joints was limited to 15°. The arms were extended at the elbows and the forearms pronated. Movements of the elbow-joints were limited to 5°. The wrists were fixed in flexion and ulnar deviation. The finger-joints were flexed. She was able to flex fingers and thumbs to about 60°, but had practically no power of extension in the fingers. She was able to oppose her thumbs to any of her fingers, and thus grip an object between the fingers and thumbs. There was webbing of both axillary folds and of the first and second fingers of both hands. There were flexion and abduction at the hip-joints, flexion at the knee-joints, and bilateral equinovarus. She could flex the right hip-joint about 40°, and had moderately good power of abduction and adduction of the right femur. Movement of the left hip was more limited than that of the right. Movement was extremely limited in the knees and was absent in the ankle-joints. There was limited flexion of the toes. She had slight scoliosis, and mobility of the back was very limited.

The pupillary responses to convergence and accommodation were normal. Eye movements were full and the media and fundi were normal. Peripheral and central fields of both eyes were full to 3/330 and 3/1,000 mm. white object, respectively. Her visual acuity in the right eye was 6/9 and in the left 6/6 without glasses, and 6/6 in both eyes with correction. She had complete upper and lower dentures. There was no thyroid enlargement and no abnormal pulsation in the neck. The pulse rate was 70 per minute and the blood pressure 170/90 mm. Hg. The heart and lungs were normal. There was a large incisional hernia on the right side, painful on palpation. The liver and spleen were not felt and there was no glandular enlargement. Nothing abnormal was found on examination of the central nervous system.

**Investigations.**—Blood: Hb, 116% (Haldane); R.B.C., 5,720,000; W.B.C., 8,200 (neutrophils 62%, lymphocytes 31%, eosinophils 2%, monocytes 5%). Urine: specific gravity, 1027; acid; no albumin; sugar, 260 mg. per 100 ml.; no ketone bodies; urobilinogen not increased; bilirubin absent; deposit not remarkable. Blood calcium, 10.4 mg. per 100 ml.; blood phosphorus, 4.3 mg. per 100 ml.; serum phosphatase, 9 units; 24-hourly urinary excretion of calcium, 320 mg. Blood Wassermann and Kahn reactions negative. Both the glucose-tolerance and the insulin-tolerance estimations were performed at a time when the patient had been receiving a normal mixed diet. There was an insulin-resistant diabetes, as the following figures show: The blood cholesterol was 185 mg. per 100 ml. It was estimated on many occasions, but was not found to vary appreciably with the blood-sugar levels. The 24-hourly 17-ketosteroid excretion was determined on two occasions, and gave figures of 2.3 and 4.1 mg.

**X-ray Examination.**—Heart and lungs were normal. A congenital deformity of the first and second ribs on the right and a short first rib on the left were present. There were a bony bridging between the vertebrae, slight scoliosis, and fixation of

Blood-sugar Level (mg. per 100 ml.)

At	After Administration of 50 g. Glucose (Fasting, 210 mg.)	After 60 g. Glucose Orally and 10 units Insulin Intravenously (Fasting, 299 mg.)
$\frac{1}{2}$ hour .. ..	246	255
1 " .. ..	275	290
1½ hours .. ..	250	310
2 " .. ..	236	294
2½ " .. ..	222	290

the right transverse process of L.5. The bones of the upper limbs were small. There were localized periosteal thickenings and deformity of the lower end of the right radius. The bones of the lower limbs were small and rarefied and there was bowing of the tibiae and fibulae. The tibial vessels were calcified. A skiagram of the pituitary fossa did not show any definite enlargement. Calcification was seen on its floor, extending anteriorly, and there was some erosion of the base posteriorly. The films were shown to Dr. J. R. Gilmour, who suggested a diagnosis of hyperostosis frontalis interna, and this was confirmed by a lateral skiagram of the whole skull (Plate, Fig. 2). This shows hyperostosis on the internal surface of the frontal bone without involvement of the outer table, large frontal sinuses, and over-pneumatization of the mastoid cells.

Insulin therapy was stopped and she was given a diet of 10½ oz. (297 g.) of meat or fish supplemented with green vegetables. On this diet there was considerable reduction in the amount of sugar excreted. The blood-sugar level three-quarters of an hour after a midday meal was 160 mg. per 100 ml., and at three and a quarter hours was 163 mg. The polyuria was largely controlled. She lost 9 lb. (4 kg.) in a month on this diet.

### Discussion

The congenital deformities of her limbs are those of amyoplasia congenita. Apart from headaches, which she has had as long as she can remember, the other main features of her condition point to a pituitary or a pituitary-hypothalamic disturbance starting at the age of 19. These features are a large fat ruddy face, hirsuties, a buffalo distribution of fat, greasy skin, acne and boils, a history of irregular menstruation, insulin-resistant diabetes (detected at the age of 52), hypertension, and a haemoglobin of 116%. The combination is suggestive of Cushing's syndrome but lacks some of its important features. The lateral radiographs of the skull establish the diagnosis of hyperostosis frontalis interna; in a few cases of this condition calcification has been seen, as in this patient, in the sella turcica. It is now generally accepted that this cranial dysplasia is a manifestation of pituitary dysfunction (Knies and Le Fever, 1941). In the description and classification of a large series of pituitary cranial dysplasias by Mortimer, Levene, and Rowe (1937) there are references to hyperostosis frontalis interna, though they do not use the term themselves. Both basophilic adenomatous masses and eosinophil adenomata have been found at necropsy in the pituitary glands of some of these cases. The low excretion of 17-ketosteroids is probably accounted for by the patient's age: Frazer *et al.* (1941) found that the daily output was low in the elderly. Henschen (1936) has suggested that in hyperostosis frontalis interna a hereditary influence determines the frontal localization of the bony changes, and it may be that there is in this case a common genetic factor responsible for both the limb deformities and the cranial dysplasia.

I wish to thank Dr. Phillips, Medical Superintendent, Southmead Hospital, Bristol, for permission to publish this case, and Dr. A. C. Crooke and Dr. J. R. Gilmour for their valuable advice.

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## TUBERCULOSIS OF THE GREAT TROCHANTER

BY

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[WITH PHOTOGRAPHURE PLATE]

Tuberculosis of the great trochanter with involvement of the overlying bursa was originally described by Teale in 1870. Since that time references to this condition in the literature had been meagre until Meyerding and Mroz (1933) reported nineteen cases. The present series comprises twelve cases treated in Liverpool and Wrightington during the last fifteen years.

### Incidence

None of the previous papers on this subject have given any indication as to its frequency. In this collection of case histories I have found the incidence to be just under 2 per 1,000 cases of tuberculosis. It has been stated by Clapton (1919) that it does not occur in children, but in this series the youngest patient was 7 years old and there was also one patient of 14 years. The average age of the remaining patients was 28 years, which is comparable with the average of 35 years quoted by Meyerding and Mroz. Nevertheless, as the total number of cases recorded in the literature is only 41 this figure cannot be considered large enough to indicate a definite age period.

### Aetiology

Two factors are of importance. The first is the question of trauma: the superficial position of the great trochanter makes it peculiarly liable to injury, and severe blows on this bony prominence are an everyday occurrence. However, a history that recent trauma was followed by swelling or pain associated with tuberculosis of the great trochanter does not immediately suggest this as the principal aetiological factor, since the underlying disease may have already been present for some time, and the trauma may merely have been responsible for drawing the patient's attention to it. Nevertheless, three of the patients in the present series gave a history of considerable trauma to the great trochanter, although two of them remembered having had occasional aching pains referable to the hip for several months before the accident. Secondly, a considerable proportion of these patients were suffering, or had suffered, from tuberculosis in other situations. In the series described by Meyerding and Mroz (1933) 73% had other tuberculous lesions. In the present series, however, only five patients out of twelve (42%) had any other demonstrable tuberculous lesion. The site of this lesion varied: two patients had pulmonary tuberculosis, one had cervical adenitis, one a retropharyngeal abscess without a bony focus, one tuberculous arthritis of the knee, and one tuberculosis of the sacro-iliac joint of the opposite side.

### Symptoms and Signs

This condition may present in two ways: usually the patients notice a swelling of increasing size over the great trochanter, or they may complain of pain or aching of a mild type over the outer side of the thigh, apparently referred to either hip or knee. On examination a fluctuating swelling of varying size is usually found, covering the outer aspect of the greater trochanter, and extending backwards over the buttock and downwards for a varying distance (in two cases it reached the level of the lower



femoral epiphysis). The movements of the hip-joint are unaffected, but passive adduction is often accompanied by considerable pain. Six of the cases, when first seen, had old sinuses leading down to the bursa and bony tissue of the great trochanter.

The time interval between the onset of symptoms and the beginning of surgical treatment varied, the longest being two and a half years and the shortest three months. The average time was eighteen months. This differs considerably from the average of eleven and a half years given by Meyerding and Mroz, but the fact that one of their patients had had symptoms for forty years may have considerably influenced this figure.

Operative specimens and pus from ten of the patients in the present series were submitted for pathological and bacteriological examination. The tuberculous nature of the lesion was proved by histological examination or guinea-pig inoculation on seven occasions.

### Radiological Findings

Clapton (1919), Peabody (1921), and Keith (1922) have expressed the opinion that this condition usually arises in the bone. Keith has further suggested that it is primarily a tuberculous epiphysitis of the great trochanter, and is thus comparable to tuberculous epiphysitis in other situations. Other writers on this subject have expressed no opinion as to the original site of the infection. The changes revealed radiologically, however, show two distinct types of lesion. First and commonest is erosion of the periphery of the great trochanter, and secondly (one case) there is the encysted form which arises in the medulla of the great trochanter. Five of the patients had no bony change visible on radiological examination, and, moreover, they had another factor in common: they were the only patients (except the one with the encysted form) who had not yet developed sinuses, and were therefore free from secondary infection. All the other patients both showed erosion of bone and also had sinuses.

It may be suggested at this point that the bone changes were late in appearing, but two of these patients had noticed the presence of the cold abscess for over two years before seeking advice, and it is reasonable to expect that if the bone had been affected there would have been radiological changes at the end of that period. On the other hand, three of the patients, who were found to have considerable erosion of bone, had had their abscesses incised by their local practitioner six to eight weeks before they were x-rayed, and the period of their symptoms did not exceed one year.

Two of the cases were particularly instructive. The first was a woman aged 25 years, who had noticed a fluctuant swelling for a year before seeking advice, when she was x-rayed but no bony change was demonstrated. The abscess was then opened and its interior curetted, and at the same time it was reported that there was no sign of involvement of the greater trochanter. The treatment was unsuccessful and a sinus developed. A radiograph six weeks later showed early erosion of the greater trochanter. The second case was a girl of 14 who had complained of mild pain in the right thigh for fifteen months. Recently she had become aware of a swelling over the outer aspect of the thigh. On radiological examination there was no evidence of bony erosion, and she was treated by aspiration of the abscess and rest in bed. The material thus removed was thick yellow pus, and proved positive for tuberculosis by guinea-pig inoculation. The treatment was continued for about a year, during which time repeated radiological examinations failed to show any evidence of erosion of bone. Twelve months after treatment was started a sinus developed, and a month later x-ray examination showed considerable bony erosion.

Two other general factors militate against the theory that the primary lesion is always situated in the bony tissue: (1) It is extremely unusual for extra-articular tuberculosis to start by erosion of the cortical surface of the bone substance from without, and there is no comparable lesion described in any other situation. (2) In all the radiographs of peripheral erosion there is definite evidence of sclerosis, and this is undoubtedly due to the secondary infection which is present.

I would therefore suggest, on these grounds, that where there is radiological evidence of peripheral erosion in tuberculosis of the great trochanter the bony lesion is secondary to tuberculous infection of the trochanteric bursa, and begins only after secondary infection has taken place. (See Plate.)

### The Encysted Form

Only one patient showed this form of the complaint; she was a girl of 12 who had complained of pain in her right hip for a period of eighteen months. On x-ray examination a small area of diminished calcification in the centre of the great trochanter was seen. There was no limitation of movement in her hip-joint, and she was otherwise in good health. After a period of rest in bed the condition failed to improve, and eventually the trochanter was excised. The wound healed by first intention. The specimen of bone removed was submitted for histological examination, and it was reported that the necrotic area was typical of tuberculous osteomyelitis. The x-ray appearances in this case were similar to those of tuberculous osteomyelitis in other situations, and at no period did the patient show any evidence of involvement of the overlying bursa. I would suggest, therefore, that this was the only case in this series where the infection started primarily in the bone.

### Treatment

1. Drainage of the abscess was practised in three of the cases, and was done before the nature of the lesion had been ascertained. None of these wounds healed, and extensive sinuses formed. Radiologically there was considerable erosion of the great trochanter, and these patients were treated by excision at a later date.

2. Three of the patients were treated by repeated aspiration and rest in bed—in two cases on an abduction frame. Sinuses formed within a year of starting treatment, and the patients were later treated by excision of the bursa and trochanter.

3. Incision and curettage of the walls of the abscess was done in five of the patients in whom there were no sinuses or signs of involvement of bone. In two cases the wounds healed by first intention, in another two the healing was delayed from six to twelve weeks, and, although there was minimal serous discharge, the remaining patient developed a persistent sinus with involvement of bone, and was eventually treated by excision.

4. Seven patients were treated by excision of the bursa and of as much of the trochanter as was involved. This was practised also on one case of tuberculous osteomyelitis of the trochanter. In two of these patients the wound healed by first intention; in the remaining six cases sinuses persisted, but all were healed within seven months from the date of operation.

### Conclusions

1. Tuberculosis may originate either in the great trochanter or, more commonly, in the overlying bursa.

2. In tuberculosis of the great trochanter bursa, erosion of the bone does not usually occur until secondary infection has taken place.

3. The best treatment of tuberculous bursitis is probably early and adequate excision.

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## ACUTE INTERSTITIAL POLYMYOSITIS TREATED WITH PENICILLIN

BY

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AND

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[WITH PHOTOGRAVURE PLATE]

An important feature of the following case of what is a relatively rare condition was the good response to penicillin, altering the course of the disease from a moribund state to complete recovery.

### Case History

The patient, a peasant woman aged 42, was admitted to hospital on May 28, 1946. She had been taken ill rather suddenly on May 19, when she had a rigor and felt some pain in her right arm and left leg. The following day all her limbs were painful, but they did not swell until the third day of illness, when all limbs gradually became swollen. Her face remained unaffected. She felt very weak and perspired freely. The temperature was not taken. On the fifth day her condition became worse, the pain increased, and she felt "much heavier." She called in a doctor, who found her temperature to be 100.4° F. (38° C.). He gave her some medicine, but her condition did not improve. On the tenth day of her illness she was transferred to our hospital.

On examination all her limbs were greatly enlarged; the skin was tense and glistening; and active and passive movements were very restricted. The muscles appeared "hypertrophied," were tender, and some of them were transformed into large, pea-like lumps, especially the upper third of the right sternocleidomastoid, both biceps, both brachioradials, and the outer parts of the abdominal recti. This gave, in the epigastric regions, the impression of an enlarged spleen and liver. The abdominal and patellar reflexes were missing, but there were no pathological reflexes. The lungs, apart from a few rhonchi, were normal. The respirations were 26 and the pulse (120) was soft and regular. The heart was moderately dilated, the action regular, and the heart sounds clear; the blood pressure was 110/80 mm. Hg. The evening temperature was 102° F. (38.9° C.), and was of intermittent character.

**Laboratory Findings.**—Urine: acid, specific gravity 1031, trace of albumin; a few leucocytes, erythrocytes, and epithelial cells were seen in the deposit. A blood count showed: haemoglobin (Sahli), 83%; red cells, 4,240,000; white cells, 5,200 (segmented neutrophils, 84%; unsegmented neutrophils (*Stabzellen*), 2%; monocytes, 2%; lymphocytes, 2%; eosinophils, 10%). The eosinophils varied from 5 to 16% in different counts. The Wassermann reaction and Widal test were negative, the B.S.R. was 15 mm. (Westergren), and the residual nitrogen, 38 mg. per 100 ml. Blood cultures, electrocardiography, and x-ray examination were negative.

Treatment with "novurit," vitamin B, "neosalvarsan," and theobromine-caffeine had no effect. The patient remembered

that she had eaten pork meat and pork sausages before her illness, and, although the number of eosinophils was not high enough for trichiniasis and there were no swellings of the face and eyelids, a tentative diagnosis of trichiniasis was made, and a biopsy specimen was taken from the most swollen part of the right sternocleidomastoid.

**Histology before Treatment with Penicillin** (Plate, Fig. 1).—A pale-red soft piece of muscle the size of a large bean was imbedded in paraffin and stained with haematoxylin-eosin and van Gieson. As the photomicrograph shows, the normal muscle tissue was largely replaced by a very cellular inflammatory infiltrate consisting mainly of leucocytes, many of them eosinophils. The widely separated muscle fibre had partly lost their striation and had undergone wax degeneration. Some appeared to have ruptured or been replaced by the inflammatory tissue. No trichinae were found in the sections examined, and the histological diagnosis was acute interstitial eosinophilic polymyositis. Cultures from the blood were negative, and as the biopsy material was put into formalin no culture could be attempted.

By now the patient's condition had become practically hopeless. On clinical grounds and theoretical consideration based upon the histological findings we decided to try a course of treatment with penicillin.

**Treatment with Penicillin.**—This was started on June 8, about the twenty-first day of illness. The patient was given 15,000 units of penicillin three-hourly, intramuscularly. On June 14 the sixth day of treatment, her temperature dropped to normal and remained so. The swellings were diminishing and her general condition already showed great improvement. After receiving 1,500,000 units of penicillin she felt so well that she was discharged on June 21. She has been feeling well and healthy since.

Before her discharge a second biopsy was performed, and an impressive change was seen in the microscopical picture (Plate, Fig. 2). The inflammatory infiltrate had largely gone and most muscle fibres appeared normal. The number of leucocytes, especially the eosinophils, had considerably decreased and there were mostly mononuclear cells in the specimen. Thus the histological findings testify to the effect of penicillin in this case. No further biopsy could be undertaken.

### Discussion

Acute polymyositis Wagner is a rare condition affecting the muscles of the limbs and buttocks, which with the surrounding soft parts swell acutely. The general condition is disturbed, pain is a dominating symptom, and fever is present. According to Mayesima it is probably of septic origin. Acute polymyositis has been observed after influenza, tonsillitis, rheumatoid arthritis, meningococcal infection, suppurative processes such as tonsillar abscesses, etc., and also in epidemic form. Landsteiner found a streptococcus identified as *Str. polymorphus*.

In severe cases the disease often runs a short course, ending in weeks or months by death from asphyxia or aspiration pneumonia. Chronic cases may last one or two years. The disease resembles clinical trichiniasis, and was called pseudotrachiniasis by Hepp.

It can sometimes take a milder and more favourable course. In my case the patient's condition was rapidly deteriorating and looked clinically hopeless when treatment with penicillin was decided upon. Although one case is not sufficient proof, the quick recovery after treatment clearly indicates the role of penicillin in the treatment of acute polymyositis. The histological findings before and after treatment with penicillin give objective evidence of its effect in this case. Five months after her illness the patient was well and working. Her condition was perfect when last seen in May, 1947.

**ADDENDUM.**—Since this paper was written I have read an interesting report by M. Roch *et al.* (*Schweiz. med. Wschr.*, 1946, 76, 1035) on a case of polymyositis which

ended fatally in a few months. In the final stages it was found necessary to perform a gastrostomy owing to severe dysphagia. The authors quote Scheuermann, who in 1939 collected from the literature 263 more or less verified cases of polymyositis, and they consider it a rare and usually fatal disease. In this connexion the above case might be of even greater interest.

## Medical Memoranda

### Case of Strangulated Diaphragmatic Hernia

The following case of strangulated diaphragmatic hernia is of special interest because of the limitation of all symptoms to the abdomen and the localization of all signs in the chest.

#### CASE REPORT

A man aged 61 was admitted at 10.20 a.m. on Nov. 20, 1946, complaining of severe hypogastric pain. The pain had started suddenly at 5 p.m. the previous day, becoming more intense during the first few hours, and since then had remained constant in intensity, although when the patient had first been seen by his own practitioner the pain had been epigastric in position. During the night the patient had vomited twice. There was no history of symptoms suggestive of previous gastric or duodenal ulceration or other relevant illness.

On admission the patient was deeply cyanosed and insisted on sitting forward; lying back increased his pain. On examination his abdomen was apparently distended, but no rigidity was present. Rectal examination showed no localized tenderness or other abnormality. The apex beat was to the right of the midline; clinical examination of the chest revealed the presence of a massive left-sided pleural effusion. X-ray examination confirmed the displacement of the heart and the presence of the pleural effusion. The blood pressure could not be measured in the arm.

A probable diagnosis of dissecting aneurysm of the aorta was made. Diagnostic aspiration of pleural fluid was performed, and the presence of 10% of blood in the fluid apparently confirmed the above diagnosis. Cyanosis rapidly gave place to increasing dyspnoea until death ensued at 8.10 p.m.

On post-mortem examination 9 ft. (2.74 metres) of small gut and 14 in. (35 cm.) of transverse colon, together with mesentery and omentum, were found strangulated in the left hemithorax. The slit-like opening in the diaphragm, which could just admit two fingertips, was situated about 1½ in. (3.75 cm.) to the left of the apex of the dome and 1 in. (2.5 cm.) anterior to it. There were firm adhesions on the lung surface of the diaphragm between the pleura and the mesentery of strangulated gut.

I am indebted to Mr. Lovelock-Jones, medical superintendent of Amersham Emergency Hospital, for permission to publish this case, and to Dr. Kurrein for the post-mortem examination.

R. P. SHIELDS, M.B.

### Von Jaksch's Syndrome in a Baby with Congenital Syphilis

The following case report seems to be interesting enough to be placed on record.

#### CASE REPORT

A 13-months-old baby girl was admitted to the children's ward on Nov. 27, 1946, with a history of severe anaemia and bleeding from the gums. She looked desperately ill and was very pale. The bridge of the nose was depressed, and the gums were swollen and bleeding. She was teething at the time. The lungs showed a mild degree of bronchitis. The heart action was regular but accelerated, with a soft systolic murmur over the middle of the sternum. The abdomen was somewhat distended, the spleen was greatly enlarged, and the liver was also enlarged, being palpable two fingerbreadths below the costal margin. The temperature was normal.

The blood count on admission revealed: haemoglobin, 38%; red cells, 1,300,000; white cells, 39,200; morphology—polychromasia well marked, anisocytosis, and poikilocytosis, a few megaloblasts; the differential count was: polymorphs, 65%; lymphocytes, 26%; myelocytes, 7%; reticulocytes, 2%. Coagulation time, 5½ minutes; bleeding time, 3 minutes. A bone-marrow puncture was attempted, but without success. The child's mother was suffering from syphilis, had a positive Wassermann reaction, and was receiving treatment. The baby also had a positive Wassermann reaction and had received antisyphilitic treatment. X-ray examination did not

reveal the presence of rickets. A diagnosis of von Jaksch's syndrome in a baby with congenital syphilis was therefore made.

Treatment consisted of a blood transfusion of 3/4 pint (425 ml.), and ferrous ammonium citrate, 5 gr. (0.32 g.), and vitamin C, 5 mg., thrice daily. Great improvement was shown. On Jan. 23, 1947, the findings of the blood count were: Haemoglobin, 75%; red cells, 4,900,000; white cells, 15,500; morphology—poikilocytosis and a few megaloblasts; the differential count was: polymorphs, 70%; lymphocytes, 25%; myelocytes, 5%. The bleeding from the gums had now stopped, and the spleen and liver had greatly decreased in size. The child made an uneventful recovery and seemed very well. She was discharged from the hospital on Feb. 7.

We would like to express our thanks to the medical superintendent, Dr. R. A. Grant, for permission to publish this report.

A. D. GRUNBERG, M.D. Vienna,

Senior Resident Medical Officer.

D. H. GAWTH, M.R.C.S., L.R.C.P.,

Resident Medical Officer.

Birkenhead Municipal Hospital.

### Unusual Brain Abscess

On May 29 a boy aged 6 was admitted in a shocked condition to the out-patient department of this hospital. He had been injured five hours previously while fencing with another boy. The weapon used was a wooden board to which a nail was fastened. The parents noticed that the boy was very quiet and that he did not eat anything. On admission the patient was very sleepy; pulse 108 per minute, temperature 98.2° F. (36.8° C.), respiration rate 20 per minute. There was a small puncture wound above the right temple (right parietal bone). The wound was exuding blood mainly and also a small quantity of brain tissue. The pupils were contracted, equal in size and shape; they reacted to light and accommodation. Slight external strabismus of the right eye was observed. Superficial tendon reflexes were brisk. Abdominal reflexes were present. Both hands twitched from time to time. The sensory system appeared normal.

One hour after admission the child became unconscious. The coma lasted about one hour. He recovered consciousness after lumbar puncture. The cerebrospinal fluid was under great pressure; fluid at first appeared colourless, but later some blood came away. X-ray of the skull revealed a circular depression fracture of the right parietal bone. The fragment of cortex was displaced inwards and forwards. During the following fortnight the boy seemed to improve generally and mentally; however, from time to time the temperature used to swing from 97° F. (36.1° C.) up to 101° F. (38.3° C.). On three occasions it registered 102° F. (38.9° C.). During this period he had a full course of sulphamezathine for five days (65 tablets) and penicillin intramuscularly (50,000 units three-hourly). The slight squint in his right eye persisted throughout.

On June 12 the wound started to discharge pus. There were no localizing signs of an abscess present; however, a provisional diagnosis of a brain abscess was made.

On June 13 an incision was made over the perforation. The skull was found to be very thin. The opening into the brain was enlarged and it revealed a large brain abscess pointing inwards and forwards. Part of the brain was necrosed. A drain was inserted.

Systematic penicillin therapy was continued with 50,000 units three-hourly, combined with local injections of penicillin 10,000 units, i.d.s., into the abscess cavity. For a few days the child seemed to improve, but later it was noticed that he was getting much thinner and that his appetite was poor. He weighed then 2 st. 4 lb. (14.4 kg.).

In desperation we gave him cod-liver oil and insisted that he should have some nourishment; we succeeded, and in two weeks the child gained 1 lb. 14 oz. (850 g.) in weight.

On July 7 he was discharged, cured, with a slight squint of the right eye still persisting.

The cardinal features of this case were: (1) unusual method of injury (nail); (2) relief of symptoms following lumbar puncture; (3) absence of any localizing signs and symptoms of a brain abscess; (4) thinness of skull; and (5) the site of the abscess more or less coincided with the selected site of incision. This was also another revelation of the healing powers of penicillin.

I would like to thank Dr. R. Isaac, M.R.C.P., and C. J. Cellan Jones, M.D., F.R.C.S., for allowing me to report this case and for their co-operation and encouragement.

J. MAIZEL,

Resident Medical Officer,  
Port Talbot and District General Hospital.

## Reviews

### DIABETES MELLITUS

*The Treatment of Diabetes Mellitus.* By Elliott P. Joslin, M.D., Sc.D., Howard F. Root, M.D., Priscilla White, M.D., Alexander Marble, M.D., and C. Cabell Bailey, M.D. Eighth edition, thoroughly revised. (Pp. 861; illustrated. 50s.) London: Henry Kimpton. 1947.

This excellent book is a mine of information on every aspect of diabetes mellitus. Knowledge of insulin continues to grow rapidly, and different opinions develop not only in different clinics but also in different countries. White and Pincus have expanded their article on heredity and marshal the known facts very ably. They believe that the inheritance is by recessive Mendelian genes, and discuss the probabilities of inheriting the disease from the marriage of a diabetic with a non-diabetic. Their conclusions should relieve the minds of many. Thus, if a diabetic marries into a family where there is no history of the disease none of the children will develop it, although they will all be carriers. But if there is a history of the disease in the family of the non-diabetic parent and one child develops diabetes, the non-diabetic parent was a carrier and the other children of the marriage have a 50% chance of getting the disease if they live long enough. Joslin strongly believes that trauma is not an exciting cause of the disease, and experience in London during the recent war is against that hypothesis. It is generally admitted that trauma and excitement increase the insulin requirements of diabetics, and it is possible that a man with a disposition to diabetes might start the disease earlier as a result of the trauma. Joslin refers to a man who developed diabetes after trauma, but the presence of diabetes in the family in this instance was shown by the son's developing it shortly afterwards.

The section on the physiology and pathology of the disease has been rewritten and contains much of interest. Our knowledge of the interaction of insulin with anterior pituitary extract and with that of the adrenal cortex has been considerably increased. The reader should study the section on the blood sugar with care, remembering that in the U.S.A. the venous blood sugar is usually estimated, in Britain more often the capillary blood sugar. This probably explains why the fasting blood sugar of 130 mg. per 100 ml. is accepted as proving that a patient has diabetes, whereas this figure obtained from capillary blood may be compatible with a normal sugar tolerance. The diagnosis of renal glycosuria is not made unless every specimen of urine contains sugar, which implies that the threshold of the kidney for sugar is set below 80-120 mg. per 100 ml. It is difficult to understand why a patient whose sugar-tolerance curve is perfectly normal, rising perhaps from 120 to 160 or 180 mg. per 100 ml. (capillary blood) and falling to normal in 120 minutes, should be classed as a potential diabetic because he does not pass sugar before the test, the threshold of the kidney being set, at, say, 130-150 mg. per 100 ml. or so. This attitude entails rejection of the patient as a first-class life, whereas insurance companies in Britain accept fully investigated cases at normal rates. Discussing the control of glycosuria, Joslin believes that it should be as complete as possible, especially in children. The blood sugar should be normal if possible, for that indicates that the disease is adequately treated. The maximum loss permitted in children should not be more than 20 g. a day, and better none at all. However, he does not mention how often he fails to achieve this ideal.

The section on the different kinds of insulin is interesting. Joslin uses the quick-acting insulin, which he calls regular or crystalline insulin, and the slow-acting protamine zinc insulin. He objects to using the slow-acting globin insulin, because of the likelihood of hypoglycaemia in the late afternoon, which necessitates taking "afternoon tea"—a meal peculiarly attractive to English people, though not popular in the U.S.A. Joslin prefers to give the crystalline and protamine zinc insulin in separate injections, because he thinks that patients may make mistakes when these preparations are given in one injection. It is hard to believe that many of his well-trained patients will go wrong, since English patients attending hospital readily learn

to do the requisite mixing in the syringe. He does not seem to approve of the standard insulin containing mixtures of crystalline insulin and protamine zinc either 2:1 or 3:2, for which good results are claimed by some in the U.S.A., partly because it adds to the varieties of insulin available and may cause serious error. Another objection to standard mixtures is that different patients require different proportions of crystalline and protamine zinsulins.

The sections on gangrene and infections of the extremities are interesting, and some important changes have occurred in their treatment. The author carefully sets out the indications for local amputation of the toes, but though he mentions as the oscillogram he hardly stresses its value enough, particularly in cases in which the pulsation of the dorsalis pedis or posterior tibial arteries cannot be felt. It is now possible to perform local amputation of one or more toes instead of having amputate above the knee, and from 1942-6 this operation was performed in 54% of the cases—many more than in previous years. Recently trans-metatarsal amputations have been performed with success. This operation has been done because successful amputation of one toe might be followed a year or so later by gangrene of another. It is hoped that the local amputation in suitable cases will prevent recurrence. Penicillin in cases of frank sepsis and after removal of gangrenous tissue greatly improves the prognosis.

This book gives an excellent account of the large amount of research which has been carried out in Joslin's clinic, and is to be studied with great respect.

GEORGE GRAHAM

### ENCEPHALOGRAPHY

*The Normal Encephalogram.* By Leo M. Davidoff, M.D., and Cornelius G. Dyke, M.D. Second edition, thoroughly revised. (Pp. 232; 155 engravings. 27s. 6d.) London: Henry Kimpton.

It is nine years since the first edition of this book was published. Had it not been for Dyke's untimely death in 1938 the appearance of the second edition would probably not have been so long delayed. The task of revising the book incorporating new material thus fell to Davidoff alone, without the aid of a radiologist.

He discusses very little new work. He includes six illustrations, all planigrams (tomograms), omitting none of the old ones. The author states that planigraphy promises to be very valuable in diagnosis and seems to be particularly suitable for studies of the skull and brain. We cannot help feeling disappointed that neither the illustrations nor the text substantiate this statement. He also stresses the importance of stereoscopy which is so popular in America, but does not mention Lysholm's technique, where stereoscopy is not used. Lysholm advocates always radiographing the air in the ventricles in at least two planes without moving the head between taking the radiograph. Whenever possible a projection is taken in a third plane, the so-called half axial projection. By suitable manipulation of the head the ventricular system may be seen as a synthetic whole. The reviewer, who has tried both techniques, has no doubt that the Lysholm method is the superior, and that half axial projections are most useful particularly to the experienced encephalographer. Davidoff has brought in fairly extensive bibliography up to date, but there are certain important omissions such as that quoted above.

The book remains the standard work on the subject, and one practising neurology should fail to study its contents. *Abnormal Encephalogram*, a logical successor, is in process of production, and we await its publication with great interest.

J. W. D. BULL

### EXPERIMENTAL NEPHRITIS

*Le traitement de la néphrite aiguë par les antihistaminiques synthétiques.* Etude expérimentale et clinique. By François Rey. (Pp. 50; illustrated. 3 Swiss francs.) Basle: Benno Schwabe and Co. 1946.

This little booklet is a reprint of an article which appeared in 1946 as Supplement XVIII of *Helvetica Medica Acta*. The author suggests that it is about the treatment of acute nephritis with synthetic antihistamine compounds, but in fact the article mostly describes attempts to treat and prevent experimen-

nephritis in animals. His thesis, presented in the first part of the book, is logical enough. There is considerable evidence that human nephritis, like experimental nephrotoxic nephritis, is an anaphylactic phenomenon. The acute glomerular lesion is compared with the effect of histamine on capillaries, and may in fact be due to liberation of histamine during the anaphylactic or allergic reaction. In the second part the author describes the reduction of nephritis in rabbits by nephrotoxic serum from ducks (Masugi nephritis), and attempts to show from a series of only four animals that the effects can be minimized by the administration of antihistamine preparations during the latent period between the injection of the serum and the development of the nephritis. The results are not entirely convincing, especially as one of the (untreated) controls developed only a very mild nephritis. The author then describes a larger series (sixteen animals) treated by varied doses of antihistamine substances. These experiments are rather more suggestive, but there is still considerable overlapping in the results between the mildest of the untreated cases and the less successful of the treated.

The work would be more convincing if the author clearly pointed out the uncertainty of his results. Though he does not claim any kind of proof, he frequently uses such expressions as "these comparisons demonstrate very well the action of the treatment," when in fact the reader is wondering if they really show anything of the kind. He then investigated the therapeutic effect of antihistamine compounds in animal experiments, the substances being given at various intervals after the development of the nephritis. Again there is some difference between the treated and untreated cases, but hardly enough to convince the sceptic. Finally, he discusses therapeutic trials in cases of acute nephritis in human subjects. Here there appears to be in some cases a correlation between the administration of the drug and a diminution in albuminuria.

Altogether, we believe that the author, although not extravagant in his claims, goes further than his evidence warrants. Nevertheless, a further trial in carefully recorded human cases would seem to be justifiable, especially when new and more powerful antihistamine remedies are available.

ROBERT PLATT.

### MEALS IN FACTORIES

*Nutrition in Industry.* (Pp. 177; illustrated. \$1.50 or 6s.) Montreal: International Labour Office. London: Staples Press Ltd. 1946.

In the early years of the war it was thought that improving air nutrition would increase the efficiency of workers. Many fresh workers entered industry who could not go home for idday meals and had difficulty even in getting packed lunches.

Britain meals in canteens were provided to increase the efficiency of factory workers. The International Labour Office has published an account of the actions taken by the Governments of Canada, the U.S.A., and Great Britain to encourage the provision of meals in factories, to ensure that the meals are satisfactory, and to improve the workers' dietary habits. The report includes examples of costs and menus.

On the whole employers were enthusiastic about the effects of canteen meals on production. In one experiment large vitamin supplements reduced absenteeism. In Canada in 1945 it was found that over half the employees in plants inspected carried packed lunches and only 12% had hot lunches in the factory canteens; in the U.S.A. in 1944 nearly half ate packed lunches. In Great Britain in 1944 just over a quarter of those factories employing over 500 ate hot meals in the canteens; in March of that year 17 million lunches of the meat-and-two-vegetable type were served each week. In the U.S.A. only 27% of the workers had a lunch break of over half an hour. In Canada the lunch time varied from 15 minutes to 1 hour and 20 minutes; in some factories the workers did not leave their machines. The number who continued to eat packed lunches was therefore not surprising. Dr. Donald Hunter may note a photograph of painters in a Canadian aircraft works eating and drinking their protective milk at the bench among the paint pots. A study of the food eaten in logging camps showed that each man received the equivalent of 5,311 to 6,425 calories a day.

J. R. MARRACK.

### BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

*Ellis's Anatomy.* Revised and Edited by J. A. Keen, M.B., F.R.C.S. (Pp. 487. 42s.) London: John Murray. 1946.

A manual of dissection for medical students; includes new material on applied anatomy.

*Practical Emulsions.* By H. Bennett. 2nd ed. (Pp. 563. 48s.) Brooklyn, N.Y.: Chemical Publishing Co., Inc. London: Chapman and Hall, Ltd. 1947.

A textbook of colloid chemistry for the practical worker

*Arthritis and Related Conditions.* Edited by T. F. Each, M.D., F.A.C.P. (Pp. 472. \$6.50 or 36s.) Philadelphia: F. A. Davis Company. London: H. K. Lewis. 1947.

An account of arthritides for the general practitioner, with emphasis on the details of treatment.

*Statistical Methods in Research and Production.* Edited by Owen L. Davies, M.Sc., Ph.D. (Pp. 292. 28s.) Published for Imperial Chemical Industries, Limited. London: Oliver and Boyd. 1947.

A practical handbook of statistical methods for scientific and industrial research workers.

*Artificial Respiration: The Schafer Method.* 15th ed. (Pp. 71. 1s. 6d.) London: The Royal Life Saving Society. 1947.

An illustrated manual on artificial respiration with an outline of the relevant physiology.

*He Loved Freedom.* By Sidney Fairway.<sup>1</sup> (Pp. 224. 9s. 6d.) London: Stanley Paul and Co., Ltd. 1947.

A novel by the late Dr. S. H. Daukes (Sept. 13, p. 435).

*Synopsis of Allergy.* By H. L. Alexander, A.B., M.D. 2nd ed. (Pp. 255. 18s.) London: Henry Kimpton. 1947.

Includes new material on the antihistamine drugs.

*The Electrical Factor in Metabolism.* By W. N. Abbott, M.C., M.B., B.S., and E. F. Fowler, M.B., Ch.B. 3rd ed. Wellington, New Zealand. 1945.

A collection of articles, including discussion of the Scalebuoy apparatus.

*Does Science Deny God?* By C. L. Bishop. (Pp. 121. 6s.) Bournemouth and London: William Earl and Co. 1947.

The author's "present object is to show that scientific knowledge is not antagonistic to a belief in the existence of a universal mind or force."

*Creation's Heir.* By Harold Dearden. (Pp. 160. 12s. 6d.) London: Andrew Melrose, Limited.

A discussion of the mind, its effective or clumsy thinking, with suggested remedies for various maladies, social as well as mental.

*Science in Transition.* By A. W. Haslett. (Pp. 244. 10s. 6d.) London: Christopher Johnson. 1947.

An account of recent scientific developments, particularly those made during the war.

*Food and Health.* By Henry C. Sherman. (Pp. 290. 20s.) New York: The Macmillan Company. 1947.

An account of food and its utilization in the body, intended for housewives and dietitians.

*Rheumatism and Soft Tissue Injuries.* By James Cyriax, M.D., B.Ch. (Pp. 410. 42s.) London: Hamish Hamilton. 1947.

Discusses painful soft-tissue lesions resulting from injury or commonly termed "rheumatic," their accurate localization, diagnosis, and treatment.

*Design of Accounts.* By F. Sewell Bray, F.C.A., F.S.A.A., and H. Basil Sheasby, F.C.A., F.S.A.A. 2nd ed. (Pp. 270. 12s. 6d.) London: Geoffrey Cumberlege. 1947.

Describes the proper preparation of accounts and how to present them.

*Victory Over Pain.* By Victor Robinson, M.D. (Pp. 338. 16s.) London: Sigma Books. 1947.

A history of the development of anaesthesia.



## BRITISH MEDICAL JOURNAL

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## WORLD MEDICAL ASSOCIATION

A new international medical society—the World Medical Association—was formed on Thursday, Sept. 18, and on the afternoon of that day held the first meeting of its General Assembly. It is, in effect, the direct successor to the A.P.I.M.—Association Professionnelle Internationale des Médecins. The past few months have witnessed a revival of many international medical and scientific congresses, culminating this month in the remarkably successful meetings in London of the International Conference of Physicians, presided over by Lord Moran, and of the International Society of Surgery, presided over by Dr. Leopold Mayer. The two congresses in London were distinguished by the presence of eminent physicians and surgeons from all over the world, by the high level of the scientific contributions made at them, and by a cordial atmosphere of friendliness which surmounted all difficulties of race and language. The meeting of the World Medical Association in Paris last week was unfortunately not permeated with the same spirit. Although it added to its six laudable objects a seventh—“To promote world peace”—peace at the meeting itself was on many occasions preserved with difficulty. It may, however, turn out to be a good thing that this new organization was formed in an atmosphere free from illusions. But it would be wrong to put a gloss upon the facts or to pretend that those present left the meeting with the feeling that the foundation-stones had been well and truly laid.

The meeting was divided into two parts. The first was a Conference of Delegates of National Medical Associations, which was presided over by Sir Hugh Lett, Dr. Charles Hill and Dr. P. Cibré acting as joint secretaries. The proceedings began with a speech by the French Minister of Health, who welcomed the presence in Paris of the medical representatives of close on fifty nations. He said that the State had to concern itself with the physical and moral condition of the citizen, and he looked forward to hearing the results of the deliberation of the meeting on the relationship between the State and the doctor—a deliberation which unfortunately did not take place, as the protracted discussions on procedure and other matters did not allow time for the debate on this subject which should have been opened on Thursday by Dr. Guy Dain: there was time only for a series of short statements on Saturday afternoon. After the Minister of Health left, Dr. T. C. Routley gave a report of the activities of the Organizing Committee and hoped that the Assembly would approve the results of its labours. The task of the first part of the meeting was to decide on the Articles and By-laws of the proposed World Medical Association. These had been drawn up by the Organizing Committee and circulated to those present in English and French, the two official languages of the W.M.A., to which by the end of the meeting it was agreed that Spanish should be added. It soon became evident that many of the delegates of the 48

countries represented wanted to modify some of Articles and By-laws, and that the Conference did not succeed in agreeing upon these was due principally to patience and tactful handling of the meeting by Sir H. Lett and the unruffled demeanour of Dr. Routley. The delegate from Cuba, for example, wanted to change the name of the W.M.A., and the delegate from Turkey proposed that pharmacists and dentists should be admitted to membership; the Bulgarian delegate wanted to add another object—namely, that the W.M.A. should promote surgery and prophylactic medicine.

It should, perhaps, be pointed out that the two principal objects of the W.M.A. are the first and the third, which are thus:

- (i) To promote closer ties among the national medical organizations and among the doctors of the world by personal contact and all other means available;
- (iii) To study and report on the professional problems which confront the medical profession in the different countries.

The W.M.A., in other words, would appear to be concerned principally with all those matters which are summed up under the term “medical politics.” There was some confusion about whether the W.M.A. should be composed of representatives of different countries or of different national medical associations. If one country could secure the admission of delegates from several national medical associations then its votes would outnumber those of a country with representatives from only one national medical association. It was decided that each national medical association should have two votes, one for each of the delegates, and two votes for the one delegate if the second was unable to be present. Eligibility for membership was defined by Article 5, as follows:

- (i) Those medical associations which sent delegates as observers to the International Medical Conference in London in September, 1946; and
- (ii) Any other national or territorial medical association which is fully representative of the medical profession in a country or territory or of the members of the medical profession of a recognized ethnic group in its country or territory.

After prolonged discussion the latter sub-section was passed unaltered.

By the end of the first day the Conference had been unable to finish its discussions on the Articles and By-laws. This was due principally to the frequent intervention of the delegates of the South American countries, who acted as a bloc under the leadership of the delegate of the Medical Association of Costa Rica. It was highly regrettable that the fashion of voting by a bloc was introduced at the meeting and it seemed that the meeting was beginning to imitate some of the worst features of U.N.O. At one point the meeting was persuaded to vote in favour of a resolution that the Secretariat should be members of the Executive Council, but on the second day it had the sense to reject the absurdity of this decision, and agreed on a motion that Dr. Dain should act as the Secretary of the Council and not as a member of it. In various discussions on the By-laws it became clear that the Conference was anxious that the General Assembly of the W.M.A. should not devolve too much of its responsibility upon the Council. The Indian representatives, who made more than one helpful contribution to the discussions, pointed out some anomalies between the By-laws and the Articles

essed, what needed stressing, that the unit of membership a national medical association and not a country.

It was not until 3.30 p.m. on September 18 that the discussion on the Articles and By-laws came to an end. But at least the meeting had the satisfaction of thrashing out points of difficulties, and just how acute some of these points were may be illustrated by the fact that one By-law was by vote successively deleted, then restored, and then deleted again.

At the first meeting of the World Medical Association proper, which occupied the second half of the Proceedings, Dr. Charles Hill was appointed Acting Honorary Secretary, and Dr. Routley, who took the Chair until a new President was elected, observed that it was necessary to take the credentials of those delegates who had not yet presented them. This formal and routine procedure led to a series of regrettable incidents which were finally resolved in a manner which made it look as if the General Assembly was adopting By-law No. 44, as follows: "A Delegate shall be a person who is medically qualified and a member of the association he represents, and he shall be ordinarily resident in the territory of that association." At one point all the delegates of the South American countries left the chamber and subsequently returned, deftly piloted by Dr. Cibré. Prof. Marquis, who is Director of the School of Medicine of Rennes, was elected the first President, and only conducted the first meeting of the General Assembly. At the end of the meeting Dr. Routley was elected chairman of the Council.

With all the delegates once more present in the chamber the Treasurer, Dr. Leuch, of Switzerland, presented his report. He pointed out that the funds from the subscriptions of the various national member associations were inadequate for the tasks of the W.M.A. and reported to the meeting the generous offer made by the American delegates of \$50,000 a year for five years. To this gift certain conditions were attached, and because of these conditions feelings once more ran high. It is not unreasonable or unusual for conditions to be attached to a gift of money; yet some delegates felt that the gift should be free from conditions. Others objected to certain of the conditions. They were put to the meeting in the form of a recommendation by the Chairman of the Organizing Committee. Briefly, they were that the money should be used for (i) the salaries of the Secretary and other officials of the clerical staff, (ii) the rent and rates of the headquarters office, and (iii) the cost of publication of the W.M.A.'s official bulletin or journal. (It was subsequently agreed by the meeting that the money should also be used for the travelling expenses of the Council.) Another condition was that the Headquarters of the W.M.A. should be in North America, the exact location to be determined by Council. Still another condition was that the Council be instructed to work out a scheme of associate membership; this was subsequently altered to the effect that the Council should explore the possibility of arranging for gift funds for the W.M.A. to be free of income tax. Dr. L. H. Bauer, one of the delegates from the U.S.A., gave to the meeting a clear exposition of the circumstances of the gift. It was, he emphasized, not a gift from his member association, the American Medical Association, which had many heavy financial commitments. The money had been offered by friends of the A.M.A.—principally, it appeared, industrialists anxious to promote

the interests of the W.M.A. The disbursement of the money would be under the control of a committee in the U.S.A. composed of five doctors and four laymen. If the business donors could be admitted under a scheme of associate membership, Dr. Bauer said, they should have the right to attend meetings but not, of course, the right to vote. Dr. Bauer finally said that in certain circumstances, which would, however, be highly unlikely, the American finance committee might withdraw the gift. The first speech of opposition to this proposal was made by Dr. P. B. Mukerji, President of the Indian Medical Association. He expressed his appreciation of the generosity of those who had made such a large sum of money available to the W.M.A. but doubted whether it should be accepted under such terms. He felt that the W.M.A. should work out its own salvation even if it meant that much of the work would have to continue to be done on a voluntary basis. The debate on this controversial subject continued on the Friday. Irrespective of the conditions of the gift, it was decided that the Headquarters of the Secretariat should be in North America. This decision having been taken, the debate continued on whether to accept the American gift with amendments to the terms. The important amendment was that which deleted the reference to working out a scheme of associate membership. By the counting of hands 31 voted for accepting the gift, and 32 against. A recount being necessary, it was suggested that this was an unsatisfactory method of arriving at a conclusion, and the Assembly departed for a visit to Versailles, on the agreement that a further and more strictly controlled vote should be taken on the following day, when, some members abstaining from voting, the General Assembly voted in favour of accepting the handsome gift of \$50,000 a year for five years.

If this gift had not been accepted it is doubtful whether the W.M.A. would have remained in being. It is perhaps a commentary on the unsettled economy of the world that the W.M.A., which represents some 500,000 doctors, could not raise sufficient funds to carry on its own work unaided.

It remains to be said that in the midst of controversy on procedure and finance the General Assembly entered into a non-controversial atmosphere when it condemned the crimes committed by German doctors. It had before it a document drawn up by the Council of the B.M.A. under the heading "War Crimes and Medicine," and it listened in sympathy to an address on this subject by Prof. Charles Richet, who had himself been in a German concentration camp. He was followed by one of the Greek delegates, who, at the end of his address, asked the meeting to stand in memory of the Greek doctors killed by the enemy. It was finally agreed that German delegates should not be admitted to the W.M.A. until organized medicine in Germany condemned the past criminal acts of German doctors.

We have tried to give a faithful account of what happened last week at this highly important conference held in Paris in the Domus Medica, the Headquarters of the Confédération des Syndicats Médicaux Français, which throughout the Proceedings acted as a most generous host. It is important, we believe, that the various difficulties attending the establishment of the W.M.A. should be known so as to be understood. It had set its hand to a great task, and if it is to achieve its highly important objects it will have to secure the good will of the various national

medical associations in all parts of the world. If these associations, through their delegates, come to the meetings of the Council and of the General Assembly in a factious mood then the prospects of success are not bright. Much, of course, will depend upon the hard work, tact, and ability of the permanent Secretary, who has yet to be chosen.

## HAEMATEMESIS

Haematemesis is a subject which can always be relied upon to cause a lively discussion at any medical meeting, while in the literature comment and counter comment have been at times acrimonious. In his Goulstonian Lectures for 1947, the publication of which we conclude in the opening pages of this issue, Avery Jones has given a comprehensive and up-to-date account of the subject based on a personal series of 687 cases admitted to a municipal hospital between June, 1940, and January, 1947. He exposes certain fallacies which have crept into modern thought, and he has important observations to make upon what must always be the core of the problem—the early recognition and treatment of those cases in which the bleeding is likely to be dangerous.

There are errors in the statistics of haematemesis which are not generally realized. The literature is comprised of three types of series—mass hospital statistics, collected series, and individual series. Only the last of these are acceptable, and they may be misleading because of the small numbers recorded, the different criteria of diagnosis used, and the type of case which is excluded. Surgical cases are commonly discarded, and in some series even fatal cases are ruled out, on account of complications which in many instances should be attributed to the treatment. A further drawback is that small series are often published in order to illustrate a particular form of therapy, and, as such, they will record successful rather than unsuccessful methods, with a consequent distortion of the over-all mortality. Four major variables must be considered in any discussion on haematemesis: social status, age, sex, and the type and position of the lesion. Ignorance of any one of these factors may lead to muddled thinking. For instance, the surgeon may reassure himself, and his patients, that the mortality from gastrectomy for haemorrhage is low, whereas analysis will show that this is only true below the age of 40 years, after which age the hazard is much increased.

There was a considerable increase in the number of deaths from haematemesis between the wars; it reached a maximum in the early 1930's and has since declined. This increase may be attributed to the virtual disappearance of acute ulcers among young women and their replacement by chronic ulcers in men over 40. The subsequent decrease in mortality Avery Jones considers to be due to the introduction of the drip blood transfusion and to the use of liberal feeding. Some workers have emphasized the possible dangers of blood transfusion in haematemesis. They claim that the blood pressure may be raised unduly and bleeding restarted. The present series gives no support to such a view. Provided that the known dangers are guarded against, transfusion is recommended, the aim being to maintain the haemoglobin above 40%. This is a view which is generally accepted to-day. Cautious transfusion is regarded as an insurance against disaster should haemor-

rhage recur, and it ensures that the patient is better able to stand operation if this should be required.

Copious feeding for patients who have recently had brisk haemorrhage from the stomach or duodenum is first advocated by Meulengracht, and in this country the modification elaborated by Witts is becoming increasingly popular. It is maintained that a purée diet does not increase the risk of recurrent bleeding and that it improves the patient's general condition and so promotes healing. Avery Jones finds no evidence to suggest that liberal feeding, any more than blood transfusion, causes recurrent haemorrhage. But in 32 out of the 45 cases examined post mortem an exposed vessel was seen. These patients had died after several recurrent bleedings, and it is pointed out that at operation these pulsating vessels spurt with blood when they are touched; may they not do so when semi-solid food moves up against them? It is not always possible to give purée right from the beginning of treatment, because of the poor general condition of the patient, or because of nausea, or perhaps because of the persistence of pain—always a serious feature. In such circumstances Avery Jones recommends two-hourly feeds of 7 oz. (200 ml.) of milk. This is a sound suggestion for, as Izod Bennett and his colleagues<sup>1</sup> pointed out, in haematemesis the digestive functions are gravely disorganized, and it may be unwise to demand from the diseased organ the additional work which the digestion of semi-solids may entail.

Whatever regime is adopted the prevention of dehydration is important, and Marriott's dictum,<sup>2</sup> that a patient should pass every eight hours a pint of urine (568 ml.) containing 5 g. of chlorides per litre, should be remembered. From a study of the post-mortem records of patients who died before the introduction of massive transfusion and early feeding Avery Jones concludes that dehydration was the cause of death in many, though the high levels of the blood urea suggest another possibility. Darmady<sup>3</sup> has shown that the renal changes observed in traumatic uraemia may also be found in any condition in which a state of shock occurs. Such changes have been described in haematemesis, and it may well be that early and adequate resuscitation is even more important than early feeding.

A gastroscopic study was made of cases in which there was no radiological proof of peptic ulcer, and the results are of considerable interest. Avery Jones is at pains to explain that early gastroscopy is not recommended as a routine measure, but here it was undertaken as part of "a definite clinical investigation." The examination was successful in 116 out of 217 cases. In 30 the mucosa of the stomach was found to be normal; in 86 there were pathological changes, and this group included 65 cases in which there was a gastric ulcer. Of the acute ulcers 3 were superficial, flat lesions, with little or no surrounding oedema. There were no generalized changes in the gastric mucosa, and in 5 instances the ulcer was accompanied by a histamine-fast achlorhydria. These acute ulcers seldom proved fatal. In some cases they gave rise to no symptoms but more usually there was a history of bouts of epigastric pain lasting from a few days to a few weeks. These lesions cannot be shown radiologically, and this study emphasizes yet again that a negative skiagram in a patient with

<sup>1</sup> *Lancet*, 1942, 1, 551.

<sup>2</sup> *British Medical Journal*, 1947, 1, 328.

<sup>3</sup> *Brit. J. Surg.*, 1946, 34, 262.

suggestive symptoms must not be taken as evidence against peptic ulceration.

The many discussions that have taken place on the subject of haematemesis have cleared the air to a considerable extent, and most clinicians would now agree on the importance of reassuring the patient, of rapid resuscitation, and of the maintenance of a safe haemoglobin level, with the prevention of dehydration. Attention should now be directed to the best means of diagnosing early and treating adequately those patients who have large indurated ulcerations in the floor of which lies a thickened and eroded vessel. Age appears to be important. Below 45 years recovery is probable, even though brisk bleeding recurs after admission to hospital. Good clinical evidence of chronic ulceration is to be expected: persistence of pain is suggestive, as is evidence of general arteriosclerosis, and a history of recurrent haemorrhage is characteristic. In many of these cases there can be no argument as to the best method of treatment; complications such as great age, severe emaciation, and cardiac or pulmonary disease will preclude surgical measures. In others, however, surgery offers considerable hope. Two provisos must be observed: the decision to operate must not be delayed until the patient is in *extremis*, and his general condition must be such that he may be considered to have a fair chance of standing a partial gastrectomy. Observing these rules, Avery Jones records successful operations in 6 out of 7 cases. The only fatality was in a man of 75 years. From these figures another point is made clear—the surgical skill required is of the highest order.

### PREVENTION OF CARDIAC LESIONS DUE TO DIGITALIS

When large doses of digitalis are given to animals daily for a period certain lesions of the myocardium result. It now appears that the administration of aminophylline will prevent the appearance of these lesions; this finding may have a clinical application.

The story begins with Böhner's observation<sup>1</sup> in 1934 that cats treated with large doses of digitalis glycosides show degenerative changes in their heart muscle, particularly in the papillary muscles of the left ventricle, where the muscle undergoes necrosis. Similar observations have been made by later workers.<sup>2,3</sup> Dearing, Barnes, and Essex<sup>4</sup> found such changes after giving cats an initial dose of digitoxin equal to 0.3 of the lethal dose, followed by daily doses corresponding to 0.3 to 0.6 g. digitalis leaf for a man. They observed degeneration of the myocardial fibres and haemorrhage; exudative cells appeared later, and when these disappeared the connective tissue cells proliferated. Banting and Hall<sup>5</sup> and their colleagues made two other observations. They gave dogs intravenous injections of 50 mg. acetylcholine by slow infusion into a leg vein. Curiously enough, the effect on the heart rate was acceleration, but the effects on blood pressure, on breathing, and on the intestines were those expected. The blood pressure fell, and there was dyspnoea, cyanosis, salivation, vomiting, and diarrhoea. These large doses were given daily until the animals died. Their hearts showed permanent damage—hyaline degeneration and some thrombosis

in the coronary vessels. Acetylcholine constricts the coronaries, and Banting and Hall suggested that the degeneration was due to this constriction. They produced similar cardiac lesions by chronic stimulation of the vagus (for 31–70 hours) under light nembutal anaesthesia; the heart rate was decreased, but the other effects were the same as those following the injection of acetylcholine. Here again they believed that the myocardial degeneration was due to coronary constriction.

Kyser, Ginsberg, and Gilbert<sup>7</sup> considered that the myocardial degeneration caused by large doses of digitalis might also be due to coronary constriction, and might therefore be prevented if the digitalis was given together with a powerful coronary-dilator. They gave a digitalis preparation called "digiglusin" to seven dogs for periods varying from 21 to 86 days; in all seven they observed myocardial degeneration. To five dogs they gave digiglusin together with aminophylline (about 80% theophylline and about 12% ethylene-diamine) 3.75 gr. (0.25 g.) twice daily. The hearts of these dogs after 17 to 37 days were almost normal and practically free from degenerative changes. Theobromine sodium acetate protected three out of five dogs but not the other two. Papaverine hydrochloride had no protective action. The evidence suggests that myocardial degeneration does arise from coronary constriction and that theophylline can prevent it when such degeneration is caused by excess of digitalis.

### ATTACK ON DISSEMINATED SCLEROSIS

Research into the aetiology of disseminated sclerosis is attracting attention again, and there has recently been set up in the U.S.A. an organization called the Association for Advancement of Research on Multiple Sclerosis, Inc. This is a lay body, financed from voluntary sources, under the honorary chairmanship of Dr. Tracy J. Putnam and with a board of medical advisers. It will collect funds for research, gather and co-ordinate information, and educate the general public. The Association proposes immediately to investigate whether the disease occurs more frequently—as the figures indicate—in the northern areas of Europe and the Western Hemisphere than in Mediterranean and tropical lands. It has also arranged to finance a three-year investigation at the Neurological Institute, New York City, into the possibility that the disease is an allergic manifestation. Among other work to be studied are that of Putnam suggesting a vascular mechanism, and the isolation by Margulis, Soloviev, and Schubladze<sup>8</sup> of a virus from cases of acute disseminated encephalomyelitis. The New York State Department of Health has offered facilities for examining the cerebrospinal fluid from cases of disseminated sclerosis. The Association will presumably also investigate the relationship, if any, between human disseminated sclerosis and swayback in lambs, reported by Russell and others.<sup>9</sup>

Many sufferers from the disease in the U.S.A. and Canada have formed clubs under the auspices of the Association to bring voluntary relief to those in need and to contribute funds for research. *A.A.R.M.S. Forward* is a bulletin supplying members with the latest information, and the Association also issues educational pamphlets. This co-operative effort by medical men and their patients is commended to those in this country who are interested. They may obtain further information from the Executive Secretary of the Association, New York Academy of Medicine Building, Fifth Avenue and 103rd Street, New York, 29.

<sup>1</sup> Arch. exp. Path. Pharmacol., 1934, 176, 59.

<sup>2</sup> Chin. med. J., 1936, 50, Suppl. 1, 31.

<sup>3</sup> J. Pharmacol., 1942, 76, 1.

<sup>4</sup> Amer. Heart J., 1943, 25, 648.

<sup>5</sup> Canad. med. Ass. J., 1936, 34, 9.

<sup>6</sup> Ibid., 1937, 37, 314.

<sup>7</sup> Amer. Heart J., 1946, 31, 451.

<sup>8</sup> J. Neurol. Neurosurg. Psychiat., 1946, 9, 63.

<sup>9</sup> Brain, 1947, 70, 50, and see annotation in last week's Journal, p. 460.

## INTERNATIONAL SOCIETY OF SURGERY TWELFTH CONGRESS IN LONDON

(Continued from p. 467)

The congress of the International Society of Surgery continued its London meeting until Sept. 20, after which a number of the members travelled to Edinburgh to fulfil a further programme. In addition to the scientific discussions visits were paid to many London hospitals, and on the last afternoon there was a pilgrimage of homage to places connected with Hunter and Lister.

### Vascular Surgery

On Tuesday morning, before a crowded audience in the Great Hall of B.M.A. House, Prof. René Leriche (Paris) opened a discussion on the progress of vascular surgery, expounding in a masterly way the physiology and pathology of the arteries, and surgical principles and methods. He spoke particularly of the management of chronic obstruction of the large arteries of the limbs. He was followed by Dr. Sousa Pereira (Oporto), with an account of sympathetic innervation and the treatment of embolism and cerebral thrombosis, and also the influence of sympathetic innervation on the development of collateral circulation.

Dr. J. R. Veal (Washington) said that some years ago in the States it was found that in the group of diabetic and arteriosclerotic patients who had undergone leg amputation for vascular gangrene the mortality following operation was about 40%, and the most important factor was pulmonary complications. Further study suggested that pulmonary embolism was the cause in the majority of cases, but such pulmonary embolism had been almost completely eliminated, and the mortality brought down to 10-13% by the precaution of a preliminary higher ligation of the saphenous vein. The unoperated leg often also gave trouble, and now the practice was to make a bilateral ligation of the saphenous vein in these patients, with a further reduction in mortality.

Mr. Dickson Wright (London) reported two cases of thromboangiitis obliterans with sudden onset of claudication. Arteriography showed that the femoral artery was obstructed only for 3.8 cm. in the one case and 5 cm. in the other just above the knee, and the rest of the arterial system seemed to be in good order. In both cases he dissected the body of the artery and interposed a graft from the saphenous vein. He took the vein which lay alongside the thrombosed artery, moved it slightly over without detaching it from its surroundings, and placed it between the two ends of the artery. The results were perfect, and the patients had done extremely well and had lost their claudication.

Dr. L. G. Herrmann (Cincinnati) described the use of what was known as the vitallium cuff in reconstructing the circulation after arterial injuries caused by gunshot or stab wounds; Prof. Dos Santos (Lisbon) and others discussed special techniques, and Dr. Servelle (Paris) gave a remarkable demonstration of contrast methods in arteriography, venography, and lymphography.

### Surgical Treatment of Congenital Pulmonary Stenosis

The congress gave an ovation to Prof. Alfred Blalock, of Johns Hopkins Hospital, Baltimore, who gave a more extended presentation of his operation for congenital pulmonary stenosis than he had given to the International Conference of Physicians the previous week. Up to 1938 there was no satisfactory treatment for any type of congenital heart disease. Since then an advance had been made in each of the major groups—patent ductus arteriosus, coarctation, and pulmonary stenosis. The tetralogy of Fallot accounted for about 75% of cyanotic children over the age of two. The object of his operation was to anastomose a systemic vessel in which there was a higher pressure and in which also there was unoxygenated blood to one of the two pulmonary arteries in which the pressure was low. On the right side either the innominate or the carotid or the subclavian could be used, and on the left side either the left subclavian or possibly the side of the aorta. The point was to connect the systemic and pulmonary circulations. He usually carried out an end-to-side anastomosis so that the blood could go to both lungs instead of only to one, but occasionally,

when a pulmonary artery was encountered which was too small to admit the end-to-side, an end-to-end anastomosis had to be done. Most of the operative procedures had been performed on the right side for the reason that the innominate came off the right in most patients, and he preferred to use the subclavian branch of the innominate rather than the subclavian which arose directly from the aorta, because it made a better angle. In 25% of these patients the aorta descended on the right instead of on the left, in which case the innominate was on the left and an incision had to be made on that side if it was desired to use the subclavian branch of the innominate.

Prof. Blalock showed a film of the entire operation—the ligation of the azygos vein; the division of the mediastinal pleura; the exposure of the right pulmonary artery, the exposure of the innominate artery from under the superior vena cava, and the anastomosis between the end of the subclavian and the side of the pulmonary. He said that in half the patients the procedure was as easy as it appeared on the screen, in a number it was rather more difficult, and in a few it was very difficult indeed. By a fortnight after operation the cyanosis had usually disappeared; the disappearance of the clubbing of the fingers occurred later. In 474 cases submitted to operation there had been 86 deaths, but 18 of the deaths followed exploratory thoracotomies in which it had been impossible to find a pulmonary artery. In the last 38 successive cases there had been no death. Most of the patients who had survived the operative procedure had markedly improved, and some of them who could walk only a few steps before operation were now able to walk miles. He showed two patients, a girl aged 3 and a boy aged 9, who had recently undergone this operation. They appeared quite normal children.

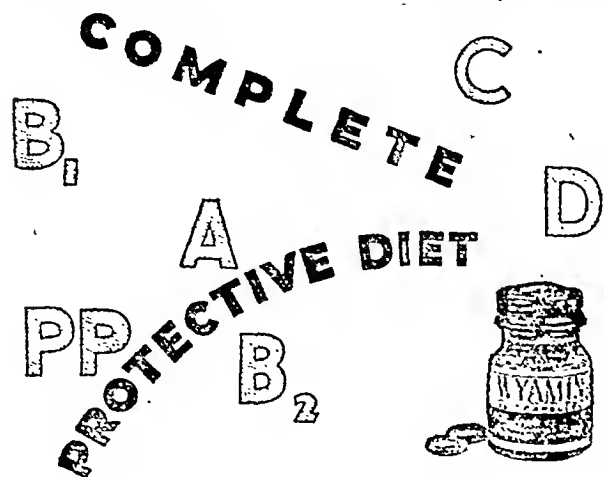
Dr. P. Sandblom (Stockholm) said that this was one of the most brilliant and exciting advances in modern surgery. Stockholm Blalock's operation had been carried out in a few cases; there had been three deaths. Unlike Blalock, he always heparinized the patient. He thought it wise to start that way; no doubt when the technique had been fully mastered heparin need be used only as Blalock used it—very rarely. Although it might be thought a risky operation, when the case before and after operation were seen there was every encouragement to pursue it.

### War Injuries of the Lungs

On Wednesday Dr. Bastos-Ansart (Barcelona), speaking in Spanish, described the results of early operation on pulmonary war wounds. His experience was based on the Spanish Civil War, where surgeons had to work under special difficulties, small teams and with sparse equipment, having largely to depend upon their wit in improvisation, though they certainly had the advantage of being able to get to their patients in very short time. In cases in which the wounds were limited to the lungs an extremely conservative surgery was practised. The lung itself was able very well to deal with infection. Aspiration was carried out, but only partially, and his experience was that bleeding tended to restart as a result of such aspiration. If, of course, there were multiple wounds immediate surgical intervention was made. Dr. Rudolf Matas, former president of the congress, who interpreted Dr. Bastos-Ansart's lengthy paper, described it as a classic in military surgery as practised in the war, and he hoped it would be translated for the benefit of surgeons all over the world.

A graphic exposition of the treatment of gunshot wounds of the chest as encountered on the Italian front was given by Mr. A. L. D'Abreu (Birmingham), who said that his experience covered 2,000 such cases in soldiers. Towards the latter part of the war it became evident that the treatment of such wounds surgically and administratively, fell into two stages. In the first stage the object was to save the patient's life, which was done by blood transfusion, oxygen therapy, meticulous excision of the chest wall wound, and other measures. In the second stage rehabilitation was undertaken, with prophylaxis against sepsis or treatment of sepsis if such was still present. In the battle of the Sangro, before this two-stage method was established, in a series of 260 chest wounds the empyema rate was over 30% and the mortality rate was 5.7%. Later, in the "Gothic Line" battle, by which time the two-stage treatment was organized, out of 373 cases the empyema rate was 12%, and the mortality 1.4%; and later still, in the battle for the Po Valley, where





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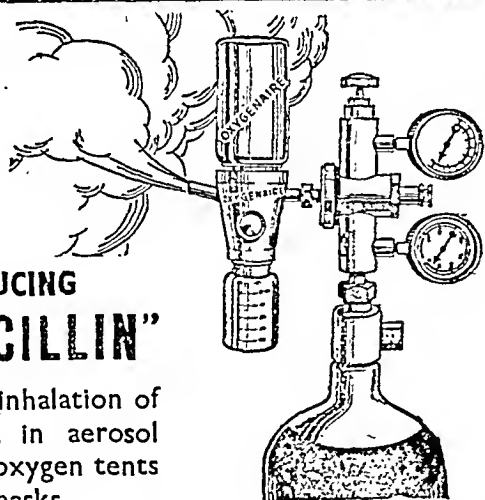
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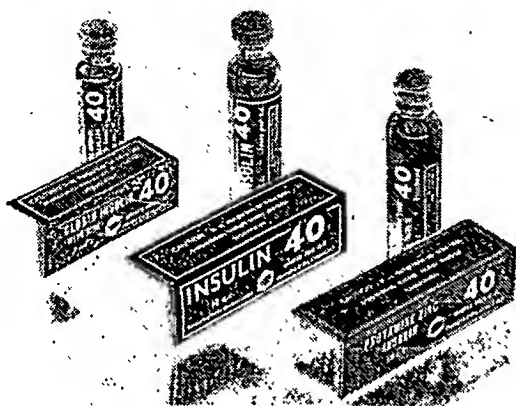
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the conditions from the point of the view of the Allied armies were entirely favourable, the empyema rate fell further to 7.6% and the mortality to 1%. In 839 cases in which haemothorax was a major problem, all treated by early aspiration, infection (empyema) occurred in 214, and clotting in 73. Strenuous endeavours were made to get normal movement of the chest, and the clot was removed by pulmonary decortication, with very gratifying results. As the war proceeded the surgeons in the British and American armies more and more favoured a thoracic approach to abdomino-thoracic wounds, provided they were sure that the abdominal injury was in the right or left upper quadrant of the abdomen.

Mr. D'Abreu was unable to look without apprehension on the lodgment of foreign bodies in the thorax. He had seen haemothoraces and empyemata develop in consequence. Most foreign bodies in the lung were in a peripheral position, and usually no deep dissection into the lung was required for their removal. It was the custom to remove foreign bodies 1 cm. in diameter within 6 to 10 days of the injury. In this way casualties were rehabilitated quickly and returned to duty. The foreign body which was partly in the lung and partly in the vertebral column was a special problem. All foreign bodies shown radiologically to be in contact with the vertebral column were removed; their retention was likely to give rise to osteomyelitis. Of 221 cases with foreign bodies in the lung 100 were operated on and the foreign bodies removed; in the remainder the foreign bodies were usually very small. Of 49 foreign bodies in the pleura 44 were removed. Altogether the new techniques practised in the recent war had enabled them to deal with complicated haemothoraces which in the previous war had left the patients with crippled chests; the surgery of foreign bodies had been made safer and more effective; and, finally, penicillin was of very great help in dealing with infection.

#### Operative Treatment of Fractures

A very unwieldy discussion took place on this subject, which was too large for one session. The subject was introduced by Prof. R. Danis (Brussels), who showed a film illustrating the uses of a special fracture operating table in his clinic and of various screws and bolts and other devices in fracture treatment. The film also showed the making of a special inlay splint and the application of an instrument called a coaptor for the adjustment of the ends of the fractured bone and the encouragement of good callus formation.

He was followed by Dr. D. Phenister (Chicago), who limited his remarks to ununited fractures. In the majority of cases, he said, the fragments were in relatively good position and there was no need for reduction. In such cases it was not necessary to break down the fracture and remove the callus; the callus was left to hold the fragments together. His method was to take a strong and usually large bone-graft—sometimes two—most often from the tibia, and apply it across the fracture line. He used no screws to anchor these grafts. The intermediary callus was curetted out in some cases, but the results were the same as when it was left in. The fragments were usually immobilized for two or three months. The graft became united to the fragments on either side of the fracture line. The operation was very short and simple; little blood was lost, and the principle of impaction, which Prof. Danis had emphasized, was exercised by the muscles. The muscles helped to hold graft and fragments together, and the stimulus of osteogenesis was obtained from muscle pull. He had operated on 89 such cases, with primary healing in 85. There was non-union in one case of infection, with loss of the bone-graft; in one case there was a congenital pseudo-arthritis; and in two cases he had failed to place the graft properly; it was too much on one side, and there was failure of union on the short side. All except the congenital pseudo-arthritis were corrected by re-operation. Dr. R. Demel (Vienna) described the treatment of gunshot fractures with false joint by Kirschner's splintering method; Dr. A. Westerborn (Gothenburg) spoke of the advantages of the medullary nail in fractures of the femur, and many other speakers described variations of technique.

#### Heparin in Surgery

On Thursday morning the high-light was a discussion on recent advances in surgery due to heparin. It was opened by

Dr. Clarence Crafoord (Stockholm), who declared that heparin had opened new possibilities in experimental surgery. He himself had worked for many years at the possibility of combating post-operative thrombosis but without much success until, in 1935, heparin became obtainable commercially in pure form and in sufficiently large quantities for prophylactic use. Between 1935 and 1940 two Swedish gynaecologists and he had heparinized approximately 800 patients post-operatively. In a large proportion of these the operation performed was hysterectomy. In the pre-heparin days there would have been a considerable number of cases of thrombosis in such a series, but actually there were almost no complications. Later similarly successful results were reported with dicoumarol. In Sweden the risk of post-operative embolism had now practically disappeared. He gave some figures from the Mariestad Hospital concerning cases of deep venous thrombosis. In a series of 264 cases untreated by heparin fatal pulmonary embolism developed in 47, or 18%. In a further series of 221 cases treated by heparin alone only 3 developed fatal pulmonary embolism, or 1.3%. In another series, out of 543 cases of thrombosis or pulmonary infarction submitted to conservative treatment, there were 88 deaths (16%), whereas out of 769 cases treated by heparin there were 3 deaths, and out of 131 cases treated by dicoumarol there was 1 death, a total death rate of 0.45%. The method employed was to give intravenous injections to a total of about 250 or 300 mg. a day, divided into four administrations at four-hour intervals. After three or four days the dose was reduced. The practice in Sweden now was to give heparin in all cases in which there was the slightest suspicion that a thrombotic complication might arise. In blood transfusion it was the routine procedure for heparin to be injected intravenously into the donor. Intravenous heparinization was also used in cases of polycythaemia where it was necessary to perform venesection.

Prof. W. E. Gallie described the work which Gordon Murray, C. H. Best, and others had been doing in Toronto on this subject. He said there was no doubt that heparin did control the spread of thrombosis and brought about a rapid amelioration of symptoms. By holding the spreading in check it greatly reduced the risk of pulmonary embolism. Even in cases where a non-fatal embolism had previously occurred and there was reason to expect further embolisms it was rare to find them occurring if heparin had been used. He also mentioned its value in the field of arterial surgery. After complete excavation of the thrombus and local and general heparinization of the patient the wound in the arterial wall would heal well and there would be no complications. Nevertheless, in spite of the simplicity of most of these operations, physicians were loath to transfer the cases to surgery; they were inclined to try the so-called conservative treatment until it was evident that severe changes were taking place. This was a foolish attitude, because it took away all possibility of a successful ambolectomy. If he himself had an embolus in one of his major peripheral arteries he would want a competent surgeon to remove it at the earliest possible moment and would trust to heparin to keep the vessel clear.

Dr. G. Bauer (Mariestad, Sweden) said that at his hospital heparin had been used for the past seven years, and during that time, with over 1,000 operations, not a single death had occurred from post-operative embolism. Successful heparin treatment depended largely on two factors: the possibility of arresting instantaneously the progress of the thrombotic process, and the making of an early diagnosis. With the use of heparin there would be no more of these fatal emboli coming "out of the blue" and an end also of the post-thrombotic invalidism. High venous ligation had been advocated, but it seemed to him that in any case in which either prophylactically or therapeutically high ligation was indicated heparin treatment might just as well be used instead, probably with much less inconvenience to the patient.

#### Mayo Clinic Experience of Anticoagulants

Dr. Waltman Walters (Rochester, Minn.) said that the results at the Mayo Clinic corroborated those of Stockholm and Toronto, though the series of patients who had been treated with heparin was too small to be of great statistical value. The use of heparin as an anticoagulant had been largely superseded by the synthetic chemical dicoumarol. The chief advantage of

heparin as an anticoagulant was that it was effective almost immediately after administration had begun; its disadvantage was time-consuming administration. The advantage of dicoumarol was its ease in administration; its disadvantage was the delay in its action after treatment had been started. The injection of both these drugs required careful supervision in order to be certain that an adequate but not excessive effect was obtained. At present dicoumarol alone was used for prophylactic effect in a patient who had had no previous thrombosis or embolism, but in a patient who had had this history heparin was used at the beginning concurrently with dicoumarol. In a few cases where, owing to renal or hepatic insufficiency, dicoumarol was contraindicated, heparin alone was used. Dicoumarol alone, or with heparin at the beginning of anticoagulation therapy, had been used with more than 2,000 post-operative patients, and the incidence of venous thrombosis and of fatal pulmonary embolism had fallen markedly below the level expected on the basis of previous statistics of cases treated without these agents. In 352 cases in which the clinical diagnosis of post-operative venous thrombosis had been made, and in which the incidence of fatal embolism on the basis of previous statistics was expected to be 5.7%, no case of fatal embolism developed. There seemed to be adequate statistical evidence that post-operative venous thrombosis—and therefore pulmonary embolism—could be prevented by heparin and dicoumarol. He agreed that ligation of the femoral vein as a prophylactic measure was seldom indicated.

The opinion of a Swiss surgeon, Dr. A. Jentzer (Geneva), was that heparin was less favourable in its results than the Scandinavian workers claimed. Prof. Dos Santos (Lisbon) had seen accidents, two of them fatal, with heparin in operation cases. Dr. Sandblom (Stockholm) mentioned 25 cases of bronchopneumonia in which the sulphonamides had not succeeded in lowering the temperature, but the temperature had come down after the administration of heparin, probably due to a direct effect on the fibrin deposits in the tissues and small vessels. In replying to the discussion Dr. Crafoord suggested that the reason for the difference between the Swiss and the Swedish experience might be that the Swiss had been using heparin in a less pure form. He pointed out a difference in technique between the Stockholm and the Toronto workers. The former used repeated injections of heparin at four-hour intervals; the latter used continuous intravenous administration.

It had been announced that a discussion on the surgical treatment of burns would be opened on Thursday morning by an unnamed Russian surgeon, but no Russian surgeon answered to the call, and the subject was briefly introduced by Dr. Merle d'Aubigné (Paris). An Argentine surgeon, Dr. Zeno, showed a cinematograph film of the treatment of several cases of superficial burns in which he relied entirely on immobilization in plaster-of-Paris, with a small window for observation, placed directly on the burnt surface without any dressing at all.

#### Skin-grafting

On Friday morning there was a brief discussion on the role of vasodilatation in arterial disease, which, save for a few remarks by an Irish surgeon, was entirely confined to French speakers. This was followed by a lecture by Prof. T. Pomfret Kilner (Oxford) on the repair of skin defects by flaps and free skin-grafts. Prof. Kilner gave a pictorial review of the technique and results of skin-grafting, describing in turn the Thiersch, Wolfe, Reverdin, and other methods and showing how one method was to be preferred to the others in particular cases. He added that he found it impossible to overcome the temptation to interpret rather widely the title given him, and to include in his demonstration records of cases of more purely plastic surgery interest in which grafts and flaps had been employed. He felt less apologetic about doing so because the President of the Congress (Dr. Leopold Mayer) in his opening address (reported in our issue of Sept. 20, p. 466), in reviewing the progress of surgery during the past fifty years, had failed to make any reference to the developments in this specialty.

Prof. Kilner said he felt strongly that general surgeons should always be prepared to cover any surface defect which they had produced, and that they should have at least a working knowledge of why, when, and how skin-grafting should be carried out. It must be left, of course, to their good sense and judg-

ment as to when it would be in the patient's interest to call in the assistance of a specially experienced colleague. General surgeons, too, should feel themselves quite ready to carry out radical destructive procedures, like those required in dealing with malignant disease, unfettered by the fear of producing permanent disfigurement, and confident that they or their plastic surgery colleagues could make good the defects they had produced. Only in that way could these extreme contractures and deformities be avoided. When radical amputation of the breast called for the removal of large areas of so-called "dangerous" skin there was, to his mind, a clear indication for the immediate application of a free skin-graft. Finally, the time for recovery of war wounds of a superficial character could be reduced by many weeks or even months if free skin-grafting was carried out at the first possible moment. In such cases penicillin had helped to make early skin-grafting both safe and practicable.

#### Close of Congress

The London meeting, which had included five scientific sessions, closed on Saturday. Prof. G. Grey Turner led the delegates and members on a pilgrimage of homage to places in London associated with John Hunter and Joseph Lister. The first place visited was the site of Hunter's famous house in Leicester Square. Then the pilgrims went to St. Martin-in-the-Fields, where he was originally buried. He rested there for more than sixty years, until his remains, having been identified by F. T. Buckland, were removed at the cost of the Royal College of Surgeons to Westminster Abbey. The Abbey was then visited, and after this the Royal College, where the marble statue of Hunter by Henry Weekes, R.A., which had been bricked up during the war and so preserved from the effects of the bombing, was inspected. Here also was seen the Oulless portrait of Lister, as well as various pictures and instruments having Listerian associations. Lister's house—12, Park Crescent—with his statue in Portland Place near by, were next visited, and finally the party returned to University College, where Lister started his professional studies and where, exactly 100 years ago, he took his B.A.

At a General Assembly of the International Society, held at University College, Prof. Grey Turner was elected the next President of the Congress, and the date and place of the Congress were provisionally fixed for October, 1949, at New Orleans.

#### DINNER AT THE R.C.S.

The President and Council of the Royal College of Surgeons of England entertained to dinner in the College on Tuesday, Sept. 16, representatives of most of the nations taking part in the XIIth Congress of the International Society of Surgery. The College had already given a reception on Sunday, Sept. 14.

Sir Alfred Webb-Johnson welcomed the guests and said that he regarded the Congress as a means of improving understanding between countries. Surgery was still an art, and an art to which a long apprenticeship must be served. He envisaged a day when the College would be regarded as an active headquarters of British surgery with accommodation of every kind for post-graduate teaching in surgery and for experimental and clinical research. Students might then in their early years have an opportunity of contact with the leaders of the profession, a contact which he thought would prove inspiring. He concluded by proposing the health of the President of the International Society of Surgery, Dr. Verhoogen, and of the President of the Congress, Dr. Leopold Mayer, of Brussels.

Dr. Verhoogen said that the Society was forty-five years old, and he paid a graceful tribute to the contributions made by British surgeons in the post-Listerian epoch. Dr. Mayer also replied.

Prof. René Leriche ended a characteristic speech by saying how glad he was to see present his "young" colleague, Prof. Rudolf Matas. The President of the American College of Surgeons, Dr. Arthur W. Allen, said how impressed he had been by a tour of the College and by the outline which had been given him of future plans.

Sir Henry Dale spoke on the interchange of ideas and practice between surgery and experimental science. He felt that each had something to offer the other, and he instanced the

work of Prof. Blalock, whose surgical advances were firmly based on experimental work. He welcomed the idea of a collegiate centre for graduates in surgery at the Royal College.

Prof. Alfred Blalock disagreed mildly with the "general trend of the discussion." A man who had "what it takes" did not need "collegiate residence or any kind of spoon-feeding." He recalled how he had worked in the physiological laboratories at Cambridge for some months in 1928, and from his own experience then and since he felt that it was not necessary to live too closely with great men. It was perhaps better to admire from afar as he had admired, among many others, Sir Henry Dale and Charles Best.

Mr. Evarts Graham, Professor of Surgery at the University of Washington, said that in the United States the art of surgery was being overemphasized and the science of surgery was being neglected. Surgery must be based on pathology, in line with the teachings of John Hunter and Joseph Lister, and experimental surgery must still provide the basis for any real advance in surgical science. The work of Sir Alexander Fleming and his colleagues had already brought about great changes in surgery. For the past two years he had not seen a case of post-pneumonic empyema, but where one surgical problem disappeared it seemed that another arose. With the disappearance of such cases of empyema there had been an increase in cases of atelectasis of the right middle lobe following pneumonia treated apparently successfully with penicillin.

At a late hour Sir Alfred Webb-Johnson summed up the views which had been put forward by different speakers, and brought a memorable evening to a close.

#### Receptions

On Wednesday evening there were two receptions for the delegates to the Congress. The President and Council of the B.M.A. had some 300 guests, who were received early in the evening by Sir Lionel and Lady Whitby. Later, many of the delegates went on to the Royal Society of Medicine, where they were welcomed by Sir Gordon and Lady Gordon-Taylor. Another reception was arranged for Thursday by the Royal College of Surgeons, and on Friday receptions were given by His Majesty's Government at Lancaster House, and by Sir Hugh and Lady Lett at the Hall of the Society of Apothecaries.

The Surgical Instrument Manufacturers' Association entertained some of the delegates to the Congress at a dinner at the Savoy Hotel on Friday. The chairman, Mr. H. Guy Radcliffe Drew, welcomed the many guests, and Prof. René Leriche, Sir Max Page, and Prof. J. de Fourmestreaux replied. Dr. L. Dejardin proposed "The Ladies," and there were brief replies from Mrs. Arthur W. Allen, Mrs. H. W. S. Wright, and Miss Jane Drew. The final event of the Congress was a dinner, of which Viscount Kemsley was the host, with Dr. Leopold Mayer presiding, and Prof. Grey Turner, Sir Alfred Webb-Johnson, and Dr. René Leriche among the speakers.

## AMERICAN SURGEONS HONOURED

### Presentations at Royal College of Surgeons

Five American surgeons who had been visiting this country for the International Congress were admitted Honorary Fellows of the Royal College of Surgeons, another was presented with the Honorary Medal of the College, and another with the Lister Medal, at a special ceremony at Lincoln's Inn Fields on Sept. 22. Sir Alfred Webb-Johnson, P.R.C.S., who presided, said that the records of those whom it was proposed to honour were a reminder of the many great achievements of the clinics and laboratories of the United States and Canada.

The first recipient of the Honorary Fellowship, Dr. Arthur W. Allen, president of the American College of Surgeons, was introduced by Sir Heneage Ogilvie, who said that Dr. Allen was head of one of the two surgical services and lecturer in surgery at Harvard. He had made contributions of lasting importance to gastric surgery and had been a great friend to all British surgeons who visited Boston. Dr. Allen accepted the honour not merely as a personal one but as one done to the institution of which he was the temporary head. Dr. Irvin Abell, of Kentucky, was introduced by Mr. L. E. C. Norbury as a past president of the American College and a member of

the Board of Regents. Dr. Frank Howard Lahey, director of the Lahey Clinic, Boston, was introduced by Sir Cecil Wakeley, with the remark that he was president of the American Medical Association in 1941 and consulting surgeon to the U.S. Navy in the Second World War, serving most of the time in the Pacific theatre. Dr. Dallas B. Phemister, president-elect of the Royal College, was introduced by Sir Hugh Cairns. His work on bone necrosis, said Sir Hugh Cairns, was classical in its comprehensiveness and its use of the experimental and clinicopathological approach. He was professor of surgery at the University of Chicago. The last recipient was Dr. Alfred Blalock, professor of surgery at Johns Hopkins University, Baltimore, and in the words of Prof. H. W. Rodgers, who introduced him, the master vascular surgeon, whose efforts in this field had saved many young lives.

Dr. W. E. Gallie, past president of the American College, was introduced by Sir Max Page for the Honorary Medal. Sir Max Page said that the Honorary Medal, which was established in 1802, had been awarded only on some twenty occasions. Among its recipients were Paget and Lister. For twenty years or more as professor of surgery in Toronto Dr. Gallie had put his stamp on the Canadian surgery of our generation. Dr. Gallie said that he had come to England nearly forty years ago to win his scholarship, and fifteen years later as Hunterian professor. He took this award as meaning that he had to some extent succeeded in upholding the traditions of the College in his distant country. Dr. Evarts Ambrose Graham, a former president of the American College, was introduced by Mr. H. S. Souttar for the Lister Medal. Mr. Souttar said that Dr. Graham had been professor of surgery in Washington for twenty-eight years. He was at one time temporary professor of surgery at St. Bartholomew's. The President said that this medal was presented in the name not only of the College but of the Universities of Edinburgh and Glasgow and the Royal College of Surgeons in Ireland.

The American visitors then took the dais and presented as a gift from the American College a beautiful oak table and lectern, with symbolic decoration and a suitable inscription. Dr. Irvin Abell, recounting the circumstances of the gift, said that the American College had long desired to express the friendship which bound the two institutions together. He recalled the visits of many famous surgeons to the States—Sir Rickman Godlee in 1913, Sir Berkeley Moynihan, as he then was, in 1917, when he delivered a stirring address on the war, and again in 1920, when he made a memorial oration, and among others since then Sir Anthony Bowlby, Prof. G. Grey Turner, Sir William de Courcy Wheeler, Sir W. Arbuthnot Lane, Mr. Arthur Burgess, Sir John Bland-Sutton, Sir Alfred Ballance, Sir Heneage Ogilvie, and Sir Gordon Gordon-Taylor. The President of the College, Dr. Allen, having made the presentation "as a token of high esteem and undying friendship," Sir Alfred Webb-Johnson received it with appropriate expressions of pleasure and gratitude. He mentioned that the final polishing and the addition of certain details of ornament had been left in British hands, and the workmen in charge had been lost in admiration of the quality of the timber and the craft put into the construction. He said that the table and lectern would be not merely a part of the furnishing of the College but a part of its history.

The first lecture was then delivered from the lectern by Dr. Allen, the president of the American College. This was the Moynihan lecture, and the subject was duodenal ulcer. A report will appear in our next issue.

## AMERICAN COLLEGE OF SURGEONS

### CLINICAL CONGRESS

[FROM A CORRESPONDENT]

Throughout the week Sept. 8-12 the American College of Surgeons has been holding its thirty-third Annual Clinical Congress at the Waldorf-Astoria Hotel, when over 5,200 surgeons attended. On general lines the arrangements for the congress resembled those of the A.M.A. Centenary Meeting described in an earlier number of this *Journal* (June 28, p. 931). The scientific exhibits and clinical and surgical demonstrations were staged in near-by institutions. As an indication of



America's numerous centres of clinical research, it was interesting to see that, although it is only three months since the A.M.A. meeting, a large proportion of these exhibits were on original and unpublished work.

As was to be expected, many of the papers in the gastric surgery forum were on various aspects of vagotomy, both in the human subject and in experimental animals. In the cardiovascular surgical forum there were several papers on portacaval anastomosis, one on a new operation for left coronary thrombosis and sclerosis, and another on experimental methods of aortic valvulotomy. In other sections there were papers on the evaluation of streptomycin in intestinal strangulation and as a pre-operative medicament for abdominal surgery, and studies on its influence on post-operative healing of the bowel. The role of isotopes in biological research was also discussed, and economic details and an account of the liaison between the research worker and the physicist were given.

The twenty-sixth Annual Hospital Standardization Conference was held in conjunction with the surgical conference. Papers and discussions ranged from problems in hospital management and finance, through technical aspects of labour and staffing, to the relative value of various publicity media in attracting public interest and support. Of particular interest was a speech by Prof. Charles B. Puestow, Deputy Chief of Surgery at the Veterans Administration Hospital at Hines. He outlined details of the reorganization programme brought about by General Omar Bradley and Drs. Paul R. Hawley and Paul B. Magnuson, as a result of which the care of ex-G.I.s is brought directly under the supervision of the nation's great medical schools. The programme is not yet completed, but 56 schools are at present supervising the work in 62 V.A. hospitals. The scheme covers the war casualties of thirteen million men and is expected to save \$2,000,000,000 a year. The upkeep of this enormous service is of course borne by the State. It has received a warm reception from a profession which is, by and large, vociferously opposed to State medicine.

In one respect at least the American College of Surgeons can claim to have made history at this convention—in the use of television to demonstrate surgical operations. It may be recalled that this method was used at the Johns Hopkins University earlier in the year when a surgical demonstration was televised to another room in the same building. This week a further step was made. Seven major operations performed on the tenth floor of the New York Hospital were successfully projected on television screens on the fourth floor of the Waldorf-Astoria Hotel. A narrow "line-of-sight" beam was used that could not be picked up by other receiving aerials, thus keeping the broadcast private. This development seems to be an important step in the advancement of surgical teaching. The usual complaint by anyone who has been televised of the extreme heat generated by the illuminators. Good stage lighting and a super-sensitive camera make this unnecessary; and, as the lens can be centred directly above the field of operation, the screen gives a view of structures undreamed of by those accustomed to seeing little but the back of the surgeon's head. The viewing was limited to seven small screens, but experiments are being made in the use of a large cinema-sized screen more suitable for class teaching. The estimated cost of this televising, which lasted about 16 hours, is \$5,000, borne in this instance by commercial enterprise.

The convocation ceremony ended the congress on Sept. 12, when 762 new Fellows were admitted into the College and honorary fellowships were conferred on Lieut.-General Robert K. S. Lim, the distinguished Chinese physiologist, and on Dr. Benedicto Montenegro, of Brazil, the author of many communications on gastro-intestinal surgery. Dr. Arthur W. Allen, of Boston, presided at the ceremony, the initiates being presented by the retiring president, Dr. Irvin Abell, of Louisville. In delivering the fellowship address, Prof. Ivy, of the University of Illinois, advocated the establishment of a Federal loan fund for meritorious students who wished to embark upon a medical career. He stressed the value of a loan as opposed to a gift in maintaining the student's proper pride, and gave it as his opinion, based on teaching experience in two world wars, that the institution of Government grants to medical students was followed by a falling off in the standard of work. This, he felt, would not be the case if the money was merely lent and had to be repaid.

## Correspondence

### Planning and World Population

SIR,—Your recent leading article on "Planning and World Population" (Aug. 9, p. 214) might do real harm by its implication that the economic problems of our African Colonies can only be solved by a decrease, or at least a restraint of increase, of the population. Your final conclusion that unless the birth rate falls in relation to the death rate and the population problem is solved much talk about colonial development and welfare is "whistling in the wind" is so drastic that the grounds on which you make it deserve some analysis.

The doctrine which Malthus propounded in his first edition, and later elaborated, remains as true as when it first appeared. Human populations have a tendency to increase which is far greater than the usual increase in the supportive capacity of land, resulting in a constantly operating check on population from difficulty of subsistence, or the striking of a balance between the numbers of the population and the resources available to support it. The balance is normally held by two types of checks on the population—preventive ones limiting the numbers of births, and positive ones increasing the numbers of deaths through misery, disease, and famine.

At the time when Malthus wrote England was an agricultural country, and the balance was kept with a population density of about 150 to the square mile. Since then an increase in its resources and supportive capacity as a result of industrialization has made possible an increase to 727 people to the square mile, though the next few years will show whether or not the recent loss of many of these resources can be made up to enable this density to be maintained. In India the condition is much the same as that in England at the time Malthus wrote. There is an overall density of about 200 people to the square mile, subsisting on what is on the whole a reasonable utilization of the country's resources. After a long period of practical stasis the population started to increase about 1911 following the reduction of the check of famine, not because the total available foodstuffs increased but because improved transport and organization facilitated the distribution of crops, so that local deficiencies could be matched by surpluses from elsewhere. The limit of increase made possible in this way has probably now been reached, and soon the balance must again be struck either by preventive checks on births such as you advocate or by increase of deaths due to the recurrence of famines and less dramatic food shortages. The resources of the country are at the present time used in a relatively efficient manner, and only some major change in the principles of agriculture could increase them sufficiently to enable India to carry a much greater population.

The condition is much the same in several other tropical countries, notably Java, Mauritius, and Jamaica, with densities of 960, 590, and 278 to the square mile, fully utilizing all the readily available resources of the land. In most African countries, however, the position is very different. The general picture is one of gross underpopulation due to a failure to utilize what should be readily available resources, and to ignorance of the elements of husbandry. It is true that a balance between population and supportive capacity of the land has been reached, but the latter is so clearly open to improvement that advocacy of population restriction is at least still unnecessary, and its practice would result in failure to develop central Africa into an important economic unit.

The density of population in our Colonies on the mainland of Africa varies from 64 to the square mile in Sierra Leone to 1 in Bechuanaland. A representative picture may be drawn from the East and South-east African group of Uganda, Kenya, Tanganyika, Nyasaland, and Northern and Southern Rhodesia with densities of 41, 17, 15, 36, 5, and 11 to the square mile. These countries include mountainous, arid, and infertile lands, but not more so than India. Almost throughout them the rainfall is adequate for the growth of crops and at least as well distributed as in the monsoon countries of the East. Dixey (1926), Gillman (1936), Baker (1937), and Baker and White (1947) have studied their population problems from the ecological point of view. The last authors summarize the position for the whole of south-east central Africa by saying that the population is undoubtedly far below its optimum level. Gillman points to half a million square miles of land in Tanganyika, 62% of the whole country, which is unpopulated largely as a result of the absence of perennial supplies of domestic water as a result of the absence of simple methods, though simple methods could readily be tapped by primitive tools, which are of great extent in Nyasaland. Dixey points to similar areas of great extent in Nyasaland where domestic water is readily available within a few feet of the ground surface though its absence from the surface itself has prevented the development of the country. Similar areas in India such as the Punjab were colonized thousands of years ago by the universal development of wells and water conservation systems.

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References: Shortage of space precludes list of references, but full documentation may be obtained on application to Clinical Research Dept. 32A.



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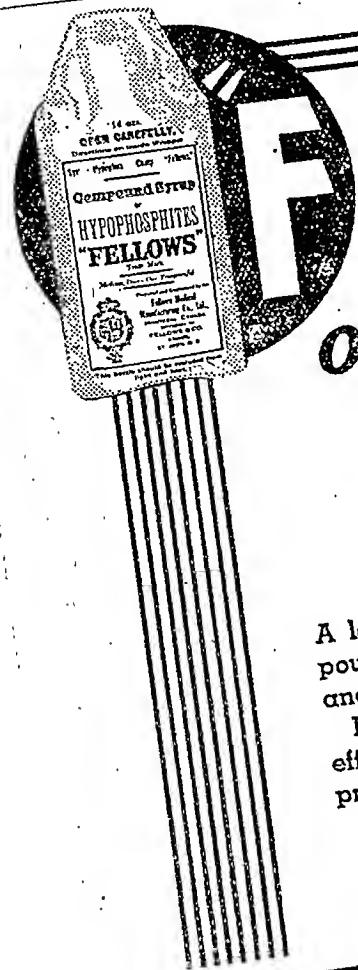
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Ph. 196n

Without submitting any ready solution of Africa's problems I suggest that it should be borne in mind that the population problem is one of balance, and that the economy of grossly underdeveloped countries can be improved more readily and more to the general advantage of the world by an increase in the supportive capacity of the land than by a restriction of population, though ultimately that must come. Colonial development is not "whistling in the wind" but the essential background of human welfare, which should be at least as much the concern of your readers as the policy of despair you advocate. The ignorant and poverty-stricken peasant is admittedly an inadequate foundation for an enlightened state of society, or for the production of goods to be exchanged with industrial countries. The remedy may lie in the cure of his ignorance and poverty rather than in the restriction of his numbers.—I am, etc.,

London, W.C.1.

G. MACDONALD.

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## Poliomyelitis

SIR.—Three out of a total number of 33 cases of acute anterior poliomyelitis under my care have developed symptoms which were regarded as due to paralytic ileus. The three cases were severe, with widespread paralyses, and the symptoms of bowel paralysis appeared three days after the first onset of paralyses in the voluntary muscles.

In one of the cases there was no abdominal pain, but in the other two complaint was made of abdominal aching. In all the cases the abdomen began to swell progressively; the swelling was tympanitic and there was absolute constipation. No flatus was passed. In one of the cases, a woman of 50, the swelling rapidly became enormous, but she complained of no feeling of discomfort. The main danger of the abdominal distension is embarrassment to the heart and respirations in a patient with some degree of diaphragmatic paralysis.

Treatment consisted of 1 ml. of "prostigmin" followed four hours later by a further 1 ml. and a turpentine enema. This resulted in slight colicky pain, followed by the passage of flatus and faeces, with disappearance of the abdominal distension. In children the dose of prostigmin used was 0.5 ml. After the subsidence of the abdominal swelling constipation again followed in one of the cases, but prostigmin 0.5 ml. daily relieved this.

The treatment I have used in all cases with paralysis has been: vitamin B<sub>1</sub> tablets, 1 t.d.s., together with strychnine, 1/32 gr. (2 mg.) b.i.d. in the case of an adult, and 1/60 gr. (1 mg.) in the case of a child.—I am, etc.,

JOHN MILLS.

Newport, Isle of Wight.

SIR.—Though there is no specific treatment as yet for this disease, for some six or seven years I have treated the comparatively few patients I have seen in the very early stages of the attack by intramuscular injections of their own cerebrospinal fluid, 5 ml. given daily or on alternate days according to the severity of the illness, three or four injections being the usual amount. As many patients recover completely without any treatment, and as the general tendency is towards at least partial recovery, it is impossible to assess the value of this or any other form of treatment. In a number of cases it appeared to be of some value towards arresting the progress of the attack.

Two patients were treated by intramuscular injections of blood taken from people who had had the disease; some benefit appeared to result. Is it possible that convalescent serum (such as is given to abort or attenuate an attack of measles) might be of use? Obviously this form of prophylactic treatment could only have a very limited application.—I am, etc.,

Purbrook, Hants.

GEOFFREY EDEN.

SIR.—In Prof. H. J. Seddon's recent paper on the early treatment of poliomyelitis (Aug. 30, p. 319) it is very depressing to read that no really early treatment is possible. During the past few years letters have appeared in the *British Medical Journal* advocating early treatment for herpes zoster—another virus disease which attacks the central nervous system—publishing records of cases showing successful results. In my own

practice treatment of herpes zoster by injections of vitamin B<sub>1</sub>, 25 mg., and liver extract and "contramine," 0.125 g., repeated if necessary, appears to have yielded satisfactory results. After a personal attack I can vouch for the fact that these injections are only uncomfortable.

In the present epidemic many cases will probably be diagnosed in the pre-paralytic stage, and it would appear possible that this line of treatment may be worthy of a trial, particularly when there is no alternative. Whether the present widespread sub-optimum intake of vitamin B<sub>1</sub> is a factor in the spread of poliomyelitis is another question which might be asked of those qualified to give an authoritative answer—I am, etc.,

St. Faiths, Norfolk.

J. N. GALE.

SIR.—It was with great interest that I read the note by Dr. J. N. McIntosh (Gloucester) (Sept. 6, p. 398) on the treatment of poliomyelitis by complete rest in bed, sulphonamide therapy, and isolation, and I would like to emphasize the necessity of giving the sulphonamides in massive doses in the early stage of the illness, especially in the more severe type of case, if subsequent paralysis is to be avoided. In such cases the drug should be given intravenously, due regard being paid to the fluid intake, alkalis, and the cytology of the blood. Initially I give for a young adult with a severe attack 4 g. of a soluble preparation of sulphonamide by the intravenous route, followed by 3 g. at intervals of twelve hours for two or three days.

In a series of over twenty cases of the severe type treated on these lines there has been either no paralysis supervening, or, where treatment was delayed and paralysis had already commenced, there has been no further extension of it.—I am, etc.,

Harrogate.

SINCLAIR MILLER.

## Early Diagnosis of Tuberculous Meningitis

SIR.—Now that centres have been established for the treatment of miliary tuberculosis and tuberculous meningitis by streptomycin, a readjustment is necessary in our ideas about these forms of tuberculosis. Previously a diagnosis of tuberculous meningitis has been a sentence of death, only to be accepted when there is no longer any possibility of error. The possibility of cure has altered that, and early diagnosis has become a matter of particular importance, for it is not to be expected that patients will recover completely once damage to the brain has occurred. Therefore, it is necessary to study the early diagnosis of tuberculous meningitis. As the result of more than twenty years' experience in the treatment of children with tuberculosis I have formed the following opinions.

In many cases there is a prodromal period during which the disease is establishing itself and during which the signs and symptoms are very variable. The chief aids to diagnosis are clinical and neurological examination, examination of the cerebrospinal fluid, and radiography of the lungs. Any one of these may precede the others in providing evidence on which to base the diagnosis. Gross evidence, either clinical, laboratory, or radiological, means that the disease is becoming established, and brain damage may be already present. Fever of unknown origin and persistent headache in a child, especially one who is a tuberculosis contact or has some overt tuberculous disease, merit lumbar puncture and chest radiography. Even when neurological signs are absent, and when the cerebrospinal fluid is normal except possibly for a slight rise in the lymphocyte count, early miliary tuberculosis may be seen in the lungs; or, if the chest x-ray examination and neurological signs are negative, the cells in the cerebrospinal fluid may be definitely increased.

Early neurological signs may be equivocal and it is unwise to delay until they become well established. If there is present a combination of fever of unknown origin, persistent headache, and some definite evidence, however slight, from any of the triad, clinical, laboratory, or radiological, then streptomycin should be started. A specimen of the cerebrospinal fluid, injected before treatment into a guinea-pig, will probably reveal later whether the patient has been cured of tuberculous meningitis or an error in diagnosis has been made. In either case the patient's life will have been safeguarded to the best of the doctor's ability.—I am, etc.,

Braintree, Essex.

M. C. WILKINSON.

### Complete Prostatectomy

SIR,—The case described by Mr. H. S. Souttar (June 28, p. 917) of complete removal of the prostate confirms some observations made when removing the entire prostate, seminal vesicles, and base of the bladder in a case of carcinoma of the prostate.

#### CASE HISTORY

The patient, an Indian peasant of some seventy years, was thought to have an adenomatous prostate, with retention of urine. His general condition was fair, but his blood urea was 120 mg. %. A suprapubic cystostomy was performed. Five weeks later a Freyer type prostatectomy was attempted, but it was soon evident that one was dealing with a carcinoma of the prostate which was infiltrating into the bladder wall.

As one side of the prostate was already partly freed, it was decided to complete the dissection with curved scissors. The tumour was gripped with Lane's forceps and pulled upwards into the bladder, and, keeping as far as possible outside the area of induration, it was snipped away. Eventually the prostate was found to be attached only by the urethra, which could be stretched to some 3 cm. easily. It was divided about 1 cm. from the prostate. The remainder immediately retracted away. Meanwhile a blood transfusion had been commenced.

The specimen was seen to consist of the base of the bladder, both seminal vesicles, and the whole prostate, which was the seat of a carcinoma invading the surrounding tissue. The lower ends of the ureters were not identified. 1 cm. of urethra was present. An examining finger felt an alarming gap in the base of the bladder, which was oozing freely. No attempt was made to suture the edges of this gap to the urethra. A large rubber catheter was passed across the gap into the bladder, the oozing was controlled by packing, and the bladder and abdomen were closed with drainage.

After some initial shock the patient made a rapid recovery. He was discharged with no apparent abnormality six weeks after operation. He had complete control of his urine. X-ray investigations of his pelvic bones showed no secondary deposits. Nevertheless stilboestrol therapy was prescribed. Castration was refused. Unfortunately a follow-up was not possible.

This case appears to confirm the anatomical findings concerning the urethra as described by Mr. Souttar, but it would seem that suture of the urethra to the neck of the bladder and the base of the bladder to the triangular ligament are not necessary. Indeed, in the transvesical approach used in this case it would hardly have been possible.—I am, etc.,

Ajmer, India.

G. P. CHARLEWOOD.

### Thalamic Dysfunction and its Treatment

SIR,—Dr. B. H. Kirman (Aug. 30, p. 348) taxes me with failing to "distinguish between experimentally proven fact and theories with little experimental support," apparently refusing to credit my statement that psychotic and neurotic depression can be distinguished by their specific response to E.C.T. This statement is based on a study of several hundred cases treated over a period of more than five years largely spent as a psychiatric specialist in various military hospitals for acute psychiatric cases. If this is not "experimentally proven fact" I would be extremely interested if Dr. Kirman would explain exactly what he means by this expression.

With regard to the nature of the syndrome itself, a detailed discussion of the evidence for my hypothesis was naturally beyond the scope of a short paper devoted mainly to the subject of pharmacotherapy. The subject of emotional disturbances in relation to disorders of the thalamic-hypothalamic mechanisms is fully dealt with in a number of up-to-date neuropsychiatric papers; in particular I would refer Dr. Kirman to the excellent chapter on the subject in D. T. V. Moore's book *The Nature and Treatment of Mental Disorders*, New York, 1943. In any case I fail to see why the hypothesis put forward in my paper should seem any more far-fetched or incapable of scientific proof than the bizarre concepts upheld by many present-day psycho-analytic enthusiasts.

Now, to turn from controversy to the more practical aspects of the question. No psychiatrist, I venture to think, would disagree with two of the main points in my article: first, that the symptom of anhedonia, or morbidly increased susceptibility to unpleasant sensation and affect, is a constant and almost invariable feature of neurotic patients; and, secondly, that it is one of the worst therapeutic headaches which beset both psychiatrist and general practitioner, on the last-named of

whom ultimately devolves the care of the vast majority of these unfortunates.

The psychiatrist, unlike the surgeon or physician, labours under a great handicap—namely, the lack of specific drugs for the different conditions with which he has to deal. Modern chemotherapy, with its endless variety of potent compounds, offers by far the greatest possibilities for a rational attack on the problem of therapy in mental disorders. If adequate and co-ordinated research along these lines were forthcoming, there should be no reason for psychiatry to lag behind its sister sciences in the field of chemotherapy. What does not seem to be generally realized is that more and better specific drugs for psychiatric conditions are an even more pressing need than more clinics and specialist workers. The work on which my paper was based was carried out in the hope that thereby interest in this subject would be generally stimulated. Let us therefore have discussion and criticism by all means, but let it be intelligent and constructive and directed towards a rational and practical solution of the problem.—I am, etc.,

London, S.E.6.

G. TAYLEUR STOCKINGS.

### Intravenous Infusion and Transfusion

SIR,—In his article of Aug. 30 (p. 333) Mr. Hamilton Bailey appears to continue the tradition that transfusion is a formidable procedure requiring complicated apparatus and taxing the skill of the average house-surgeon in setting one up and keeping it going. He still advocates the use of the median cubital vein, and cuts down on it as a routine.

This is an unsatisfactory vein for several reasons. (1) It is frequently tortuous and does not permit the insertion of sufficient length of needle to ensure its remaining in position. (2) It necessitates the splinting of the arm in the extremely uncomfortable position of full extension and supination. (3) If the vein is damaged by a haematoma or thrombosis it tends to block the distal veins and render them unfit for use. (4) Cutting down renders the vein useless for later transfusions and immeasurably increases the risk of sepsis, even with careful technique.

A much more satisfactory vein is the distal part of the cephalic vein, about two inches above the wrist on the radial border of the forearm. It is long and straight, and is anchored by being formed like an inverted Y by tributaries, and is nearly always as wide as the median cubital vein. Also it necessitates only light splinting of the wrist, so that the patient can move his arm into comfortable positions. Cutting down is rarely necessary unless the transfusion is required for more than 48 hours, provided the vein is well dilated before needling. This necessitates adjusting the tourniquet at least five minutes before needling, while the rest of the apparatus is being tested, and is further helped by briskly flicking the skin over the vein. Hot pads are rarely necessary.

If the needle is then inserted into the Y junction of the veins, even a beginner can hardly fail to get it in up to the hilt, and if the tubing and needle are fixed directly to the arm by strips of adhesive tape the transfusion will usually run for 24–48 hours with very little trouble. For beginners a syringe connected to the needle is useful for ensuring clear entry into the vein, but with a little practice the needle can be inserted already connected to the apparatus, entry being ascertained by free flow through the drip chamber once the tourniquet and stopcock on the tubing are opened.

This method is apparently not widely known, but was well tried as the standard method in the Army transfusions, often being set up under very difficult conditions and surviving ambulance journeys and all other vicissitudes of battle casualties far better than traditional methods.—I am, etc.,

Guildford.

CHARLES CRAWFORD.

### Foetus Cries

SIR,—On Tuesday, Sept. 2, at 11.30 a.m. at the Trowbridge Hospital I endeavoured to induce labour in a 2-para woman at the 39th week of pregnancy by means of a Drew-Smythe catheter. The head was floating. The catheter passed very easily through the cervix and punctured the membranes without use of the stilette and also without passing as far round the baby's head as I had intended. Liquor flowed at once in a steady stream without bubbles. When the stream slowed a hand was placed on the abdomen and a further ounce or so of liquor came away.

While still standing behind the patient, having just removed the catheter, I was astonished to hear the baby cry. I did not at first believe my ears, though I said it sounded like the baby



crying, Sister said and repeated, "It is the baby crying"—and it was. The mother also heard it. I got a foetal stethoscope and went round to the front of the mother to listen to the foetal heart and heard the crying again, louder than before. The baby cried a third time, but I had left the room hoping to find another doctor near, and only Sister and the patient heard it. No further intrauterine crying was heard.

More liquor drained during the afternoon. Contractions began about 6 p.m., and the baby was born at 12.10 a.m.—i.e., over 12 hours after the intrauterine crying. It cried at once and is quite well.

(It would have been possible for the Drew-Smythe to have been passed into the child's mouth.)—I am, etc.,

Trowbridge.

E. CURPHEY.

### Examining Overseas

SIR,—The recent tragic death of one of the most able members of our profession shortly after a long round of examinations overseas calls attention to an important aspect of these tours. I can speak with personal experience of several such trips and considerable experience of long-distance flights. In this particular case I met two of the examiners in Cairo on their way home. Both were tired men, and one was completely exhausted.

Those invited to undertake this work are of necessity busy men with heavy commitments at home. It is sometimes held out as an inducement that no time will be wasted and that the tour will only occupy some surprisingly short period of weeks. The tour in such circumstances is extremely trying. Oral examinations and marking of papers are crowded into a minimum of time before the examiners fly—often at awkward hours—to their next appointment, and finally start on their homeward journey tired out, usually to pass through rapid changes of climate with only a few hours' rest at night. Return home involves instant immersion in a welter of arrears and urgent engagements, and a holiday is an impossibility.

If further tragedies are to be avoided these tours should be planned to allow reasonable leisure, and a rest in some pleasant surroundings should be arranged to take place before the trip home. Electing bodies should not only provide for such rest but insist that it should be followed in spite of possible protests by examiners.—I am, etc.,

London, W.1.

HENRY TIDY.

### Housing the Infirm

SIR,—The recent B.M.A. booklet on *The Care and Treatment of the Elderly and Infirm* is so excellent that all who are interested in the welfare of old people hope that it will reach a wide public. This subject, once scarcely developed, is now being given more prominence, and it is to be desired that many more doctors should realize the interest of tackling this difficult problem, of exploring new methods and seeking for fresh solutions. There is plenty of room for creative work.

Among the list of publications consulted by the B.M.A. special committee which drew up this work my booklets are mentioned. As they are now out of print, I have given one of the few remaining copies of *Housing the Infirm* to the B.M.A. Library. I wish to point out, however, that it was written in 1937, and that if I were going to republish it to-day it would have to be amended in several important respects. There is little that I should wish to omit, but much that I might add.

Part I consists of suggestions for brightening up existing public assistance institutions, both how to improve the appearance of the rooms and how to provide a more interesting life for the inmates. Points like permission for daily visiting, the wearing of private clothing, and the provision of more occupations have now been officially recommended in the Ministry of Health Circular 49/47. The chapter on pocket money is now out of date, since Miss Irene Ward's Poor Law (Amendment) Act, 1938, allowed the authorities to give it to inmates aged 65 or more; and, after a long campaign, all of them, including the Scots, agreed to do so. Further sections could well be added in order to mention the more difficult types of patient—senile, bedridden, incontinent, and so on—as I am afraid that to readers unfamiliar with institutions the impression might be given that the author believes that the majority of inmates would be suitable for transfer to small hostels. This is not the case. Probably no more than a fifth, or at most a quarter, of the present elderly inmates in institutions could be suitably provided for in

hostels run on the freer lines of voluntary ones. All authorities should, however, be encouraged to follow the lead of those progressive counties and county boroughs which have already provided such hostels, in some cases for several years. Their experience proves what great satisfaction is given to those old people capable of enjoying a fairly active and normal way of life in the background of an ordinary large house.

Part II consists mainly of advice on how to build new institutions for the old. It is to be hoped that this will be relevant some day, as most people would like to see scrapped the worst of our old-fashioned public assistance buildings. In view of the present building crisis, however, authorities are unlikely to be able to build afresh for some years. If, therefore, I were to republish my booklet to-day I should stress the advisability of buying up or taking over ordinary fairly large houses, which do not require very much adaptation. In some ways they may even be preferable to new erections, since they were built originally as private homes and therefore do not smack of institutions.

The last chapter in the book I would now put first, since I regard it as the most important. It stresses the fact that it is the staff, far more than the building, which makes or mars the happiness of those who "go in."—I am, etc.,

London, S.W.7.

OLIVE MATTHEWS.

### British Rheumatic Association

SIR,—An association to forward the interests of sufferers from rheumatism has been formed on the lines of the well-known Diabetic Association. Mr. H. G. Wells, who was largely responsible for the founding of the Diabetic Association in 1933, prophesied that it would be followed by other associations of people with a common disability.

A letter dated House of Commons, May 19, 1947, was signed by five M.P.s representing all parties: Lady Megan Lloyd George; Col. Stoddart-Scott, and Major C. York; Dr. S. W. Jeger and Mr. Stephen Taylor. This was published in the Press. The key paragraph read as follows:

"A Rheumatic Association is visualized to organize the general welfare of sufferers on a national scale both by direct action and advice and by assisting existing institutions. There would be an executive and an advisory staff, and a monthly journal to keep sufferers, and the public generally, informed of developments in the treatment of rheumatism, of research into the disease, and of matters of public health bearing on rheumatism."

The response to this letter justified the founding of the Association. It has been constituted essentially as a lay body with lay activities; its Council must always have a non-medical majority. Apart from myself, the medical men at present serving on the Council are: Dr. Francis Bach, Dr. S. W. Jeger, M.P., Dr. C. E. Lakin, Col. Stoddart-Scott, M.P., and Dr. H. D. Wyatt. The following are among those who have consented to be titular vice-presidents: the Marchioness of Reading, Lady Megan Lloyd George, the Dean of Westminster, Sir Ian Fraser, Sir Alan Herbert, Sir Ralph Richardson, Sir Harold Tempamy, the Earl of Scarborough, Mr. Percy Rockliff, and the Rt. Hon. Tom Williams.

The British Rheumatic Association is not intended to rival any existing body. It has, in fact, the approval of the Empire Rheumatism Council, and is seeking registration as a charity trust. It has been formed primarily to help rheumatic sufferers to help themselves; but its membership is open to all who are interested in rheumatism, whether sufferers or not. The subscription has been fixed at 10s. per annum. Donations would be welcomed. The headquarters of the Association is at 118-120, Wardour Street, but written communications should be addressed to the Hon. Secretary, Mr. A. C. M. Bowen, B.A., at the clerical department, 111, Woodville Road, New Barnet, Herts.—I am, etc.,

New Barnet, Herts.

F. HERNAMAN-JOHNSON,  
Chairman of Council, B.R.A.

The Report of the London Council of Social Services for the Year 1946-7 has recently been published. Of particular interest is the expansion of the Old People's Welfare Department that it reveals. An experimental London Federation of Homes for the Aged has been set up with the object of raising the standard of homes for the aged and for providing a consultation service. The Federation is planning a conference for matrons of old people's homes. The London Council has surveyed the home help available for old people in various boroughs. Ten local committees are now providing mobile meals services and centres.

## Planning and World Population

Dr. R. AHMAD (Dagenham, Essex) writes: In your leading article of Aug. 9 (p. 214), "Planning and World Population," there are two tacit assumptions for which there is no foundation in actual experience or scientific observation—first, that so-called "contraception" is a satisfactory substitute for normal sexual intercourse; secondly, that this method has successfully solved the population problem in European industrialized communities. A stationary population cannot be considered to be a successful result if the proportion of the younger age groups continues to decrease, and if, as a result of socially unequal reduction of births, the average level of intelligence of the population goes down. Yet these are the unmistakable trends here (*British Medical Journal*, 1947, 1, 185). . . . In a letter of mine (March 23, 1946, p. 444) I referred to the various factors involved and pointed out the fallacies of the Malthusian theory, which further experience continues to underline rather than otherwise. . . . In the pursuit of scientific knowledge (the vogue for which, one hopes, will become universal), discovery—and salvation—comes sometimes unexpectedly, and for problems of nutrition scientific agriculture, with its phenomenal increase of production and the synthesis of foods, offers much more solid ground for hopeful planning than a theory which was not only illogical in its conception but has entirely miscarried in its practice. Such a cliché as "the standard of living" must be used cautiously, and requires further analysis. Does it mean a nutritional standard, suitable clothes, hygienic dwellings, a happy married life, opportunities for education and cultivation of the arts, a high ethical standard, or does it mean a motor-car for everyone, consumption of alcohol and tobacco, extravagant clothes, disrupted family life, and visiting the cinema two or three times a week? At any rate apart from nutrition and hygiene every country is entitled to its own standards. It is impossible to see any strict relationship between "the standard of living" and the birth rate, yet this is frequently taken for granted.

Those who are staggered by the calculated increases of population should not neglect to note the considerably greater increases achieved in food production, and should take their refuge in scientific endeavour, which is also without limit. . . . Apart from scientific food production, intensive study is indicated of the operation of natural fertility in man, of heredity in its application to eugenics, and of the comparative social structure of different nations in relation to industry. These studies should be undertaken locally in different parts of the world, so that a variety of outlook and relevance to local conditions is ensured. If, after having done that, we should still feel bewildered and helpless, it will be better to admit that there is no solution than to hark back to a theory which is merely in the nature of a wish-fulfilment.

## Bodles for Dissection

Dr. W. J. PARAMORE (Bristol) writes: May I add to your reply to your correspondent that one way in which the deceased can prevail upon his executors to carry out any request as to the disposal of his body is to leave them a sum of money, conditionally upon his request being carried out. I believe I am correct in saying that a corpse is the property of the executors, if any are appointed, and not the relatives.

## Mind and Matter

Dr. W. J. CUDAHY (London, E.8) writes: I wonder whether E. R. Banner in his letter on the above subject (Sept. 13, p. 433) was aware that there is no evidence whatever to support McDougall's "law" or even Stapledon's? Indeed, there is a good deal of scientific evidence to establish the fact that life is never evolved from the inorganic. . . .

## Alien Doctors

Dr. W. H. SCOTT-EASTON (Frinton-on-Sea, Essex) writes: I read with much interest and some concern your leading article (Aug. 16, p. 258) on the Medical Practitioners and Pharmacists Bill. Are you quite sure that the real motive behind this Bill is not to supply a pool of aliens which can be used as a threat when the more mature of our British doctors show unwillingness to join the projected Health Service?

## Poliomyelitis

Dr. NORMAN MACFADYEN (Letchworth, Herts) writes: The infantile paralysis film should be withdrawn and reconsidered. The emphasis on the lumbar puncture is unfortunate. Lumbar puncture in most cases is unnecessary, may do harm, and certainly does not justify the cruelty of submitting a child with a rigid, stiff, painful, and tender neck and back to the contortions shown in the film. From the onset of the disease the patient should have absolute quiet and be in a position of relaxation of muscle and nerve. I think muscular exertion certainly increases the toxæmia.

## L. CARNAC RIVETT, M.Chir., F.R.C.S., F.R.C.O.G.

Prof. F. J. Browne writes: The death of Louis Carnac Rivett leaves a gap in British gynaecology that will not soon or easily be filled. Your short and factual obituary notice conveys but little idea of the vivid, versatile, and beloved personality so familiar to his friends. Of surgical technique he was a superb master, and his manual dexterity and lightness of touch made an operation performed by him a delight to watch. On many occasions the writer sent foreign visitors to him with a note of introduction, knowing that they would there see the best in gynaecological surgery that London had to offer. They were always received with kindness and courtesy. Naturally somewhat shy and diffident, while holding strong views of his own on many subjects, he seldom obtruded them in private conversation. Though he did not seem robust and must have been a very busy man, he never appeared hurried and found time to attend with remarkable regularity the meetings of the Section of Obstetrics and Gynaecology at the Royal Society of Medicine, where his contributions to the discussions never failed to add something of value to the common store. One illustration of his versatility was his understanding of old clocks, which he could restore to usefulness and accurate time-recording when the experts had failed. The domestic sorrows of the last two years, including the death of his only son from anterior poliomyelitis in China, were borne with courage, but one wonders how much they had to do with starting the dire disease that ultimately and untimely took away his life.

Dr. Kenneth Playfair, Chairman of the Medical Council of Queen Mary's Hospital for the East End, writes: In the obituary notice of the late Mr. Carnac Rivett (Sept. 13, p. 435), there is no mention of an interesting stage in his career. In 1919 Mr. Carnac Rivett was appointed honorary obstetrician and gynaecologist to Queen Mary's Hospital for the East End, and he remained on the active staff of the hospital until 1931. It followed that Mr. Carnac Rivett was head of the department in 1923 when the Margaret Lyle Maternity Wing of Queen Mary's Hospital (one of the largest maternity departments in London) was opened, and the department owes much to the fact that responsibility for the work was in his capable hands.

Dr. MICHAEL KEANE died suddenly in Switzerland on Aug. 14 at the age of 65. He qualified in Dublin in 1904, and after a period as house-surgeon at the Mater Hospital he joined the Regular Army and served for many years in India. He was mentioned in dispatches and awarded the O.B.E. towards the end of his service when he had reached the rank of lieutenant-colonel. He then went into general practice in Anerley, Kent. After fourteen years in this area he retired, and his sudden death so soon afterwards has come as a shock to his many friends and patients in Anerley.

Dr. ARNOLD McMILLAN, who died on Aug. 20 at the age of 67, took the Scottish triple qualification in 1907. He was house-surgeon to the Brighton and Hove Hospital for Women and later to the Royal Sussex County Hospital, Brighton, and the Royal Albert Hospital, Devonport. Subsequently he joined his cousin, the late Dr. J. J. Wallace, in general practice at Lymington. During the 1914-18 war he was commissioned as a surgeon-lieutenant, R.N., and served in the North Sea and the Mediterranean theatres. After the war he returned to Kent and went into general practice again in New Romney and Dymchurch. He was part-time medical officer of health for the borough of Romney from 1920, and from 1935 he held a similar appointment for the Lydd district. He was also medical superintendent to the old Romney Isolation Hospital and for some time deputy coroner for the area. In the recent war he worked with the Civil Defence Joint Committee for the Romney Marsh area and was responsible for the organization of A.R.P. work locally. For many years he had been a member of the British Ornithologists Union, and he was interested also in archaeology and philately.

Dr. LANCELOT RAOUL LEMPRIERE died at his home in Ware, Herts, on Aug. 28, at the age of 75. Coming from an old Jersey family (he was the son of Capt. Percy Lempriere), he was educated at Haileybury College, Worcester College, Oxford,

and Victoria College, Manchester, and after graduating in 1899 he held resident appointments at Manchester Royal Infirmary and at Crumpsall Infirmary and Children's Hospital. During the 1914-18 war he served as a captain with the R.A.M.C. He was the medical officer at Haileybury College for thirty-five years and was at one time president of the Medical Officers of Schools Association.

Mr. W. Donald Bedford writes: Lancelot Raoul Lempriere was a familiar and popular Hertfordshire figure whom everyone, and particularly Old Haileyburians of the last fifty years, will remember with esteem. Always particularly interested in sport, he distinguished himself especially in gymnastics—he won the All England Public Schools Gymnastic Competition in 1890 and the Silver Medal at Aldershot in 1891. He was also captain of the Worcester College football team and played hockey for Lancashire. He was a good tennis and squash player, and up till his death he thoroughly enjoyed judging the boxing and diving contests at Haileybury. He was appointed medical officer to Haileybury College in 1903 and remained in that capacity for thirty-five years, with a four-year break of military service in the first world war, for which services he received the O.B.E. and the "Médaille des Epidémies." He was president of the School Medical Officers' Society from 1924 to 1927, and was on the committee which drew up the "Code of Rules for Prevention of Infectious Diseases in Schools," which is still in general use. He was a member of the Psycho-analysis Committee of the B.M.A. in 1929. Recently he was president of the Herts County Hospital Medical Society. From 1939 onwards he wrote the Old Haileyburian's letter in the college magazine and completed his last one on his deathbed. To every Old Haileyburian prisoner of war he wrote four letters a year and was responsible for their parcels, etc. During the school vacations it was Lempriere's great delight to act as ship surgeon or as locum for many of the local doctors, and if he had any regrets in his school practice it was because, to quote his words, "he missed the personal contacts with ordinary people in general practice." Lempriere was indeed a fine character, and 20 years' contact with him made one appreciate more and more his absolute integrity, his kindness, and his conscientiousness, which he carried to an extreme degree. He would frequently sit up all night with an ill boy. To have a consultation with Lempriere was always a great pleasure.

Dr. ISABELLA MACDONALD MACDONALD, who died on Sept. 2 in London at the age of 91, was one of the first few women in this country to qualify. She was a daughter of the late Mr. John Macdonald, town clerk of Arbroath. A student at the London School of Medicine for Women, she took the L.S.A. and the London M.B. in 1888 and shortly afterwards was appointed resident physician at the Cama Hospital, Bombay. Unfortunately, after only three years' work there she had to resign because the climate had affected her health. She returned to London and in due course became senior physician and later consultant physician at the Elizabeth Garrett Anderson Hospital. In 1925 her friends and patients presented the hospital with a portrait of her in recognition of her outstanding work there. Dr. Macdonald was also a medical referee for the Baptist Missionary Society, and she continued in practice until her house in Seymour Street, Portman Square, was wrecked by a landmine in 1940.

Prof. Major Greenwood, F.R.S., writes: One of the amateurs of medical history who are grateful to Dr. Brock may perhaps be permitted to add a few sentences to the obituary notice in the *Journal* of Sept. 13 (p. 436). Dr. Brock was the only member of our profession who has made it possible for an English reader whose Greek and Latin are vestigial or, now that both the "learned languages" are optional, rudimentary to read Galen for himself. His edition of Galen, *On the Natural Faculties*, in the Loeb series, to which you refer, is invaluable to either class of reader. Those with vestiges of Greek grammar—people like me—using his readable translation can follow the text pretty well; the others can form a fair idea of the style, literary and scientific, of the old Dictator of Medicine. They can see why Dr. Brock said that Galen reminds one of another even more famous writer of Hellenistic Greek, the apostle Paul. Dr. Brock published another valuable book, *Greek Medicine* (London, 1929: J. M. Dent), which includes spirited translations from other works of Galen. Were it not for Dr. Brock, "Galen" would be really a sealed book to, say, 80% of medical readers. The only complete translation is into Latin, and not, as scholars tell us, a good translation. Yet Galen's influence is not extinct. We can all raise our eyebrows when we read (in a popular manual) an account of his incorrect physiology and mythical pathology, but we still believe, and do well to believe, much that Galen taught.

## Universities and Colleges

### UNIVERSITY OF LONDON

Gordon Macaulay Frizelle, M.D., has been appointed Assistant Dean of the London School of Hygiene and Tropical Medicine.

### UNIVERSITY OF WALES

#### WELSH NATIONAL SCHOOL OF MEDICINE

Ralph Montgomery Fullarton Picken, M.B., Ch.B., D.P.H., Mansel Talbot Professor of Preventive Medicine and Acting Provost of the Welsh National School of Medicine, has been appointed Provost of the School in succession to the late Col. A. W. Sheen. Prof. Picken was medical officer of health for Cardiff from 1921 to 1933 and was a member of the Council of the British Medical Association from 1930 to 1945, when the work attached to his appointment as Acting Provost of the School caused him to resign. When, in 1942, Mr. H. S. Souttar, then Chairman of the Council of the B.M.A., became chairman of a mission to report on the medical services for the armed Forces in India, Prof. Picken was appointed to act as Chairman of the Council in Mr. Souttar's absence.

### ROYAL COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS

A lecture on "Some Aspects of the Anatomy of the Pelvic Floor" will be delivered by Mr. Frederick A. Maguire, honorary gynaecologist, St. Vincent's Hospital, Sydney, Australia, at the College House (58, Queen Anne Street, London, W.) on Wednesday, Oct. 1, at 5 p.m. All Fellows and Members of the College and other doctors interested in the subject are invited to attend the lecture. Admission to which is by ticket only, obtainable from the secretary of the College. Tickets will be allotted in the order of application.

### SOCIETY OF APOTHECARIES OF LONDON

A course of twenty postgraduate subscription lectures on modern therapeutics will be delivered in the Hall of the Society (Black Friars Lane, Queen Victoria Street, E.C.) during October and November, beginning on Oct. 13, at 5 p.m. The fee for the whole course is £10 10s. (£8 8s. for Members and Diplomates of the Society), or 15s. for a single lecture. Full particulars may be obtained from the registrar of the Society at the above address.

## Medico-Legal

### MORPHINE IN A PATENT MEDICINE

[FROM OUR MEDICO-LEGAL CORRESPONDENT]

A father in Gorton, Manchester, bought three bottles of "Johnson's Celebrated Infants' Preservative" with which to treat his younger son for wind. The elder boy found an open bottle and drank half the contents; before long he became ill, and he died in Ancoats Hospital the next day. Dr. P. B. Woolley, a resident medical officer, produced the bottle, which the parents had handed to him, and said that the full contents would have contained just under 1 gr. (65 mg.) of morphine, a fatal dose for a child aged 2. The deputy coroner, Dr. Stanley Hodgson, asked him if he had any other experience of "this pernicious rubbish," and he answered that if a drug contained less than 0.2% of morphine it was not covered by the Dangerous Drugs Acts. The deputy coroner observed that doctors were told that morphine was most dangerous to children; in his opinion it was criminal that this sort of medicine was sold indiscriminately to parents who were not warned that it could be just as poisonous as carbolic acid.

The exception to which Dr. Woolley referred is contained in the Dangerous Drugs Regulations, 1937 (S.R.O. 560), which allow the free sale of preparations, admixtures, or other substances containing not more than 2.5% of methylmorphine or ethylmorphine (calculated as pure drug) associated with other medicinal substances.

The manager of the firm which manufactures the drug said to a Press reporter that the firm had been selling it for over a hundred years. He denied that each bottle contained a grain of morphine, and referred to the formula on the label giving the content as 0.432 gr. (28 mg.). No evidence of analysis was given at the inquest.

No. 36

## INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Sept. 6.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included), (b) London (administrative county), (c) Scotland, (d) Eire, (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London), (b) London (administrative county), (c) The 16 principal towns in Scotland, (d) The 13 principal towns in Eire, (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1947					1946 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	36	2	34	3	1	33	2	23	—	2
Deaths .. ..	—	—	1	—	—	—	—	1	—	—
Diphtheria .. ..	145	18	42	8	7	284	29	77	31	21
Deaths .. ..	2	—	—	—	—	2	—	2	—	—
Dysentery .. ..	64	9	23	—	1	86	7	42	3	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Encephalitis lethargica, acute .. ..	3	—	—	—	—	—	—	1	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Erysipelas .. ..	—	—	36	4	—	—	—	39	8	4
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Infective enteritis or diarrhoea under 2 years .. ..	62	3	26	96	5	31	—	9	70	2
Deaths .. ..	—	—	—	5	—	—	—	—	10	—
Measles* .. ..	1,447	61	41	135	1	1,321	93	62	40	9
Deaths .. ..	—	—	—	5	—	—	—	1	—	—
Ophthalmia neonatorum .. ..	53	2	7	—	—	74	8	18	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Paratyphoid fever .. ..	29	2	(B)	—	—	42	—	49 (B)	1 (B)	(B)
Deaths .. ..	1	—	—	—	—	1	—	—	—	—
Pneumonia, influenza .. ..	215	11	5	—	2	292	13	1	1	1
Deaths (from influenza)† .. ..	2	—	—	1	1	5	2	1	2	—
Pneumonia, primary .. ..	—	—	96	15	—	—	—	133	13	—
Deaths .. ..	—	17	—	7	8	—	23	—	4	6
Polio-encephalitis, acute .. ..	46	6	1	—	—	5	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Polio-myelitis, acute .. ..	662	69	174	8	13	19	1	3	2	—
Deaths .. ..	—	2	—	—	—	—	—	—	—	—
Puerperal fever .. ..	—	—	12	—	—	—	2	20	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Puerperal pyrexia‡ .. ..	112	7	8	1	1	136	11	10	1	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Relapsing fever .. ..	—	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Scarlet fever .. ..	540	44	113	12	21	668	44	144	17	26
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Typhoid fever .. ..	6	1	1	5	3	21	4	6	4	3
Deaths .. ..	—	—	—	—	—	1	—	—	—	—
Typhus fever .. ..	—	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Whooping-cough* .. ..	1,683	177	61	74	10	1,824	130	139	27	27
Deaths .. ..	5	2	—	1	—	6	—	1	1	1
Deaths (0-1 year) .. ..	302	42	70	23	9	345	46	41	22	11
Infant mortality rate (per 1,000 live births) .. ..	—	—	—	—	—	—	—	—	—	—
Deaths (excluding stillbirths) .. ..	3,668	587	503	155	82	3,844	598	501	160	91
Annual death rate (per 1,000 persons living) .. ..	—	—	10.5	9.8	—	—	—	11.0	10.3	—
Live births .. ..	8,464	1340	978	387	230	8,784	1451	1,028	330	236
Annual rate per 1,000 persons living .. ..	—	—	19.7	24.4	—	—	—	20.7	21.1	—
Stillbirths .. ..	196	35	36	—	—	236	34	45	—	—
Rate per 1,000 total births (including stillborn) .. ..	—	—	36	—	—	—	—	42	—	—

\* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

## EPIDEMIOLOGICAL NOTES

## Poliomyelitis and Polio-encephalitis

The number of cases of poliomyelitis in England and Wales notified during the week ended Sept. 13 was 572, as against 662 in the previous week, and the number of notifications of polio-encephalitis was 42 (46).

In London the decline in the notifications of poliomyelitis mentioned last week (Sept. 20, p. 473) continued; the figures for the last four weeks are 115, 77, 69, 63. In most other counties there were varying declines not obviously related to geographical situation. There were increases in Bucks 2 (0), Cornwall 4 (0), Cumberland 7 (2), Derby 8 (5), Devon 11 (5), Hereford 6 (1), Hertford 12 (9), Hunts 3 (1), Leicester 15 (11), Lines (Kesteven) 7 (1), Northampton 7 (5), Salop 5 (1), Southampton (Hants) 11 (5), E. Sussex 9 (6), W. Sussex 7 (5), Isle of Wight 7 (4), Isle of Ely 1 (0), Cardigan 1 (0), Carmarthen 1 (0), and Brecon 1 (0).

It is obviously too early to attempt to forecast the probable future trend of notifications, but the reduction of 90 over the country as a whole is encouraging.

**Clinical Records.**—One of the fundamental problems of the epidemiology of poliomyelitis is how the virus gets its teeth, and it is suggested that a study of outbreaks which have occurred, or may occur, in semi-isolated communities, such as residential schools and children's homes, at different stages of the general high prevalence might throw some light on this problem. The essential object of the inquiry would be to find out how the disease behaves in such communities at different seasons of the year. These communities have been chosen because it should be easy to determine the number of sub-clinical cases (see our annotation on this subject, Sept. 13, p. 423) occurring, an investigation which could only be undertaken with difficulty in the general population.

Doctors who have had, or may have, to deal with outbreaks in semi-isolated communities, and particularly school medical officers, are asked to supply in the first instance a short statement as to the approximate date of the outbreak, population at risk, and the number of definite and doubtful cases. This would make it possible to decide whether more detailed investigation would be likely to contribute to the solution of the problem. Subsequently it may be useful to collect information in a more or less standard form for ease of analysis. It would also be helpful if the Ministry of Health could be informed immediately a first case appears in a previously unaffected, semi-isolated community.

Information about such cases and records of earlier outbreaks in semi-closed communities should be forwarded directly to S.M.O., Med. III, Ministry of Health, Whitehall, London, S.W.1.

**Post-mortem Material.**—In addition to specimens in glycerol saline for the virus reference laboratory, Colindale, it is requested that representative specimens of spinal cord, as much as possible of the brain stem, and pieces of cortex including the motor area be preserved in formal saline and sent either to Prof. J. McIntosh, Middlesex Hospital, Mortimer Street, London, W.1, or to Dr. J. G. Greenfield, National Hospital for Nervous Diseases, Queen Square, W.C.1.

## Food-poisoning in Perthshire

Two outbreaks of food-poisoning have occurred in Perthshire in recent weeks. On Aug. 31 a party of 60 had a meal at 6 p.m.; and between 7 p.m. and 10 p.m. 56 of the party became ill, 4 being detained in hospital. Evidence pointed to tainted corned beef, which had been opened and served immediately. When seen next day the meat appeared to be perfectly sound, but on examination the outer surface was found to be heavily contaminated with *Staphylococcus aureus*. The tin concerned was one of a consignment which had been distributed all over the area, mainly in small portions, but no further cases appeared.

On Sept. 6, in almost the same area, another outbreak occurred, but in this case the food in question was found to be cream buns, and the causal organism *Salmonella aertrycke*. Approximately 120 persons were affected, with one death. Most of the cases were fairly mild, and, since in these cases there was some delay in obtaining medical advice, the true position did not become apparent until the fourth day. Fortunately two of the cream buns were discovered on the sixth day, and from these, as from the faeces of some of the cases, *Salmonella aertrycke* was demonstrated. The cream in question was widely distributed over the country, and it was made up in the usual way. There have been no reports of cases elsewhere, and the source of the contamination in this instance is not known.

### Discussion of Table

In *England and Wales* there was an increase in the number of notifications of scarlet fever 104, acute poliomyelitis 50, and whooping-cough 65, and a decrease in the incidence of measles 667, dysentery 21, and diphtheria 19.

An increased incidence of whooping-cough was recorded in most areas of the country; the largest local increases were in Lancashire and Staffordshire, where rises of 59 and 40 were reported. There were only a few areas which provided exceptions to the general decline in the incidence of measles; the largest falls were Glamorganshire 67 and Monmouthshire 50.

The chief feature of the returns for diphtheria was a decrease of 12 in Warwickshire. In Bedfordshire 12 further cases of paratyphoid fever were notified; 47 cases have been notified from this outbreak in the past four weeks. An increase of 10 in the notifications of dysentery was recorded in Lancashire; the largest local centre of infection in the country during the week was Liverpool C.B. 10.

In *Scotland* an increase was recorded in the notifications of scarlet fever 30, dysentery 11, and diphtheria 5. A decrease of 14 was recorded for cases of whooping-cough. The rise in the notifications of dysentery was due to isolated cases, and no large outbreak of any size was reported. Diphtheria was less prevalent in most areas, but a rise of 19 occurred in Glasgow. The increase in cases of scarlet fever was contributed by the western area.

An outbreak of gastro-enteritis in the village of Kineardine O'Neill has affected almost half of the 182 inhabitants. The outbreak was due to the milk from one cow, which subsequently died.

In *Eire* decreases were recorded for diarrhoea and enteritis 11, and measles 20, while the notifications of whooping-cough increased by 15.

In *Northern Ireland* the trends of infectious diseases did not show any large variations.

### Week Ending September 13

The notifications of infectious diseases in *England and Wales* during the week included: scarlet fever 674, whooping-cough 1,519, diphtheria 162, measles 1,038, acute pneumonia 203, cerebrospinal fever 25, acute poliomyelitis 572, acute poliomyelitis 42, dysentery 69, paratyphoid 14, and typhoid 13.

## Medical News

### Cancellation of Harveian Dinner

The Royal College of Physicians of London announces that, in view of the Government's decision about dinners, it has reluctantly decided to cancel the Harveian Dinner, arranged for Oct. 18.

### Middlesex Hospital Medical School

The Middlesex Hospital Medical School, desiring to fall in with the Government's expressed wish regarding dinners for large numbers of people, has cancelled the annual dinner of the School which had been arranged for Oct. 2 at the Savoy Hotel.

### Dr. C. Hill as Luton Candidate

Dr. Charles Hill, Secretary of the B.M.A., was on Sept. 23 unanimously chosen as prospective Parliamentary candidate of Luton United Liberal and Conservative Association for the Luton Division.

### The Osler Club

The Osler Club of London, which was founded in 1928, is to be revived. The objects of the club are to encourage medical students to link the history of their art with their professional work and to keep alive the memory of Sir William Osler. Those interested should write to the Acting Secretary, Dr. A. White Franklin, 11, Wimpole Street, London, W.1.

### Territorial Army

The following Territorial Army medical units have re-formed in the London area. There are vacancies for specialist and non-specialist medical officers and for warrant officers, N.C.O.s, and men. Anyone interested in joining one of these units should apply to the officer commanding: 2 (London) General Hospital, Elmgrove Road, Harrow (Tel.: Harrow 6890); 167 and 168 (City of London) Field Ambulances and 24 (London) General Hospital, 57a, Farringdon Road, E.C.1 (Tel.: Holborn 2536); 10 and 17 (London) General Hospitals, 8 (London) Field Hygiene Company, and 4 (Para) Field Ambulance, Duke of York's Headquarters, Chelsea, S.W.3. There are also vacancies for Territorial Army regimental medical officers in various parts of London. Application should be made to the D.A.D.M.S., 13, Eccleston Square, S.W.1, or to the O.C. unit concerned.

### Care of Old People

At the first meeting of the governors of the National Corporation for the Care of Old People, at which Sir George Wilkinson, Bart., presided, it was decided to appoint an Advisory Council to make recommendations on the policy and activities of the Corporation and to examine all applications for grant-aid. The Hon. Geoffrey Gibbs, C.M.G. (vice-chairman of the Corporation), will be the chairman and Mr. L. Farrer-Brown, J.P., the vice-chairman of this Council. The following have agreed to serve, in their personal capacities, as members of the Advisory Council: Mr. H. Fieldhouse, C.B., O.B.E.; Mr. D. H. W. Hall; Mr. A. W. Hersee, O.B.E.; Alderman Mrs. A. V. Hill; Mr. Howell James; Sir Geoffrey King, K.B.E., M.C.; Mr. Fred Messer, J.P., M.P.; Sir Ernest Rock Carling, F.R.C.P., F.R.C.S.; Miss E. L. Younghusband, M.B.E., J.P. Mr. Allendale Sanderson was appointed secretary of the Corporation.

### Radio-isotopes for Research

President Truman announced on Sept. 3 that the U.S.A. will make radio-isotopes for medical and biological research available to workers in other countries. Distribution will be directed by the U.S. Atomic Energy Commission. Governments whose research workers request radio-isotopes must agree to (1) make progress reports to the A.E.C. every six months, and permit publication of reports; (2) ensure that radio-isotopes are used for the purpose stated in the request, which must be approved by the A.E.C.; and (3) permit qualified scientists, irrespective of nationality, to visit institutions where the materials will be used, and to obtain information freely. U.S. laboratories and research groups wish foreign scientists to visit institutions in the U.S.A. where medical and biological research with radio-isotopes is being conducted. Governments whose workers require radio-isotopes must designate representatives in the U.S.A. to file requests and pay for the materials, and assume responsibility for safe handling in transit outside the U.S.A. The A.E.C. will publish a catalogue of the substances obtainable and their prices. The following radio-isotopes are available: antimony<sup>122 124 125</sup>, arsenic<sup>74 77</sup>, bromine<sup>82</sup>, calcium<sup>45</sup>, carbon<sup>14</sup>, chlorine<sup>36</sup>, cobalt<sup>60</sup>, copper<sup>64</sup>, gold<sup>198 199</sup>, iodine<sup>131</sup>, iron<sup>59 55</sup>, mercury<sup>197 203 205</sup>, phosphorus<sup>32</sup>, potassium<sup>42</sup>, silver<sup>110 111 115</sup>, strontium<sup>90</sup>, sulphur<sup>35</sup>, sodium<sup>24</sup>, zinc<sup>65 66</sup>.

### Algiers Surgeon's Visit

Prof. Pierre Goinard, head of the neurosurgery centre at the Barbier-Hugo Hospital, Algiers, is visiting Britain under the auspices of the British Council to study psychiatric and neurosurgical centres.

### Wills

Dr. Reginald John Gladstone, formerly reader in anatomy at King's College, London, who died on Feb. 12, left £42,182. Dr. Thomas William Shore, dean of St. Bartholomew's Hospital Medical College 1906-30, who died on Feb. 19, left £17,357. Dr. Arnold Lyndon, a former Vice-President of the B.M.A., who died on Nov. 14, 1946, left £44,652. Dr. George Fogg, of Newcastle-upon-Tyne, left £2,046; Dr. Walter Wingfield Nuttall, of Folkestone, Kent, left £34,946; and Dr. Edward John Macartney Watson, of Dublin, left £43,133.

## COMING EVENTS

### Cambridge Medical Graduates' Club

It is hoped to revive the activities of the Cambridge Medical Graduates' Club with a sherry party at the Apothecaries' Hall (Black Friars Lane, Queen Victoria Street, London, E.C.) on Thursday, Oct. 30. As the secretaries of the club have been unable to trace a large number of old members, all who have not received notices should communicate with Dr. R. A. Hickling, of 99, Harley Street, London, W.1. The subscription to this mainly social club is £1 ls. for life membership. There have been no new members since 1939. All Cambridge medical men are eligible for election, and those who have qualified since 1939 are urged to get in touch with their hospital representative or with Dr. Hickling.

### Royal Free Hospital School of Medicine

Prof. Ida Mann, F.R.C.S., will present the prizes of the Royal Free Hospital School of Medicine and will deliver the 1947-8 inaugural address on "The Possibilities of a Medical Education" at B.M.A. House, Tavistock Square, London, W.C., to-day (Friday, Sept. 26), at 3 p.m.

### Films on Penicillin and Anterior Poliomyelitis

The Chelsea and Fulham Division of the B.M.A. has arranged for the following films to be shown on Friday, Oct. 3, at 8.15 p.m. at Fulham Hostel, 367, Fulham Road, S.W. (1) Penicillin, to be introduced by Dr. P. Harvey, Mr. J. Cooper Brass, and a pathologist; (2) Anterior Poliomyelitis, to be introduced by Dr. W. H. Kelleher. All medical practitioners are invited to attend.



**Shropshire and Mid-Wales Branch of the B.M.A.**

A clinical meeting of the Shropshire and Mid-Wales Branch of the B.M.A. will be held at King Edward VII Memorial Sanatorium for Shropshire, Shirlett, nr. Broseley, on Tuesday, Sept. 30, at 3.30 p.m.

**Mid-Essex Division of the B.M.A.**

A meeting of the Mid-Essex Division of the B.M.A. will be held at Chelmsford and Essex Hospital on Sunday, Oct. 5, at 11 a.m., when Mr. H. A. H. Harris and Dr. James Hall will read a paper on "Rehabilitation in Hospital and General Practice."

**Welsh National School of Medicine**

The opening Sessional Address of the Welsh National School of Medicine will be given in the school on Tuesday, Sept. 30, by Prof. Harry Platt, M.D., M.S., F.R.C.S., F.A.C.S., professor of orthopaedic surgery in the University of Manchester, on "Medicine, Science and Learning."

**Medical Society of the L.C.C. Service**

A meeting of the Medical Society of the L.C.C. Service will be held at County Hall, Westminster Bridge, S.E., on Thursday, Oct. 2, at 4 p.m., when Prof. John A. Ryle, M.D., F.R.C.P., will open a discussion on "The Social Aspects of Hospital Work."

**National Association of Insurance Committees**

The thirtieth annual meeting of the National Association of Insurance Committees will be held at B.M.A. House, Tavistock Square, London, W.C., on Thursday, Oct. 2, at 3 p.m., when the proceedings will be opened with an address by the Rt. Hon. Aneurin Bevan, Minister of Health. The meeting will be continued on Friday, Oct. 3, at 10 a.m.

**Royal College of Obstetricians and Gynaecologists' Dinner**

The Royal College of Obstetricians and Gynaecologists has arranged a dinner to be held at the Connaught Rooms, Great Queen Street, London, W.C., on Friday, Oct. 3, at 7 p.m. for 7.30 p.m.

**Royal Sanitary Institute**

A meeting of the Royal Sanitary Institute will be held at Chester Town Hall on Friday, Oct. 3, at 10.45 a.m., when Dr. Arnold Brown will read a paper on "The Administrative Aspects of the Care of Children."

**King's College Hospital Medical School**

The opening of the one hundred and eighteenth session of King's College Hospital Medical School will take place at the School, Denmark Hill, S.E., on Friday, Oct. 3, at 3 p.m. The Dean will present the scholars and prize-winners to Sir Edward Mellanby, K.C.B., D.Sc., M.D., F.R.C.P., who will deliver the Introductory Address. Surgeon Rear-Admiral Sir Cecil Wakeley, K.B.E., C.B., D.Sc., F.R.C.S., will preside.

**Westminster Hospital Medical School**

Sir Adolphe Abrahams will deliver the inaugural address at the Westminster Hospital Medical School, 17, Horseferry Road, S.W., on Monday, Oct. 6, at 3 p.m.

**Road Safety**

The Royal Society for the Prevention of Accidents will hold its Silver Jubilee Congress at Brighton on Oct. 7-10. Among the subjects discussed will be one on the "Psychological Aspects of Child Road Accidents" by Dr. K. Soddy on Oct. 8.

**Chadwick Lectures**

The following Chadwick Public Lectures have been arranged: Tuesday, Oct. 7, 2.30 p.m., at Royal Society of Tropical Medicine, 26, Portland Place, W., Brigadier A. E. Richmond, "Positive Health—Its Attainment in the Soldier, and the Army's Contribution to it in the Civilian"; Tuesday, Nov. 4, 2.30 p.m., at London Missionary Society, 42, Broadway, Westminster, S.W., Dr. C. T. Maitland, "Hospitals and Health Services"; Thursday, Dec. 4, 4.30 p.m., at St. Mary's Hospital Medical School, Norfolk Place, Praed Street, W., Dr. G. B. Mitchell-Heggs, "Some Changes in Dermatology since the time of Sir Malcolm Morris." Admission to the lectures is free, and further particulars may be had from the secretary of the Chadwick Trust, 204, Abbey House, Westminster, S.W.1.

**Training of Specialists**

Sir Francis Fraser, M.D., F.R.C.P., will deliver the annual address on "The Training of Specialists: The Place of Postgraduate Institutes," at a meeting of the Institute of Laryngology and Otology, at 330, Gray's Inn Road, W.C., on Friday, Oct. 10, at 4.30 p.m.

**SOCIETIES AND LECTURES**

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.—Monday, Sept. 29, 5 p.m. Hunterian Lecture by Prof. Hassan Ibrahim, Bilharziasis and Bilharzial Cancer of the Bladder. Tuesday, Sept. 30, 5 p.m. Hunterian Lecture by Prof. Harold Wookey, Senior Surgeon, Toronto General Hospital, Surgical Treatment of Malignant Disease of the Pharynx and Oesophagus.

**ROYAL SOCIETY OF MEDICINE**

Section of History of Medicine.—Wednesday, Oct. 1, 2.30 p.m. Presidential Address by Dr. Hubert J. Norman: History of the Treatment of Mental Disorders.

Section of Neurology.—Thursday, Oct. 2, 8 p.m. Clinical meeting at the National Hospital, Queen Square, W.C.

**POSTGRADUATE DIARY**

GLASGOW UNIVERSITY: DEPARTMENT OF OPHTHALMOLOGY.—Wednesday, Oct. 1, 8 p.m., Dr. J. D. Fraser: Industrial Cataract.

LONDON SCHOOL OF DERMATOLOGY, 5, Lisle Street, Leicester Square, W.C.—Thursday, Oct. 2, 5 p.m. Dr. G. B. Mitchell-Heggs: Pyogenic Affections.

PHYSICAL SOCIETY: COLOUR GROUP.—At Small Physics Lecture Theatre, Imperial College, Imperial Institute Road, London, S.W., Wednesday, Oct. 1, 3.30 p.m. Review and discussion of International Colour-Vision Conference held at Cambridge in July, to be opened by Mr. J. G. Holmes and Mr. R. G. Horner.

A series of special Honyman Gillespie lectures has been arranged, in association with Edinburgh postgraduate courses, to be given in the West Medical Theatre, Edinburgh Royal Infirmary, on Thursday, at 4.30 p.m., from Oct. 16 to Nov. 27, both dates inclusive. The lectures are open to all graduates and senior students. Details will be published in the diary column of the *Journal* week by week.

A course of lectures and demonstrations will be held at the London Chest Hospital during the winter term on Fridays from Oct. 17 to Dec. 19, all at 5 p.m. with the exception of the lecture and demonstration on Dec. 12, which will be given at 6 p.m. A second course will be held during the spring term from Jan. 9 to March 12, 5 p.m. Admission will be by ticket only and the fee for each term is £2 2s., except for serving and demobilized members of H.M. and Allied Forces. Applications should be addressed to the Dean, London Chest Hospital, Victoria Park, E.2.

The next clinico-pathological demonstration will be held in the Meyerstein Lecture Theatre of the Westminster Hospital School of Medicine, Horseferry Road, S.W., on Monday, Oct. 13, at 5 p.m., and not on Oct. 6 as announced in the *Journal* of Sept. 20 (p. 474). The subject under discussion will be Anterior Poliomyelitis.

**APPOINTMENTS**

Mr. George Laws, M.B.E., will take office as chairman of the Council of the Royal Sanitary Institute on Oct. 1.

Dr. Alan Trevor Jones, of Cardiff, has been appointed Senior Administrative Medical Officer of the Welsh Regional Hospital Board.

Dr. Trevor Jones is a medical officer under the Welsh Board of Health.

Dr. Alexander Boyd Williamson, O.B.E., has been appointed Senior Administrative Medical Officer of No. 2 Regional Hospital Board, with headquarters at Leeds.

Since 1934 Dr. Williamson has been Medical Officer of Health for Portsmouth.

GILMOUR, DAVID, M.B., Ch.B.Ed., D.P.M., Deputy Medical Superintendent, Birmingham City Mental Hospital, Winson Green.

**BIRTHS, MARRIAGES, AND DEATHS**

The charge for an insertion under this head is 10s. 6d. for 18 words or less. Extra words 3s. 6d. for each six or less. Payment should be forwarded with the notice, authenticated by the name and permanent address of the sender, and should reach the Advertisement Manager not later than first post Monday morning.

**BIRTHS**

DOHERTY.—On Sept. 11, 1947, at Cardiff, to Eva (née Kennedy), wife of Dr. C. J. Doherty, a daughter.

ELMES.—On Aug. 20, 1947, in Dublin, to Margaret (née Dutton), wife of Dr. F. Elmes, East Waylands, Hayes End, Middlesex, a daughter—Penelope.

MALLINSON.—On Sept. 9, 1947, at St. George's Hospital, S.W.1, to Ella, wife of Sir Paul Mallinson, a daughter.

**MARRIAGES**

AIRTH.—MACLENNAN.—On Aug. 30, 1947, at the Naval Chapel, Portland, Graham Robertson Airth, to Patricia Ann MacLennan.

WILSON.—WEST.—On Sept. 6, 1947, at St. Mary's Church, South Hayfield, William Eric John Wilson, B.Sc., M.B., Ch.B., to Emily Florence West, S.R.N.

**DEATH**

JOHNSON.—Charles, M.B., B.S., F/O, R.A.F. Only son of Mr. and Mrs. C. W. Johnson of 196, Sunderland Road, South Shields. In a flying accident on Sept. 17, 1947, at 12.15 p.m. at Aekington Airfield, Northumberland.

MEYER.—On Sept. 5, 1947, at 80, Trafalgar Road, Birmingham, Fritz Meyer, M.D. Berlin, aged 62, after a long illness.

## Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions. Each should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

### Diphtheria Immunization

**Q.**—There was a survey some time ago of the results of diphtheria immunization over a period. This showed the highest percentage of lasting immunity from an initial dose of 0.25 ml. A.P.T., and apparently stressed that this dose should be as high as possible (that is, not less than 0.2 ml.). The initial dose was the deciding factor in the percentage of lasting immunity gained. If this is so, can a reinforcing dose be justified if it gives no more than transient immunity in those who lose their immunity rapidly?

**A.**—For the production of antibody, as in the active immunization of children against diphtheria, the first injection of antigen, called the "primary stimulus," serves mainly to prepare or sensitize the antibody-producing cells so that when the second antigen—the "secondary stimulus"—is given there is a rapid outpouring of antibody. It is important that this first dose should be large enough to prepare the antibody mechanism for the response which it should give when the second dose, which may be much smaller, is administered. Thus it is theoretically wrong to give a small first dose and a larger second dose, as is common practice in this country, although a dose of 0.1–0.2 ml. of A.P.T.—a very good antigen—has been found to be an adequate primary stimulus, since when the second dose is given the Schick conversion rate is practically 100%. The production of antibody in response to the second dose is maintained at a high level for a short period, and then shows a steady decline so that in two to three years demonstrable antibody may be absent from the blood. This happens irrespective of the size and nature of the primary stimulus, although the fall may occur earlier with one kind of antigen than with another; for example, the Schick reversion rate, which means loss of immunity, is higher and occurs more quickly after immunization with two doses of T.A.F. than with A.P.T. When the antibody has dropped to a very low level the boosting dose given one year or more later acts in the same way as the secondary stimulus, so that there is again a rapid production of antibody, which may reach even higher levels and persist for a longer period than is the case after the first immunizing course. This boosting dose should therefore not be omitted even if the primary stimulus was a particularly good one.

### Treatment of Rheumatoid Arthritis

**Q.**—I was interested in Dr. Imre Barsi's article (*Journal*, Aug. 16, p. 252) on the treatment of rheumatoid arthritis by the transfusion of citrated blood from a pregnant woman. Realizing the difficulties, I wondered if an alternative to such a method had been tried, by the use of, say, the intramuscular injection of chorionic gonadotrophin. I propose to try one or two cases on a dosage of 100 i.u. I should be grateful for your comments.

**A.**—The treatment of rheumatoid arthritis by the transfusion of blood from a pregnant woman has not been tried, so far as we are aware, by anyone except the author of the article referred to. The difficulties inherent in such a method in this country are obvious, and the idea of using chorionic gonadotrophin has occurred to others and is likely to be the subject of trial. It must be regarded as purely experimental at the present stage, and the results should be carefully watched and recorded; under such conditions it would be justified. The dosage suggested would be appropriate in the first instance and might be modified in the light of experience in the direction of either increase or decrease; possibly courses of a few doses with intervals over a period of twelve months would furnish useful information; a shorter period of observation would be less reliable.

### Removal of Cyst from Hand

**Q.**—I wish to remove a small swelling the size of a cherry stone in the right palm of a girl aged 3. It appears to be an epidermoid or mucous cyst. How long can a pneumatic blood-pressure band for the control of haemorrhage be safely applied, and what special points in operative technique are to be emphasized?

**A.**—It is perfectly correct technique to remove the cyst described under a general anaesthetic and with the use of a pneumatic blood-pressure band for the control of haemorrhage, but the time factor should not enter into the picture. The band can safely be left on without release for half an hour or more, and it is unlikely that the operation will take half this length of time. Tourniquets of all descriptions can in fact be left on much longer than is stated in the average textbook or first-aid manual. This fact was amply proved in dealing with the casualties of the last war. But if circumstances demand the retention of a tourniquet over long periods, release for only a few moments at half-hour intervals renders the procedure perfectly safe. The following points in technique may be noted. Use a sharp scalpel—sharp to the point; do not undercut the skin too near to the epidermis; tie obvious vessels if injured, despite the fact that they are not bleeding; avoid cutaneous branches of digital nerves; sew up skin with interrupted fine silkworm-gut sutures; apply a pressure dressing.

### Retarded Speech Development

**Q.**—Can you suggest any treatment for a boy aged 4½ years who has only a limited vocabulary of simple words? Health and intelligence good, hearing and memory excellent. The child is sociable and very musical, singing any tune perfectly after two or three hearings. He will not imitate words or phrases, however, and speech therapy had no success owing to his lack of co-operation.

**A.**—It is difficult to advise in this case without knowing the results of certain tests. Some children develop speech normally after a late start, especially "only" children, or a first child who is not succeeded by another for several years. On the other hand, there may be some defect of hearing, such as high-frequency deafness that cannot be detected without an audiometer test, or an auditory imperception. Tests for the latter condition can be carried out by psychologists in certain clinics. If this child's speech development is not affected by any organic abnormality the causation may be psychogenic. If so, it is important not to urge him to speak. Since he is musical, it may be possible to introduce words into the tunes that he learns. It will also help if adults are careful to use only clear and slow speech when addressing him, and a consultation at a child-guidance clinic would be useful to find out if there is any emotional conflict that would account for his retardation in the use of words.

### Decay of Finger-nails

**Q.**—Is any treatment effective in preventing the dry decay, with occasional shedding, of finger-nails seen sometimes in elderly people? Is it always worth while to ask a pathologist to examine scrapings for possible fungus infection?

**A.**—Scrapings should always be examined for fungus, but if most nails are affected the condition is probably dystrophic from general causes, if not part of a skin disturbance such as psoriasis. Attention should be directed to the cause. Fractional doses of x rays may be given to the nail matrices.

### Eye Surgery in Animals

**Q.**—What means should be adopted to ensure relaxation and fixation in a rabbit or cat so that an operation may be performed upon its eye?

**A.**—For minor operations the cornea and conjunctiva can be adequately anaesthetized by the instillation of drops of 2% cocaine solution. Intraocular manipulations call for analgesia either by retrobulbar injection (2 ml. of 5% procaine solution) or by intravenous or intraperitoneal injection of veterinary pentobarbitone soluble, 0.5 ml. per kilo of body weight. With general anaesthesia there is no difficulty in fixing the eye; with local analgesia the animal is best held by an assistant. It is unlikely that any operations can be carried out on the cat without general anaesthesia.

## Intramuscular or Subcutaneous Injections

**Q.**—*Intramuscular injections can be a nuisance to both doctor and patient. What is the objection to giving liver extract or penicillin subcutaneously? Relative slowness of absorption would often seem to be an advantage. The same applies to oily solution of progesterone and oestradiol. One firm recommends that progesterone be given intramuscularly, and oestradiol "intramuscularly or subcutaneously." It is agreed that certain drugs are best given by special routes for speed of action or other reason, but does not the matter too often depend on the whim of the manufacturer?*

**A.**—Intramuscular injections are less painful than subcutaneous injections. This applies especially to all injections of volume greater than 1 ml., because more bulk causes pain. Again, many substances are irritant—for example, penicillin, cimetidine, etc.—and are well tolerated only if given intramuscularly. Finally, oily solutions or suspensions are very slowly and irregularly absorbed from subcutaneous depots and are liable to give rise to abscess formation.

## Exposure to Lead

**Q.**—*In a lead-smelting works a number of men developed a moderate punctate basophilia of between 3,000 and 5,000 cells per million. They were given work outside the factory, but a year later their high basophil counts persist. Does this imply that they must still be absorbing lead?*

**A.**—Punctate basophilia may persist for some time after exposure to lead has ceased, but it is important to ascertain if, in the case instanced, a source of lead exposure still exists. The possibility will be remembered, too, of the liberation into the blood stream of lead which has been stored in the body. Punctate basophilia (the size of the particles is worthy of note) is, of course, only a part of the picture, and a clinical examination of the group of men (and their fellow-workers) with a consideration of the blood condition as a whole should decide the question of whether lead absorption is continuing or not.

## Treatment of Psoriasis

**Q.**—*Can you give me any information about the Goeckerman treatment for psoriasis?*

**A.**—Goeckerman's name has been attached to a treatment of psoriasis in which a tar paste such as the following is applied at night and is cleaned off with oil in the morning and the patient is subsequently exposed to ultraviolet light in erythema dosage:

R					
Crude coal tar	..	..	..	gr. 20 (1.3 g.)	
Zinc oxide	..	..	..	gr. 120 (8 g.)	
Soft paraffin	..	..	..	ad 1 oz. (30 g.)	

Make into a paste.

## Lupus Vulgaris

**Q.**—*Is it safe for a young child to live in the same house as an elderly woman covered with dry red scaly lupus?*

**A.**—The danger of the spread of infection from lupus vulgaris is slight, but it is possible through an open wound of the skin, even though this is small. It would therefore be advisable for the child to refrain from direct contact with the patient. It is important that anything used in washing and bathing by an infected person should be kept separate.

## Disseminated Sclerosis

**Q.**—*In a case of advanced disseminated sclerosis what measures may be adopted to alleviate the severe and painful flexion contractures of knee and elbow?*

**A.**—Among medicinal agents worth trying are the barbiturate sedatives. Recently injections of curare have been used with slight temporary improvement at times. Some cases are relieved by light splints or by immobilization in plaster. Surgical attempts at relief have included tenotomy, Stoffel's operation, and even posterior rhizotomy. It must be confessed that flexor spasms often prove most obstinate despite all the foregoing measures. Thirty years or more ago preparations of conium were in vogue for this symptom, but the drug has passed out of fashion, and recent retrials have not been at all encouraging.

## NOTES AND COMMENTS

**Judicial Hanging.**—Dr. S. W. ALLWORTHY (Belfast) writes: The notes by Col. N. J. C. Rutherford (Aug. 16, p. 282) and Lieut.-Col. F. A. Barker (Aug. 30, p. 358) on procedure in Indian jails reminds me of the following historical note by the late Pres. J. K. Ingram, F.T.C.D., on hanging in England. "Hanging was made of execution in use among the Anglo-Saxons. Indeed *Beowulf*—which its able editor, Kemble, believed to be a form of a poem which the invaders of Britain had brought with them from their Continental homes—the gallows (*galga*) figures as an established institution of the Teutonic races of Northern Europe. But it is very difficult to get any definite information as to the history of hanging in England. It seems, however, quite certain that the idea of immediately extinguishing the life of the culprit by a sufficient fall never presented itself to our ancestors; their only notion was that of suspending him by the neck for what might seem an adequate time to ensure (?) strangulation. It is noticed by Blackstone as a somewhat singular fact that the only warrant the sheriff has for a capital execution is the signature of the judge; to the calendar or list of all the prisoners' names, with their respective judgments in the margin: formerly, in the days of Latin and abbreviation, '*sus per coll'*' for '*suspendatur per collum*'. Originally, however, he states there was a formal precept to the sheriff under the hand of the judge, but in none of the law books have I found a copy or exact description of this precept. I do not even find how long the sentence to be 'hanged by the neck till ye are dead' has been in use. 'It is clear,' says Blackstone, 'that, upon judgment to be hanged by the neck till he is dead, the criminal be not thoroughly killed but revives, the sheriff must hang him again for the former hanging was no execution of the sentence.' But strangely enough we find in the *Vision of Piers Plowman* a passage which seems to show that the opposite of this either was, or was believed to be, the established rule in his time:

"It is nought used on earthe  
To hangen a felon  
Ofther than ones,  
Though he were a tretour."

The Rev. Samuel Haughton, F.R.S., M.D. (Dubl.), D.C.L. (Oxon.) in his famous book on *Animal Mechanics* published in 1873, in digression on the art of hanging gave his own experiences and mathematical calculations with regard to the "long drop" and instantaneous death which he advocated. He says: "According to the original form of death punishment for treason in England, the hanging was used as an anaesthetic, preparatory to the disembowelling (or drawing) that always preceded the quartering of the criminal and the present slow process of hanging, practised by Calcraft and others in England and Scotland, which consists in dropping the patient through two or three feet and allowing him to hang until dead, is the faithful representation of the original process of hanging, which was intended to fulfil a purpose quite different and distinct from that of the speedy execution of the criminal. It seems to me unworthy of the present state of science to continue a mode of execution which as at present used is extremely clumsy, and also painful to the criminal. Instead of the 'short drop' used we ought to employ the 'long drop' which causes instantaneous death."

**Infantile Eczema.**—Dr. C. W. F. McKean (London, W.1) writes: True atopic infantile eczema should be distinguished from seborrhoeic dermatitis in infants (Sept. 6, p. 403). The latter is the far commoner condition. Soap and water should perhaps be avoided in the acutely red stage, when normal saline may be used for cleansing, if necessary, but olive and nrichis oil are definitely contraindicated, and will always worsen or prevent the cure of seborrhoeic conditions. Indeed, oils should be used with caution in all skin diseases.

**Correction.**—The courses of instruction for the Diploma in Tropical Medicine and Hygiene at the Liverpool School of Tropical Medicine for the years 1947-8 start at the end of August and the beginning of January, not as stated in our issue of Sept. 6, p. 39.

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: ANTHROPOLOGICAL LONDON. ORIGINAL ARTICLES AND LETTERS forwarded to the Editor, B.M.A. House, Tavistock Square, W.C.1. For publication are understood to be offered to the British Medical Journal unless the contrary be stated. Authors desiring REPRINTS should communicate with the Publishing Manager, B.M.A. House, Tavistock Square, W.C.1. on receipt of proofs. As proofs are sent abroad, overseas should indicate on MSS. If reprints are required, as proofs are sent abroad. ADVERTISEMENTS should be addressed to the Advertisement Manager, B.M.A. House, Tavistock Square, London, W.C.1 (hours 9 a.m. to 5 p.m.). TELEPHONE: EUSTON 2111. TELEGRAMS: BRITMEDAD, LONDON. MEMBERS' SUBSCRIPTIONS should be sent to the SECRETARY of the Association. TELEPHONE: EUSTON 2111. TELEGRAMS: MEDICINA, LONDON. B.M.A. SCOTTISH OFFICE: 7, Drumshugh Gardens, Edinburgh.

# BRITISH MEDICAL JOURNAL

LONDON SATURDAY OCTOBER 4 1947

## AIR-BORNE INFECTION\*

BY

R. J. V. PULVERTAFT, O.B.E., M.D., F.R.C.P.

*Professor of Clinical Pathology, Westminster Hospital School of Medicine*

The conception of air-borne infection came thousands of years before the discovery of bacteria. As soon as man became an animal living in large settled communities epidemic disease was inevitable, and the most primitive intellect could grasp the significance of the unseen transmission of a fatal agent. The word "toxin" has carried on to the present day the Old Testament conception of an arrow flying in the darkness, and the mediaeval paintings of St. Sebastian continue the metaphor. Plague-stricken London anticipated Lister with fumes of brimstone; the judge still carries his posy of flowers to ward off jail fever; and the observations of Twort and his colleagues on the value of smokes as bactericidal agents must remind all who have visited Eastern bazaars of the itinerant incense carrier. Perhaps the use of incense in many religions had the neutralization of infection as one motive.

Eighteenth-century doctors, with their leisurely precision, made some guesses very near the mark. Sydenham wrote: "The matter so falls out that at this time or that time the air is furnished with particles that are adverse to the human body." Arbuthnot, in 1733, in *An Essay concerning the Effects of Air upon the Human Body*, said: "Nothing accounts so clearly for epidemical diseases seizing human creatures inhabiting the same tract of earth who have nothing in common that effects them except air" as that "air is the  $\pi\acute{o}\varsigma\ \theta\epsilon\iota\omicron\nu$  in disease." Air is the mysterious something of the ancients. It was indeed through experiments on air, still recalled to bacteriologists by their daily use of the Pasteur pipette, that the whole of modern bacteriology evolved. In his first classic paper Lister wrote: "The air owes the property [of putrefaction] to minute parasites suspended in it, which are the germs of various forms of life"; and Koch in one of his earliest papers wrote: "It is also highly probable that the tubercle bacilli are usually inhaled with the inspired air, clinging to particles of dust."

It is therefore not surprising to find that the early bacteriologists particularly studied the air. Flüge in 1897 put forward the conception of droplet infection, though it is only in comparatively recent years that the subject has again come to the forefront. Indeed, the early workers soon found that direct contact and contaminated instruments were in many cases far more important to the surgeons; and they lacked equipment capable of controlled measurement of the bacterial content of the air.

### Technical Methods

One of the oldest and simplest methods of culturing the air is to expose Petri dishes, and the method is still quite satisfactory. It is true that this gives no quantitative values, but the number of organisms falling on to a plate is proportional to the number in the air, and runs roughly parallel with more exact measurements. Quantitative estimates may be made by a simple technique devised by Elford: a piece of filter paper is placed in a Seitz filter, a known volume of air sucked through, and the disk dropped on to a semi-solid agar plate. For critical work, however, the air centrifuge of Wells or the slit sampler of Bourdillon must be used. It is possible to-day to give a reasonably exact estimate of the number of particles containing bacteria. The results of course vary according to conditions: probably the air is nowhere sterile, even at great heights. From personal observations it is found that a hospital ward normally has about fifty such particles per cubic foot, but when beds are made the number rises to 2,000-3,000. Bourdillon and Colebrook, using filtered air in a surgical dressing-room, found 0.005 particles per cubic foot; this figure rose to more than 600 when dressings were done without ventilation. Canteens were found to have up to 250. In air-raid refuges the bacterial content gradually rose nearly tenfold over a period of hours.

Experiments on animals are not entirely satisfactory. Mice can be infected by mists of influenza virus and of pasteurilla. Ferrets infected with influenza and virulent streptococci transmit the streptococci to ferrets, at the other end of an animal house, infected with influenza only; rabbits infected with tuberculosis transmit the infection to others at a distance. On the whole, however, air-borne infection has not lent itself to experiments of this type.

### General Principles

It is to be anticipated that certain forms of bacterial life would adapt themselves to aerial spread, as certain plants have winged seeds and as other bacteria adapt themselves, through their mobility, to aquatic life. The vast majority of air-borne organisms are non-pathogenic. The majority are resistant to desiccation owing to spore formation, and probably of low specific gravity. The universality of moulds is due to these factors. Moulds are of immense economic importance, and so versatile that they infest even cold-storage plants. Indeed, the control of mould infection offers great scope to the technique used in the control of infection, and appears to be neglected.

\* A lecture delivered at the Royal College of Surgeons of England.

On general principles, again, we should expect organisms which infect the respiratory tract to travel via the air. This, however, does not imply that they do so travel. It is exceedingly difficult to isolate pathogens from the air by the most refined technique. In tests with which I was concerned large barrack-rooms with very poor ventilation were tested. Nearly all the inhabitants were found to be carriers of meningococcus, but no meningococci were isolated from the air. For the greater part of a year I tested the air of crowded air-raid refuges without isolating haemolytic streptococci or pneumococci. The only haemolytic streptococci which I have isolated from the air came from the neighbourhood of patients with infected wounds. Such organisms have been isolated from scarlet-fever wards by many observers, but even the most crowded room occupied by healthy persons yields amazingly few pathogenic forms.

Flügge's original conception of droplet spread was criticized because the majority of droplets fall quickly to the ground. However, W. F. and M. W. Wells found that some were so minute—nuclei, as they named them—as to remain suspended for long periods. In this way infective agents might theoretically remain and build up in unventilated rooms. However, it appears certain that it is the organisms which fall to the ground or on to clothing or bedclothes which are the most important. Dust is undoubtedly rich in pathogenic bacteria and viruses. The varieties so isolated, even by the simplest technique, are most significant. Diphtheria bacilli can usually be found in fever hospital dust and tubercle bacilli in sanatoria, and the poliomyelitis virus has been identified in the dust of a room occupied by a case. I have rarely failed to isolate *Cl. tetani* and *Cl. welchii* from London dust, and infection with tetanus has been ascribed to air-borne spread. Streptococci are of particular importance, as they remain viable on blankets and clothing for a month or more. Small-pox virus remains infective on crusts for many years, and influenza virus in dust can survive for long periods. It is practically certain that under epidemic conditions plague and typhus, normally spread by insect vectors, can be spread by dust.

It is obvious, too, that organisms from the respiratory tract infect wounds; indeed, the early infections of wounds are largely from that source, the later infections being of faecal origin. Haemolytic streptococci, staphylococci, and diphtheria bacilli reach wounds from the respiratory tract either direct as droplets or indirectly on dust particles.

### General Principles of Control

It is necessary to do some clear thinking on the objectives and limitations of aerial disinfection. The provision of a pure water supply, though difficult, is possible and most desirable, since we can treat all the water drunk. But we cannot sterilize all the air breathed. The open air is always safe, but the maximum risk of air-borne infection, especially through droplets, is present where human beings are grossly crowded together as they are under modern transport conditions. Even if we could ensure safe air during the rest of a city worker's life he would be exposed at least twice a day to conditions where no known method of air sterilization could possibly operate. It was seriously suggested, at the outset of the recent war, that under epidemic conditions masks might be worn by all, and masks were in fact ready in store. But even if it were possible to induce people to wear them, would it really be beneficial? The medical history of the war was most instructive. Ventilation was very poor in the black-out. Air-raid refuges and tube stations were crowded, all the conditions for epidemics appeared to be present, and I was one of those

who formed a team to combat them. But apart from German measles, which did not appear to be related to overcrowding, no epidemics broke out. Again, the number of carriers of meningococci increased alarmingly, so that nearly all soldiers in certain barracks were affected; but the rise in the incidence of meningitis, though significant, was never a serious problem. Transports going to Egypt were grossly overcrowded: during the first week of the journey respiratory infection was universal, but the rest of the two-months journey was healthy. This was not true, however, of native troops from Africa, who suffered severely from pneumonia, chicken-pox, and meningitis. Is it not a fact that immunity from the common respiratory infections is closely related to constant exposure to infection? Herd immunity is a real thing; and we are all aware that a holiday from urban conditions is bought at the price of an acute "cold" on returning to town. If it is not possible to deal with crowded transport conditions, what merit is there in dealing with offices, places of amusement, restaurants, and churches?

There are two exceptions to this rule: the first, that times of pandemics with a new or rare infection deserve special consideration; the second, that children are analogous with the native troops in transports, as they represent a group with little or no acquired immunity and spend much of their time in homogeneous groups. There is a lot to be said in favour of air sterilization in schools, and still more in favour of keeping children away from crowded places. The cinema is probably a greater danger to child health than to child morals, and the special matinées for children are ideally devised to spread infections. Moreover, if we are again faced with a dangerous pandemic of influenza, doubtless every method of limiting the dose of infective agent would be logically employed. Whether any known method of air control would help is, in my opinion, doubtful.

We are left with hospitals, particularly with fever and children's hospitals. Here there is a clear case for control of air-borne infection. Sick and devitalized patients are grouped together, many of them with wounds actually or potentially infected, and all that we know of the bacteriology of air and dust teaches us that every known method of control is most desirable. In America this problem has long been seriously tackled; here in England in spite of much pioneer work we lag sadly.

### Methods

The methods available fall into several headings—control of droplet infection, ventilation, control of dust, and sterilization of air. Droplet infection must mainly be controlled by adequate masking: poorly designed masks merely collect organisms, which are then expelled in large doses. All nurses in infants' wards should be masked, and nurses with even minor respiratory infections should not remain on duty. The Spartan traditions of nursing are altogether bad. Since on speaking 300 organisms per word are emitted, operations should be silent. Sneezing expels 100,000 organisms per sneeze. The use of handkerchiefs is most desirable, but it would probably be far better if these were of paper, and used only once or twice. Proper ventilation is also essential. It is usually said that a poorly ventilated room has ten or less turnovers of air per hour: the best air-conditioning increases this to twenty-five turnovers. But in certain circumstances, as in operation theatres and surgical dressing-rooms, which at least for septic cases should be separate from main wards, a positive pressure of filtered air over the patient, as suggested and adopted by Bourdillon, is most effective, preventing banking-up of infected particles, and blowing away particles emitted by attendants. There is no substitute for good



entilation in the control of all forms of infection. In the hospital during the war an outbreak of cross-infection and casualties ceased only when the windows were blown in during an air-raid. But we cannot always rely on bombs.

Dust control, again, is a paramount concern. By air-borne infection we usually mean infection by contaminated dust. This has long been known, and the rounded corners of well-designed hospitals and operation theatres follow on this principle. It has been placed on a firm basis by the classic work of van den Ende and his colleagues, one of the most important contributions ever made to this subject. The majority of hospitals, however, still have dangerously polished floors, and blankets are only rarely washed; indeed, dark-coloured blankets are used to make the need for washing less obvious. Treatment of floors by spindle oil and of blankets by a special oiling method will control dust to a remarkable degree and entirely prevent the phenomenal rise of air bacteria during bed-making. It is true that tests of this method of preventing cross-infection have not always been conclusive; there are a great many other loop-holes in aseptic technique, as Spooner and others have shown. But, whatever other methods may eventually prove necessary in this matter, it is certain that dust control will remain a first essential. The removal of infected plaster casts from suppurating wounds is a further source of dangerous dust formation, and oil should be used along saw cuts.

#### Air Sterilization

We now approach a more vexed question, the sterilization of air by antiseptic mists and smokes and by ultra-violet light. At the outset it must be stressed that both these methods are effective only or at least mainly against droplets and droplet nuclei. This is often overlooked, for the greater part of the experimental work has been with organisms sprayed from fluid suspensions into the air. It is with this type of work that I have personally had most acquaintance, and I have satisfied myself that, while both methods are entirely effective against droplets, they break down with dust. Since dust is the most dangerous infecting agent their use is severely limited.

The method of antiseptic mist spraying dates from the time of Lister. Lister's phenolic mists were in fact not effective, since phenol used in his way is a poor aerial antiseptic. The last fair of Listerian technique is the cinema, where entirely useless spraying with odoriferous fluids is still practised. The originator of this technique on an efficient basis was Trillat, in France. Becholt developed the method in Germany, though neither author attracted much attention, and their names are rarely heard. In this country these antiseptics were developed largely through the laudable enterprise of commercial interests. There is an unreasonable and unfair prejudice in the medical profession against such activities, and it is only right to commemorate the work of firms such as the makers of "milton," the makers of "phantomyst," and the Portslade laboratories. The most important work is that of Twort and his colleagues at Portslade. Before and during the late war I had some personal contact with the method. Later it crossed the Atlantic, gaining, as is customary, much momentum and some amnesia in the transit. Of recent years most of the work on the subject, other than that of Twort and his colleagues, has been done there.

The facts are most fascinating and still largely unexplained. A limited number of antiseptics of low vapour pressure, when dissolved in low-vapour-pressure solvents and sprayed into the form of fine mists, can kill all droplet bacteria in five minutes or less. The amounts used are homocopathic in their values: 5 ml. of 1% sodium hypo-

chlorite will sterilize 1,000 cubic feet of air in less than five minutes, and less than 0.00025 g. of hexyl-resorcinol in propylene glycol will sterilize 1 cubic metre in a similar time. Robertson, in America, has claimed good results with propylene glycol alone; under the conditions of my experiments I did not find it valuable. Except in the possible case of sodium hypochlorite the question of volatilization—that is, solution of antiseptic in air—does not arise, for the amount of antiseptic sprayed is wildly outside the effective concentrations in fluids, and the effective agents are poorly volatile. I have suggested a species of balloon-barrage effect, through collision of particles, but mathematicians suggest that the rate of kill found is more rapid than collision would explain. It is possible that there may be attraction by an electric charge on the particles. Whatever the value of this method, from a bacteriological standpoint the results are of great interest.

More recently Twort has studied the effects of certain smokes (of which tobacco is not one) and has introduced heat volatilization of resorcinol, which greatly simplifies the technique.

All mists suffer from certain inevitable disadvantages. As mists are constantly being removed by ventilation, and also as all mists have a limited life, they must be constantly renewed; the better the ventilation the greater the volume of mist needed. Except with Twort's heat volatilization, this requires a constantly running mechanism, or at least one operating at frequent intervals. The occupants of rooms so treated are constantly breathing minute amounts of antiseptic. Some of these, such as sodium hypochlorite, are almost certainly harmless, and none have been shown to be harmful. Indeed, we probably inhale a great many phenolic substances every day without trouble. The most elaborate experiments on animals have failed to show any dangerous results. However, drugs and allergic individuals being what they are, sooner or later someone is sure to prove susceptible; with hypochlorites, also, some fading of textiles and corrosion of metals over a long period is possible. Most, though not all, have characteristic odours. Finally, although the volumes of antiseptic used are small, over long periods the expense would not be negligible.

Bacteria suspended in air can be as readily killed by ultra-violet light as by bactericidal mists. Indeed, from the point of view of speed and efficiency of kill there is little difference between the methods. The shortest period elapsing between the introduction of an organism and the production of practically sterile air was, in my experiments, about five minutes by both methods. The killing effect of light on bacteria has been known since 1899. The discovery that the bactericidal effect is mainly in the ultra-violet spectrum was due to the Klemperers in 1922. Here, again, transatlantic migration has proved a revitalizing process, and nearly all the work has been done in America. The names of Wells and Hart will always be closely associated with it.

Ultra-violet light with a wavelength of approximately 2,537 A.U. is used. It is produced by quartz low-pressure mercury discharge tubes provided with filters to control the rather objectionable ozone emission. There are no moving parts, upkeep is minimal, and the amount of electricity used insignificant.

The lamps may be used in many ways. For the sterilization of wards and living-rooms it is convenient for them to be above eye-level, and they must be mounted so that no rays are directed below this level. For operating theatres they have been directed on to the operation area, but the operators and attendants must wear goggles and all skin must be protected against burns. It has been suggested that there is a risk of adversely affecting viscera by exposure.

to the rays. I think that there are better methods of keeping bacteria out of wounds.

The Americans have been using ultra-violet rays for air sterilization for many years. It is a standard equipment in many schools and hospitals. Wells calculates that it is equivalent to 500 turnovers of air per hour, compared with the 25 turnovers by the best ventilation. In groups of schools the incidence of susceptibility to measles in an epidemic was from 9 to 15.5% in irradiated schools, and 55.3% and 51.8% in two unirradiated schools. Similar results have been found with chicken-pox. Experimentally, rabbits have been protected against air-borne tuberculosis. In my opinion ultra-violet light is the simplest and most efficient technique of this kind, and has no objectionable features if the eyes and skin are not irradiated.

Respiratory disorders, from tuberculosis and pneumonia, through sinusitis to the common cold, are far the most frequent of the diseases of mankind, and they are spread mainly through the air. The common infectious and virus diseases of childhood cause a high mortality and lifelong respiratory tract disease, and the air is again the commonest vehicle. Air-borne sepsis and cross-infection are common, particularly in wartime. There is still a tendency to laugh away the protagonists of the control of air-borne infection as faddists. I heard a gynaecologist quite recently become vastly humorous at the suggestion that a nurse with a cold was a menace. But there is far too much hospital-bred infection, and far too many "sterile" operations go wrong. I feel quite sure that the time will come when the methods of controlling air-borne sepsis discovered in Europe and developed in America will return fully fledged to roost in their parent country.

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At a meeting of the North of England Obstetrical and Gynaecological Society held in Liverpool on July 4 Prof. T. N. A. JEFFCOATE described a simple method of replacing the retroverted uterus by manipulating it with a Hodge pessary. This method made the usual manual replacement unnecessary before inserting the pessary. With the patient in the left lateral position the Hodge pessary was inserted and allowed to take up its own position. The upper rim came to lie in the anterior fornix and the lower bar projected beyond the introitus. One finger was then inserted behind the lower bar, through the pessary, and in front of the upper rim, which was pushed against the anterior aspect of the cervix. The cervix was thus deflected backwards and the body began to rotate forwards. Ultimately the upper rim slipped past the cervix into the posterior fornix. By this time the retroversion was nearly always corrected but sometimes only partially, the uterus lying with its axis vertical. In such cases the upper end of the pessary was pushed firmly against the posterior vaginal wall and the posterior fornix repeatedly "stroked" backwards and slightly downwards with the pessary. At the same time the lower end of the pessary came to lie at a higher level. Thus the cervix was levered backwards and the fundus came forwards and the pessary was automatically left in its correct position. Prof. Jeffcoate also read a paper on pyrexia as a sign of endometriosis. He had found no reference to this sign in the literature but did not claim it as original. He said it had been established that temperature varied with the menstrual cycle, but the peak occurred premenstrually and the onset of the flow was characterized by a fall. In endometriosis he had several records of cases where a temperature up to 101° or 102° F. (38.3°–38.9° C.) appeared cyclically during menstruation and gradually disappeared one or two days after the flow ceased.

## BRITISH ANTI-LEWISITE

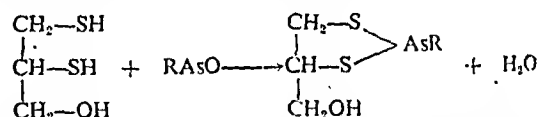
A Report on its Use and Therapeutic Value in Arsenical Intoxications, from the BAL Conference, Medical Research Council

BY

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British anti-lewisite (BAL) is the name given to a compound, 2,3-dimercaptopropanol, discovered early in the war as a result of a planned research for the Ministry of Supply and developed as an antidote to the local and systemic damage caused by contamination of the skin or eyes with arsenical vesicant gases.

In the pure state it is a colourless oil, readily soluble in fat solvents, and soluble to the extent of about 6% in water. During 1941–2 its value in counteracting the effects produced by contamination with lewisite was exhaustively studied, and it was finally adopted officially as a suitable agent for the treatment of the effects of lewisite and the other arsenical vesicants. Its efficacy as an arsenical antidote and its power to reverse the tissue damage caused by arsenicals depend on its ability to form relatively stable ring compounds with arsenoxides, thereby diminishing the reaction of the arsenical with the tissues and increasing its urinary excretion from the system:



A review of the original work with lewisite has already appeared (Peters, Stocken, and Thompson, 1945), together with an account of the early developments of this work in the U.S.A. (Waters and Stock, 1945).

The application of BAL to the treatment of dermatitis and other complications arising in the course of arsenotherapy has also been extensively studied both in this country and in the U.S.A. The present short report summarizes the findings of a clinical trial of the therapeutic value of the compound carried out recently under the auspices of the Medical Research Council, a full account of which will shortly be published (Carleton, Peters, and Thompson: in the press).

## Trial in Arsenical Dermatitis

The trial was based on the results obtained in 44 cases of arsenical dermatitis collected with the assistance of the Service Departments and the Ministry of Health. To facilitate the interpretation of any effects noted, the cases were selected so that the dermatitis was in each instance severe and widespread, 41 of them being of the acute exfoliative type.

Treatment was carried out by the clinicians in charge of the cases according to a scheme prepared by the BAL Conference, which was intended for initial guidance as to dosage. The ampoules of BAL used in this work were prepared by a modification of the method described by Eagle in the U.S.A., and contained 5% BAL in arachis oil

and benzyl benzoate; they were nitrogen-filled, and were sterilized by heating for one hour at 170° C.

The BAL was given by deep intramuscular injection into the thigh or gluteal region. In the hope of maintaining a concentration of the drug the following course of injections for adults of average weight was given in most cases: First day—4 injections of 2 ml. 5% BAL at 4-hourly intervals; second, third, and fourth days—2 ml. twice daily; fifth and sixth days—2 ml. daily. Where possible other local treatment of the affected skin was withheld.

From the reports received from the clinicians who co-operated in this trial it has been concluded that BAL therapy is of definite value in the treatment of this condition. Thirty-one of the 44 cases studied (70%) were benefited by the treatment, 23 of them (52%) strikingly so. The mean duration from the first injection of BAL to the time when healing was complete or nearly complete was 21 days. The earliest sign of response to treatment was in many cases a marked subsidence of the oedema present in the skin. In several instances clinical evidence of relapse was seen shortly after the end of the course of BAL therapy. In every case, however, this responded satisfactorily to a further short course of injections.

The outcome of this trial is in agreement with the results obtained elsewhere. The earliest use of BAL in the treatment of widespread arsenical lesions in man was in 7 cases of dermatitis (Longcope, Luetscher, Wintrobe, and Jäger, 1946) occurring in workers exposed to diphenylamine chlorarsine (phenarsazine chloride). These workers have also described 15 cases of generalized exfoliative dermatitis following the use of antisyphilitic arsenical drugs, and have stated that symptomatic and objective improvement regularly followed the administration of BAL. In this country Carleton *et al.* (1946), in an earlier series of 30 cases, have reported a beneficial effect in approximately 50% of cases.

Although favourable reports on the use of BAL in cases of arsenical encephalopathy and granulocytopenia have appeared in America (Report of the Council on Pharmacy and Chemistry of the American Medical Association, 1946; Eagle and Magnuson, 1946), we have not been able to study a sufficient number of cases of either of these conditions in this country to warrant a conclusion.

Clinical reports on the use of BAL in acute mercury poisoning (Longcope and Luetscher, 1946) and in gold intoxication (Cohen, Goldman, and Dubbs, 1947; Ragan and Boots, 1947; Lockie, Norcross, and George, 1947) have also been published, and the results obtained with these metals have been favourable. In the case of mercury 22 of the 23 patients studied recovered completely, although the amounts of mercury swallowed varied from 0.5 to 20 g., while 9 of the 10 cases of gold dermatitis described appear to have shown a prompt response to therapy. Work with lead, bismuth, and other metals has not yet progressed beyond the stage of animal experimentation.

### Toxicity of BAL

As regards toxicity, the minimal dose given by intramuscular injection to man which causes toxic reactions lies between 3 and 5 mg./kg. Single doses of up to 8 mg./kg. have been given to normal subjects, and even at this level the toxic manifestations are completely reversible, lasting only a few hours. Apart from subjective phenomena, lacrimation, salivation, vomiting, and an elevation of both systolic and diastolic pressure occurred with these higher doses (Sulzberger, Baer, and Kanof, 1946; Modell, Gold, and McKeen Cattell, 1946). It should be pointed out that the therapeutic dose used in this country has been only about 1.5 mg./kg.; in America, on the other hand, a 10% solution of BAL has been used, and 6 doses at 4-hourly

intervals of 3 mg./kg. have been given on the first day in severe cases (Eagle, 1946). In the treatment of acute mercury poisoning initial doses of up to 7 mg./kg. have been employed.

Though no evidence has been obtained of any increase in toxicity when BAL is injected into animals with experimentally induced renal damage, or of renal irritation in any of the cases in this series, increased toxic effects were present in animals with hepatic damage, which suggests that care should be exercised in the administration of BAL to patients with impaired liver function (Cameron, Burgess, and Trenwith, 1947). It should be added that BAL is not generally indicated in the treatment of post-arsphenamine hepatitis, the immediate cause of which appears to be infective in most cases (Salaman, King, Williams, and Nicol, 1944). Local abscesses have developed at the injection sites in a number of cases treated in this country. These may have been due to the septic condition of the skin in patients with exfoliative dermatitis of some standing, who are, in any case, prone to intercurrent infections of all kinds. This complication is probably preventable by the administration of BAL early in the course of the condition. A possible contributory factor is leakage of the substance into the subcutaneous tissue, which may be prevented by giving all the injections deep into the muscles. The abscesses, though troublesome, have healed satisfactorily with simple treatment, and do not, in our opinion, constitute a contraindication to the use of BAL in such cases.

### Conclusion

Up to the present time BAL has been manufactured by the Ministry of Supply, and in order that its therapeutic value could be firmly assessed distribution has been effected only through the Medical Research Council. It is considered that the value of the compound has now been established, and arrangements are being made by the Ministry of Supply for the preparation and issue of ampoules of BAL by firms in a position to exercise adequate biological control.

We would like to express our thanks to Miss F. B. Uffemann, Ministry of Supply, and to the various clinicians who have co-operated in this trial, and also to Messrs. Boots Pure Drug Co., Ltd., and Messrs. Burroughs Wellcome and Co., Ltd., for the dispensing of the material used.

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## MANIC STATES IN THE FAR EAST

## MANIC STATES IN THE FAR EAST\*

BY

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Shortly after the Japanese capitulation there were observed in South-East Asia a number of cases of interest in several ways: their cause was obscure; their symptoms were elation, overactivity, and fever; their distribution was mostly in young British officers; and, however acute the symptoms, the prognosis was good.

The first appearance of these cases was dramatic. In August, 1945, preparations for the reoccupation of Malaya had been made, and at the last moment the Japanese capitulated. The blow thus, so to speak, fell upon air. A few weeks later four British officers were admitted within a period of 12 days to the psychiatric centre serving the corps concerned. Between the landings and the end of this period no other cases of psychosis—British, Indian, or Gurkha—had been reported in this corps.

Col. T. A. Ratcliffe and Majors J. D. Frazier, D. T. Bardon, and A. A. Martin. Others may have occurred in this theatre at the time, but they cannot have been many, for the psychiatrists—to whom they necessarily came—had been asked to notify me of any cases.

## Symptoms

The presenting symptoms were very similar. The patients were overactive, mentally and physically, easily excited to further activity, and exceedingly garrulous; they were elated and had some exaggerated ideas of their own importance, which at times amounted to mild delusions of grandeur, but which were always within the bounds of possibility and not fantastic. In a few cases religious ideas with a vague symbolic content were described; in a few there were ideas of reference and of persecution, and one had auditory hallucinations.

Although it was obvious that their judgment was impaired, most patients were capable of holding moderately logical conversations and showed little loss of comprehension. Only three exhibited flights of ideas, though most were rather easily distracted. The grasp of his surround-

TABLE I.—Summary of Manic and Hypomanic States

TABLE I.—Summary of Manic and Hypomanic States															
No.	Rank	Unit	Age	Previous Service Record	Precipitating Factors	Onset (Days)	Temp.	Symptomatology					Delusions	Clinical Progress (in 2 Months)	
								A	B	C	D	E			
1	Capt.	R.I.A.S.C. (staff)	27	Good	Overwork (staff); sudden change	7	10 days intermittent	1	1	1	1	—	Persecution	Recovered	
2	Capt.	"	22	Good; schizoid attack, 1944	"	2	—	2	2	1	1	—	Grandeur	Recovered after E.C.T. (and insulin); later improving	
3	2/Lieut.	Seafarths (staff)	24	Good	Hard work; sudden dull job	3	—	1	1	1	1	—	—	Returned to duty	
4	Lieut.	R.E.	23	"	Overwork	2-3	—	1	1	1	1	—	—	Improving, but hypochondriacal	
5	Capt.	P.C. (staff)	?	"	Change from ops. to heavy staff work	2	2; depressed then excited	101.6° to 99°	1	1	1	1	—	Improving, after E.C.T.	
6	Lieut.	R.A.F.	?	"	Overwork; responsibility	2	—	1	—	1	1	—	—	"	
7	Fl.-Lieut.	R.E.	25	Good; moody if alone	Change from ops. to codes; domestic stress	3; depressed, confused	100°	99°	2	2	1	1	—	Grandeur	
9	F.O.	R.A.F.	24	Good	Overwork as Q.M.	2	—	99°	2	1	1	1	—	Religious symbolism	
10	Lieut.	R.E.	22	Excellent	? fever 2 weeks before	3; fatuous	99°	1	2	1	1	1	—	Religious symbolism	
11	Capt.	R.M.	24	Good	? Urinary infection	2; heavy drinking	100°	2	1	2	2	—	—	Religious symbolism	
12	2/Lieut.	"	21	"	Domestic stress	3	2; heavy drinking	100°	2	1	2	2	—	Religious symbolism	
13	Capt.	Sigs. (staff)	26	Good; reserved	Overwork; responsibility	10; feverish, busy	99°	2	—	2	2	1	1	—	Religious symbolism
14	Major	I.M.S.	30	Good; energetic; malaria several times	"	3; guilt, inadequacy	100°	1	—	2	2	1	—	Hallucinations (auditory)	
15	Sgt.	F.S.S.	19	Excellent; conscientious	Home-sick; Frustration at work; overwork	2	—	99°	1	1	1	1	—	Ideas of reference	
16	A.B.	R.N.	27	Good; one hysterical episode	Home-sick; resented lack of welfare	2	—	99°	1	1	2	2	—	Religious ideas	
17	Sgt.	R.A.M.C.	20	Average	Not enough to do	2	2	—	1	—	2	1	1	—	Grandeur
18	Cook	H.M.S. Vindex	21	"	Missed train on way to paratroop training	1	impatient	—	1	—	1	1	—	Persecution	
19	Mne.	"	25	Good	Not enough to do, after busy job in Australia	1; rash, 7 dengue	102°	1	1	1	2	1	—	Grandeur	
20	Capt.	R.M.	18	"	Domestic stress	3	—	—	1	1	2	1	—	Grandeur	
21	Mne.	R.A.F.	25	"	Overwork; domestic stress	—	—	—	—	—	—	—	—	Improved but still paranoid	
22	P.O.	R.A.F.	37	Excellent	—	—	—	—	—	—	—	—	—	Improved	
23	Gp. Capt.	R.A.F.	—	—	—	—	—	—	—	—	—	—	—	Improved	

Station; B = Aggression; C = Overactive; D = Garrulous; E = Flights of Ideas; 2 acute; 1 present.

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Symptomatology columns: A = Elation; B = Aggression; C = Overactive; D = Garrulous; E = Flights of Ideas; 2 acute; 1 present.

As a result of this experience, investigations were made in other areas and further cases were found: 11 in Singapore (these occurred in the island itself or had been sent from South Malaya, Java, or Sumatra); others were seen in Bangkok and Rangoon, or came from H.M. ships at sea. In all, records of 23 cases have been collected (Table I), of which I saw 16. Details of the remainder (in several different areas) were kindly supplied by Lieut.

ings shown by one patient—a senior officer—was such that he had put forward a detailed scheme of operations for some training which was accepted by his superiors: its inconsistencies were not discovered till it was actually put into practice. This was, however, unusual, for in the remainder overactivity and distractibility were enough to send them off duty. Recognition of time and place was generally accurate, but mistakes were sometimes made in identifying passers-by with old acquaintances. Memory for recent events was on the whole good. It is regrettable

\* A portion of a thesis accepted for the degree of M.D. at the University of Cambridge.

that local difficulties as well as the clinical states prevented a more systematic investigation of attention, memory, and comprehension.

When first seen many patients were aggressive, abusive, and sometimes very violent. This symptom disappeared rapidly when skilled cure could be provided; it is probable that it was not so much a primary symptom as a secondary result of the opposition, restraint, and, unfortunately, antagonism occasionally provoked by the patient's behaviour. It is to be emphasized that the most striking symptoms were overactivity and change in mood, and not a disorder of comprehension.

Investigation into the onset of the condition usually revealed a change in behaviour over the last two or three days—in two cases, ten days. Generally this change consisted of overactivity and elation, as described above, and it increased gradually. But several patients had, on the contrary, been morbidly depressed before their excitement began, and two had had feelings of inadequacy and guilt—for which each had had some real cause. One of these two had sought refuge in a day's heavy drinking. One man (Case 18) had been so aggressive and insubordinate as to have been put on 61 charges by an apparently meticulous C.O. in the ten days before admission. In some cases there were records of low fever of 99° to 100° F. (37.2° to 37.8° C.) before admission, and several patients said they had felt feverish for a few days and had been out of sorts and sleeping badly. No focus of infection or any sign of physical abnormality was discovered in any patient except the one whose temperature rose to 102° F. (38.9° C.); he showed an erythematous rash. Blood cultures, blood counts, and examinations for malaria parasites were all negative. Most cases were very resistant to sedatives, becoming less restive only on heavy doses. Little change was seen in their behaviour for a week or so, and careful nursing and supervision were essential.

### Previous History

Naturally, the earlier history of these patients was generally dependent on their unsupported statements obtained after recovery; but most showed a singular lack of previous psychological disorder. Only two had had any trouble—one had had a schizoid attack a year before, which cleared up in a few months, and the other had apparently had a hysterical amnesia. Moreover, the Service records of nearly all were good. They were occupying responsible positions and enjoyed a good reputation (among superiors and subordinates alike) for conscientiousness and hard work.

Investigation of the circumstances before the onset showed that fourteen cases had been definitely exposed to increased mental work and increased responsibility for a few months before V.J. Day.

Four of the first five officers had been employed for several months on staff work, involving much planning, minute attention to detail, and severe responsibility for the lives of others; and it is significant that all four were reported to have expressed considerable misgivings about the success of a landing against opposition (whether this was at all justified by the facts as they saw them or was itself a symptom of illness it seems impossible to say). Four other cases had considerable anxiety over domestic problems—two were simply home-sick, and two found themselves "browned off" at lack of work. No mental stress was elicited in the remainder, but two of them had had a history of some infection a few weeks before.

The rank incidence is of great interest: seventeen patients were officers and six were "other ranks." Moreover, two of the latter were holding extremely responsible

jobs. One patient, an officer, was an Indian. The ages ranged from 19 to 37 years, but only one was over 30.

### Course of the Illness

During treatment several patients became hypochondriacal and expressed anxiety over minor complaints; others showed considerable anxiety over their future careers. This was not due to realization of the seriousness of their past illness, for few had a full insight into the abnormality of their past behaviour, and several had a complete or partial amnesia for the acute period. When it was partial they remembered their surroundings in hospital but not their own aggressiveness, though a few admitted they might have been "a bit unreasonable." Others had no memory of doctors who had seen them in their acute phase. In two months from the onset seven had made a complete clinical recovery, and thirteen were still improving.

In all these either electric convulsion or insulin treatment had been given. Two had shown improvement described as "recovery," but then relapsed. It is of interest to note that these two were those with a record of previous psychological disorder—one, with a previous schizoid episode, developed a paranoid schizophrenic state which persisted; the other, with a hysterical amnesia in his record, became temporarily confused and aggressive during his voyage home.

Finally, one patient died. A few days after admission with typical symptoms his temperature rose to 101.6° F. (38.7° C.) and he became stuporose; the temperature dropped just before death a week later. A blood count showed 18,000 white cells per c.mm., but no physical abnormality was found clinically and none at necropsy except cerebral oedema and many small haemorrhages. This was one of the cases with a depressive onset.

A full follow-up of all cases after a year is naturally not available, since most were evacuated from South-East Asia to India, and I saw only a few. The details were obtained from Col. R. J. Rosie and Lieut.-Col. A. J. Galbraith, to whom I am indebted.

### Rates of Psychosis

The importance of these cases may be thrown into relief if the general rate of psychosis in this period is compared with a sample of cases evacuated from India and Burma earlier in the year (Table II). It will be seen (a) that a

TABLE II.—*Distribution of Types of Psychosis*

Source	Date	Schizophrenics	Manics	Depressives	Others	Total	% of these Psychoses to all Psychiatric Cases
All evacuations from India and Burma	Jan.-July, 1945	64	17	29	11	121	24.2
All evacuations from S.E. Asia	Oct., 1945-Jan., 1946	24	11	1	5	41	44.1
	Feb.-June, 1946	14	1	5	—	20	43.8

much greater percentage of psychoses occurred in cases evacuated from South-East Asia between October, 1945, and June, 1946—unfortunately figures are not available for August and September, 1945, here; (b) that this rise was in part due to an increase of schizophrenics, which persisted till June, and in part to an increase in manics, which was evident only in the winter months.

The grouping by rank (Table III) is of interest. The disproportionate number of officers in the manic states is obvious.



TABLE III.—*Distribution of Psychoses by Rank*

Source	Date	Manics		Schizophrenics	
		Offrs.	O.R.s	Offrs.	O.R.s
Evacuations from India and Burma	Jan.-July, 1945	9	8	9	55
Evacuations from S.E. Asia ..	Oct., 1945—Jan., 1946	8	3	2	22
	Feb.-June, 1946	—	1	—	14

### Review of Literature

No exactly similar series has been found in the literature surveyed; but various writers draw attention to significant points.

**Incidence of Psychosis.**—A higher rate of psychosis is generally recognized to prevail in the East. From the official figures for admissions to hospital the ratio of psychoses to psychiatric cases can be obtained. In England, between 1942 and 1945, this was as follows:

	All Ranks	Officers	Other Ranks
April, 1942–March, 1943 ..	25.3%	30.1%	15.0%
April, 1943–March, 1944 ..	26.5%	45.8%	25.4%
April–December, 1944 ..	16.3%	19.8%	16.2%
July and August, 1945 ..	20.3%	21.0%	20.2%

(*Bulletin of Army Hygiene*, April, September, and October, 1945.)

For periods in the Middle East, the figures for British troops, unfortunately not separated into officers and other ranks, were:

Oct.–Dec., 1943 ..	19.0%	July–Dec., 1944 ..	23.0%
Jan.–June, 1944 ..	31.3%	Jan.–March, 1945 ..	28.1%

(*Bulletin of Army Hygiene*, October, 1945.)

These figures support the theory that there is generally a higher proportion of psychosis in the East than in England, and also show clearly the higher rate among officers. No explanation of either point is given by the compilers of these figures.

**Distribution of Psychosis.**—There are various views on how the total of psychotic cases is made up by the various syndromes. Craigie (1944), in the Middle East, gave the ratio of schizophrenics to manic-depressives as over 3:1. Later, James (1945) considered that among 530 psychotics evacuated it was over 4:1.

### Aetiology: Physical Factors

It is generally accepted that certain psychoses are directly due to physical causes; confusional states, for instance, may be caused by toxic processes. As the latter are commoner in the East it is possible that this is one reason for the higher incidence of psychosis there. Stungo (1946) suggests this, and also mentions the effects of dehydration.

Malaria was, of course, one of the commonest diseases met with in the East, and it often affected the mind. Its effects were also diverse—so much so that official directives were issued to doctors in the East recommending anti-malarial treatment in all febrile mental syndromes. On the other hand, Merrill (1945) warned us that an aggressive psychopath might seek refuge in the word "malaria" and demand appropriate treatment, when his condition was purely a psychiatric one.

Mepacrine (atebrin) has also been blamed as a cause of psychosis. The evidence for any ill effect from a daily preventive tablet does not seem strong; it would in any case presuppose a rare idiosyncrasy. Larger doses given in treatment of malaria are obviously more likely to be dangerous and need careful consideration.

The largest series of cases of malaria recorded is that of 7,604 treated by Gaskill and Fitzhugh (1944); 35 of

these developed psychoses, which were of two main kinds—confusional states, and states of excitement with delusions. But these authors admit that there is no convincing evidence of a direct effect of mepacrine, or even of malaria.

From Burma several other cases have been reported in which confusion, excitement, and hallucinations followed the use of mepacrine; these improved on its withdrawal but recurred on its renewal (unpublished communications from T. A. Ratcliffe and Kirpal Singh). As these authors admit very readily, however, it is impossible to be sure this was not due to the fluctuations of a psychosis; in fact, in one case an overdose of mepacrine was symptomatic of an incipient psychotic episode. Soysa (1945), in an unpublished communication, reported ten cases which showed toxic effects from mepacrine, but these were drawn from 550 patients treated in Ceylon in two years. Eight of the ten were typical hypomanic attacks and two manic. All recovered when the drug was withdrawn, but one relapsed when it was given again. The responsibility of mepacrine here seems more likely, but an account of the patients' previous personalities and of the psychological stresses they underwent would be of interest.

There are thus, obviously, factors whose full influence is not yet understood, and the exact relation of physical agents to these psychoses is not yet clear.

### Mental Factors

These may be grouped under the headings of frustration, change of tempo, and constitutional.

**Frustration** is a term commonly used to describe a feeling of wasted ability, which may develop into an anxiety state either with depressive features (Gillespie, 1942) or with great tension, irritability, restlessness, insomnia, and a sense of internal unrest—in which state the sufferer is capable of doing considerable work, but at great cost to himself and his subordinates. This has been described elsewhere, as it occurs in base areas overseas (Tredgold, Heffernan, Kelly, and Leigh, 1946), and in the connexion MacCurdy's account (1945) of what is inevitable in departmentalism shows how the lack of aggressive outlet causes irritation to be vented on subordinates, so that a vicious spiral develops. The desire for scapegoats is significant; the next higher formation "they" are always blamed, so that G.H.Q. the apex, invariably becomes a byword.

**Change of Tempo.**—A more direct effect of the actual war and its pace is described by Curran and Garmany (1944) under the term "change of tempo." They give a series of cases of anxiety which developed in sailors just ashore on leave or alternatively, in men admitted to hospital for some minor complaint, and consider that this might be due to the persistence ashore of the increased responsiveness developed by tension at sea.

**Constitutional.**—The importance of constitutional factors in psychoses has been widely accepted, and MacCurdy (1929) claimed that they were always discoverable even in patients whose relatives had not noticed them.

Further, specific types have been regarded as particularly liable to mania—the rigid individual (Freud, 1912), and the over-conscientious obsessional type who develops a sense of injury which prevents him from resting and has on occasion developed a typical manic-depressive cycle (Culpin, 1931), especially if his personality structure is characterized by self-centredness, lack of sociability, and lack of affection (Wittkower and Spillane, 1940).

### Discussion

The cause of such conditions is generally considered to be physical, and blame has been laid on malaria and mepacrine. Both are no doubt often responsible for states of excitement. The rather similar cases quoted by Soysa, for instance, were held to be due to excessive mepacrine, whereas Stungo's cases labelled as "toxic" showed actual

excitement, confusion, and fever, and several died in a way that resembled the fatal case here recorded. In this series, however, there was no record of overdosage of any drug or of the confusion reported in malaria, and no parasites were found; moreover, it is difficult to see any reason why malaria or overdosage of mepacrine should increase suddenly after V.J. Day.

On the other hand, there were mental factors which must have played a part. There was a very sudden and acute change in the tempo of work with a sudden relief of tension. This must have affected most strongly the over-conscientious responsible type of staff officer who had been employed in circumstances (the planning of a major operation) calculated to increase these obsessional tendencies and anxiety. This type formed the majority of the patients.

The restless state which appears in frustration has been described as an underlying unrest which the individual tries to stifle. It is not a great step to the symptoms of mania—where unrest has become overactivity and the attempt to stifle guilt or unworthiness has been oversuccessful and so crystallized out as a delusion of grandeur and elation.

The temperature of these cases suggests a toxic process, but full examination by physicians as well as psychiatrists failed to find any. Perhaps the fever was the result of the overactivity, not its cause. Much attention has been paid to physical conditions because these cases are commoner in the East and commoner in war, where exposure to physical illness is greater. But there are simple explanations, in psychological terms, of both these points. War produces a sense of urgency which is particularly felt by the overconscientious obsessional type. The latter's relaxations, too, are restricted, for he is often home-sick, tries to lose himself in his work, and will not take leave—where, as he says, he has nothing to do but brood and get more home-sick. In forward areas there is a physical outlet combined with the sense of work well done and a feeling of comradeship engendered by danger: relaxation is easier after action. In staff work and base areas there is less sense of achievement. The East thus exerts as much psychological effect—in separation from home and incompatible surroundings—as physical strain.

### Summary

A series of 23 cases showing elation, overactivity, and fever occurred in South-East Asia in the months following the Japanese surrender.

The patients were mostly young officers (British) without a history of previous breakdown. The prognosis was good.

Records of psychosis in the East are reviewed.

A discussion of the possible causes leads to the conclusion that they were mental rather than physical, and are thought to be the sudden release of tension and the consequent change in the tempo of work.

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## HOMOSEXUAL OFFENCES AND THEIR RELATION TO PSYCHOTHERAPY\*

BY

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During 1946 there was considerable correspondence in the columns of the *British Medical Journal* on the subject of homosexuality, particularly concerning the forensic aspect. It was evident that there was a wide divergence of opinion, and in addition some of the correspondents seemed unaware of the extent to which homosexual offences occurred and of the extent of treatment carried out before the offence was committed. It was in fact evident that some regarded the commission of a homosexual offence as a *sine qua non* that the offender was a homosexual and that psychotherapy in some form was indicated. All cases charged with homosexual offences and received into H.M. Prison, Brixton, on remand or committed for trial are investigated as a routine; it was decided, therefore, to analyse those received during the year 1946 in order to ascertain whether the above-mentioned views were justified.

During that year 96 persons were received into the prison charged with homosexual offences; of these 52 (54.2%) were accompanied with a request from the magistrates for a report as to the state of mind of the accused, whereas the remaining 44 were examined owing to the nature of the charge. The total number of remand and trial prisoners received during the year was 5,023, so that the percentage of those charged with homosexual offences was 1.91. For comparison the number of cases charged with heterosexual offences was 198, of which 142 (71.7%) were sent for a report as to the accused's state of mind. Homosexual offences can be divided into four main groups—namely, indecent assaults on boys under the age of 16 years, importuning, buggery, and gross indecency. Of the 96 cases under consideration 39 were charged with indecent assaults on boys, 24 with importuning, 17 with gross indecency, and 16 with buggery. It is interesting at this point to consider the extent to which magistrates asked for reports on the mental state of the prisoner in respect of each of these groups of offences. In the cases of indecent assault reports were requested in 25 (64%), in cases of importuning in 20 (83%), in cases of gross indecency in 5 (29%), and in cases of buggery in 2 (12.5%). It is obvious that the law has much less consideration for medical opinion in cases of gross indecency and buggery than in the other two offences. Of the 96 cases, 57 involved offences against boys (including of course all the indecent assaults) and 39 involved offences against men.

The cases are classified into four groups. Individuals who on investigation were found to have heterosexual tendencies and in whom the homosexual offence was in the nature of a substitution for the normal heterosexual act are classified as "pseudo-homosexuals." The second group consists of the "bisexuals," individuals in whom strong heterosexual as well as strong homosexual tendencies were obvious. Thirdly, there were the "prostitutes," who are individuals who would have fallen into the pseudo-homosexual group but were characterized by the fact that the homosexual acts were carried out for gain. It is of interest that all these cases had previous convictions for the same offence. Finally, there is the group of the "true inverts" which numbered only 13, or 13.5% of the total series.

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Classification of the cases into these groups is shown in Table I.

TABLE I.—Classification

	Indecent Assault	Importuning	Gross Indecency	Buggery	Total
Pseudo-homosexuals	34	13	11	8	66
Bisexuals ..	5	1	2	4	12
Prostitutes ..	0	2	1	2	5
True inverts ..	0	8	3	2	13
Total ..	39	24	17	16	96

*Date of Offence.*—It has been stated that sexual activity and sexual offences reach a peak in the spring. Walker and Strauss (1939) suggest that this also holds good for homosexual offences. A glance at Table II shows that in 1946 at any rate this was not the case. On the contrary there was a general rise to a peak in September.

TABLE II.—Date of the Offences

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
3	5	7	8	6	8	9	5	15	9	11	10	96

*Age.*—Criminal statistics for some time have shown that the greatest incidence of adult crime occurs in the age group 21–29 years and that there is a steadily decreasing incidence in the higher age groups. Brixton Prison receives only men aged 23 years and over, and the lowest age group is therefore 23–29. Table III shows that the incidence of homosexual offences was slightly greater in the decade 30–39. For comparison, figures extracted from the Reports of the Commissioners of Prisons and Directors of Convict Prisons for the years 1939–41 and 1942–3 are included. These confirm my own findings. The figures for males convicted for all indictable offences in the years 1939–43 show the greatest incidence in the age group 21–29 in every year. The figures for males convicted of unnatural offences for the same years show a higher incidence in the age group 30–39 years; in 1941 and 1943 an even higher incidence was shown in the age groups 40–49 years.

TABLE III.—Age of Offenders

Age Group:	23–29	30–39	40–49	50–59	Over 60
<i>Classification of present series by age groups</i>					
Offences:					
True inverts ..	1	8	3	0	1
Bisexuals ..	4	2	4	2	0
Prostitutes ..	3	0	1	1	0
Pseudo-homosexuals	20	22	15	5	4
Total ..	28	32	23	8	5

Year	21–29	30–39	40–49	50–59	Over 60
<i>Males convicted of all indictable offences for the years 1939–43</i>					
1939 ..	4,731	3,432	1,707	773	462
1940 ..	3,814	2,982	1,647	784	462
1941 ..	5,120	3,923	2,491	1,042	568
1942 ..	5,736	4,125	2,685	1,168	546
1943 ..	5,682	3,989	2,646	1,110	539
<i>Males convicted of unnatural offences for the years 1939–43</i>					
1939 ..	37	58	41	22	10
1940 ..	53	55	49	31	12
1941 ..	56	57	62	38	14
1942 ..	61	83	75	36	24
1943 ..	66	100	116	48	19

*Previous Convictions.*—Of the 96 cases under review 55 had no previous convictions of any kind, 19 had one, 10 had two, and 12 had three or more. Of these, however, only 22 had been convicted for a homosexual offence. The figures are shown in detail in Table IV; they are comparable with figures extracted from the reports of the Prison Commissioners mentioned above.

TABLE IV.—Previous Convictions

	Nil	1 Prev. Conv.		2 Prev. Conv.		3 or More Prev. Conv.	
		Same Offence	Other Offence	Same Offence	Other Offence	Same Offence	Other Offence
<i>Previous convictions in present series</i>							
True inverts ..	7	4	1	0	0	1	0
Bisexuals ..	4	4	0	2	0	2	0
Prostitutes ..	0	2	0	1	0	2	0
Pseudo-homosexuals	44	3	5	1	6	0	7
Total ..	55	13	6	4	6	5	7
<i>Previous convictions in males convicted of unnatural offences</i>							
1939 .. ..	93	27	16	51			
1940 .. ..	116	35	17	45			
1941 .. ..	156	35	20	39			
1942 .. ..	196	44	18	43			
1943 .. ..	213	60	32	75			

### The Pseudo-homosexual Group

As has been stated there were 66 prisoners falling into this group. Of these, 34 were found to have some form of mental abnormality. Two were insane, six were certifiable under the Mental Deficiency Acts, and sixteen had had mental treatment in one form or another. The various disorders were as follows: post-concussive syndrome, 1 feeble-minded, 2; imbeciles, 4; epileptics, 3; personality defects, 12; schizophrenia (insane), 1; senile dementia (insane), 1; senile dementia (non-certifiable), 1; anxiety states, 4; dull and backward, 5.

One very interesting point emerged from a study of the group. The magistrates asked for a report in 39 of the 66 cases, and of the 39 no fewer than 29 are to be found in the above-mentioned cases. This suggests that the magistrates are very much on the alert for abnormalities; the "missed" only an epileptic, two anxiety states, a dull and backward case, and that of non-certifiable senile dementia. The following brief histories will show the type of case falling into this group.

*Case 25.*—Aged 43 years. Indecent assault on two small boys on repeated occasions. Two previous convictions for importuning. He was born in England, but spent his childhood up to the age of 8 years in Poland and then attended a elementary school until 14. He had never held any employment for long and was boarded Grade IV for the Forces. In 1933 he was charged with importuning and his mental age was found to be 8½ years. He was certified as a feeble-minded person and sent to a mental deficiency colony, but was discharged in 1945, when his mental age was considered to be 9 years. He showed no improvement; his general knowledge was defective, he was unable to reason, had no insight, and was considered to be still certifiable. The local M.D. authorities agreed with this decision and accepted him back.

*Case 44.*—Aged 31 years. Indecent assault on boys; on previous conviction for stealing. He had exposed himself to two boys aged about 7 years and had placed his hand on the private parts. No attempt was made at masturbation, and the offence occurred in daylight. He admitted similar offence over a period of a year and also indecent assaults on little girls. He had served in the R.A.F., but was invalided with "neurasthenia." He was educated at a grammar school, and had been a clerk since leaving school. He admitted frequent masturbation and heterosexual intercourse; he still desired the latter but said "he never had time nowadays." The police on searching his room found copious notes made by him on subjects of a heterosexual nature which at first appeared to be nonsensical as well as portraits of nude females cut from a well-known magazine. These he used as a sexual object during masturbation. In addition a small brass bust was found which he used to sit upon while masturbating. He did this, he stated, because he had a drawing sensation in his testicles and he used the brass bust to support them. He explained the writings as a form of shorthand which he had devised and gave an explanation of what he had written that was fanciful and bizarre in the extreme.

He expressed strong antipathy to the "present constitution," by which he said he meant "the upper classes, royalty, financiers, and absentee landlords—the non-productive classes." He was introverted and had faulty insight, but he was not considered to be certifiable under the Lunacy Act. Treatment as a voluntary patient was recommended.

**Case 47.**—Aged 32 years. Indecent assault on a boy aged 11; 10 previous convictions. He was a Civil Servant, living beyond his means, but he had a record of being an intelligent and good worker. He had assaulted a small boy whom he had caught stealing fruit in his garden. He ordered the boy to drop his trousers with a view to thrashing him, but altered his mind, and, having played with the boy's privates, he persuaded the boy to play with his. He stated that this was the only occasion on which he had committed a homosexual assault. On investigation an interesting domestic tangle was unearthed. It appeared that his wife had flirted with a male friend of his after a cocktail party. This had made the prisoner jealous, and he had upbraided her and told her to go and sleep with the young man, who happened to be staying with them at the time. Mainly to frighten him, the wife went to the friend's room, entered the same bed and there was some love play though no actual intercourse. The prisoner was distraught with anxiety after this event and became impotent with his wife, though he was able to masturbate. Financial worries added to his anxiety, and he arranged to see a psychiatrist. Before he could keep the appointment he was arrested. The above story, amazing as it may seem, was confirmed by the wife at an interview. She was a dramatic, shallow creature who had broadcast the story of the "incident" to her neighbours, apparently under the impression that it sounded romantic. This man was eventually bound over and attended a psychological clinic, as recommended in my report to the court. The probation officer reported four months later that he was doing very well indeed and there was complete domestic reconciliation.

**Case 90.**—Aged 29 years. Gross indecency; one previous conviction for same offence seven years previously. This case is included because of the prisoner's physical condition. He was effeminate in appearance, with the female type of secondary sex characteristics and an aesthetic artistic temperament. He had served in the Army and was at Dunkirk; he was eventually invalided for "nerves." He had regular heterosexual intercourse, usually with prostitutes; he denied homosexual intercourse or desire. On the night of the offence he was awaiting a male friend and had had a good deal to drink. He went to a public urinal and a man in the next cubicle spoke to him and exposed his penis, which was erect. Mutual masturbation followed and the act was interrupted by a plain-clothes constable. There can be no doubt that the feminine appearance and mannerisms of the prisoner had attracted the other man.

### The Bisexual Group

This group consisted of 12 individuals, and the distribution of offences is shown in Table I. Four had already had psychotherapy, with very little effect; four were recommended for treatment to the court; and four were considered unsuitable. In all cases there were strong homosexual and heterosexual tendencies. It is not agreed that the bisexual is more or less homosexual and does not obtain proper pleasure from intercourse with members of either sex as alleged by Allen (1940). In many of the present group almost complete heterosexual satisfaction was achieved, in some cases in homosexual intercourse as well. It was noted, however, that there was a tendency to commit the sexual act in an unnatural way. This was not so much by way of a perversion in the psychiatric sense, but rather an indication of sheer depravity. The following case illustrates this very well.

**Case 63.**—Aged 41 years. Indecent assault on a boy aged 11. Three previous convictions, for indecent assaults on boys (2) and sodomy (1). He was a dullard, with a matrix S.G.5. His general knowledge was limited and he could read and write very little. He had served in the Forces, but was discharged as medically unfit, presumably because of his backwardness.

He was married, but separated from his wife because she had been unfaithful with an American soldier. He was accused of interfering with a small boy sitting next to him in the cinema and encouraging the boy to rub his penis. He had masturbated from his school-days and first had sexual intercourse at the age of 15 years with a schoolgirl aged 16. Before his marriage he had a voracious sexual appetite and had frequent intercourse with women. There were also incidents with small boys, and he admitted peno-rectal intercourse. He had developed a taste for fellatio and cunnilingus, and there was a suggestion of sodomy with women. In France he had enjoyed watching "exhibitions" and had performed nauseating variations of the sexual act with French prostitutes.

### The Prostitute Group

These five persons had deliberately gone out with the intention of making money by offering themselves to men. In three cases they had attracted their victim and were arrested in the act; the other two were apprehended at the stage of importuning. The following case history is typical.

**Case 73.**—Aged 59 years. Importuning; one previous conviction for same offence; had had psychological treatment at a London hospital. He held a good position in a multiple boot firm, but was in financial difficulties at the time of the offence. He was a single man and had had intercourse with numbers of women. He also had homosexual experiences while in the Army during the 1914-18 war, but these had never gone further than mutual masturbation and there had been none since. Bearing his 1914-18 experiences in mind, he decided he might make money by soliciting men to mutual masturbation. He was apprehended while doing this in a public lavatory at Paddington Station. The man was unstable and showed evidence of a mild anxiety state with superadded compulsive-obsessive traits characterized by claustrophobia.

### The True Inverts

As has been indicated earlier, it is this group which is of most interest to us and which has been the subject of so much correspondence. There were 13 cases, of which no fewer than eight were importuning; there were three cases of gross indecency and two of buggery. East and Hubert (1939) mention that a large proportion of such cases have other forms of perverse sexual activity; four of these cases showed obvious perversions. Allen (1940) suggests that fetishes in homosexuals are rare, but this is not confirmed. Though the fetish was not always concrete, indulgence in imagery involving masculine articles of clothing or essentially masculine features such as beards and moustaches was common. Of the 13 cases only one was interested in boys; the other 12 were attracted to men, and had never been at all interested in boys. The commonest single environmental factor was seduction in early youth or childhood, with employment in hotels or public-houses as the second most frequent. In only one instance was a history given of emotional suffering caused by a woman. Androgynous physique was present in six cases, which is probably a higher proportion than usual. The part played by the homosexual was rather more definite than is usually accepted; it was found that the individual preferences were as follows: always passive, 5; always active, 2; either active or passive, 3; mutual masturbation only, 3. Of the five preferring the passive role, three were androgynous and two were of masculine build. Of the two active men one was quite effeminate in appearance. Perversions were much more evident in those preferring the passive role; fellatio was admitted by four men.

East and Hubert (1939) state that in an investigation of a series of cases they found no evidence which led them to attach any weight to the homosexual fantasy. Careful questioning was made as to the fantasy, if any, experienced during nocturnal emissions. The result was somewhat startling. Eleven of the men had a definitely homosexual

fantasy; this sometimes amounted to no more than a dream of self-masturbation, but in some instances they experienced in their dream a complete homosexual act, usually passive, but sometimes active. One man always dreamed of committing mutual masturbation with a man very similar in appearance to himself.

Bleuler (1924) states that homosexual love shows the same signs as heterosexual love but also particularly something strikingly ecstatic and exalted. Two of the cases (Nos. 85 and 91) which are given below brought out this point with great emphasis. Emotional conflicts were present in seven of the men. One showed a simple anxiety at his condition; five had a sense of guilt, very strong in three cases; and one showed a sense of guilt plus anxiety.

Walker and Strauss (1939) suggest that the sexual impulse cannot be diverted into heterosexual channels in the case of the true invert and that psychotherapy—by a trained psychiatrist only—should be given to relieve the homosexual of a superadded neurosis and to re-educate him. This seems a very sound view. East and Hubert (1939) consider that the contraindications to treatment are repeated homosexual practices over many years; friendly but quite uninterested relations with women; the presence of other well-developed sexual perversions; and the presence of anti-social trends, whether in association with the practice of homosexuality or showing themselves in other ways. Dr. H. T. P. Young, late senior medical officer at Wormwood Scrubs Prison, states in the Report of the Commissioners of Prisons, 1942-4, that in 1943 19 prisoners convicted of sexual offences with males were unsuitable for psychotherapy for the following reasons: sentence too short, 5; intelligence too low, 6; constitutional psychopathy or organic lesion, 2; no genuine anxiety for cure, 4; other reasons, 2.

When considering the question of psychotherapy, so far as the 13 individuals in this series are concerned, facts were disclosed which will prove discouraging to those who advocate psychotherapy in all cases of homosexuality. No fewer than seven cases had had psychotherapy, and in every instance it had been administered at a well-known clinic or hospital, or by a well-known psychiatrist who has contributed to the literature on this subject. According to the patients, cures and improvements had been claimed and the courses had lasted for a considerable time and been repeated. And yet four of these "cures" found themselves in prison for the first time, having committed an overt homosexual offence. On the other hand, one of these prisoners reappeared for the fifth time. Of the remaining six cases none had had treatment. Three, however, had no desire for any, and said they would resist every inducement. One (Case 7) was too dull to be able to co-operate in any form of treatment, as well as having well-developed sexual perversions, and therapy was manifestly contraindicated. Another had already been considered by a clinic and a consultant psychiatrist and turned away as unsuitable. The last (Case 79) was an intelligent man with no previous convictions who had previously been well adjusted socially; his offence was directly attributable to heavy consumption of alcohol. A recommendation was made to the court that he might benefit from a psychotherapeutic course with a view to resolving his superadded emotional conflict and helping him to develop more socially useful tendencies. Thus out of 13 cases, in only one was there any indication that psychotherapy would be of any value whatsoever—and then only as a palliative, not as a cure. Five of the case histories are given below as illustrations.

**Case 7.**—Aged 32 years. Buggery; no previous convictions. A hotel porter by profession, he was a native of Eire and came

to London at the age of 20. There was no morbid family history. He could read and write, but was well below average intelligence. He had never had intercourse with women and was not attracted to them in any way. In 1936 he started to work at a famous London hotel and was "seduced" by a page-boy who persuaded him to have peno-rectal intercourse. He went to live with the boy and stayed with him for two years, regular intercourse taking place all the time. The prisoner always played the active part both at this time and subsequently. When he left this hotel and went to another, homosexual activity ceased for a time. During the war, while working at another famous London hotel, it was the custom for the staff to sleep in the ballroom during air raids. It was also the custom, he stated, for homosexual activity to occur. The prisoner found a boy who attracted him, and intercourse started and continued up to the time of arrest. Frequently he sought homosexual prostitutes—always boys—and had intercourse. He had nocturnal emissions, and the fantasy was of homosexual intercourse in which he played the active part with a boy partner. There were strong sadistic tendencies, and he enjoyed inflicting pain on his paramours. He had marked anxiety symptoms and suffered from a duodenal ulcer. His insight was fair, but psychotherapy was contraindicated on account of his backwardness and the evidence of strong perversions.

**Case 41.**—Aged 30 years. Importuning; no previous convictions. He was a bright, well-educated man who was a brilliant musician and seemed likely to be able to follow a career as a concert pianist. Unfortunately he had suffered from nerve deafness since the age of 15. He was very effeminate in physical appearance as well as in voice and mannerisms. At the age of 16 he was indecently assaulted in a public lavatory. He had never been attracted to the female sex and had never had heterosexual intercourse. Homosexual activity started at the age of 20, but previously he had masturbated and indulged in a fantasy of rough, physically strong men. He had never gone further than intra-erual intercourse and had played both active and passive parts. Strong guilt and anxiety were associated with the act, and because of this he sought the aid of a psychiatrist. Several years of treatment had had no effect either on the homosexuality or on the superadded neurosis. He was charged with importuning, and suggested that the exposure of what he called his "weakness" and the prospect of a prison sentence had been more beneficial than any previous treatment. In view of his previous lack of convictions a recommendation was made to the court that further treatment might help him to readjust himself socially.

**Case 79.**—Aged 48 years. Importuning; no previous convictions. This man was a fine-looking specimen, alert and intelligent, and a bank cashier by profession. He was single and supported an aged mother. He had realized he was a homosexual for as long as he could remember. He was not attracted to women, but was friendly with many and did occasionally dance with them. He had a sincere affection for his mother. Homosexual activity had only once gone further than mutual masturbation. He had on this occasion played the passive partner in peno-rectal intercourse, but was so revolted that it was never repeated. He had a strong guilt complex following mutual masturbation; the fantasy during nocturnal emissions was one of self-masturbation. He was charged with importuning and admitted the offence. He had, however, indulged over-freely in alcohol, and this was the first occasion on which he had ever committed such an act. He was allowed bail and attempted suicide before his appearance at court, but was saved by his mother. He had originally intended to murder her first, but found himself unable to do so, though he killed the cat as a start to wiping out the entire family. Considerable time was spent with this man before he went to court, and an attempt was made to re-educate him, with some success. It was strongly recommended to the court that therapy might help to alleviate his anxiety and sense of guilt and reorientate him to society.

**Case 85.**—Aged 64 years. Importuning; one previous conviction for the same offence. The prisoner was a well-educated, sensitive man of delicate feminine appearance, with long shapely fingers and finely chiselled features. He had studied medicine in his youth and was engaged to a young lady of



good family. When he began to study gynaecology he found he was disgusted by the sight of the female genitalia, though he said he rather "enjoyed" the labour ward and parturition. He had previously had homosexual relations, and he now realized his condition; his engagement was mutually terminated with no sense of disappointment on his side. He gave up medicine, as he had private means; for a time he occasionally indulged in mutual masturbation. He then went to live with an older man, and for ten years they lived in complete harmony as lovers. They both played active and passive roles. After he parted from this man he had gone to live with another, and had done so for nearly thirty years. At first he played both parts, but later became the passive partner and had always done this since. There was a strong masochistic flavour to the act, which he described in ecstatic terms. His disgust of the female genitals had gradually been transferred to females in general, and now the very rubbing against them in a bus made him feel "unclean." He was importuning because his partner was on holiday and he felt "sex-starved." He considered nothing could be done to help him, and had no desire for treatment.

*Case 91.*—Aged 42 years. Importuning; one previous conviction for the same offence. He had always been attracted to men, and started intercourse at the age of 20. He had never had a regular partner and had never associated with boys. His fantasy during nocturnal emissions was of the homosexual act with himself in the passive role. He had played both parts but much preferred the passive. He had served in the Forces and was demobilized with a good character. During his service he had married an A.T.S. girl; but intercourse occurred only twice, and he was so disgusted that he could face it no longer. The wife had gone to another man, by whom she had a child, and he let her go without interference. He had never had heterosexual intercourse on any other occasion and did not desire it again. He experienced a complete tumescence during homosexual intercourse, with detumescence at the time of the orgasm of the active partner. He occasionally had an emission with orgasm but described the "other sensation" he experienced as infinitely more pleasurable, and he felt an overwhelming love for the male partner. He had no wish to be altered, and said he would resist any attempt to do so.

There is a wide divergence of opinion on how to deal with men charged with homosexual offences. At one extreme there are those who consider that such offences merit the most severe penalties; these are mostly non-medical persons, and, to be fair, non-legal. At the other extreme are those who consider that imprisonment is completely contraindicated; these are mostly medical men, and psychiatrists at that. Walker and Strauss criticize severely the penal laws on this subject and suggest that, except in the case of offences against children, homosexuality should be tolerated. They consider that sentences of imprisonment for repeated sexual offences against children serve no useful purpose, and removal to a "protected environment" for an indeterminate period is recommended. It is difficult to see how this environment would differ appreciably from a prison sentence except for the increased length of sentence.

In Kenny's *Outlines of Criminal Law* the purposes of punishment are stated to be primarily deterrent, both to the offender and to others, and reformatory. Important subsidiary objects, however, are stated to be gratification of the injured person and satisfaction of the indignation of the community. In court it is often mentioned that laws were made for the protection of the community as a whole and not for the benefit of the individual; the parents of seduced children, in particular, demand retributive punishment for the offender. In offences of this nature imprisonment is more often imposed with retribution in view than in the case of other homosexual offences, where the reformatory value is stressed by the court. Comparison is often made between the law in this country and in other countries as it relates to homosexual offences. Is there in fact so much difference? All are agreed on the necessity for

preventing the seduction of boys, and seduction is prosecuted as vigorously in other countries as in this one. All the cases in this series committed overt acts and offended public decency. Covert homosexuality is rarely prosecuted, and I have not experienced a case in which two adult men were charged with committing homosexual acts behind closed doors. The public objects to witnessing such acts and is entitled to demand that they be suppressed.

The whole subject was admirably dealt with in a paper by East (1946). He stressed that if the modifications envisaged in the proposed Criminal Justice Bill were introduced a better understanding of the criminal by extramural psychiatrists and a wider conception of punishment as a method of treatment would be required. He also considered that, if psychiatric treatment of offenders is made a condition of a probation order, only psychiatrists of wide experience and mature judgment should undertake the work. These views were commended by Lord Cooper, the Lord Justice Clerk of Scotland, who ascribed the conflict between psychiatrists and lawyers to the fact that the former were not used to having their opinions questioned and the latter were not used to accepting other persons' conclusions unexamined. He further stated that the lawyer is not ready to accept the principle that there is a section of the community chosen by medical men whose members are free to commit crime with limited liability, or perhaps with no liability at all. To some this view may sound harsh, but it is imperative that the difference between legal responsibility and medical culpability be fully appreciated if psychiatrists are to take their proper place in helping to deal with offences of the nature discussed.

### Summary

The incidence of homosexual offenders received into Brixton Prison during 1946 is discussed. These numbered 96, and a classification into four groups has been made.

The date of the offences and the age and previous convictions of the offenders have been investigated and the results tabulated, brief comments being made.

The pseudo-homosexual group, the bisexuals, and the prostitutes are examined and brief case histories given.

The group of true invert, numbering 13, is discussed in more detail, particularly as to the effects of previous treatment. Seven had had treatment and had not shown improvement therefrom, three refused all interference, and only one of the remainder was considered likely to benefit.

A brief examination is made of the legal and social aspects of dealing with the homosexual offender and the relation of the psychiatrist.

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The Minister of Health has adopted recommendations for increasing the salaries of midwives and mental nurses employed in part-time service as follows. If employed for not more than 30 hours a week: midwifery sister, S.C.M. and S.R.N. or R.S.C.N., 3s. 1d.; S.C.M. only, 2s. 11d.; staff midwife, 2s. 5d. or 2s. 3d. according to qualifications. If required to work on occasion for a few hours in excess of 30 a week payment for the additional hours is as follows: midwifery sister, 2s. 9d. or 2s. 7d. according to qualifications; staff midwife, 2s. 1d. or 2s. Mental nurses employed for not more than 30 hours a week: female ward sister, 3s.; female deputy sister, 2s. 7d.; female staff nurse, 2s. 5d. Payment for additional hours over 30 is as follows: 2s. 8d., 2s. 3d., or 2s. 1d. according to grade.

# SUDDEN DEATH AFTER INTRAVENOUS INJECTION OF A MERCURIAL DIURETIC ("NEPTAL")

BY

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While mercurial diuretics are of great value in the symptomatic treatment of oedema the dangers associated with their use should not be forgotten. The most dramatic of these untoward reactions is sudden death, which occasionally follows directly on the intravenous injection of an organic mercurial. The case here recorded demonstrates this unexpected sequel.

## Case History

The patient, a married woman aged 31, was admitted to hospital on March 17 complaining of swelling of the legs (eight weeks), reduction in urinary output (five weeks), dull backache (five weeks), and haziness of vision (four weeks). She had suffered from frequent sore throat for many years, and four and a half years before admission had had an attack of rheumatoid arthritis which responded poorly to treatment with gold injections. In view of this complication the sore throats were regarded more seriously, and a tonsillectomy and complete dental clearance were performed three years previously in an unsuccessful attempt to cure the condition. Two months before her present symptoms appeared in December she underwent a ventrisuspension and appendectomy.

On examination the patient was seen to be a pale, sthenic, well-nourished woman with a generalized pitting oedema. Fine crepitations could be heard at both lung bases, and a small palpable gland was found in the right digastric triangle. The temperature and pulse were normal, the B.P. was 130/90, and the fundi were normal, without papilloedema, kinking of vessels, or exudates. A complete examination of all other systems revealed no abnormalities.

**Laboratory Investigations on Admission.**—March 18:—Urine: Albumin present, 0.55 g. per 100 ml. Microscopical examination revealed occasional hyaline casts, erythrocytes, pus, and spheroidal epithelial cells. Blood: Wassermann reaction negative; blood cholesterol, 440 mg. per 100 ml.; serum albumin, 2.4 g. per 100 ml.; serum globulin, 1.8 g. per 100 ml.; blood urea, 16 mg. per 100 ml. Blood count: Haemoglobin, 76%; red cells, 3,790,000; white cells, 8,400 (neutrophils, 54%; monocytes, 4%; lymphocytes, 38%; eosinophils, 4%). The urea clearance was 61% of normal. The diagnosis was subacute (nephrotic) nephritis (Type 2 of Ellis, 1942).

**Treatment and Progress Notes.**—The patient was confined to bed and given a diet high in protein and low in salt, with iron tonics. On March 19 she developed a left basal pleurisy, and this persisted until death. On March 21 she had an attack of rheumatic pain in both knees, lasting for one day. On the 2nd treatment with a mercurial diuretic ("neptal") was started: 0.5 ml. was given intramuscularly, and thereafter 2 ml. every second or third day, until by April 21 a total of 24.5 ml. had been injected. Good results were observed, diuresis varying between 50 oz. (1.42 kg.) and 110 oz. (3.12 kg.) after each dose. Ammonium chloride, 15 gr. (1 g.) t.i.d., was given orally at the same time. The injections of the diuretic were very painful, and as this pain could not be prevented by preceding the neptal by a local analgesic (procaine) the intravenous route was adopted, to the patient's relief. Two ml. was given intravenously on April 23, 25, 28, and 30. After the last injection she complained of giddiness, and became pale for a few seconds, shortly after the needle had been withdrawn.

On May 1 the patient complained of a sore throat and generalized joint pains. Her knees became swollen and a patellar tap could be elicited on both sides. On the 3rd 2 ml. of neptal was injected into the right median cubital vein, this taking about one minute to carry out. Immediately on withdrawing the needle the patient turned pale and fell back un-

conscious. Cyanosis rapidly supervened, and breathing, which had become gasping, ceased about two minutes after the onset of the attack. A convulsion occurred, with jerking of both arms, and the pupils became widely dilated before death. Artificial respiration was carried out, with intranasal oxygen for twenty minutes, and 1.7 ml. of nikethamide was given intramuscularly and the same dose intracordially, without avail.

The manner of death observed in this patient bore a close resemblance to that witnessed in another person dying of a terminal coronary infarct about the same time. Both of these patients displayed a syndrome of primary cardiac arrest followed by cyanosis, convulsions, and eventual cessation of respiratory movements. On clinical grounds, therefore, it appeared that the injection of neptal brought about a sudden cessation of the heart-beat, presumably by ventricular fibrillation.

**Necropsy.**—This revealed the large pale kidneys of subacute glomerular nephritis and a left-sided pleural effusion. A small adherent clot was present in one of the cubital veins, but no sign of embolism could be found. Chronic poisoning by mercury could be excluded as there was no stomatitis or haemorrhagic colitis. About 1 or 2 ml. of air was found in the heart. The most probable explanation is that this air was injected into the heart after death during the intracordial injection, for in performing this the needle first encountered lung and air was withdrawn into the syringe.

## Discussion

Since 1925, when Redlich drew attention to three fatalities after intravenous injections of a mercurial diuretic ("novasurol"), more than a score of deaths attributable to this cause have been recorded. Although the deaths reported by Redlich do not appear to have been directly due to the mercury (one died of a Jarisch-Herxheimer reaction, another from salvarsan encephalitis, and the third—Redlich's own case—from an intestinal obstruction) his report does seem to have stimulated interest. Numerous subsequent cases have been recorded in which the mercurial has been more convincingly incriminated, and from these cases and the animal experimentation which they stimulated it is now possible to come to definite conclusions about the immediate action of mercurials on the heart. These findings are summarized below.

### 1. Type of Patient

Sudden death after an injection of a mercurial diuretic has occurred in children as well as in young, middle-aged, and elderly patients suffering from such varied conditions as nephritis, nephrosis, cirrhosis of the liver, and heart disease of rheumatic, syphilitic, congenital, coronary, or hypertensive origin. DeGraff and Nadler (1942) have stated that inflammatory disease of the kidney is a contraindication to the use of mercurial diuretics: certainly most of these accidents occurred in cases of nephrosis and Type 2 nephritis, and Evans and Perry (1943) suggest that a lowered plasma protein may be a factor of significance. Nevertheless this toxic effect has been demonstrated on healthy experimental animals, and it would seem that death is the result of a direct action on the heart.

### 2. Type of Diuretic

In human cases "salyrgan" and "mercupurin" have caused most of the deaths (Ben-Asher, 1945; Sundaram, 1934; Brown *et al.*, 1942; Barker *et al.*, 1942), but deaths are also reported following "esidrone" (Volini *et al.*, 1945), "mersalyl" (Evans and Perry, 1943), and neptal (Greenwald and Jacobson, 1937). Animal experiments also demonstrate variation in toxicity, esidrone and mercupurin being singled out for especially unfavourable mention by Pines *et al.* (1944). DeGraff and Lehman (1942) found that esidrone was more toxic to cats than either mercupurin or salyrgan. Nevertheless on theoretical grounds it seems likely that any organic ionizable mercurial diuretic will be capable of producing sudden death of this type.

### 3. Route of Administration

So far all but one of the deaths have followed an intravenous injection, the exception being the case of Wolf and Longiorno (1931), in which an intraperitoneal injection was to blame. It should be borne in mind, however, that DeGraff and Lehman were able to kill dogs with large intramuscular doses: in humans, therefore, it is possible that fatal reactions may also follow intramuscular injections of the mercurial, though this is very unlikely, since rapid elimination would normally prevent the injection from reaching toxic levels.

### 4. Cause of Death

The manner of death in all these cases has been almost identical. Apparently the heart stops beating before the respiration ceases, and convulsions occur which are probably due to anoxia. This usually takes place within a few minutes of the injection, though in one instance as much as half an hour elapsed before the terminal episode.

Death may occur after the first injection. This has been reported four times—viz., by Sundaram (1934), Cadbury (1936), Barker *et al.* (1942), and Volini *et al.* (1945). These four cases are of great significance, for their occurrence excludes the possibility of cumulative poisoning with mercury as a cause of death, and also rules out anaphylaxis or sensitization, both of which have been considered (Tyson, 1941; Evans and Perry, 1943; Rennie, 1945) in spite of the absence of any clinical evidence in favour of these diagnoses.

Hyman (1942) suggested that these patients died from "speed shock"; but this cannot be accepted, as the clinical picture of "speed shock" is different (salivation, vomiting, diarrhoea, irregular respiration, fall in blood pressure, and bronchospasm). Conclusive evidence to the contrary is provided by Wexler and Ellis (1944), who demonstrated that blood drawn from the patient immediately after death was capable of clotting, since in "speed shock" such blood will be found to be incoagulable.

A considerable weight of evidence has been accumulated to indicate that these deaths are due to the direct toxic action of the mercury ion on the heart. This action was first demonstrated with inorganic salts of mercury by Salant and Kleitman in 1922; they showed that the mercury ion was capable of inducing ventricular fibrillation, which neither bilateral vagotomy nor atropinization could alter. Salant and Brodman (1929) state that adrenaline improves the heart poisoned by mercury while ergotamine increases mercurial toxicity. The same action was demonstrated in the organic mercurial diuretics by Jackson, who in 1926 produced ventricular fibrillation in dogs with salyrgan. His work has been confirmed by other investigators with other diuretics (DeGraff and Lehman, 1942; Pines *et al.*, 1944). From his experiments on the isolated turtle heart Johnston (1941) came to the conclusion that the toxic action of the organic mercurial diuretics was a side action related to their mercury content, and consequently was not essentially different from that of inorganic salts like calomel and bichloride of mercury.

However suggestive they might be, animal experiments alone could not prove that human fatalities were also the result of ventricular fibrillation. This final step has been completed by the unique studies of Volini, Levitt, and Martin in 1945; for in two of their three patients killed by mercurial diuretics simultaneous electrocardiograms were obtained which demonstrate that ventricular fibrillation was the cause of death.

The unpredictable behaviour of the drugs still remains to be explained. Some patients die at the first injection, while others receive many injections only to succumb after

an injection differing apparently in no way from its harmless predecessors—for example, the patient of Wexler and Ellis's (1944) who received a total of 164 ml. before the fatal dose of mercupurin, or the case reported by Barker *et al.* (1942) in which it is estimated that more than 200 injections of mercurial had been given before the one that proved fatal.

### 5. Premonitory Indications

The occurrence of subacute reactions after any injection of mercurial diuretic should be regarded seriously, and would indicate the need for smaller doses or a different route of administration. Unfortunately such warning is not always given. The case history recorded above demonstrates one warning the significance of which was not appreciated at the time—namely, the attack of giddiness after the penultimate injection. In three out of the four cases quoted by Brown and co-workers (1942) warning symptoms were observed at previous injections. These included dyspnoea, orthopnoea, sweating, pallor, bradycardia, and syncope. Wexler and Ellis have described the immediate non-fatal reactions as of four types: (1) a subjective, indescribable, unpleasant sensation; (2) transitory dyspnoea; (3) apprehension, substernal discomfort, slight increase in respiration and pulse rate, and orthopnoea; (4) moderate collapse, cyanosis, and sweating. The occurrence of any reaction should receive serious consideration.

### 6. Treatment

In human cases recovery is rare. Tyson (1941) reports the case of a young male nephrotic who became unconscious after 1 ml. of esidrone, with a convulsion, deep cyanosis, dilated pupils, and absent heart sounds. This patient recovered after artificial respiration, adrenaline, nikethamide, and aminophylline had been administered. Andrews (1931) reports a similar case of recovery in a young woman with rheumatic valvular disease, in which consciousness was lost, but the heart did not stop beating, although seriously affected.

On the isolated turtle heart Johnston (1941) found that nikethamide was of no use in treatment but that sodium thiosulphate would restore to normal rhythm a poisoned heart in complete block. Further, if perfused at the same time, this substance would prevent the action of the mercurial. DeGraff and Lehman have confirmed this for the cat. To apply this fact to the treatment of the human being poisoned with a mercurial diuretic would be difficult, although possible. Fortunately, prevention of fatalities is considerably easier than cure.

### 7. Prevention

The discontinuance of these drugs has never been suggested. A proper perspective of their toxicity will be obtained if it is realized that even when given intravenously they are less toxic than the arsphenamines (DeGraff and Nadler, 1942).

*Route of Administration.*—In his textbook White (1944) says that the mercurials are "preferably given intravenously" (p. 783); nevertheless since all recorded fatalities have followed intravenous and intraperitoneal injection of these drugs, these two routes should be used no longer. The pain of intramuscular injections might be prevented by infiltrating the injection site with an anaesthetic of long duration, such as "proctocaine."

*Choice of Drug.*—Esidrone, salyrgan, and mercupurin have been mentioned most frequently as causes of death. They might well be avoided unless it is proved that this frequency was due to their popularity rather than their extra toxicity.

*Adjuvants.*—Pines and co-workers (1944) found that if 0.5 ml. of 20% magnesium sulphate was injected

simultaneously one could prevent the onset of ventricular fibrillation in dogs even when seven times the normal lethal dose was given. This has considerable clinical significance. Magnesium sulphate should be added to all mercurial diuretics intended for injection. Theophylline is of proved value as an adjuvant, for it not only increases the rate of renal excretion of the mercurial but also serves to reduce the toxicity of certain of these compounds (DeGraff and Nadler, 1942); nevertheless deaths have occurred in spite of its presence.

**Other Drugs.**—The common cardiac drugs, digitalis, aminophylline, ammonium chloride, and phenobarbitone, have no effect on the toxicity of mercurials (DeGraff and Nadler, 1942).

**Rate of Injection.**—Contrary to what might be expected, DeGraff and Lehman (1942) found that injecting the mercurial slowly only increased its toxicity. They demonstrated in cats that the slower the injection the smaller the lethal dose, the curve flattening out at a rate of 40 minutes per ml., at which point the toxicity was about three times that of a rapid injection. Human cases have confirmed that dilution is of no value, and fatalities have been reported with dilutions of 1 in 10 (Sundaram, 1934; Barker *et al.*, 1942; Evans and Perry, 1943).

### Summary

A case is presented in which sudden death followed the intravenous injection of a mercurial diuretic. Death is presumed to have been due to ventricular fibrillation.

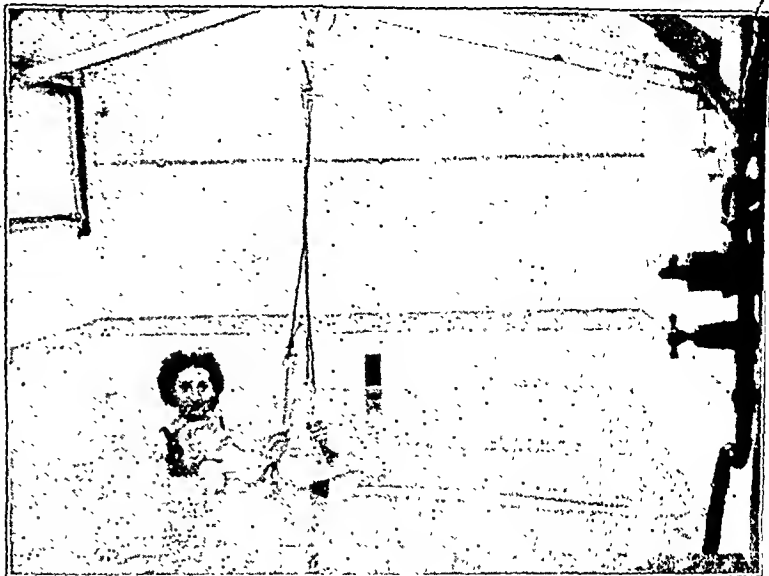
Similar cases are described in the literature, also following the intravenous injection of these drugs. Treatment should consist of intracardiac adrenaline and sodium thiosulphate.

To prevent such sequelae mercurial diuretics should never be given by the intravenous route. The addition of magnesium sulphate to the injection promises to lower its toxicity considerably.

I wish to thank Prof. W. H. Craib for permission to publish this case. I am grateful to Prof. A. S. Strachan and to Dr. Laubser, then of the Medico-Legal Laboratory, Johannesburg, for their interest and assistance, and to Dr. M. McGregor for his criticism.

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### PLUNGE BATH FOR CASES OF POLIOMYELITIS

The present increase in the number of patients suffering from anterior poliomyelitis has presented problems of treatment not ordinarily encountered in general hospital practice. An underwater therapy pool was constructed within three weeks at the County Hospital, Farnborough, Kent, and the following description by the hospital steward may prove of interest.

To meet an emergency, application was made to the Kent County Council Public Assistance Officer to utilize a building which had formerly been devoted to casual ward accommodation. Permission was promptly given, and in less than three weeks the building was converted into a plunge bath 11 ft. 6 in. (3.5 m.) by 8 ft. 6 in. (2.6 m.) to be used for the underwater treatment of patients suffering from anterior poliomyelitis.

This was effected by constructing a small dam wall across the width of the room and making the walls and floor watertight. The bath is filled with water of the right temperature through a mixing valve, and in order that it may be maintained at a continuously even temperature a thermal control unit has been installed. The bath may be filled to a depth of 3 ft. 6 in. (1 m.) and is equipped with hand rails, slings, etc. An adjoining room has been fitted with dressing cubicles.

The facilities thus provided make it possible to deal with several patients at the same time instead of singly, and the bath replaces an emergency collapsible water dam which was kindly loaned and erected by the Bromley N.F.S. at short notice.

The whole of the work was carried out by the hospital engineering and maintenance staff with the valued advice of the County Architect's Department.

DAVID P. NICHOLSON, M.D., M.R.C.P.

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County Hospital, Farnborough, Kent.*

A circular from the Ministry of Health on the transfer of headquarters hospital staffs to the Regional Hospital Boards under the National Health Service Act points out that the transfer concerns those officers employed immediately before the appointed day "solely or mainly at or for the purposes of any hospital transferred to the Minister" (other than teaching hospitals). Local authorities have been asked for a statement of the numbers and types of staff employed on such work for more than half their time who would be liable for transfer. Many authorities, however, have found it impossible to provide a satisfactory list on this basis. The circular suggests, therefore, that they must relate the number of staff transferred to the amount of work transferred and assess the part of the work in terms of units of staff in different grades. The estimate will be only approximate but should afford both a reasonable guide to the Regional Hospital Board's requirements and a general formula for providing lists of officers for transfer. Replies should reach the Ministry by Oct. 30.

## Reviews

### CONSIDER THE MOUSE

*Animal Genetics and Medicine.* By Hans Grüneberg, Ph.D., M.D. With foreword by Sir Henry Dale, O.M., G.B.E., F.R.S. (Pp. 296; 33 illustrations. 21s.) London: Hamish Hamilton Medical Books. 1947.

Dr. Grüneberg is to be warmly congratulated on having written a book which we may expect to have a profound influence on medical research in the immediate future. He is well known among geneticists as one who, excelling both in genetics and in medicine, has devoted his outstanding intelligence, technical skill, and knowledge to the most careful and comprehensive study of the gene in action in the production of pathological characters in the mouse and rat. He is at once geneticist, embryologist, anatomist, and pathologist, and in addition is a writer of clear, concise, and attractive English. In writing this book he had two main aims. One was to demonstrate that there are a considerable number of inherited conditions in rodents of which some are very similar to clinical entities in man. The other was to show that the study of conditions which have no known close counterparts in man can reveal new aetiological mechanisms which may help us to understand human diseases apparently very different from them. He achieves both these aims and goes far towards proving his contention that the systematic and co-ordinated study of inherited diseases in these animals should be considered a new branch of medical science.

Often in the search for the causal factor of disease and for an understanding of the ways in which this cause effects its result man himself is not the best experimental material. Often in medicine a variety of conditions are grouped under a common diagnostic label, and conversely the same disease aetiologicaly is classified under more than one name. This criticism does not apply to inherited diseases in the experimental animal. In the case of man the interplay of nature and nurture in the causation of a disease commonly makes it exceedingly difficult to determine which of the two plays the major part. The circumstances of the experimental animal's environment can be stabilized. In man an obvious and simply inherited pathological condition is rare, while in the experimental animal it can be produced in any number desired, since matings can be controlled. Little can be known in man of the early stages in the development of a pathological condition of this kind, whereas a series of experimental animals can be killed at any stage and the sequence of events recorded in their proper order.

In medicine active research is proceeding to determine the causes and the manner of development of diseases of the different organ systems. In the field of genetics similar and allied mutant conditions are regarded as inherited characters of interest and usefulness, since they are so easily recognized and traced in their transmission through the generations. At the present time there is insufficient liaison between these two fields of activity, with the result that genetics cannot yet make its maximum contribution to the solution of medical problems. For example, the paediatrician is interested in harelip and cleft palate as a problem in clinical medicine. Would it not profit him to consider the mouse, in which this condition is a well-recognized genetical entity?

The following conditions are extracted from the text of Dr. Grüneberg's book as illustrations of the great attractions it offers to those whose material is the human subject. In the mouse: pseudo-encephaly, spina bifida, absence of the corpus callosum, otocephaly, hydrocephaly, epilepsy, coloboma retinae, macrocytic anaemia, siderocyte anaemia, polydactyly, stenosis of the oesophagus, imperforate vagina, and hypotrichosis cystica. In the rat: epilepsy, microphthalmia, diabetes, siderocyte anaemia, and congenital cataract. In the rabbit: syringomyelia, otocephaly, spastic spinal paralysis, epilepsy, coloboma retinae, congenital cataract, keratitis, chondrodystrophy, homeotic variations of the vertebrae, hypospadias, and hyperkeratosis cutis et follicularis. In the guinea-pig: otocephaly, microphthalmia, and chondrodystrophy. A long list of other eye, foot, skin, kidney, and tooth anomalies, locomotor disturbances, and endocrine disorders in one or more of

these different species could be given. All these conditions have been demonstrated to be genetically caused, and, as Dr. Grüneberg points out, the action of the genes concerned upon the processes of development or upon those of degeneration can be quite easily followed by appropriately designed investigations. Manifestly it would be greatly to the advantage of an embryologist, pathologist, or clinician considering these or similar conditions in man to undertake or to encourage parallel investigations with the most suitable animal material.

This is indeed an exciting book, provocatively written and easily sustaining this thesis, which surely must be of the greatest interest to all engaged in advancing medical science. It is a thousand pities that the circumstances of the times have made it necessary for the publishers to use a paper unworthy of the subject matter that it bears and to price the book beyond the means of many who would wish to possess it.

F. A. E. CREW.

### TEXTBOOK OF ALLERGY

*Allergy in Theory and Practice.* By Robert A. Cooke, M.D., Sc.D., F.A.C.P. (Pp. 572; illustrated. 40s.) Philadelphia and London: W. B. Saunders Company. 1947.

In writing this book Dr. Cooke has had the assistance of 13 collaborators, most of whom are well known from their previous publications. Their aim has been to record the facts of allergy and, "while realizing the existing limitations of information and possible errors of interpretation," to co-ordinate them. The authors have considerable practical experience and largely accomplish their intention. Nomenclature is discussed clearly and straightforwardly. Walzer gives a good account of skin testing. Chobot considers that desensitization to food is ineffectual, and regards the value of the oral method with drop-by-drop increases as unproved. Writing on urticaria, Cooke states that 35% of the cases which attend for diagnosis are due to infection, 10% to foods, and 10% to drugs, while the aetiology of the remaining 45% is at present unknown. Asthma is classified as non-infective and infective.

Dr. Cooke pleads in a foreword that allergy be given its due place in the curriculum of medical schools. The basic principles should be taught during the earlier years of training. In the clinical years a few lectures, perhaps four, might be given, and a case of allergy allocated occasionally to the student so that he might learn how to take an adequate history of this kind and be initiated into the special techniques used. All that Cooke says applies equally to Britain. Allergic disease is probably just as common here as in America, where 7 to 10% of patients in general practice are said to present problems in allergy. This is a well-composed and reliable textbook of allergy for the postgraduate.

D. A. WILLIAMS.

### TREATMENT WITH HEPARIN

*Heparin in the Treatment of Thrombosis. An Account of its Chemistry, Physiology and Application in Medicine.* By J. Erik Jorpes, M.D. Second edition. With foreword by Prof. J. R. Learmonth, Ch.M., F.R.C.S. Ed. Oxford Medical Publications. (Pp. 260; illustrated. 18s.) London: Geoffrey Cumberlege (Oxford University Press).

In recent years the prevention and treatment of thrombosis by natural and synthetic anticoagulant substances have attracted considerable attention, particularly in America and the Scandinavian countries. The present monograph, written in excellent English, is by a foremost Swedish authority on this subject. Dr. Jorpes is a biochemist, but in his book he reveals a remarkable knowledge of the clinical and social problems associated with thrombo-embolic conditions. The book is in two parts: the first devoted to "The Chemistry and Physiology of Heparin," and the second to "Heparin and Thrombosis." The first half will be of greater interest to physiologists and biochemists than to clinicians, though the latter will welcome the fine tribute which the author pays to Howell's pioneer work, the fascinating story of the work which led to the conclusion that the mast cells of Ehrlich are responsible for the production of heparin, and the explanation of the difficulties that have to be overcome in preparing and standardizing heparin. In this connexion it is gratifying to note that due credit is given to the work done by Best, Murray, and others in Toronto.



In the second half of the book Dr. Jorpes discusses the use of heparin in the prophylaxis and treatment of thrombosis. Considering principally the problems of post-operative thrombosis and pulmonary embolism, he presents statistics from a large number of Swedish clinics which show that heparin can very considerably reduce the mortality and morbidity from these conditions. He advocates intermittent intravenous injection rather than continuous heparinization by infusion as the method of administration, and those interested will find adequate information on dosage and duration of treatment. He also discusses the use of heparin in thrombosis of the retinal veins, mesenteric thrombosis, subacute bacterial endocarditis, vascular surgery, and the prevention of pleural and peritoneal adhesions. Although the book is primarily about heparin, the author devotes two chapters to the synthetic anticoagulant dicoumarol. He has less personal experience with the use of the latter, but nevertheless his warning against the indiscriminate use of a drug which produces "a kind of toxic narcosis of the liver cells, the depth of which is difficult to control" is well justified. Surgeons and others interested will find that the book is also a valuable source of information on the incidence of thrombosis and the mortality from pulmonary embolism.

This is an authoritative and timely monograph. The evidence presented ought to stimulate clinicians interested in these problems to press for the production of adequate and cheap supplies of a reliable heparin preparation in this country. The book is well produced, but it is disappointing to find several discrepancies between the references in the text and the bibliography.

R. L. RICHARDS.

### LABORATORY METHODS

*Chemical Methods in Clinical Medicine. Their Application and Interpretation with Techniques of Simple Tests.* By G. A. Harrison, M.D., B.Ch. Third edition. (Pp. 630; 5 colour plates and 120 illustrations. 40s.) London: J. and A. Churchill. 1947.

The new edition of this standard work incorporates accounts of the latest laboratory methods. Dr. Harrison has added much new material, maintaining the usefulness of the book without unduly enlarging it. His own experience has evidently guided him in making the alterations, and this enhances their value. As he mentions in the preface, the book is also his own "journal" and includes observations that might have been the subjects of special papers. Laboratory workers and clinicians will find many aids to interpretation, though the author comments, "There is a reasonable chance of interpretation of analyses being correct only if essential clinical findings are known. . . ." He is well qualified to emphasize the principles which such interpretations should be based.

Innovations include references to situations in which laboratory analysis may be used to control treatment, and a discussion on fluid therapy and its control. The author has revised the subject of body pigments and included a new chapter on the pathological pigmentations. He gives a more critical and up-to-date interpretation of the value of the van den Bergh reaction and of gastric analysis. He displays much originality, and we would note particularly the account of modifications to standard instruments used in his own laboratory.

Though the author has devoted much space to recent advances, he still stresses the more fundamental and simple observations on urine and faeces which are of such importance in clinical pathology. More emphasis on the use of milli-equivalents per litre would have been appropriate at this time in those passages where electrolytes in body fluids are discussed. Study of this book will help clinicians to understand more completely the work done by the clinical laboratory.

G. PRUNTY.

Dr. Arnold John Teal claims in *Water Supplies, Hepatitis, Associated Diseases and Fungi Infested Water in Assam* (Jorhat, Assam: Doss and Co.; Rs. 2.8) that infective hepatitis in Assam and North Bengal is a "water virus" disease affecting to a variable extent all the endocrine and secretory glands, the heart, and the nervous system. He states that in almost all cases the disease starts at birth, reinfection continues in varying degrees until death, and often many general and tropical diseases are secondary to it. He provides no valid evidence in support of these convictions. There is little in this monograph to commend it.

### BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

*Diseases of Metabolism.* Edited by Garfield G. Duncan, M.D. 2nd ed. (Pp. 1,045. 60s.) Philadelphia and London: W. B. Saunders Company. 1947.

Includes new material on the thyroid gland, disorders of the kidney, fluid balance, disturbances in nutrition, and folic acid.

*Therapeutic Exercise.* By H. F. Ewerhardt, M.D., and G. F. Riddle, B.S., R.N., R.P.T. (Pp. 152. 12s. 6d.) London: Henry Kimpton. 1947.

A manual for students of physical education, occupational therapy, and physical therapy.

*Roentgen Interpretation.* By G. W. Holmes, M.D., and L. L. Robbins, M.D. 7th ed. (Pp. 398. 35s.) London: Henry Kimpton. 1947.

Outlines the interpretation of x-ray photographs, with many illustrations.

*Occupational Diseases of the Skin.* By L. Schwartz, M.D.; L. Tulipan, M.D., and S. M. Peck, B.S., M.D. 2nd ed. (Pp. 964. 63s.) London: Henry Kimpton. 1947.

An account of industrial skin diseases, their prevention and treatment; with illustrations, bibliographies, and a list of chemicals known to be skin irritants.

*Methods of Diagnosis.* By L. Clendening, M.D., F.A.C.P., and E. H. Hashinger, M.D., F.A.C.P. (Pp. 868. 63s.) London: Henry Kimpton. 1947.

After discussing the general principles of diagnosis, the author considers history-taking, examining each region of the body, and laboratory procedures.

*Modern Treatment Year Book 1947.* Edited by Sir Cecil Wakeley, K.B.E., C.B., D.Sc., F.R.C.S., F.R.S.Ed., F.A.C.S., F.R.A.C.S. (Pp. 354. 15s.) London: The Medical Press. 1947.

Includes articles on the treatment of influenza, of a premature baby, of gonorrhoea and syphilis, of acne, and of myasthenia gravis.

*The Doctor's Job.* By Carl Binger, M.D. (Pp. 243. 12s. 6d.) London: George Allen and Unwin. 1946.

An account for the layman of recent advances in medicine.

*Trial of Thomas John Ley and Lawrence John Smith.* Edited by F. Tennyson Jesse, F.R.L.S. (Pp. 313. 15s.) London: William Hodge and Co. 1947.

An account of the "chalk-pit murder."

*Utility Nurse.* By Margaret Crisp. (Pp. 101. 5s.) London: Chaterson, Limited. 1947.

The life of a Red Cross nurse in wartime.

*Physical Treatment of Injuries of the Brain and Allied Nervous Disorders.* By K. M. Hearn, M.C.S.P. (Pp. 96. 10s. 6d.) London: Baillière, Tindall and Cox. 1947.

Describes the methods of treatment employed at the Military Hospital for Head Injuries, Oxford.

*Obstetrical Practice.* By Alfred C. Beck, M.D. 4th ed. (Pp. 966. 38s. 6d.) Baltimore: The Williams and Wilkins Company. 1947.

Includes new material on analgesia and anaesthesia, penicillin in the prevention of congenital syphilis, and implantation of the ovum.

*Health the Unknown.* By John Comerford. (Pp. 144. 7s. 6d.) London: Hamish Hamilton. 1947.

An account of the Peckham Health Centre.

*British Surgical Practice.* Vol. 1. Edited by Sir Ernest Rock Carling, F.R.C.S., F.R.C.P., J. Paterson Ross, M.S., F.R.C.S., et al. (Pp. 486. £3.) London: Butterworth and Co. 1947.

Includes articles on abortion, achlorhydria and appetite, adiposity, allergy, amoebiasis, and artificial limbs.

*Retropubic Urinary Surgery.* By Terence Millin, M.A., M.Ch. F.R.C.S., F.R.C.S.I. (Pp. 208. 25s.) Edinburgh: E. and S. Livingstone, Limited. 1947.

A monograph on the author's retropubic approach to various surgical problems, with many illustrations, some in colour.

## BRITISH MEDICAL JOURNAL

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## THE CONTROL OF AIR-BORNE INFECTION

It has been evident for years that modern sanitation, so successful in almost every other field, has made comparatively little impression on the problem of air-borne infection. This is not the fault of neglect, since the subject has been studied on a steadily increasing scale for the past twelve years, and with added urgency and vigour during the war. The problem has been more accurately defined by most illuminating studies of the mechanism of air-borne infection, and remedies have been sought in two main directions: the mechanical removal or suppression of infected particles, and the disinfection of air by physical or chemical means. There is now abundant information about what can be achieved by such methods, and it is not too soon to inquire how useful they are likely to prove in various circumstances. The lecture to the Royal College of Surgeons by Prof. R. J. V. Pulvertaft, printed in the opening pages of this issue of the *Journal*, is such an assessment of the present position. His conclusions may be compared with those of two official pronouncements which have recently appeared in the U.S.A., entitled "The Present Status of the Control of Air-borne Infection," and "Dust and its Control as a Means of Disinfection of Air."<sup>1</sup> These are condensed and well-documented reviews prepared by influential committees of the American Public Health Association, which evidently feels that some guidance is called for in these matters.

The hospital ward containing patients infected by readily cultivable and recognizable bacteria such as haemolytic streptococci has been a fruitful field of study, and poses the problem of air-borne infection in its most definite form. Conclusions reached and remedial methods employed in this environment may well be applicable to others, more particularly sleeping quarters generally, but it is helpful first to define our knowledge of how to prevent cross-infection in wards. As Pulvertaft points out, there are two distinct ways of doing this, one being to protect the air from contamination, and the other to disinfect it. Measures directed to the first of these objects are the wearing of efficient masks, controlled ventilation, and the suppression of dust. The designers of future hospitals will require very definite advice on the subject of ventilation; more particularly they will want to know whether a simple abundance of fresh air is all that is needed, or whether it is necessary to control the direction of air currents. It should be easy to avoid the common and dangerous error of ventilating operating theatres by extraction fans, which results in air being sucked in under doors carrying floor dust with it. But what are the necessary applications of the opposite

principle, studied by Bourdillon—the production of a positive pressure of filtered air over the patient, so that air travels from him to possible sources of infection and not *vice versa*? It is doubtful whether any feasible system of ventilation will remove the necessity for separate measures directed to the suppression of dust. Opinion is unanimous that these are necessary, readily feasible, and effective. The system of oiling floors and fabrics first introduced in this country appears to have been brought to a high degree of technical perfection in the U.S.A., and the American report on dust control already cited strongly endorses its value.

An alternative or additional method is to disinfect the air itself. With certain reservations this is practicable by several methods. Ultra-violet light is the simplest and cheapest of these. It is generally applicable only to the upper air of inhabited rooms, since direct exposure to the light is harmful; but it seems to have been successful in diminishing the spread of infectious disease in schools and elsewhere. Chemical disinfection is also feasible by means of exceedingly low and, so far as is known, quite harmless concentrations of sodium hypochlorite, phenolic substances such as hexyl resorcinol, lactic acid, or triethylene glycol. The last named has been the subject of intensive study in the U.S.A., where methods have been perfected for producing the required concentration in the air, and even for regulating it automatically, the apparatus concerned being known as a "glycostat." Triethylene glycol depends for its full effect on a fairly high relative humidity. Hamburger and his colleagues<sup>2</sup> have shown that this is not an essential condition. During a period of fine weather with low humidity they were able by means of triethylene glycol to reduce the haemolytic streptococci in the air of an Army hospital ward by 88% during quiet periods and 54% during bed-making: it should be added that all the patients in this ward were nasal streptococcus carriers, selected and admitted for the purpose of these tests. But this result was made possible only by the simultaneous employment of dust-control measures, including the oiling of floors and bedclothes. Air disinfection is chiefly effective against the finer particles directly expelled from the air passages; indeed, most of the evidence of its efficacy is based on experiments in which bacteria were sprayed as fluid droplets. Against larger particles classifiable as dust it is not so dependable.

What is the practical usefulness of such measures as these? The American report does not venture to pronounce judgment on the respective merits of ultra-violet light and triethylene glycol as air disinfectants. It is, on the other hand, very definite about the possible scope of usefulness of either. There is a strong case for using them in controlling air-borne infection in hospitals, and particularly in fever and children's wards. In schools, barracks, and "specialized industrial environments" their general use is not justified until further knowledge has been gained, and "homes, offices, and places of public congregation" are placed in a third category as even less suitable for such attempts. These are in general the conclusions reached by Pulvertaft, but he makes a useful point in distinguishing between adults and children, regardless of environment,

<sup>1</sup> *Amer. J. publ. Hlth.*, 1947, 37, 353.<sup>2</sup> *J. infect. Dis.*, 1945, 77, 177.

because the latter have less immunity and "spend much of their time in homogeneous groups." If a beginning is to be made outside the hospital sphere the school is certainly the place for it. He also points out that measures would be justified during a pandemic of a new or rare infection—or, it might be added, during a severe epidemic of any infection—which are not called for under ordinary conditions.

It is disappointing that all this effort should apparently have brought us no nearer to diminishing the incidence of the common cold, or to improving the sanitary quality of the atmosphere in public places. Colds and other non-specific infections of the air passages are far more important in terms of discomfort and loss of time and efficiency than any of the more dangerous infections which we are now so well able to control. Pulvertaft is probably right in concluding that conditions in crowded public transport vehicles are sometimes such that no known method of air sterilization could possibly operate. But his argument that constant exposure to infection is necessary to immunity, and therefore, presumably, that conditions may just as well be left as they are, is a counsel of despair. It is a poor sort of immunity that is bought at the cost of two or three colds per annum, which are the lot of the average individual. That these are natural and inevitable under urban conditions we refuse to believe. It is of course not yet by any means certain that aerial transmission is the only, or even the most important, factor in the spread of the common cold. In so far as it is, better air sanitation in densely populated places is much to be desired, and the efforts of the past twelve years will not have attained full success until this aim has been achieved.

### BRITISH ANTI-LEWISITE

Although much work was done during the war both in this country and in the U.S.A. on weapons of chemical warfare, these weapons were not used. The work, however, proved of value in an unexpected direction, for no fewer than three discoveries were made in the field of new medicaments. We have recently learnt of the benefit given by "nitrogen mustard" to patients with leukaemia and with Hodgkin's disease; we are learning of the treatment of myasthenia gravis by di-isopropylfluorophosphonate; and, most important of all, BAL or dimercaptopropanol is now soundly established as a means of treating poisoning by arsenic. We reviewed work on this substance in a leading article about a year and a half ago.<sup>1</sup> There is evidence that it can be used for treating poisoning by mercury and gold as well. A report is found on another page in which a committee of the Medical Research Council gives its blessing to this new therapeutic agent, the report being based on the results obtained in 44 cases of arsenical dermatitis. This report confirms what was already known from work done both in this country and in the U.S.A. Carleton, Peters, Stocken, Thompson,<sup>2</sup> and their colleagues described their first observations on the effect of BAL in arsenical dermatitis, undertaken because it had been shown that

BAL reversed the toxic action of mapharside in animals. They found that in some cases the dermatitis disappeared within five days, and that in about half the 30 patients there was substantial benefit. At the Johns Hopkins Hospital, Longcope, Luetscher, Wintrobe, and Jäger<sup>3</sup> obtained results entirely similar, noting that patients in whom dermatitis occurred after three or more doses of arsenic recovered with unexpected rapidity when treated with BAL. Luetscher, Eagle, and Longcope<sup>4</sup> found a "consistent increase" in the urinary excretion of arsenic after treatment of dermatitis with BAL, corresponding "with the good clinical response of these patients."

Less good results are obtained so far as other symptoms produced by arsenic are concerned. The most extensive account is that of Eagle and Magnuson,<sup>5</sup> who have examined 227 cases; of these, 55 were suffering from encephalitis, and the effect of BAL in improving their condition was uncertain; of 14 patients with jaundice, 7 were not improved by BAL, but 5 were improved; the blood bilirubin fell in 3 of these. On the other hand, of 11 patients with arsenical agranulocytosis 10 were rapidly improved by BAL with an increase in total white count and in polymorphs; of 44 patients with fever due to arsenic therapy most were restored to normal by BAL. In this series the usual good effect of BAL was obtained in dermatitis.

Perhaps the next most important use of BAL is for the treatment of mercury poisoning. As its chemical name, dimercaptopropanol, implies, BAL is a substance which can capture mercury; this was demonstrated in animals by Gilman and his colleagues,<sup>6</sup> who found that BAL was active against mercury, as against arsenic, even when treatment was delayed. Thus dogs receiving 4 mg./kg. of mercuric chloride intravenously, a dose which was invariably fatal when given alone, were completely protected from the renal effects of mercury by three doses of BAL when treatment was delayed for 30 minutes. The clinical application of this result was successfully demonstrated by Longcope and Luetscher,<sup>7</sup> who treated 23 cases of acute poisoning with corrosive sublimate. Nine patients took from 1.5 to 20 grammes of mercuric chloride, 5 of the 9 having swallowed more than 1.5 grammes. Eight patients were treated with BAL from one and a quarter to three and a half hours after taking the mercury and recovered completely in two and a half to seven days. One patient was first treated 19 hours after having swallowed at least 1.5 grammes, and was entirely well in 3 weeks. In treatment BAL was given by intramuscular injection, the first dose being 0.3 gramme, or 3 ml. of a 10% solution. The total given in the first 12 hours was 0.45-0.75 g., and in the whole course of three to four days, 0.9-2.87 g.

Few people swallow corrosive sublimate, but occasionally fatalities occur after the injection of mercurial diuretics, as in the case recorded at page 530 of this issue of the *Journal*. These deaths are due to the toxic action of mercury on the heart, and Long and Farah<sup>8</sup> have

<sup>3</sup> *J. clin. Invest.*, 1946, 25, 523.

<sup>4</sup> *Ibid.*, 1946, 25, 534.

<sup>5</sup> *Amer. J. Syph.*, 1946, 30, 420.

<sup>6</sup> *J. clin. Invest.*, 1946, 25, 547.

<sup>7</sup> *Ibid.*, 1946, 25, 557.

<sup>8</sup> *Science*, 1946, 104, 220.

<sup>1</sup> *British Medical Journal*, 1946, 1, 240.

<sup>2</sup> *J. clin. Invest.*, 1946, 25, 497.

shown that in the heart-lung preparation of the dog this effect of mercury can be antagonized by BAL. Although the heart after the mersalyl injection is in ventricular fibrillation the injection of BAL arrests the fibrillation, restores a normal rhythm, and re-establishes the blood pressure.

What may prove another important application of BAL is in the treatment of gold poisoning. The use of soluble compounds containing gold for the treatment of rheumatoid arthritis is always attended by the risk of the prolonged and painful reactions which gold produces in some patients. Ragan and Boots<sup>9</sup> have treated 5 patients with gold dermatitis by giving injections of BAL, and in 4 of these, in whom the dermatitis had existed for less than 2 months, the pruritus ceased and the rash cleared. The result of relieving the dermatitis, however, was that the symptoms of rheumatoid arthritis increased. Lockie, Norcross, and George<sup>10</sup> successfully treated with BAL patients in whom gold injections had produced thrombopenic purpura and granulocytopenia. Their recovery was said to be spectacular. It may well be that with this new protection against toxic effects gold therapy will become a less risky matter. Various other metals—nickel, cadmium, chromium, and antimony—produce toxic effects which have been shown to be antagonized by BAL in animals. It is reasonably certain that the antagonism will be displayed in the human subject also, and that cases of poisoning by these metals which occur in industry will be more effectively treated than hitherto.

The background of BAL is worth some comment, since its introduction is an excellent example of the fact that academic research, carried out with the sole object of extending knowledge, is very often found to have an unexpected practical application. Peters had previously made a special study of the biochemical changes when a deficiency of vitamin B<sub>1</sub> occurs, and had shown that in the brain of the pigeon there is a failure to oxidize pyruvic acid, or pyruvate. He found that there was a similarity between the effects of chronic arsenical poisoning and deficiency of vitamin B<sub>1</sub>, for in both there was polyneuritis, and therefore it seemed reasonable to examine the effect of arsenite on the pyruvate-oxidase system of the brain. Peters, Stocken, and Thompson<sup>11</sup> therefore began their experiments by adding arsenite to minced pigeon brain; they found it had little effect on the oxygen uptake until they added pyruvate. The arsenite was found to reduce the extra respiration due to pyruvate by half, and the conclusion was drawn that arsenic had an inhibiting action on certain specific enzymes, but was not a general poison. The subsequent investigation of the action of lewisite on the protein keratine derived from human hair (collected from the barbers' shops in Oxford) led to the conclusion that efficient protection against arsenic required a dithiol compound able to form a stable ring with the arsenical agent. The steps towards the discovery, which were many, were in steady sequence; there is no sign in the record of a stroke of luck or of some accidental assistance enabling the discovery to be made by some short cut. It is indeed an advance when the biochemist using minced brain or

skin slices can discover a remedy which achieves what one thought was impossible—not only to prevent a lewisite burn, but to remove all appearance of it after it has actually occurred.

## RENAL TUMOURS

Deming<sup>1</sup> has analysed a series of 82 cases of renal tumour admitted to the New Haven Hospital during the past twenty-three years. The important finding is that 19.5% were living at the end of five years, 14.6% at the end of ten years, and only 9.08% were free from disease after the ten-year period. There were 11 cases in the first decade of life, none in the second, and 60 in the fifth, sixth, and seventh decades. Classification of the tumours still presents considerable difficulty, and the clinical advantages of too fine a subdivision are not obvious. This series included 26 adenocarcinomata, 25 hypernephromata, 12 tumours of renal pelvic origin, 6 malignant nephromata, 3 sympathicoblastomata, 3 sarcomata, 2 embryonal carcinomata, and 5 benign tumours. Half the malignant nephromata (Wilm's tumours) and all the sympathicoblastomata appeared in childhood.

Accurate pre-operative diagnosis of the exact nature of cortical tumours is impossible, but where a renal tumour is suspected pyelography should be repeated at frequent intervals. Information as to the degree of fixation or mobility of the kidney may be obtained by clinical examination supplemented by radiological studies in the vertical and horizontal positions. Of these 82 patients 69 were subjected to nephrectomy, 4 had biopsy of the tumour with ligation of the ureter, and 2 had biopsy only. The other 7 patients were admitted shortly before death and necropsies were performed. Nephrectomy remains the operation of choice, with excision of the ureter in the case of pelvic growths. Extension of the growth into the renal vessels or even into the vena cava increases the technical difficulties but does not necessarily preclude nephrectomy. Irradiation has as yet little to offer in the treatment of renal tumours; radio-sensitivity is not yet predictable either clinically or pathologically. Ladd, of Boston, has given up irradiation in children, claiming that it is of little or no value. On the other hand, irradiation does reduce the size of the tumour in some cases and may make surgical removal easier. It may also cause the temporary disappearance of pulmonary metastases, especially those from hypernephromata and embryonic tumours, but the growths soon recur.

The most striking feature about the secondary deposits is their late appearance. Two patients in this series died of metastases more than ten and eleven years, respectively, after nephrectomy for hypernephroma. Those patients with sympathicoblastomata or embryonic carcinomata all died within the three-year period. Although in 36 cases there was no delay in making a diagnosis, and in one half of these the tumour was discovered during routine clinical examination, there was little difference in the ultimate fate of those cases subjected to early operation and those in which for some reason or other nephrectomy had been delayed. The outstanding feature of this survey is its demonstration of the fallacy of the five-year period in the control of renal tumours. The long delay in the appearance of metastases suggests that there may be body-defence mechanisms which play some part in controlling the course of these tumours—mechanisms about which we know nothing at present but which may prove important in explaining the slow growth of some malignant tumours.

<sup>9</sup> *J. Amer. med. Ass.*, 1947, 133, 752.

<sup>10</sup> *Ibid.*, 1947, 133, 754.

<sup>11</sup> *Nature*, 1945, 156, 616.

## PENICILLIN AND DIPHTHERIA CARRIERS

The number of procedures advised for treating the diphtheria carrier state testifies to their limited value. Each is in fashion for a time, but few survive prolonged trial. When evaluating the divergent results obtained three factors must be borne in mind. In the first place it is probably true to say that we too often think of the carrier state as a mere surface infection, whereas of course the organisms often lie deeply in tonsillar and other tissue. Further, a common prerequisite of the carrier state is a diseased condition of the upper respiratory tract, which is unlikely to be affected by antiseptic applications. Finally, the undoubted importance of reinfection in prolonging the carrier state is now widely recognized. Macdonald,<sup>1</sup> for example, has recently drawn attention to the frequency with which skin and finger-nail infections are associated with anterior nasal diphtheria—a condition which might almost be classed with the carrier states.

Penicillin is the obvious modern remedy, for it has been noted by many workers—for example, by Young and Wood<sup>2</sup> and by Long<sup>3</sup>—that most strains of *C. diphtheriae* are sensitive to this antibiotic. The reports of the results of treatment, however, have not all been in agreement. Berman and Spitz<sup>4</sup> used a watery solution containing 500 units per ml., and, after instilling 1 ml. into the nose by means of a dropper, they administered 1 ml. atomized into the fauces and pharynx. This treatment was given four times daily for five days. Ten carriers so treated became clear after the first day and remained so; twelve controls, who were treated initially with hot saline gargles, remained positive until penicillin was used, when five promptly became negative. Paull and his colleagues<sup>5</sup> also used penicillin locally in nebulized form (2,000 units per ml. in 10% glycerin-saline). They gave four treatments daily, but concluded that no reduction in the duration of the carrier state was effected. Bagnall and Bain<sup>6</sup> used penicillin parenterally. Twenty-two of their cases received 0.6 mega-units and another 25 received 1.2 mega-units, both groups over a period of one week. The treatment was not always effective, but they found an association between failure and the condition of the tonsils, described as "bad" in 13 out of 14 failures in the first group and 6 out of 7 in the second. More recently Kocher and Siemens<sup>7</sup> have compared the effect of local and systemic treatment. Systemic penicillin completely failed to cure nine carriers. Local treatment with a gum lozenge, which took half an hour to melt and contained 500 or 1,000 units of penicillin, was more successful. One lozenge was sucked hourly for 12 waking hours over a period of 3–15 days. Of 31 carriers so treated 23 cleared rapidly, and cultures remained negative up to ten days after treatment was stopped. Seven of the remainder cleared after tonsillectomy, the eighth after both tonsillectomy and a further course of local penicillin.

What lessons can we learn from these conflicting results? Perhaps the first is to draw attention again to the unpredictability of the course of the carrier condition. The failure of systemic penicillin is disappointing, for one had hoped that this would sterilize the tonsil from within. Perhaps the difficulty here, as in the treatment of subacute bacterial endocarditis, is to ensure that the penicillin actually penetrates the barrier surrounding the organism. In considering the problem of local therapy we would draw

attention to three points. First, the dangers of local oral penicillin must be remembered, for stomatitis is a possible risk. Secondly, such treatment may merely mask the condition temporarily (Bagnall and Bain<sup>6</sup> cultured *C. diphtheriae* from the centre of a removed tonsil from whose surface before tonsillectomy eight consecutive negative cultures had been obtained). Finally, and perhaps most important, when the tonsils are obviously unhealthy surgical measures should be advised if penicillin does not rapidly clear them.

## VAGAL RESECTION FOR PEPTIC ULCER

In his Moynihan lecture, reported elsewhere in this issue (p. 540), Dr. Arthur W. Allen compared the results of subtotal gastrectomy with those following vagal resection. Resection of the vagi for the relief of the symptoms of peptic ulceration has been practised in America for several years. Dragstedt,<sup>1</sup> who re-introduced this operation, has recently reported a four-year follow-up on some of his cases. In this country vagal resection has not been widely adopted so far. Our patients are not yet so enlightened as is apparently the case in the States, where sufferers are said to approach the surgeon armed with a copy of *Time* describing vagotomy in lyrical terms.<sup>2</sup>

Physiologically there is sound support for this operation. Gastric secretion has a twin control: there is a hormonal phase evoked by food in the stomach, and a psychic phase centrally controlled through the vagus nerves. This latter mechanism is largely responsible for the hypersecretion which occurs in duodenal ulceration, and vagal section should therefore abolish it, with consequent benefit to the patient. Anatomically there are peculiarities about the vagus nerves which make it doubtful if it is ever possible to cut them completely. High in the thorax they give off filaments which penetrate the wall of the oesophagus and run down in it to the stomach. These fibres will clearly be untouched by any operation at the hiatus of the diaphragm whether approached through the thorax or the abdomen. Their number is not great, and it may be that their effect is negligible; but we would do well not to forget them entirely.

The immediate results of the operation are striking. Smith, Ruffin, and Baylin,<sup>3</sup> reporting 50 vagotomies with one death, claim that in 43 instances there was a complete recovery, the patients being able to eat an unrestricted diet and return to full work. Similar successes have been recorded by other workers. The side-effects of the operation are considerable and may require further surgery. Dilatation of the stomach occurs in all cases; it is least in those cases in which there has been a previous short-circuiting operation, but without this it may be extreme. Thus Smith and his colleagues had one patient in whom there was complete retention of barium in the stomach for forty-eight hours. The motility of the stomach is profoundly altered; peristalsis is not entirely abolished, but the waves are slower, more shallow, and less rhythmic. They may fail to constrict the barium in the stomach at all, but, according to Machella and others,<sup>4</sup> they can be restored by the injection of urethane of *N*-methylcholine chloride. Diarrhoea often appears when the patients start to eat a normal diet; there may be as many as ten watery motions a day accompanied by lower abdominal discomfort. The degree of hypochlorhydria which follows the

<sup>1</sup> *Mon. Bull. Min. Hlth.*, 1946, 5, 25.

<sup>2</sup> *J. Ract.*, 1945, 50, 205.

<sup>3</sup> *British Medical Journal*, 1946, 1, 773.

<sup>4</sup> *Bull. U.S. Army Med. Dept.*, 1945, 4, 87.

<sup>5</sup> *Ann. Intern. Med.*, 1946, 23, 413.

<sup>6</sup> *Proc. Conf. Army Phys. (C.M.F.)*, Rome, 1945, 107.

<sup>7</sup> *Ann. Intern. Med.*, 1946, 23, 533.

<sup>1</sup> *Canad. med. Ass. J.*, 1947, 56, 133.

<sup>2</sup> Howard, J. T., *South. med. J.*, 1947, 40, 10.

<sup>3</sup> *Ibid.*, 1947, 40, 1.

<sup>4</sup> *Gastroenterology*, 1947, 8, 36.



operation depends upon the completeness with which the accessible fibres of the vagus are severed. It can be estimated by some form of insulin test, and it would be an advantage if the precise procedures for the performance of this test laid down by Hollander<sup>5</sup> were adopted as a standard in the evaluation of these cases.

All those who have experience of the operation agreed with Dr. Allen that there are definite criteria which must be observed in choosing suitable patients. Thus Orr and Johnson,<sup>6</sup> who recently reported a series of 50 cases from the British Postgraduate Medical School, recommend that it should be restricted to duodenal or stomal ulcers, preferably in young subjects with a long history of relapses. They point out that the reduced gastric motility after operation may cause an unsuspected stenosis to come to light. If a pre-operative radiograph shows much scarring of the duodenum, then vagotomy will have to be combined with some form of short-circuit. Many years must elapse before any new treatment of peptic ulcer can be accurately evaluated. Of vagotomy now, it may be said that so long as suitable cases are carefully chosen it is likely to be a useful measure. But surgeons should bear in mind Sir David Wilkie's observation that any new operation is likely to give excellent results in its early days when patients are chosen with the utmost care. Later, when the operation is widely adopted and selection is less strict, results are often disappointing, and a useful procedure may fall into disrepute. It is to be hoped that this will not happen with vagotomy.

### THE R.C.S. AND THE SURGICAL CONGRESS

The International Surgical Congress concluded its proceedings in Edinburgh, an account of which we print elsewhere in this issue. The success of the Congress as a whole owes much to the President of the Royal College of Surgeons of England, Sir Alfred Webb-Johnson, who not only brought a message of welcome from His Majesty but through whose good offices permission was obtained to hold the inaugural ceremony in the picturesque Hall of Lincoln's Inn, thanks to the kindness of the Treasurer and Masters of the Bench.

Some of the famous visiting surgeons took home with them the Honorary Fellowship of the College; the recipients came from Belgium, France, and the U.S.A. The Lister medal was presented to Evarts Graham, of St. Louis, who has done so much to advance surgery in so many fields, and the honorary medal of the College to Edward Gallie, of Toronto. These awards were not presented in the privacy of the Council Chamber but *coram publico*, with all the ceremonial that befitted the occasion.

Thanks to Sir Alfred, the feast of surgical instruction for the postgraduate from London and elsewhere was prolonged for another ten days. The brilliance of the Congress week was followed by a series of lectures by masters of their craft, and the seating accommodation of the bombed College of Surgeons was strained far beyond capacity: on the Friday twelve hundred surgeons tried to gain admittance to hear Alfred Blalock, who saved the situation by giving a "repeat performance." The other lecturers were received with equal enthusiasm: Arthur Allen, Frank Lahey, Edward Gallie, Evarts Graham, Hassan Ibrahim, and Harold Wookey.

The Royal College of Surgeons, under the inspiration of its President, is fast becoming for surgical postgraduate

teaching and research a European centre of the first magnitude, and we look forward to seeing the events of the past fortnight recorded in the College's new journal.

### LAST YEAR'S HEALTH

The Social Survey in an investigation recently reported<sup>1</sup> found that the improvement noted in 1945 in the incidence of sickness was not maintained during 1946. The average monthly rate for minor sickness in both males and females was considerably above the rate for 1945 and slightly in excess of the 1944 rate. The incidence of more serious illness among males aged 16-64 in 1946 was of the same order as that for 1945; the rate for females showed a slight rise over the 1945 value. The rates for both sexes, however, were below the 1944 figures. The average number of serious illnesses among men aged 65 and over was slightly in excess of the number recorded in 1945; older women had an excess of 71%. The morbidity rate during 1946 for all forms of sickness at ages 16-64 declined from 7.5 per 100 persons in January to about 3.3 in the summer, and increased again to 6.0 in December. For females a larger average number of minor sicknesses was recorded than for males, but there was little difference between the sexes in the incidence of serious illness.

Attacks of influenza or colds were most common and were approximately twice as numerous in the age group 16-64 as in the over 65 group. A consistent excess of sickness from colds, influenza, and respiratory diseases occurred in the last three quarters of 1946 as compared with 1944 and 1945. Attacks of rheumatism also increased during 1946 among both sexes at all ages. Females aged 16-64 had a slightly larger average number of attacks of rheumatism than the males, but the latter were more incapacitated (7 days per 100 men, compared with 4 days per 100 women). In older people the average number of days of incapacity was more than double the number at ages 16-64.

There was no significant change during 1946 in the reported incidence of conditions thought to be of nervous origin. For the "psychoneurosis" group the monthly rates varied from 13.2 to 17.0 at ages 16-64; the rates for the older people followed a similar trend. The rate for functional digestive disorders varied from 7.7 to 10.3 for persons aged 16-64; older persons had a higher incidence. About one out of every three persons interviewed mentioned one of the "nervous" conditions as a cause of sickness.

The findings of the Social Survey confirm the experience of general practitioners that during last year minor ailments were on the increase. It will be of interest to learn what 1947 has to show. After the stresses and strains of a long war an increase in illness is hardly surprising, and it is unprofitable to attribute such increase to shortage of foodstuffs and other commodities. In comparison with any other country we can justifiably claim that what we have we share equally. But the sense of war-strain persists, and so long as it persists its effects will continue to be felt.

The Harveian Oration entitled "Our Founders and Benefactors" will be delivered by Dr. C. E. Lakin before the Royal College of Physicians of London (Pall Mall East, S.W.) on St. Luke's Day (Saturday, Oct. 18), at 3 p.m.

<sup>5</sup> Ibid., 1946, 7, 607.

<sup>6</sup> *Lancet*, 1947, 2, 84.

<sup>1</sup> *Monthly Bulletin of the Ministry of Health and the Public Health Laboratory Service*, 1947, 6, 123.

## DUODENAL ULCER

## DR. A. W. ALLEN'S MOYNIHAN LECTURE

At the Royal College of Surgeons on Sept. 22, as was briefly reported last week (p. 505), Dr. Arthur W. Allen, of Harvard, President of the American College of Surgeons, delivered the Moynihan Lecture, taking as his subject "Duodenal Ulcer."

Dr. Allen began by saying he had not chosen duodenal ulcer as a subject because of the pioneer work done by Moynihan, in whose memory the lecture was founded, for Moynihan, though he carried out important work in this field, had many other interests. He had chosen it because the subject was still in a fluid state. Ideas were constantly changing. No sooner did there seem to be an answer, or a probable answer, to some problem than doubt arose owing to the appearance of apparently contradictory results. Perhaps 10% of patients failed to get along under conservative treatment and came into the hands of surgeons who, after years of trial and error, thought that they had hit upon the solution in subtotal gastric resection. Although it was obvious that this operation was giving a high proportion of good results—a higher proportion than any other method

heretofore advanced—he himself began to have misgivings a few years ago. Some patients were not improved after the procedure, and there were a few who seemed to have been made worse. In an analysis of the gastrectomies he had carried out for uncomplicated duodenal ulcer it was obvious that a certain number of the patients had side effects which were perhaps worse than their original malady. Physiologists were continually looking for an explanation of this wayward situation arising in one patient when the previous nine and the following nine had

no trouble whatever, and they had turned to the question of hyper-secretion and hyper-acidity, without which ulcer of the duodenum did not occur.

In Dr. Phemister's clinic in Chicago, Dragstedt had brought forward the possibility of treatment of duodenal ulcer by interruption of the vagus nerve. He (Dr. Allen) had a group of his own patients who had been treated by subtotal gastrectomy and had been the subject of a follow-up extending over ten years. In his hospital there was also a group of patients who had been treated by vagus resection with a follow-up extending, however, over a much shorter period (about four years). It was his intention to show comparatively the results obtained in these two groups.

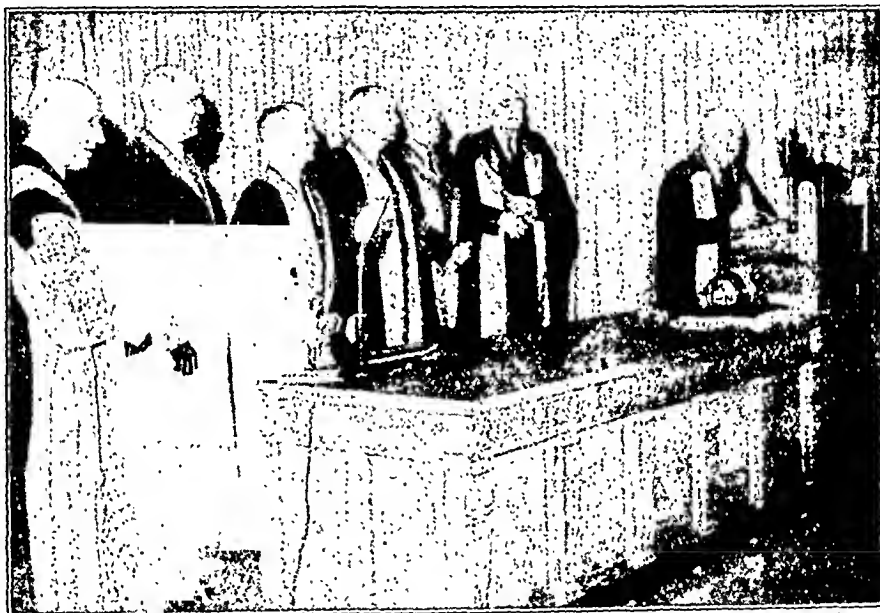
## Subtotal Gastrectomy

In the first place Dr. Allen with the aid of diagrams described the operation of subtotal gastrectomy for duodenal ulcer, with certain modifications to meet particular types of cases. The first procedure, which had been followed in the great majority of his own cases, was primary resection with removal of the ulcer-bearing portion of the duodenum. The second was one which he had found useful on occasion for any deep-lying ulcer

with adhesions; it was followed in cases in which there was a sufficient amount of free duodenum above the ulcer so that the resection could be done, the ulcer excluded, and nothing left which might produce a recurrence. A third possibility related to patients with very extensive ulceration or adhesions, who might perhaps have had a perforation previously, and on whom it was necessary to operate for mechanical reasons. Here a procedure was resorted to whereby the antrum was cul, the mucosa of the antral segment carefully removed, and the segment turned in. The fourth type of procedure was adopted in certain difficult cases when a two-stage operation seemed to be justifiable. Gastrectomy for exclusion was done, but no attempt was made at the time to remove the antral mucosa. Six weeks later, however, another operation was done on the patient for this purpose. The idea was that this made the operation a safe one for the general surgeon who was not carrying out gastric surgery regularly, and that the safeguard of a two-stage operation would mean a lower mortality and fewer complications. This operation had been undertaken quite extensively at the Massachusetts General Hospital, but he had seldom found it necessary in his own practice.

An analysis of his 196 consecutive operations on patients with uncomplicated duodenal ulcer, carried out according to the four procedures set out above, is given in the table below.

The mortality was mostly due to difficulty with the duodenal stump, because resection had to be done so low that there was no room to get an adequate turn-up. He had excluded from this list, in order to get a true comparison with vagus resection, those cases which had previously been the subject of unsuccessful surgery and those in the acute stage of massive haemorrhage. On the matter of age, even elderly patients who were bleeding from a



[Topical Press]

Sir Alfred Webb-Johnson, P.R.C.S., Dr. Dallas B. Phemister, Dr. Frank H. Lahey, Dr. Irvin Abell, Dr. Everts A. Graham, and Dr. W. E. Gallie. Dr. Arthur W. Allen, P.A.C.S., is at the lectern, which with the oak table was presented as a gift from the American College of Surgeons to the Royal College of Surgeons of England.

duodenal ulcer, if operated on immediately they got over the shock, would show a very low mortality. Actually in twelve patients who were over 65 there was only one death. But, of course, it was a question how much should be ascribed to the particular procedure followed and how much to the generally heightened level of surgery. Surgery in every field was far safer than it was ten years ago. Mortality rates were coming down, and death after operation in the modern hospital was now a rarity.

	(1)	(2)	(3)	(4)	Total
Cases .. .. .	138	20	35	3	196
Deaths .. .. .	3	1	0	0	4

## Vagus Resection

Dr. Allen proceeded to show further diagrams illustrating how the section of the vagus should and should not be done. A possible error was inadequate removal of the nerve. The procedure which should be followed was the removal of a 10 cm. segment, not less than 5 cm., preferably 10 cm., of the vagus nerve, and the encapsulation of the upper end in an impermeable cylinder in the hope that this might delay regeneration. All the cases at his own hospital had been operated on in

that way. They did not complicate their cases with gastroenterostomies. They had not carried out this operation for gastric ulcer for the very obvious reason that they were not able to determine whether the ulcer was benign; 14% of the cases diagnosed as benign ulcer of the stomach proved to be cancerous. Therefore vagus resection had no place in the surgery of gastric ulcer.

The statistics from his hospital for vagus resections carried out from 1944 to 1947 were as follows:

	Number of Cases.	Deaths
Duodenal ulcer .. ..	75	0
Jejunal ulcer .. ..	22	0
Miscellaneous .. ..	6	1

The 75 cases were of uncomplicated duodenal ulcer. The patients had undergone various forms of medical treatment. Most of them had been through the hands of the psychiatrist. Finally, when it became obvious that nothing could be done by those means, they were chosen for this surgical procedure because they had no obstruction at the outlet of the stomach or in the duodenum, and most of them were young. Twenty-two cases were operated on for anastomotic ulcer. These were the type of cases in which the procedure he had indicated had its most spectacular effect. This group of anastomotic ulcers could be relieved certainly temporarily by this method, and it was startling to see them awakened from anaesthesia free from pain for the first time for months. He added that the nerves should be injected with novocain before they were severed or manipulated, and the patients should receive large doses of atropine. He showed a radiograph illustrating the appearance twelve days after resection in a case in which there had been a good-sized jejunal ulcer, and many such results could be shown. There had been almost no trouble from empyema and complications of that kind. He also showed a curve illustrating the effect which the vogue of vagus resection had had upon the number of private patients coming to him and being treated by subtotal gastrectomy. The curve showed a certain fall during the years in which vagus resection had come into favour, but he added that they were not quite so enthusiastic now about vagus resection as they were at the beginning.

#### The Methods Compared

Dr. Allen next showed the result of a follow-up extending back for ten years in the cases of subtotal gastrectomy and four years in the cases of vagus resection.

	Subtotal Gastrectomy	Vagus Resection
Number of cases .. ..	196	75
Average age .. ..	47.4	42.1
Males .. ..	84%	84%
Recurrent ulcer .. ..	34%	14%
Good result .. ..	85%	87%
Fair result .. ..	7%	6%
Poor result .. ..	8%	7%
Operative mortality .. ..	2%	Nil

These were all cases of primary duodenal ulcer. In his own group of subtotal gastrectomies he was ready to claim that 85% showed satisfactory results. Many of the patients had to be questioned very closely to get much in the way of symptoms out of them. The results described as "fair" were those in which the patient was not quite well, was subject to restrictions in diet, and, if not actually showing loss of weight, had to be the subject of considerable attention in order to maintain weight.

The drawbacks attaching to subtotal gastrectomy for duodenal ulcer were a certain though very small operative mortality, a number of cases of anastomotic ulcer, a few cases of gastritis with bleeding, the exhibition occasionally of the "dumping syndrome" (in which there were distress, sweating, and sometimes nausea after eating—but most patients got over it), a certain amount of weight loss which was a problem with some of the older patients, and a gastro-intestinal reflex indicated by loose stools and the like.

Vagus resection had also the drawback of occasional recurrent ulcers. It was hard to say after what period recurrences were no longer to be expected. In his hospital, for example,

one-third of the anastomotic ulcers which followed operation occurred within the first year, another third within the second year, but the remaining third were spread over a period of many years. Therefore it was difficult to use the term "end result," and perhaps it should never be used in a situation of this kind. Two of the patients who had undergone vagus resection had persistent ulcer pain after the operation as well as before it; some had pain and bleeding; others had a feeling of distension; eructations were almost the rule, though this was usually transient, and diarrhoea and slight obstruction were not infrequent.

#### Conclusions

This entire problem should be viewed with an open mind. Vagus resection was a useful procedure and might have a permanent place in the treatment of duodenal ulcer. But unless the results were critically analysed, not only of vagus resection but of subtotal gastrectomy, their colleagues who had not the opportunity of following up a group of cases over a sufficient period would be misled. Either an adequate subtotal gastrectomy or vagus resection would give a high incidence of immediate relief in intractable duodenal ulcer. Vagus resection was the procedure of choice in anastomotic ulcer following upon subtotal gastrectomy. It was also to be recommended in intractable duodenal ulcer in younger patients. Vagus resection had no place in the treatment of gastric ulcer on account of the difficulty of distinguishing benign from malignant ulceration of the stomach, and because of the excellent results and low mortality obtained by gastric resection in gastric ulcer. In vagus resection the transthoracic approach was the most adaptable for an interruption of the efferent pathway. Obviously many years of experience and careful selection of patients and adequate follow-up would be necessary properly to evaluate vagus resection. Subtotal gastrectomy was, in his opinion, to be preferred for all patients who had superficial obstruction from duodenal ulcer, for those with acute massive bleeding when any operation was indicated, and for those with intractable ulcer in the later age groups.

(See also an annotation on this subject at p. 538.)

## INTERNATIONAL SOCIETY OF SURGERY

### VISIT TO EDINBURGH

Following the Twelfth Congress of the International Society of Surgery in London, about 160 members of the Society visited Edinburgh from Sept. 23 to 26. A comprehensive and detailed programme arranged by the Department of Surgery of the University of Edinburgh included a wide choice of operating sessions at many of the voluntary and municipal hospitals in the city, and special demonstrations at the University departments of surgery and anatomy. The library and museum of the Royal College of Surgeons of Edinburgh were also open to members of the Society throughout their visit. On Tuesday morning Prof. J. R. Learmonth extended a cordial welcome to the visitors. Later a number of members were present as guests of His Majesty's Government at lunch in the Caledonian Hotel, under the chairmanship of the Rt. Hon. Joseph Westwood, M.P., Secretary of State for Scotland. In the afternoon the scientific sessions began.

#### Treatment of Thyrotoxicosis

Prof. D. M. Dunlop presented a study of 76 consecutive cases of thyrotoxicosis treated with thiouracil over periods varying from one to three and a half years. The initial dosage was 0.6 g. daily, for three to four weeks, followed by maintenance doses of 0.05 to 0.2 g. daily. Overdosage caused myxoedema and increase in the size of the goitre. The results in 66 of the cases were comparable to those following successful thyroidectomy. Drug resistance was encountered in 4 cases and required thyroidectomy, which was also performed with good results in 5 out of 6 cases showing toxic reactions to the drug. Of 43 patients in whom treatment was stopped after about a year, 13 had remained free of symptoms for one to three years. The other 30 had relapsed at varying periods after stopping the

drug, but further treatment had again controlled them. Thiouracil was the treatment of choice in young people with primary thyrotoxicosis, excluding those with sternal goitre, pressure symptoms, or possible malignancy.

Mr. K. Paterson Brown said that since the introduction of thiouracil the number of thyroidectomies performed in Edinburgh had been markedly reduced. In pre-operative preparation the ideal was thiouracil for a month followed by iodine for ten days. Among the indications for operation in primary toxic goitre were non-control of symptoms by thiouracil, increasing size of the thyroid and pressure symptoms, the desire of the patient for operation, and complications produced by thiouracil treatment. In secondary toxic goitre operative treatment was considered preferable, as pressure symptoms were often present, there was lessened danger of later cardiac breakdown, and there was the possibility of malignant change developing. Complications of surgical treatment were uncommon, but the danger of post-operative haemorrhage was stressed.

#### Treatment of Haemorrhagic Diseases

In a symposium on this subject the medical aspects were presented by Prof. L. S. P. Davidson and his associates, and the surgical aspects by Prof. J. R. Learmonth.

**Thrombocytopenic Purpura.**—The essential features of the idiopathic type consisted of a bleeding tendency, associated with a low platelet count, a prolonged bleeding-time, increased capillary fragility, and an increase of megakaryocytes in the bone marrow. The indications for splenectomy were: chronic cases in which the bleeding tendency interfered with social or economic efficiency because of anaemia, or endangered life; acute cases in which conservative treatment failed to control bleeding; and cases with evidence of intracranial haemorrhage. The operation should not be performed on a child until medical treatment had been given a thorough trial, or when the condition was not idiopathic, or when there was evidence of spontaneous remission. In 10 cases submitted to splenectomy the clinical results were good, even where a prolonged bleeding time, a low platelet count, or increased capillary fragility recurred.

**Haemolytic Anaemia.**—The essential features were a persistent or recurrent anaemia with increased or normal red cell fragility, increased reticulocyte count, normal colour index, normoblastic bone marrow, and, frequently, microspherocytosis. The spleen was moderately enlarged, and haemolytic crises might occur. Indications for operation were the occurrence of symptoms in childhood, the formation of biliary stones, the recurrence of a crisis, or failure of a crisis to respond to blood transfusion. Of 7 patients who underwent splenectomy 6 now showed no evidence of anaemia.

**Banti's Syndrome.**—This might be due to intrahepatic (cirrhosis) or to extrahepatic (obstruction in the portal or splenic veins) causes. Cases might be subdivided into those suitable for medical treatment (mild cases without oesophageal varices); those suitable for splenectomy, where the block was in the splenic vein; those suitable for ilio-renal or porto-caval anastomosis, where the block was in the portal vein or in a liver only moderately damaged; and those not suitable for operation—cases of advanced cirrhosis with impending death from hepatic failure. Insufficient time had elapsed to assess the results in the 7 cases which survived operation.

**Doubtful Cases.**—There was a group of cases refractory to liver and iron therapy which might simulate haemolytic anaemia in that the colour index was about unity, the marrow hyperplastic and normoblastic, and the reticulocytes slightly increased. Cases of hyper-splenism had been described in which the spleen was believed to prevent the final maturation or expulsion of red cells from the marrow. For this reason splenectomy was justifiable in this group when all other measures had failed.

#### Carcinoma of the Breast

Dr. R. McWhirter presented a paper based on the study of 2,500 cases of carcinoma of the breast carefully followed up (with only 6 untraced). In a series of 364 cases of operable breast cancer treated by radical surgery alone, 39% developed recurrences in the operation area within five years. Radiotherapy after radical operation reduced this figure to 14% but

only succeeded in raising the five-year survival rate from 35.6% to 44%. In 1941 it was decided that the operation should be restricted to simple excision of the breast and that the axilla should not be dissected. By so doing it was hoped that cells would not be disseminated outside the area which could be treated by radiotherapy. In the period 1941–5, this method was used in 942 operable cases and the five-year survival rate had been raised to 56%. In "inoperable" cases treatment by radical surgery and radiotherapy gave a five-year survival rate of 2.5%, which by simple mastectomy and radiotherapy had been increased to 14.1%. When cases with clear clinical or radiological evidence of distant metastases were excluded, the five-year survival rate in the "inoperable" group treated by simple mastectomy and radiotherapy was 24.6%, and perhaps this figure brought out more clearly the value of the method now in use. In 1,146 cases of breast cancer without clinical or radiological evidence of distant metastases treated in the period 1941–5 the first-year survival rate was 50.1%. In the operation of simple mastectomy performed before radiotherapy no iodine should be applied to the skin and no adhesive plaster used, a both lowered the skin tolerance. The scar should be as short as possible, and not extended into the epigastrium. To avoid tension too much skin should not be excised even if this meant leaving diseased skin for later irradiation. The axilla should not be dissected. (In very stout patients radical operation might be necessary owing to the technical difficulty of x-ray treatment.) The supraclavicular glands should never be removed as they were very accessible to irradiation. In the subsequent radiotherapy only one full course should be given, about two weeks after operation. The axillary and supraclavicular glands were treated as one chain, and the chest wall was treated in large tangential fields. Routine irradiation of the ovaries in all patients over 35 years was advocated.

#### Curare in Anaesthesia

Dr. John Gillies, in an assessment of the value of *d*-tubocurarine chloride as an adjuvant in anaesthesia, gave a brief historical survey from the description by Sir Walter Raleigh in 1595 of the use of curare as an arrow poison by the Orinoco Indians to the isolation of the pure alkaloid by Harold King in 1935. The mode of action was by preventing acetylcholine from acting on the nerve-muscle junction in the motor end-plate, thus producing paralysis of striped muscle. The drug was partially destroyed by the liver and excreted by the kidneys. He compared 100 consecutive personal cases in which *d*-tubocurarine was used with the same number in which it had not been employed. The advantages of the drug were in the quality of relaxation, particularly in difficult upper abdominal surgery, and the reduction of toxic effects due to the saturation of tissue cells by the general anaesthetic, particularly in ill patients. The dangers were "paralytic" apnoea, inadequate CO<sub>2</sub> clearance, and anoxia; secondary circulatory effects; bronchospasm and atelectasis; and passive reflux of gastro-intestinal contents and their aspiration. The incidence of serious post-operative respiratory complications was decreased by the use of curare.

#### Peptic Ulceration

Prof. C. F. W. Illingworth, discussing the prospects of treatment in peptic ulcer, stated that subtotal gastrectomy was not uniformly effective. The mortality was still too high, and careful follow-up studies showed poor results in a proportion of cases. The great and increasing frequency of peptic ulcer (there were nearly a million cases in Great Britain), emphasized the need for a wider approach to the problem, including the medical, surgical, social, and psychological aspects. Essentially the three main principles underlying treatment were: to control the acidity of the gastric juice, to protect the mucous membrane from its activity, and to put the ulcerated part at rest. Vagotomy might be expected to reduce the hypersecretion and diminish gastric motility; but experience with the sub-diaphragmatic operation had been disappointing, and it remained to be seen if the supra-diaphragmatic method would prove more successful. There seemed to be scope for exploration of the effects of drugs which paralysed the parasympathetic endings and for the use of anti-histamine substances. The importance of after-care was stressed.

Mr. W. Quarry Wood, describing the treatment of peptic ulcer by ligation of the gastric blood vessels, reviewed a personal series of 42 cases treated by T. Howard Somervell's method of ligation of four-fifths or five-sixths of the gastric blood vessels, with the addition of gastro-enterostomy. First impressions were reasonably satisfactory, with in most cases a return to full work and considerable gain in weight. But three cases developing stomal ulceration and coming to subsequent operation showed the development of fresh vessels on the lesser curvature. It was also found that there was no permanent reduction of acidity. No criticism of Wilson Hey's method was implied, as this was fundamentally different in principle.

Mr. A. G. Ross Lowdon discussed the surgical treatment of 15 cases of gastro-jejuno-colic fistula—which might develop at any time up to twenty years or more after gastro-jejunostomy. The symptoms were characteristic, with severe diarrhoea (due to jejunitis caused by the contents of the colon entering the small intestine), cructations of foul gas, vomiting of faecal matter, and wasting. Treatment was by a two-stage operation, preferably a proximal transverse colostomy followed by partial gastrectomy with reconstitution of the jejunum and transverse colon.

#### Other Contributions

Mr. David Band discussed the restoration of vesical continence and the rehabilitation of patients suffering from spinal cord injuries. Treatment by resection of the hypertrophic muscle at the bladder neck to provide a wide channel from the bladder to the prostatic urethra, and by tidal lavage against an increasing pressure to increase bladder capacity to approximately normal, had resulted in a restoration of normal evacuation of the bladder, with complete continence between acts of micturition.

Mr. D. M. Douglas, describing two experiments in the study of the rhythmic activity of the small intestine in the dog, deduced evidence to suggest that there was a pace-making mechanism in the upper part of the small intestine.

Mr. A. J. Slessor, in a review of 22 cases of causalgia, defined as a "spontaneous severe pain of 'burning' character situated approximately in the sensory territory of a nerve which has been injured," described the immediate results of sympathectomy as satisfactory, and stated that the beneficial effect of sympathectomy lasted over a period of at least three years.

Prof. W. C. Wilson described the study of 30 cases of severe peritonitis, of which 12 were fatal, by serial estimations of plasma and blood volume, total circulating protein, albumin, and haemoglobin. The usual changes were a reduction of plasma volume to a level as low as 60% of normal, a parallel reduction of total circulating protein, and a disproportionately great reduction of total circulating albumin. These changes were mainly due to the exudation of whole plasma into the peritoneal cavity.

Mr. T. McW. Millar, referring to tumours of the recto-sigmoid region which were too low for resection and end-to-end intra-peritoneal anastomosis, or for the Paul-Mikulicz operation, presented the argument for adoption in selected cases of anterior resection with immediate end-to-end anastomosis, with or without preliminary colostomy, and discussed the problems involved. The standard method of treatment by the abdomino-perineal operation of Miles left the patient with a permanent colostomy. He asked, Was the sacrifice of the lower rectum and anus necessary?

Mr. A. W. Wilkinson presented a study of protein metabolism after gastrectomy and after operations on bones. Protein hydrolysates were given by the oral and intravenous routes. Oral hydrolysates had proved of limited value before operation, and after operation they were undesirable. Post-operative intravenous hydrolysates were given without adverse reaction, but it was found impossible to abolish the katabolic phase.

Prof. J. R. Learmonth in a succinct paper summarized the pathology and the possibilities of surgical treatment in the relief of portal hypertension.

#### Close of Meetings

When the final paper had been presented the visiting surgeons and their ladies assembled in the surgery lecture theatre to hear messages of good will and farewell from Edinburgh's senior professional and civic representatives. Sir John Fraser, Principal

of Edinburgh University, said that the value of such a congress could not be overestimated. Scotland had its own individuality and culture, with particular pride in its medical institutions and historic figures, and he felt that what had been presented by Prof. Learmonth and his colleagues suggested that the days to come would be no less distinguished than those which had gone before.

Sir George Anderson, Secretary to the Department of Health for Scotland, said that they had watched the congress with great interest, and had been proud to see its success and to hear the many tributes to the way it had been organized. Mr. J. M. Graham, President of the Royal College of Surgeons of Edinburgh, in saying farewell, said how much they had appreciated meeting and exchanging views with surgeons from other parts of the world, and asked that the younger surgeons should be encouraged to exchange visits, as it was on the younger men that the future of surgery depended.

Sir John Falconer, Lord Provost of Edinburgh, hoped that the visitors had sensed a real welcome in Edinburgh. Dr. L. Dejardin (Brussels), Secretary General of the International Society of Surgery, thanked the speakers on behalf of the visiting members of the Society for their good wishes, and expressed appreciation for all that had been done to entertain and instruct them, saying that the meeting would remain in their memories as a model of perfect organization.

#### Receptions

In addition to the scientific programme very full arrangements were made for the entertainment of the guests, both at public functions and by private hospitality, with whole-day tours of the Trossachs and the Scott country. On Tuesday evening a reception was held in the Surgeons' Hall by the President and Council of the Royal College of Surgeons of Edinburgh, at which the Diploma of Honorary Fellowship of the College was conferred on Prof. Jean Verhoogen, of Brussels, President of the International Committee of the Society of Surgery. In presenting him for the honour, Prof. R. W. Johnstone, vice-president of the College, referred to Prof. Verhoogen as the beloved doyen of surgery in Belgium, who throughout a long life spent in the practice of surgery had devoted himself to the highest service of his profession.

On Wednesday afternoon the visitors were received by Lord Provost Sir John Falconer and the Magistrates and Councillors of the City of Edinburgh at the City Chambers, where they were entertained to tea, followed by a spirited display of Highland dancing and piping by the Edinburgh Police pipe band.

In the fine spacious library of the University Old College, members of the Society were welcomed on Thursday evening by Prof. Sydney Smith, Dean of the Faculty of Medicine. Sir John Fraser, Principal of the University, who was unable to attend owing to illness, sent a message of welcome, to which Prof. Sydney Smith added his good wishes and a plea for the free exchange of scientific knowledge. In reply Prof. Verhoogen expressed the appreciation of the Society for the invitation to visit Edinburgh, and for all that had been done for their enjoyment.

#### ROYAL SHEFFIELD INFIRMARY

##### 150th ANNIVERSARY

The Sheffield General Infirmary was opened on Oct. 4, 1797. The occasion was marked by a truly "Grand Procession," headed by "Two Trumpeters, on white Horses, dressed in white," and ending up with the "Masters, Wardens, Assistants, and Members of those most useful Institutions the Benefited Societies, or Sick Clubs, as they are commonly called, preceded by different coloured Silk Flags." In the evening there was a dinner—"Ordinary and Extraordinary"—at the Angel Inn, for which the tickets were 7s. 6d. each.

The opening ceremony 150 years ago marked the fulfilment of a suggestion made eight years previously by Dr. William Younge (1762-1838). Dr. Younge was the son of a noted Sheffield physician. He took his medical training in Edinburgh and returned to his native town at the age of 25 "full of ability, energy, and large-heartedness." After two years in practice he



was so impressed by the need for hospital accommodation in the city that he wrote a pamphlet on the subject, signed it "X," and had 300 copies printed and distributed. One lady, a Mrs. Fell, was moved to give £1,000 towards the project, but it was three years before a town meeting was called "to inquire into the propriety of establishing an infirmary." Then it is possible that the apathy would not have been overcome but for the announcement of Mrs. Fell's gift. Supporting Dr. Younge in his campaign to get a hospital set up was Dr. John Browne (1740-1810). When Dr. Browne died the whole town went into public mourning.

One method of raising money for the hospital in the early days was to give benefit performances at the theatre. That on Monday, Nov. 27, 1797, must certainly have attracted the people, for the programme included "The Wonder"—a cryptic title which was explained by the subtitle, "A Woman Keeps a Secret."

Among those connected with the infirmary during the 19th century was Dr. Meriano Martin de Bartolome, who was President of the British Medical Association when it met in Sheffield in 1876. He was a native of Segovia and came of an old Castilian family. He moved to Sheffield after his marriage to a Sheffield lady and went to Edinburgh to study medicine. His successor as president of the medical school in Sheffield, Mr. William Fisher Favell, also took a prominent part in the B.M.A. Annual Meeting in Sheffield in 1876; his uncle had been President of the Association when it met there in 1845.

With the growth of specialist services in the infirmary an eye ward was set aside in 1823; the ophthalmic department was enlarged and a specialist appointed in 1877. In 1870 arrangements were made for the isolation of "contagious diseases and offensive surgical cases." In 1924 more beds were added for the ear, nose, and throat departments and the dermatological clinics.

The Sheffield General Infirmary acquired the title of Royal in 1895. It has naturally been associated with medical teaching in the city. In 1832 the existence of two medical schools led to the foundation of a rival hospital. One of the medical schools came to an abrupt end in 1835, when it was sacked and burnt by an anti-resurrectionist mob. The two hospitals were not united until 1939, when by Act of Parliament the Royal Infirmary and the Sheffield Royal Hospital became one corporation "to be called the Royal Sheffield Infirmary and Hospital."

## FUTURE OF VOLUNTARY HEALTH INSURANCE

As a result of the transference to the Ministry of National Insurance of the administration of cash sickness benefits and the establishment of a National Health Service under the Ministry of Health providing comprehensive medical service for the entire population, the voluntary health insurance movement in this country, as represented by the approved societies, is facing the most serious problem in its history. It is evident that the area left to voluntary health insurance will be narrow, and that many plans which had been established for the benefit of the low-income groups not covered hitherto by a compulsory system will have to be abandoned. The cutting off of the State insurance side of friendly society administration will mean a great reduction of income, estimated at approaching £2,000,000 per annum, not entirely met by the relief from liabilities, and many of the societies will also be faced with difficulties owing to the transference of some of their experienced officers to the national administration. According to a return, which is incomplete, made to the Conference of Friendly Societies at Margate in September, the voluntary insurance membership at the end of 1946 was 6,465,808, and the membership on the State insurance side 6,742,719.

A long and well-informed article on voluntary health insurance in Western Europe, which occupies the greater part of one of the recent *Public Health Reports* of the United States Public Health Service,<sup>1</sup> enables a comparison to be made between the position in Britain and in five other countries—France, Belgium, Sweden, Denmark, and the Netherlands. In all these countries voluntary health insurance originated

with the mediaeval guilds, and as these guilds passed out of existence the members of the community formed self-governing societies to provide sickness benefits as well as other types of mutual assistance. The friendly societies in Great Britain were the first to be encouraged in their development by the Government—this took place at the end of the 18th century—and were offered legal status and exemption from various types of taxes. During the 19th century a similar development took place in all the other countries. Down to the outbreak of the recent war the history of these societies was marked by increasing membership, the formation of larger units, widening scope of medical benefits, increased public supervision and control, increased availability for actuarial purposes of significant information on the incidence and duration of sickness, and, in Great Britain and the Netherlands, the emergence and expansion of special voluntary plans for medical and hospital services and home nursing. Denmark was the only country in which health insurance provided medical and hospital benefits for nearly all persons in the population.

The same development of social security programmes as Great Britain has seen since the war has taken place in one form or another in other countries. Denmark continues to administer its health insurance through approved mutual benefit societies. Sweden and Belgium retain the societies to administer their compulsory national health insurance systems. The Netherlands in its compulsory programme retains separate agencies for sickness and medical benefits, but the medical benefits are still administered through approved societies. France has created provincial and regional quasi-Government agencies to administer health insurance and other benefits within designated areas. In Great Britain, as already stated, approved societies will no longer participate in the national programme, and consequently considerable changes may be expected in the type of benefits the societies continue to offer through voluntary health insurance. Some of the smaller societies may be absorbed, some of the schemes be federated or consolidated. An idea has been put forward for the national amalgamation of provident schemes and similar plans to serve that section of the community which will prefer to make its own arrangements for hospital and other medical services. The spirit of the friendly societies is not easily broken, and intensive planning is taking place to meet a situation which the societies have accepted only under protest and with a feeling that their contribution to this field of endeavour, extending in the case of some of them—the Manchester Unity, for instance, and the Ancient Order of Foresters—for well over a century, has had scant reward from a Government which might have been expected to have treated them differently.

## TRAVELLING FELLOWSHIPS IN MEDICINE

The Medical Research Council announces that it has awarded Rockefeller Medical Fellowships to the following for the academic year 1947-8: Kenneth Robson Hill, M.D., Lecturer in Pathology, King's College Medical School, University of Durham, and assistant pathologist, Royal Victoria Infirmary, Newcastle-upon-Tyne; John Ivor Pulsford James, M.S., F.R.C.S., honorary assistant surgeon, Royal National Orthopaedic Hospital, London; Hamish Nisbet Munro, M.B., Ch.B., senior lecturer in physiological chemistry, University of Glasgow; John Eric Richardson, M.S., F.R.C.S., surgical first assistant, London Hospital; Harold Scarborough, Ph.D., M.B., Ch.B., Beit Memorial Research Fellow, Medical Unit, St. Mary's Hospital, London; Sheila Patricia Violet Shrock, M.D., Beit Memorial Research Fellow and assistant lecturer, Department of Medicine, British Postgraduate Medical School, London; Honor Vivian Smith, M.B., B.S., research assistant, Departments of Neurosurgery and Neurology, Radcliffe Infirmary, Oxford.

The Council has also awarded Dorothy Temple Cross Research Fellowships in Tuberculosis to the following: Alfred Gordon Heppleston, M.B., Ch.B., assistant lecturer in pathology, Welsh School of Medicine, Cardiff; Doreen Nightingale, M.S., F.R.C.S., first assistant, Surgical Unit, University College Hospital, London; John Robertson Sinton, M.B., B.S., late medical first assistant, London Hospital Annex, Brentwood.

<sup>1</sup> *Public Health Report of the U.S. Public Health Service, 1947, 62, 733.*

## Correspondence

### The G.M.C. and Medical Education

SIR,—Sir Herbert Eason's helpful exposition on the functions of the General Medical Council (Sept. 6, p. 359) provides much food for reflection on a topical subject—medical education. To enable persons requiring medical aid to distinguish qualified from unqualified practitioners is the duty of the G.M.C. Does it not fail, virtually, in this primary object by leaving the British public at the mercy of rampant quackery in the form of ubiquitous and alluring advertisements of articles alleged to provide health or cures of disease? Furthermore, the public (and G.P.s) also lack any sure guide to enable them to distinguish the genuine and spurious specialist within the profession. The definition of a "specialist" is long overdue. Professional efficiency and the public weal will be served by restricting the title to one with a *guaranteed* minimum special ability in his section of healing.

*The Education of the General Practitioner.*—Under this heading the President alludes to three principles which prevent the Council, he says, following the lead of the Goodenough report. The interpretation of these principles seems open to question. "The Council must deal with things as they are"—i.e., a C3 nation. Granted this, we must begin at the root of the health problem—the student's curriculum—and surely the situation calls for drastic changes like those in the Goodenough report. It wants to "avoid completing after qualification incomplete instruction given before qualification." This ideal is well served by simplifying the instruction so that its inculcation in a complete form is practicable. Thirdly, the Council holds that instruction in the essentials must be adequate before the final examination. Yet to subjects of the curriculum it is recommended that new ones now be added. Since the total time is not increased, this means that something must be discarded of what was formerly regarded as essential, in order to make place for the new. The Council's judgment of essentials is shown to be changeable and open to argument.

*A New Concept of the G.P.*—With doubts about the effective safeguarding of the people's health it is well to review the Council's proviso regarding "things as they are" and their remedy. The G.P. is still, when health troubles arise, the beacon light on life's journey. More than ever there is room for this "guide, philosopher, and friend," but the time has come for an entirely new concept of his role in the body politic. The old legend on the brass plate of "Physician and Surgeon" is purely historical. Not only do medicine and surgery, but each of many further subdivisions, now call for separate devotees—the *specialists*—making ever sharper the contrast with the *general practitioner*. Of our growing medical knowledge a specialist knows more and more about less and less. The G.P. must know inevitably less and less about more and more; he alone maintains responsibility for the whole patient.

Think of the present preparation of the young doctor who has to assume this responsibility. His spirit as a student, confronted with mountains of medical science (of which little plays any part in daily practice), is apt to be cowed. He only learns the bulk of medical facts in order to get through examinations, and inevitably forgets it a few months after. What humbug still to inflict what has become so detailed and specialized in anatomy, physiology, pathology, forensic medicine, and the rarer diseases of medicine, operative surgery, and so forth. The student of humanity needs mainly to handle patients, be confronted with the stark facts of necropsies, and feel that what is taught is not merely highbrow but repays thorough mastery. Instead of being an exhausted wreck with an inferiority complex he will, on qualifying, feel confident, alert, lively, and "ready for the fray," albeit conscious of his limitations and unashamedly ready to seek the aid of the specialist.

*Realism in Relation to Daily Practice.*—First, there are common ailments that mar the health of the majority. On the eradication of these he wants to be brilliantly informed, yet they are largely ignored by "things as they are" in the curriculum. I refer to poor physical tone, mental imbalance, dental decay (87% of our best young manhood which went to France in 1939 needed dental treatment, and 12% required dentures), dyspepsia, constipation, diagnosis of cancer, rheumatism, feet deformities, etc. Secondly, there are those disorders that assail the public with relative infrequency, the importance of which his training tends relatively to magnify. Most of these are amenable to domiciliary treatment, and he needs to be not only conversant with but to acquire full competence in this, his proper sphere of therapy. Why does the Council not insist on at least one year's assistance with a reputable G.P. before independent practice is allowed? In the other subsection of the occasional ills—those more formidable enemies of the race requiring

specialists—the G.P.'s vital role is early recognition or shrewd suspicion that something serious is afoot calling for timely dispatch of the patient to the fountain-head. His concern is the deviation from health, not the minutiae of pathology. Instead, with educational "things as they are," the keen student tends to become a general pseudo-specialist. Knowledge of what health is, understanding, sympathy, and tact come not from books but by constantly being concerned with patients. What a brilliant example of this clinical approach to sickness is supplied by Sir Heneage Ogilvie's article on the "Early Diagnosis of Cancer of the Oesophagus and Stomach" (Sept. 13, p. 405). How little details of pathology and treatment figure therein, but the address reeks of humanity.

Take rectal cancer. It comes late, having been treated for many months as piles or dysentery, etc. The students needs to be taught the paramount importance of putting a finger well up the rectum in every case—i.e., regardless of the complaint of or the presence of piles. Directly the parts feel unnatural he seeks the expert's opinion. And so with the slightest doubt in the breast, with haematuria, etc. Yesterday (Sept. 15) I found a cancer crater extending up into the rectum from the verge of an external pile mass. All the laconic note on the case sheet (Jan. 13, 1947) said was, "Haemorrhoids. for operation." Today a lady in the late 30s came with a few months' pain p.c., some vomiting, wasting, and bringing radiological evidence regarded as that of leather-bottle stomach. It had been put down as gastric cancer. Examination below had been deferred because of menstruation. I examined her and found a fixed, encircling growth of mid-rectum. Think of the "acute abdomen." Here the patient relies on the G.P. for an unerring sense of something surgical amiss to save fatal delay. Again, it is not so much details of pathology, but a definition of the threat of peritonitis, obstruction, haemorrhage, and so forth that the G.P. needs to recognize. Only several months' residence in hospital covers the necessary familiarity with this problem of daily practice.

The curriculum needs to be cleared of the masses of academic jargon and injected with more about the common roots of ill-different health. At the same time, by cutting the total curriculum down to 5 years, the doctor is early launched into assuming responsibility for his patients. It is then his ambition is fired and his energies readily mobilized. He quickly acquires practical knowledge safely as an assistant still under the eye of his seniors, spending one at least of the next three years with a reputable practitioner. "You can't get the terriers too soon at the rats," said Sir Robert Hutchison.—I am, etc.,

Bristol.

A. WILFRID ADAMS.

### Disseminated Sclerosis

SIR,—With reference to the annotation entitled "On the Track of Disseminated Sclerosis" (Sept. 20, p. 460), I feel the following facts should be placed on record. The incidence of four cases of disseminated sclerosis in a group of seven laboratory workers engaged in studying the aetiology of a disease in sheep is an event which must arouse sympathetic regret but cannot occasion surprise. What does surprise me is the statement of the writer of the annotation that "chance has now thrown up an entirely new approach to the problem. . . ." While I agree with the writer that this may "open the way to a complete understanding of the cause of disseminated sclerosis and perhaps to its prevention and even cure," I would like to point out that the previous literature on this specific subject is completely ignored.

In a communication to the Association of Physicians of Great Britain and Ireland (published in the *British Medical Journal*, 1927, 2, 13) I referred especially to the occupational incidence of disseminated sclerosis and placed particular emphasis on farming. I then indicated that this was a channel into which inquiry might profitably be directed. The unanimity with which I was attacked convinced me of the probable accuracy and truthfulness of my observation. In 1921, Dreyfus, H. (*Z. ges. Neurol. Psychiat.*, 1921, 73, 479, emphasized the fact that the disease predominates among country dwellers in his analysis of 1,151 cases, a statement which I confirmed from my own experience (*Glasg. med. J.*, 1923, 100, 297). Boyd's *Pathology of Internal Diseases* (4th edition, 1944, p. 774, Philadelphia) refers to these observations by Dreyfus and myself, and S. A. Kinier Wilson (*Neurology*, 1940, 1, 150, London) also records my observations on this subject. Under my direction clinical

investigation has been continued over a long period of years into various aspects of the problem, including particularly the occupational incidence of the disease, with special reference to farming. It is hoped that the results of this work on a series of 389 cases of disseminated sclerosis will shortly be embodied in a paper by a member of my staff.

Your annotation refers optimistically to the prospects of discovering the cause and prevention of this illness. At the moment I personally feel that the detection of the mode of transmission is the next most valuable step that could be made, and there is a reasonable prospect that we are approaching this state of knowledge. In 1923 I made the following statement (*Glasg. med. J.*, 1923, 100, 290): "A still further advance may then be hoped for in the detection of the mode of transmission and prevention of infection in the individual."

It cannot be assumed that the causal agent of disseminated sclerosis will produce pathological changes in the nervous system of susceptible animals identical with those found in the human subject. Equally it cannot be assumed that infection by the same agent will necessarily result in identical tissue reaction in animals of different species. As an example of this important general principle, the causative agent of "loupings ill" is known to produce a separate histological picture in sheep, pigs, and mice (Brownlee, A., and Wilson, D. R., *J. comp. Path.*, 1932, 45, 67). Past experience has shown that this is an essential difficulty in attempting to transmit disseminated sclerosis experimentally to animals.—I am, etc.,

Glasgow.

DOUGLAS K. ADAMS.

### Treatment of Varicose Veins

SIR,—Prof. A. M. Boyd and Mr. D. J. Robertson (Sept. 20, p. 452) discuss some of the causes of the unsatisfactory results in the treatment of varicose veins. They also illustrate their article with some very interesting phlebograms. With regard to the incidence of the condition, the authors state that 95% of patients attending civilian varicose vein clinics are women. This was certainly not the case when I had the vein clinic at St. Bartholomew's Hospital, where I found that approximately one-quarter of my cases were among men, and this figure was borne out by my private cases. I cannot agree with the suggestion that varicose veins seldom cause serious discomfort. The condition invariably develops very gradually and the patient gets used to the increasing heaviness in the limbs. Severe pain is certainly not a common feature, but the discomfort and disability are great and are aggravated by conditions which involve much standing. At the same time, the degree of discomfort is not necessarily related to the actual size or extent of the veins.

Recurrence of varicosities after treatment may mean a failure to obliterate all the incompetent veins; it may mean a gradual recanalization of veins which were obliterated at the time of treatment; or it may mean the gradual development of varicosities in other veins. My own experience has led me to an operation—a combined excision and ligation—with at least two, and possibly three, incisions in the thigh and with two incisions in the calf, with a further large popliteal incision where the external saphenous vein is involved. Subsequently, any small remaining veins are treated by injections. At the same time I do not believe that the mere ligation operation at sites of valvular incompetence of communicating veins will secure obliteration of extensive varicosities, even when combined with simultaneous injections. By suitably planning the direction of incisions it is possible to use the flexure lines of the skin, to get adequate exposure of considerable lengths of the veins, and to avoid incisions in the long axis of the limbs. In one week recently I saw three patients all of whom had had recent ligation and injection operations at the groins, and all of whom showed complete incompetence of the whole saphenous systems right up to the level of the operation scars. Neither the symptoms nor the signs suggested that there had been any appreciable alteration as the result of the treatment.

Operative experience also suggests that by far the most important deep communicating vein is the one situated at the junction of the middle and lower third of the leg as a communication between the internal saphenous vein or one of its branches and the deep veins. Certainly, from the point of view of local symptoms, the failures of injection treatment, and the

local complications such as eczema, ulceration, etc., this is the branch which is so often responsible for a reflux of blood into the superficial veins. The presence of this vein can often be inferred from the physical signs but cannot be proved until operation is carried out.

Prof. Boyd states that between October, 1942, and February, 1943, he saw 12 patients with deep thrombosis following injection treatment in the Army. I am not quite clear from the context whether these patients had had a combination of operation and injections or injections alone. In my own series of approximately 2,000 varicose vein cases I have never seen this complication following operation, operation and subsequent injections, or injections alone. On the other hand, whatever form of treatment is adopted, there are cases which show temporary and transient oedema, particularly on the inner side of the foot and ankle, for some weeks after treatment. This is much more likely to occur where there is much subcutaneous tissue, where operations have been extensive, or thrombosis has been widespread, but I have never known this oedema persist. The proper treatment, of course, is to control the oedema with external support, and, as lymphatic function is re-established, gradually to lessen the external support. In view of what Prof. Boyd says about the reaction of men in the Army to varicose veins, I am wondering if some of the deep thrombosis cases were really post-treatment oedemas and not deep thromboses at all. The presence of an abdominal collateral circulation would be conclusive. The authors suggest that this complication of deep thrombosis may have been due to the passage of injection fluid into the femoral veins, where the circulation may be sluggish. I am sure that some of the sclerosing fluid must get into the deep veins following injections, but there are two comments I would like to make in this connexion. The first is that the more normal the structure of the vein wall, the greater the difficulty in getting thrombosis with sclerosants. And, secondly, that in those patients who have a slight sensitivity to quinine the drug is tasted within approximately 15 to 20 seconds of injection of the peripheral veins of the lower limb with the patient lying down.

London, W.1.

REGINALD T. PAYNE.

SIR,—Prof. A. M. Boyd and Mr. D. J. Robertson's most interesting article on the above subject (Sept. 20, p. 452) calls attention to the unsatisfactory results of the treatment of the all too common varix. I feel that their conclusions tend to advise a standard treatment of varicosities needing surgical care. They state: "Ligation is required at four sites . . ." "High retrograde injection of large quantities of . . . sclerosant is dangerous," etc. I submit that each case of severe varices needs a careful assessment and that varied treatments are called for according to the findings at the time of examination. The Ochsner-Mahomed tourniquet test will tell the operator the site of the incompetent communicating veins. Four standard sites of ligation will then not be found necessary in the majority of cases. For instance, in a large series of cases these surgeons found that it was only necessary to ligate the saphenous below the knee in 2% of patients.

Again, to condemn the use of retrograde injection of a sclerosant into the distal portion of the internal saphenous divided at the fossa ovalis is far too sweeping a statement. If the patient has suffered from an antecedent deep-vein thrombophlebitis care should be observed regarding the use of any sclerosant. Has there been a recent superficial phlebitis? In these cases use no sclerosant if a severe reaction is to be avoided. There are other indications for the modification of the type and amount of sclerosant to be used. The "mid-Hunter blow-out" (aptly named by various American surgeons) is, as proved by Prof. Boyd and Mr. Robertson, responsible for the admission of much sclerosant into the deep system. The careful use of a Stevenson needle (or one of its modifications) can mitigate this risk. Again, hypertonic saline in the hands of Harold Dodd has satisfied him and many others that damage to the normal intima does not occur.

In a short letter I can but endeavour to point out that standardized treatments and dogmatic statements cannot be applied to the vagaries of the varix. It is seldom that two cases present exactly the same problem. The authors of the article under discussion are, however, to be congratulated on calling attention to the fact that the treatment of varices can be

unsatisfactory. There are still many avenues to explore in arriving at the perfect sclerosant and the perfect operation.

—I am, etc.,

London, W.1.

R. ROWDEN FOOTE.

SIR.—Prof. A. M. Boyd and Mr. D. J. Robertson (Sept. 20, p. 452) are to be congratulated on calling attention to the two complications associated with ill-judged surgery of varicose veins. The commonest cause of recurrence after operation is failure to tie the saphena vein flush with the femoral vein and to tie and divide all its terminal tributaries. During the last four years I have seen 123 recurrences of this type. Having collected large series of cases in which both the vertical and oblique incisions were used, I have no hesitation in recommending the latter: it heals so much better, and if rightly placed and of sufficient length it gives all the exposure that can be wished for.

My clinical experience gained in operations on nearly 3,000 cases makes me agree with Boyd and Robertson as to the site and frequency of the incompetent perforating veins. There is no difficulty in discovering the presence of such veins, but it is not always easy unless a very long incision is made to find the exact spot where the vein perforates the deep fascia. In a small percentage of cases the perforating veins are grossly incompetent, and it is essential to divide their flesh with the deep fascia. The most certain, simplest, and safest way of doing this is to remove the saphena vein with a Mayo or Babcock vein enucleator.

Like Boyd I was struck by the frequency of deep thrombophlebitis in Service personnel after the combined ligation-injection treatment of varicosities, and since 1943 I have tied the vein and postponed injections until the patient was walking about normally. This may be slow in producing thrombosis of all the varicosities, but it certainly lessens the risk of deep thrombosis and shortens the convalescence. Finally I should like to support Boyd and Robertson's plea for a careful clinical assessment before operation is advised. The mere presence of varicosities is not sufficient reason for advocating operation or injection.—I am, etc.,

Liverpool.

J. B. OLDHAM.

SIR.—In their article "Treatment of Varicose Veins" Prof. A. M. Boyd and Mr. D. J. Robertson (Sept. 20, p. 452) draw attention to the danger of retrograde injection of sclerosing fluids after ligation and state that recurrence usually occurs from inadequate ligation. With their first statement I am entirely in agreement and have long since abandoned it; further, I would point out the folly of relying on even an extensive thrombosis produced by this method to give a permanent cure. Hanschell showed many years ago that even soundly thrombosed veins, where the thrombosis is caused by sclerosing fluids, frequently recanalize in a remarkably short space of time.

With regard to the adequate ligation, I think their description is over-simple and their claims over-optimistic. My work has led me to believe the arrangement of deep communications is very much more complicated (*Lon. Hosp. Gaz.*, 1945, 48, 221). I believe that it is impossible to be sure of preventing recurrences unless all deep communications are dealt with and that this is not a feasible procedure because of the enormous variations. Many times I have seen veins not previously varicose appear after adequate ligation, and I believe this results from deep communications which were normal when the original operation was performed. I have on one or two occasions ligated such deep communications with most gratifying results.

I think ligation the only method worth using in severe varicose veins despite my previous remarks, but follow-up for years, not months, is needed to be sure the case is cured.—I am, etc.,

Hutton, Essex.

W. D. PARK.

### Antihistamine Drug for Pruritus of Jaundice

SIR.—There is one action of antihistamine drugs to which we are unable to find any reference in the published literature. If it has been recorded previously it is of sufficient importance to warrant a further note. We have found that patients suffering from the pruritus of jaundice, hitherto an intractable therapeutic problem, derive marked relief from the administration of antihistamine drugs. The benefit is so great that it may well make

life intolerable for the jaundiced patient with an inoperable carcinoma.

The drug which we have used entirely is "neoantergan" ("anthisan"), prepared by May and Baker but not yet upon the market. The dosage given was 0.2 g. at four- to six-hourly intervals. Four-hourly dosage appears necessary because the effect of a single dose of antihistamine drugs only lasts for about six hours. It is perhaps for this reason that we have noted in some cases a recurrence of skin irritation in the early hours of the morning, which disappears when the next dose is administered. "Benadryl," which has a similar action and is available, will certainly produce similar benefit.—We are, etc.,

R. B. HUNTER.

D. M. DUNLOP.

Edinburgh.

### New Treatment of Rheumatoid Arthritis

SIR.—At the Bath Rheumatism Congress in May, 1928, I read a paper on the endocrines in arthritis in which I pointed out that women suffering from rheumatoid arthritis who became pregnant experience a marked relief of all their symptoms, but that they relapsed again during the puerperium, and I suggested that the improvement during pregnancy was due to some endocrine change, a flooding with some special secretion or an inhibition of other active gland product. The balance of the endocrines is much more unstable in the female. Stimulation of the secretion of pituitrin by the internal secretion of the ovary is arrested by that of the corpus luteum. It is noteworthy that at about the same time Cumberbatch and Robinson obtained improvement, often lasting in character, by "cooking" the ovaries with diathermy, and they believed that certain forms of arthritis were mainly due to the inactivity of the corpora lutea.

Dr. Imre Barsi raises the whole question again (Aug. 16, p. 252). He assumes that "a hypothetical material circulates in the blood of pregnant women," and, as pregnant women suffering from arthritis materially improve, he has injected the blood of pregnant women into cases of arthritis, with definite and permanent results. Unfortunately, as Dr. M. D. Warren points out (Sept. 13, p. 433), he does not mention if there was any blood grouping having been carried out, and it is quite possible that the improvement was due to protein shock. Case 4 reported by Dr. Barsi was a male aged 66, and he claims that he was definitely cured of his arthritic symptoms. This is difficult to explain, and it certainly looks as if this improvement was more likely due to protein shock.

The whole question should not be allowed to drop, and I would make the following suggestions: (1) That only those cases of atrophic rheumatoid arthritis occurring in young women should be treated by blood transfusion from pregnant women; (2) that blood grouping be carried out; (3) that an equal number of controls be treated with normal blood—i.e., blood from non-pregnant women or males; (4) that records of temperature, sedimentation rate, and blood sugar be fully recorded.—I am, etc.,

Harrogate.

G. L. KERR PRINGLE.

SIR.—I wrote Dr. Imre Barsi requesting information as to typing the blood. He replied: "The typing is very important and must be done with the greatest care. I always use blood of the same type if I can get it; if not, I use type O, but I always make in such cases a cross-typing before transfusion."

So much for the blood grouping, but I should like to know if the haematologists at Oxford could not find out what it is in the blood of the pregnant woman that arrests rheumatoid arthritis.—I am, etc.,

Salisbury.

G. BAYNTON FORGE.

### Penicillin in the Treatment of Diphtheria

SIR.—Recent articles on the use of penicillin in diphtheria prompt me to place on record two cases as follows.

(1) A boy of 8 years was admitted to Shieldhall Hospital on Nov. 4, 1946, on the fourth day of illness. A doctor had not been called earlier, as his symptoms were at first attributed to mumps. He had had immunizing injections in 1940.

(2) A boy of 7 years was admitted on Nov. 5, 1946, on the third day of illness. His doctor had regarded him at first as a case of quinsy.

On admission both patients were profoundly toxic, with profuse nasal discharge, great enlargement of cervical glands, and the fauces



covered with diphtheritic membrane. Throat swabs revealed virulent *C. diphtheriae* (atypical). Each patient was given 40,000 units of antitoxin intravenously and 60,000 units intramuscularly, and within 24 hours of admission a further 40,000 units intravenously. By Nov. 8 neither showed any improvement and a fatal issue seemed almost inevitable. 50,000 units of penicillin was then administered intramuscularly, followed by doses of 20,000 units 3-hourly, which were continued until Nov. 19 and Nov. 17 respectively. By this time each throat was clean, the swelling of glands had subsided, the nose was free of discharge, and the general condition remarkably improved. Recovery was very gradual, being interrupted by palatal and pharyngeal paralysis in both cases, and by ciliary paralysis in one of them. It was 11 weeks from the onset before the patients were considered fit to sit up, and further convalescence was uneventful.

De, Chatterjee, and Ganguli (1947) advocate giving penicillin without serum to mild and moderately severe cases of diphtheria, and report success in a series of 27, but few if any workers of experience in this country will support them in such a hazardous procedure. The need for penicillin in addition to serum in mild and moderate cases is also debatable. Some benefit may be observed where there is superadded septic infection, but for pure diphtheria we have a perfectly efficient remedy in antitoxin. It is for the gravely ill patient coming under observation after several days' illness, when no amount of antitoxin can undo the damage already suffered, that the value or otherwise of penicillin becomes vitally important. One must be clear, however, as to what a really severe case of diphtheria amounts to. Dodds' (1946) group of 13 patients treated with penicillin are nearly all styled "severe pharyngeal," and while they were given considerable intramuscular doses of antitoxin, only one was deemed ill enough to be given an intravenous dose. In four of the "severe" cases, moreover, hospital treatment lasted for only 33 to 35 days, a period quite inadequate for all but the mildest of infections. Long's (1947) three patients were, judging by his reports, all very ill, one indeed being regarded as hopeless, but again none was given an intravenous dose of serum. This writer mentions the striking value of penicillin, of which he advises giving at least a million units per day in severe cases, but states that in this country no case of diphtheria without secondary infection appears to have responded to treatment in a convincing fashion.

In the two cases reported above there was no apparent secondary infection, and a much smaller amount of penicillin was used. The membrane did not clear from the throat much more rapidly than usual, nor was the date determined when the fauces were free of organisms, but in many years' experience of diphtheria I have never seen such a striking recovery as was made by these patients. Hitherto sceptical, I am now convinced that penicillin may be a life-saving agent in this disease. I await the opportunity to find further proof of its value, but grave cases of diphtheria are now rarely observed in hospital.—I am, etc.,

Glasgow.

WILLIAM NAPIER.

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## The Extent of Neurosis

SIR,—Dr. H. G. St. M. Rees (Sept. 20, p. 468) invites "our older brethren in general practice" to comment on the extent of neurosis to-day compared with what it used to be. I am not now engaged in general practice, but of my 45 years of professional life approximately half that time has been spent in general practice, always with a psychological bias, and the remainder has been spent as a consultant medical psychologist. Moreover, during the war years I took the opportunity of refreshing my experience of general practice by lending a hand to hard-pressed colleagues in their surgeries and visits. I may therefore be considered qualified both by age and experience to express an opinion.

When I look back to the crowded surgeries of my early days in Leeds, and before that to the time when part of my vacation even before qualifying would be spent in "taking surgeries" for my father in London, it seems to me that the greatest difference between then and now is that patients had a simple faith in their doctor and in a bottle of medicine which is lacking to-day. The patient of forty and fifty years ago did not pretend to any knowledge of physiology, still less of pathology, and was content with a simple explanation and his doctor's "say so." To-day he comes full of

morbid fears engendered by advertisements of "stomach powders," vitamins, and hormones, and fed by imperfectly digested scraps of information gained by his wife's attendance at "the welfare," or by comparing notes with an O.P. hospital patient. The patient of bygone years had but two bogies, cancer and consumption, but the modern is familiar with stomach and duodenal ulcers, pernicious anaemias, coronary thrombosis, sinus infections, and has taken up "blood pressure" where the doctors are beginning to leave it off. He has transferred his faith from the practitioner to a clinical armamentarium, from the bottle of medicine to a course of hypodermic injections. This attitude makes nonsense, of course, of the demand for free choice of doctor under the Health Act. For good or ill the old type of family physician, whose personality was his greatest asset, has gone. His place has been taken by the microscope and test-tube.

The changes that have taken place in the art and science and practice of medicine can be gauged by recalling the kind of ailments one dealt with in the old days compared with the present. The bulk of one's patients at the morning surgery would be mothers and their babies. Diets were not standardized, and not every infant flourished on food consisting of "the same as we have ourselves," though some most reprehensibly did so. Rickets and its accompanying catarrhal complications were common, and dirt and sepsis more in evidence. There would be women who came to "engage," and this entailed nothing more than entering the particulars in a book. Antenatal examinations were unknown and would have been regarded as indelicate. My father taught me to deliver under cover of the bedclothes. Among the young unmarried women patients chlorosis and gastric ulcer were common, and extensive varicose ulcers demanding large quantities of Unna's paste were frequent in the elderly. The evening surgeries would bring a larger proportion of men. A simple dyspepsia, not yet described as a "gastric stomach," brought a good many of them and was usually the result of too hearty indulgence in beer. Chronic alcoholic cirrhosis of the liver was frequent, while the secondary and tertiary manifestations of syphilis such as one only meets with nowadays in textbooks were constantly providing problems in diagnosis. Respiratory troubles in the shape of acute and chronic bronchitis were, I feel sure, more common in those days, and like the syphilis were the result of lack of early and effective treatment. Chronic tuberculous abscesses and discharging empyemas took up much time with the necessary dressings. I have a very strong impression too that stone in the kidney and bladder was more common than it is now, and certainly one saw more urethral strictures due to gonorrhoea than one does in these days, again due to ineffective treatment. The early diagnosis of phthisis without the aid of x rays and often without a sputum test kept one clinically on one's toes, and there was always the possibility that an undiagnosed typhoid was sitting on the bench waiting his turn.

Now if I compare all this with my more recent experiences I am tempted to say that the patient of former times went to his doctor because he had something the matter with him, whereas the majority of patients to-day seek aid because they fear that they may have something wrong. There is a change in the character and incidence of neurosis during the last half-century. My early interest in neurotic illness was stimulated by cases of frank hysteria such as one only sees now in the war hospitals. The hysteria was manifested by girls who were frustrated in their love affairs or by married women as a protest against a domineering male. I feel sure that, if there had been the widespread anxiety states which permeate medical practice to-day, I should have noted it.

As for the causes of this change, it would exceed the limits of a letter if I attempted to elucidate them here. I can only point out that frustration produces aggression, and repressed aggression shows itself as anxiety. There are many obvious causes of frustration in these days of austerity, but I believe we must look deeper than that. The whole tendency of social legislation during the last half-century has been to take more and more responsibility off the individual and to put it on the State. The State thus becomes a parent substitute, so that the individual instead of learning self-reliance is kept in a state of pupillage and becomes afraid or unable to take action on his own account. His attitude towards the State is ambivalent just as is the attitude of an adolescent towards the parents. He looks to the State for guidance and protection, but at the same time he resents the control which the State puts on him. There is an increase of masked or repressed aggression and consequently an increase of anxiety.

This reads as if I were a Conservative "die-hard," but actually I am a Socialist and shall welcome the Health Act provided it is implemented in such a way as to encourage the maintenance of mental and physical health in lieu of trying to "cure"



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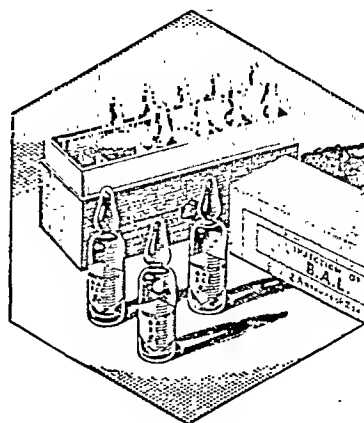
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## OBITUARY

## Obituary

W. E. MILES, F.R.C.S.

Mr. Ernest Miles, who was known all over the world for his abdomino-perineal operation for cancer of the rectum, died in London on Sept. 24. He was also eminent in other fields of surgery and for many years he had been consulting surgeon to the Royal Cancer Hospital.

William Ernest Miles was born in 1869 in Trinidad, the only son of William Miles, J.P., headmaster of the Queen's Royal College in that island, where his son was accordingly educated. Thence he went to the medical school of St. Bartholomew's Hospital, London, where he qualified M.R.C.S., L.R.C.P. in 1891, becoming F.R.C.S. in 1894 at the early age of 25. He was demonstrator of anatomy at St. Bartholomew's from 1896 to 1899, in which latter year he was chosen assistant surgeon to the Royal Cancer Hospital. He reached the senior staff there in 1903, and was also surgeon to the Gordon Hospital for Diseases of the Rectum. Though much mellowed in later years, in his early days he was of a somewhat irascible and uncompromising nature, which may perhaps explain his otherwise unaccountable failure to be appointed to the staff at St. Bartholomew's. The American College of Surgeons made him an honorary fellow in 1930, and four years later he received a similar honour from the Royal College of Surgeons in Ireland. Among the many other distinctions which he achieved were those of Lettsomian Lecturer; member of the National Radium Commission; Honorary Fellow of the French Academy of Surgery; and he was consulting proctologist to the Queen Alexandra Military Hospital, Millbank, and to several other hospitals. He was a keen Territorial officer before the war of 1914, and served in France and Belgium, with the rank of lieutenant-colonel, commanding No. 7 Red Cross Hospital. Later he became D.A.D.M.S. of the 58th Division, and, after commanding No. 56 General Hospital, he was appointed consulting surgeon to the Etaples Area. He contributed the section on diseases of the rectum in *Postgraduate Surgery* and most of his other writings were concerned with general proctology or with cancer of the rectum. Miles was a man of really original mind, with the necessary perseverance to bring his ideas to fruition. As an all round surgeon he was in the front rank, but in his special field of proctology he achieved a reputation that was, and is, world-wide. His thorough training as an anatomist formed the essential background for the development of his rectal operations. It is true that some of his researches into intestinal surgery did not bear the test of time: for instance, his method of "obliterating the left broad ligament," which he devised and for some years practised for the relief of prolapsed sigmoid and the constipation occasioned by it; and also his plan for relieving digestive troubles by cutting a peritoneal ligament which, he thought, impeded the working of the third part of the duodenum. But he was always willing to learn by his mistakes and to abandon a method which time showed to be unserviceable. His routine rectal operations were admirably done and with excellent results, but his reputation has been most securely established by his operative treatment of cancer of the rectum. Basing his work on the most careful and prolonged study of the

post-mortem appearances of metastases, and on observations made in the operating theatre, he devised a formidable technique for the complete removal of malignant growths in one sweeping operation, which, though the death rate was at first higher than that of less extensive procedures, at least showed a much higher proportion of permanent cures than any other method previously available. Devoting himself more and more to perfecting this operation, he quickly reduced the operative mortality to quite a small figure, and he also cut short the time taken to complete the operation. Originally, it needed an hour and a half; by training his assistants very carefully (Mr. Lawrence Abel was foremost among them) and avoiding every unnecessary movement, he got it down to an hour, then to 45 minutes, and eventually by extraordinary surgical dexterity to half an hour and even less. His fame soon spread, and hundreds of visiting surgeons from overseas went to the Cancer Hospital to watch his technique.

In his youth Miles was a keen lawn tennis player, boxer, and a steeplechase rider; he remained a devoted follower of racing, and was said not to have missed seeing the Grand National for fifty years or thereabouts. One of his favourite stories—and he had a big repertory as a raconteur—was of his entertaining a leading Irish surgeon who was attending a conference in London. At the week-end he suggested an afternoon at a race meeting; his visitor said he should like to go, as he had never been to such an event in his life. Following Miles's advice, the visitor backed five winners during the afternoon, and is supposed to have said that he didn't understand why his host found it necessary to labour at surgical work at all.

No account of the career of Ernest Miles would be complete without reference to a lawsuit brought against him in 1930 on the alleged ground of his having left a pair of artery forceps inside the abdomen of a lady upon whom he had operated. The writ was issued more than six years after the alleged tort, so Miles had a perfectly good technical defence, which would have stopped the case at the outset; but he put it very strongly to the Medical Defence Union, by which he was represented, that such a defence might damage his reputation, and it was agreed that it should be waived and the case conducted on the ground that the forceps had not been left by Miles at all but by another surgeon who had operated on the lady in France. This defence was successful, and Miles had the satisfaction of knowing that a jury did not accept the plaintiff's allegation.

After the death of his first wife, he married in 1944 Miss Janet Mary Loxton; there was no issue of either marriage. Ernest Miles was a man of dominating personality and an outstanding figure in the world of surgery. The operation with which his name will always be associated was developed on classical lines. Anatomical and pathological studies, followed by careful observation in the operating theatre, formed the basis of his considerable contribution to rectal surgery. He contributed to the medical press many articles on cancer of the rectum and proctology. His Lettsomian lectures on cancer of the rectum were published as a monograph in 1926. His final summing up of his classical abdomino-perineal operation appeared as a kind of swan song in the *American Journal of Surgery* in 1939.

Dr. Frank H. Lahey, director of the Lahey Clinic, Boston, writes: On being informed of the death of Mr. Ernest Miles this morning it seemed to me that on behalf of the American surgeons who have learned so much from him I should write you expressing for them their deep sorrow. Mr. Miles's name will for ever be linked with the radical operation for abdomino-sacral removal of the rectum. We in America feel that it was he who, for us, put his procedure, which has done so much for so many people, upon a sound basis. Mr. Miles was a gracious host, a stimulating teacher, and I will personally miss him greatly, as will his many friends all over the world.

Mr. Michael Smyth writes: May I add a few remarks to the obituary notice which appeared in *The Times* of Sept. 25. At the zenith of his powers Miles was a world figure in abdominal surgery, particularly in the surgery of the large intestine and rectum. This was not merely because of his great skill as a surgeon, but also because of his outstanding researches in the spread of cancer of these organs. These researches were afterwards embodied in the Lettsomian lectures which he delivered to the Medical Society of London, and from them he evolved the



Janet Devons

operation (abdomino-perineal) which is generally known by his name, and which revolutionized this branch of surgery. Although his name is connected with other operations this particular one brought him fame and honorary fellowships from many countries, the last to arrive coming from Greece only a few weeks ago. In the early twenties the Royal Cancer Hospital, where Miles did most of his work, was the Mecca of surgeons who were interested in diseases of the large intestine. There Miles had collected a team of brilliant young men who made their mark afterwards, and some of whom, alas, have predeceased him—Cecil Joll, Jocelyn Swan, and Cecil Rowntree. To see Miles at work with his assistants was to see British surgery at its best. There was a calm, unhurried atmosphere about the theatre, and the leisurely manner in which he went about his work made the whole performance seem at first somewhat slow. This was deceptive, of course, for there was an economy of movement and an effortless ease which only skill and experience could bring about. There was no delay, no fidget, everything looked simple, and the operation moved on quietly to its close. A glance at the clock showed that it had all taken place in an incredibly short space of time—in fact, as Lord Moynihan remarked, "the clock stood still." And after all there was the chat about the operation, the cup of tea and the cigarette—all very friendly, for Miles was the most approachable of all men, and was kindness itself to visiting surgeons and students. The other hospital to which Miles devoted much of his time was the Gordon. Here some of his greatest work was done. The hospital at first was only a collection of private houses, and poor ones at that, but he and the chairman of the hospital, Capt. Reginald Corfield, worked for years to obtain better housing and to improve conditions for the patients. Eventually their efforts were rewarded when Mr. John Dewar came to their aid, but it is sad to think that Miles had the opportunity of working for only a short time in the magnificent new building they created.

In his youth he was a fine sportsman, excelling particularly in tennis, and he was known to have defeated the reigning tennis champion at tournaments on two occasions. In later years for recreation he indulged in golf, but his chief relaxation was racing. Nothing pleased him more than to entertain his colleagues and friends in his box at Ascot. A story which amused him greatly was that of a distinguished patron of the turf who bade his trainer good-bye, saying that he was about to undergo a big abdominal operation by Ernest Miles. The trainer, who had already undergone an operation by Miles, shook him warmly by the hand and said, "Have no fear, 'mildord,' you are home and dried." Of all the honours which came his way there were a few in which he took especial pleasure. The honorary fellowship of the Royal College of Surgeons in Ireland appealed to him, for on his mother's side he was of Irish descent, and some of his ancestors had served with Wellington in the Peninsula. The other tribute which pleased him greatly was on the occasion of his last birthday when there arrived a present and a letter signed by the members of the staff of St. Mark's Hospital, "wishing him every happiness in his retirement, acknowledging him as a great friend and a trusted leader in their specialty." In the past few years his health had deteriorated, but he had the great good fortune of being tended and nursed by his devoted wife, herself well known in the surgical world. A great surgeon has gone, and all of us regret the passing of a great gentleman.

Dr. Cuthbert Dukes writes: When planning an operation for the eradication of any form of malignant disease the surgeon has first to take stock of all possible paths of lymphatic spread. This was accomplished for the rectum by the pioneer work of Mr. Ernest Miles. He gave a detailed description of the rectal lymphatics, describing them as arranged in three groups—intramural, intermediary, and extramural. He pointed out that the main direction of lymphatic drainage was upwards by efferents accompanying the superior haemorrhoidal vessels to drain into lymphatic glands along the main trunk of the superior haemorrhoidal artery and beyond this to the inferior mesenteric and aortic glands. Mr. Ernest Miles planned the abdomino-perineal operation in 1906 and began to employ it in the following year. He took this step because he was convinced that the tissues of the upward zone of spread lay beyond the reach of any operation carried out solely from the perineum. He pointed out

that when the perineal route is employed it is seldom possible to reach the glands situated above the bifurcation of the superior haemorrhoidal vessels, yet glandular spread may have extended higher than this. The chief merit of the abdomino-perineal operation (and similar combined operations such as the perineo-abdominal and synchronous combined operation) is that they permit the removal of glands at a higher level than is possible by perineal excision. The new operation introduced by Miles forty years ago extended the scope of surgery in the treatment of rectal cancer and brought a prospect of cure to some patients who could not have been cured by earlier surgical procedures.

Mr. A. Lawrence Abel writes: With the passing of Ernest Miles, British surgery loses one of the giants of the first half of this century, and I lose one who has been my surgical father for more than half that time. He performed his first abdomino-perineal operation for cancer of the rectum more than forty years ago, and survived one of his earliest cases by a few months. The Miles operation was soon known throughout the world, and has stood the test of time; to-day, with little or no modification, it is the operation of choice for rectal cancer in the vast majority of surgical centres. Before the first and between the two world wars few of the leading surgeons of the world failed to visit either the Royal Cancer Hospital or the Gordon Hospital to see him work, and Moynihan, Stiles, and the Mayo brothers were among his numerous friends and admirers. So long as cancer of the rectum can be cured only by the surgeon, Miles's name will be honoured for the pioneer work he did; for the firm foundation of pathology and splendid superstructure of finished technique which he has bequeathed to humanity. He has also left us the operation of recto-sigmoidectomy for complete procidentia of the rectum, and a classic work on fistula which well repays reading at frequent intervals. For many years he was the only leading British surgeon to have two major operations named after him. He loved life, men, and horses, a good meal, good company, and a merry story. His annual box at Ascot was a joyous institution for friends and old patients, who so often became his friends. I have seen as many as seven men whose rectums he had removed enjoying his hospitality together, not knowing what the others owed to their host. Our sympathies go out to his wife and we deplore his loss, appreciating all we owe to a staunch friend and valiant surgical pathfinder.

J. C. BRIDGE, C.B.E., F.R.C.S.Ed., D.P.H.

Dr. John Crosthwaite Bridge, consulting medical officer to Imperial Chemical Industries, Limited, and formerly H.M. Senior Medical Inspector of Factories, died at his home in Worthing on Sept. 27.

He was born on June 5, 1877, the second son of the Rev. James Henry Bridge, was educated at Carlisle Grammar School, and received his medical training at the Middlesex Hospital, where he gained an entrance exhibition. He qualified in 1902 and subsequently was admitted F.R.C.S.Ed. in 1910 and M.R.C.P.Ed. in 1920. He also read for the Bar and was called from the Middle Temple in 1913. He soon interested himself in preventive medicine, taking his D.P.H. at Cambridge in 1906. He became a pioneer in the medical inspection of school-children in Dunfermline, then in Devonport, and later as medical officer of health and school medical officer of Breconshire. He entered the Home Office in January, 1914, under the late Sir Thomas Legge, as H.M. Medical Inspector of Factories, retiring in 1942.

Here was work which suited his diverse talents and many interests. Inspired as he could not fail to be by Sir Thomas Legge, whom he succeeded as Senior Medical Inspector of Factories in 1927, his contribution to the progress of industrial medicine was far-reaching in a remarkably wide field. He set out to understand and really know industrial processes. With this understanding, his basic knowledge of medicine and of the law, and a critical judgment, he aided progress far more surely than he believed. As with all outstanding men, his technique was enviable, and his junior colleagues were often amazed at the uncanny way in which he tracked down and identified among the intricate processes of a large factory the precise cause of some complaint. He took a simple pleasure

in doing this when taking out a new colleague, implanting thus a firm desire to emulate this impressive achievement. Afterwards he would generously explain the why and wherefore. Needless to say, the occupiers of factories were equally impressed, particularly as he rarely made a note during a visit.

One of his duties was to advise the Home Office on medical aspects of the law relating to workmen's compensation, and here, too, he left his mark on legislation. He was a member of the Departmental Committee of 1930 on extensions to the schedule of industrial diseases and of another Departmental Committee in 1935 on certain questions arising under the Workmen's Compensation Act. He had a flair for recognizing and assessing the potentialities of industrial processes in relation to health hazards, and in such cases was at pains to identify new occupational diseases and to ensure their consideration with a view to their inclusion in the schedule of diseases subject to compensation. He was chairman of the Departmental Committee on medical arrangements for the diagnosis of silicosis in 1928, a member of the Industrial Health Research Board, of the Industrial Pulmonary Diseases Committee, and of the Committee on Industrial Solvents of the Medical Research Council, and of many other committees, such as the Ministry of Health's committees on the causes and prevention of blindness (1922), on cancer (1928-35), on ethyl petrol (1928), and he served also on the advisory Departmental Committee on anthrax (1935-46), and on the Correspondence Committee on Industrial Hygiene of the International Labour Office from 1927. He was vice-president of the Section of Occupational Diseases at the Annual Meeting of the B.M.A. in Manchester in 1929 and of the Section of Public Health at the Centenary Meeting in 1932. After retirement from the factory department he became chairman of the Association of Industrial Medical Officers.

He had an endearing grace of manner and a sensitive mastery of the spoken word, but could be stern in reproof, and he was intolerant of carelessness. These traits, with his sane and balanced outlook, had an abiding influence on his junior colleagues, to their great advantage. He was much interested in the Whitley Council movement in the Civil Service and had a great influence on the development of the Institution of Professional Civil Servants, of which he was chairman 1922-6 and again in 1930-1. Thereafter his advice and help continued to be freely available to, and was welcomed by, the institution. He was sensitive and inherently shy, but could make a speech full of logic and keen judgment. In the main, however, he chose to reserve his gifts for his internal departmental work and his colleagues rather than seek publicity in writing and speaking. He built something which will endure both in the hearts of the men and women he taught so well and in the law designed to protect the industrial worker.

Dr. Bridge was made a C.B.E. in 1934 and appointed honorary physician to the King in 1937. He married first in 1904 Essie (died 1933), daughter of Gateward Coleridge Davis, and in 1935 Joan Phyllis, daughter of James S. Hann, who survives him with one daughter.

#### C. P. LAPAGE, M.D., F.R.C.P.

Charles Paget Lapage, one of the best-known paediatricians in Manchester, died on Sept. 23 at the age of 68. He was the son of Dr. Charles Clement Lapage, a Cambridge graduate in practice at Nantwich. He was educated at Epsom College and at Owens College, graduating M.B., Ch.B. at Manchester in 1902. Early in his career he was interested in the diseases of children, and he won the John Henry Agnew prize and the Henry Ashby Memorial Scholarship for the study of this subject. As a student he was a notable long-distance runner, and a useful forward in the Rugby team. After graduating he was appointed house-surgeon at the Manchester Royal Infirmary. Later he was resident medical officer to the Royal Manchester Children's Hospital at Pendlebury, and then to the special wards at St. Mary's Hospitals. His teaching experience began when he was medical registrar to the Royal Infirmary and medical tutor at the Hulme hall of residence. By this time he had made up his mind to specialize in paediatrics and he became medical officer to the Gartside Street out-patient branch of the Children's Hospital. This was in 1905, the year in which he was awarded

the M.D. with commendation for a thesis on feeble-minded children.

After the death of Dr. Henry Ashby he was appointed honorary physician to the Children's Hospital and subsequently he was on the honorary staff of St. Mary's Hospitals and in charge of the children's wards. Other honorary appointments he held were in connexion with the Warehousemen and Clerks Schools, the Princess Christian College for Nurses, the Royal Albert Institution for the Feeble-Minded, the Manchester Mothers' Guild, and the Royal Schools for the Deaf at Old Trafford. He was particularly interested in mental incapacity in children, and he wrote a book on feeble-mindedness in children in 1911; a second edition appeared in 1920. He had taken the M.R.C.P. in 1908 and he was elected F.R.C.P. in 1922.

Before the 1914-18 war Dr. Lapage was a captain in the University Territorial Training Corps and he followed Sir Thomas Holland as its commanding officer. As a major in the R.A.M.C. he went abroad with the 57th General Hospital during the war and was mentioned in dispatches for his services. At the University he acted first as a demonstrator in operative surgery, then as lecturer on school hygiene, later as lecturer and finally reader in diseases of children, which last post he held until a chair of child health was created in May of this year.

Dr. Lapage was president for a session of the Manchester Medical Society and of the Section of Diseases of Children of the Royal Society of Medicine. He was a member of the British Paediatric Association, and in 1929 he was president and in 1932 vice-president of the Section of Diseases of Children at the B.M.A. annual meetings. He published many articles in the medical press and contributed the section on functional nervous disorders in childhood to Parsons and Barling's *Textbook on Diseases of Children*. He was also interested in asthma in childhood and in minor digestive disorders. In later years he took a great interest in mountaineering and he was an active member of the University Climbing Club, regularly attending its hill meetings.

Dr. Lapage was always more successful as a clinician than as a teacher, and as a writer than as a lecturer. He was fascinated by any difficult clinical problem, and he wrote well, but he never pretended to enjoy any lectures that he had to give. His outlook was conservative, though he was always ready to make a cautious trial of a new method or a new technique. When it was first proposed to use non-medical speech therapists at a special out-patient clinic attached to the Children's Hospital he was opposed to the idea. Once the scheme was in being, however, and it was one of the first of its kind in this country, he watched it carefully and, convinced of its merits, helped to make it a success. Students as a group thought him aloof and difficult. He would never "talk down" to them and he refused to oversimplify any problem in diagnosis or treatment. Yet to the individual student in the wards or the out-patient department he was most approachable and could be kindness itself.

H. T. A. writes: As a colleague for many years I would like to add my appreciation of Lapage's work, especially at the Royal Manchester Children's Hospital, Pendlebury, where he had been on the staff for nearly forty years. The medical and lay members of this hospital have always worked together in the most harmonious way and Lapage did much to foster this feeling. Apart from his work Lapage was a unique character, and one will always remember his arrival at hospital in an airman's helmet as a precaution against draught in his car and his remarkable upright quick walk down the corridor to his ward, hugging a sheaf of papers. Lapage was one of the original members of the British Paediatric Society, and I do not think he ever missed a meeting. He much enjoyed these meetings and took part in many discussions. He was essentially a family man and his wife accompanied him when he went for holidays in the Lake District, where he loved to climb and walk. His colleagues will all extend their deepest sympathy to his wife and family.

#### W. S. BAINBRIDGE, A.M., Sc.D., M.D.

Dr. W. S. Bainbridge, the well-known American surgeon and a pioneer of cancer research, died in Connecticut on Sept. 22 at the age of 77.

William Seaman Bainbridge, son of the Rev. W. F. Bainbridge, of Providence, Rhode Island, was educated at Mohegan

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ake School, Peekskill, New York, and at Columbia University. He was granted the degree of M.D. in 1893, and spent several years in postgraduate study in America and abroad. He was appointed professor of operative gynaecology at the New York Postgraduate Medical School in 1900, and three years later he was also appointed surgeon to the New York Skin and Cancer Hospital. In 1906 he left the Postgraduate School for the chair of surgery at the New York Polyclinic Medical School and Hospital. He acted as consulting surgeon to the Manhattan State Hospital, and was attached to other hospitals in and around New York. During the 1914-18 war he was for some time an operating surgeon in the U.S.S. *George Washington*, and later he served in the Surgeon-General's office. In 1941 he was sent on a special mission by the Navy Department to the Central and South American Republics, and he also represented the United States at the conference at Basle this year of the International Committee of Military Medicine.

His great interest in cancer received recognition in 1906 when he was honorary president of the first International Congress for the Study of Tumours and Cancers. This first congress was held at Heidelberg. He was constantly in touch with research workers in many other countries, and he accumulated a great deal of material on cancer which served as a basis for what was perhaps his most important book, *The Cancer Problem*. This first appeared in 1914 and was later translated into five languages. In this book Dr. Bainbridge tried to give what he himself called "a clear, concise, comprehensive, and available résumé of the world's work with reference to cancer, its history, distribution, aetiology, diagnosis, possibility of prevention, and treatment." His survey ranged from ancient Greece to the cancer research laboratories of the Middlesex Hospital, and from South African herbal remedies to current quackery. It was a remarkable book which ended with a plea for the better education of the profession and the public in matters relating to cancer, and it served a most useful purpose in attracting attention to the subject to which Dr. Bainbridge himself devoted his long life.

Dr. JOHN MURDOCH died suddenly at his home on Aug. 22 at the age of 68. He graduated at Dublin in 1905 and was in general practice first at Market Harborough and later at Thornton Heath and Croydon. During the 1914-18 war he was medical officer at the Ingram Road War Hospital. His son, Dr. John Murdoch, died on active service in East Africa in 1943.

Dr. GEORGE HERBERT STEELE died in hospital on Sept. 1 at the age of 80. Dr. Steele was a student of Guy's Hospital and qualified in 1898. He held house appointments at hospitals in Birkenhead, Windsor, and Northampton before starting in general practice near Hereford. After the 1914-18 war he moved to Kempsey, near Worcester, and there he remained in practice until his retirement in July, 1946.

## The Services

Surgeon Rear-Admiral O. D. Brownfield, O.B.E., R.N., has been appointed an Honorary Physician to the King in succession to Surgeon Rear-Admiral H. M. Whelan, R.N., deceased.

Surgeon Captain C. C. Elliott, D.S.C., V.R.D., R.N.V.R., has been appointed an Honorary Physician to the King in succession to Surgeon Captain H. O. Martin, V.R.D., R.N.V.R., who has been placed on the Retired List.

Lieutenant-Colonel R. Coyte, O.B.E., Majors (Honorary Lieutenant-Colonels) C. A. Ferguson and W. Slater Brown, and Captain (Honorary Major) W. D. Richardson, M.B.E., R.A.M.C., have been awarded the Efficiency Decoration of the Territorial Army.

The Prince Regent of Belgium has conferred the following decorations in recognition of distinguished services in the cause of the Allies:

Officer of the Order of Leopold with Palm, Croix de Guerre 1940 with Palm.—Colonel J. H. C. Walker, late R.A.M.C., and Colonel (temporary) D. Bluett, O.B.E., R.A.M.C.

Chevalier of the Order of Leopold II with Palm, Croix de Guerre 1940 with Palm.—Colonel (acting) E. H. P. Lassen, D.S.O., Lieutenant-Colonel (temporary) J. Shields, Majors (temporary) R. F. Lawrence and G. A. Stephen, Captains R. F. Clark, G. L. K. Crampton, R. de Senneville, G. Gregg, and L. G. J. Pitt-Payne, and Lieutenant H. Skinner, R.A.M.C.

## Medico-Legal

### OVERDOSE OF AMETHOCAINE

[FROM OUR MEDICO-LEGAL CORRESPONDENT]

A patient at Crumpsall Hospital died from an overdose of amethocaine hydrochloride. At the inquest before Mr. G. Jessel Rycroft, the Manchester City coroner, the surgeon said that he had read over the shoulder of the theatre sister the label of a large ampoule and had not noticed that it described a 1% solution. The theatre sister said that she had thought that the ampoule contained only one dose of a 0.1% solution. Otherwise, "multi-dose bottles" were normally used. The coroner remarked that it might well have been the duty of the surgeon to be certain of the writing on the label of the ampoule. If a small ampoule had been used, as was usual, the need for dilution of its contents would have been obvious, but the hospital dispensary had been obliged to use a large ampoule because there were no small ampoules or multi-dose bottles available. He pointed to the need for clearer labelling.

<sup>1</sup> Manchester Guardian, Aug. 26.

## Universities and Colleges

### UNIVERSITY OF LONDON

Peter Byers Ascroft, M.B.E., M.S., F.R.C.S., has been appointed to the University Chair of Surgery tenable at Middlesex Hospital Medical School, from July 1 last.

Prof. William James Hamilton, M.Sc., M.D., D.Sc., has been appointed to the University Chair of Anatomy tenable at Charing Cross Hospital Medical School, from Oct. 1.

Graham William Hayward, M.D., F.R.C.P., has been appointed to the University Readership in Medicine tenable at St. Bartholomew's Hospital Medical College from Oct. 1.

### UNIVERSITY OF LEEDS

The inaugural lecture of the Faculty of Medicine of the University will be given by Prof. Geoffrey Jefferson, C.B.E., M.S., F.R.C.S., F.R.S., professor of neurosurgery in the University of Manchester, in the Riley-Smith Hall of the University Union on Thursday, Oct. 16, at 3.30 p.m. His subject is "Scepsis Scientifica." Members of the medical profession are invited to be present.

### UNIVERSITY OF ABERDEEN

At a Graduation Ceremony on Sept. 17 the following medical degrees were conferred:

M.D.—A. A. Harper.  
[CH.M.—P. H. Theron.  
M.B., Ch.B.—J. B. Johnstone, A. J. Watson, Hilda Aitken, W. A. Anderson, Dorothy E. Barron, I. C. Brannen, A. W. Bruce, Nan H. Bruce, W. A. Cramond, I. M. Cran, R. S. Forrester, D. J. Gill, Margaret S. Hamilton, Elizabeth C. Hendrie, J. Hendry, A. Hunter, A. F. Johnstone, Moyra S. M. Kemp, Una Lawrie, K. M. Leighton, Kathleen J. Logan, Kathleen McCombie, A. D. Macdonald, D. McIntosh, A. M. Mackay, J. F. Mackie, Bertine J. C. Mackintosh, P. Marioni, Lorna C. Milne, D. S. Munro, Mary L. Price, W. I. Reid, G. L. Ritchie, A. McC. Robertson, G. Ross, J. Savy, Mary A. Shirreffs, D. W. C. Smith, D. T. Thomson, W. G. Thomson, A. C. Turnbull, J. H. Watson, K. C. Watson, J. N. Wattie, Grace A. M. Webster, Catherine J. J. Wilson, Margaret C. Wood.  
D.P.H.—A. P. Buchan, R. W. Farquhar, F. S. A. Forbes, Mary M. Martin, C. C. Wright.

<sup>1</sup> Awarded Highest Honours for Thesis. <sup>2</sup> Awarded Honours for Thesis. <sup>3</sup> With second-class Honours.

### ROYAL COLLEGE OF SURGEONS OF ENGLAND

In the list of members of the Board of the Faculty in Dental Surgery of the College, printed in the *Journal* of Aug. 30 (p. 353), Mr. A. C. McLeod should have been described as "Surgeon-Dentist to the King" and not "Honorary Dental Surgeon to the King."

### ROYAL COLLEGE OF SURGEONS IN IRELAND

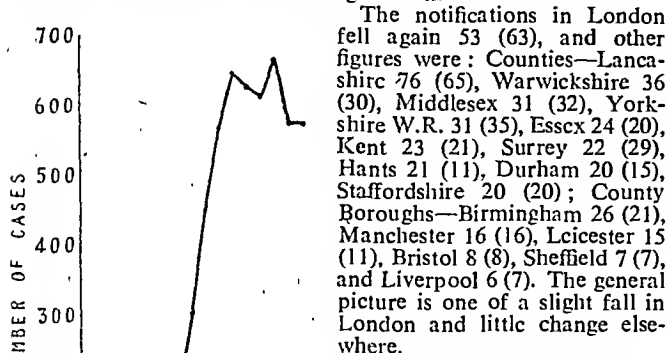
A postgraduate course in surgery will be held at the College and various Dublin hospitals from Monday, Oct. 6, to Saturday, Nov. 29. Attendance will be strictly limited to 30 persons and the fee for the course is £21, but registration may be made for either half of the course at a fee of £10 10s. Applications should be addressed to Prof. N. Rae, D.Sc., Registrar of the College, Dublin.

## EPIDEMIOLOGICAL NOTES

## Poliomyelitis and Polio-encephalitis

The number of notifications of poliomyelitis in England and Wales in the week ended Sept. 20 was 571, as against 572 in the preceding week, and of polio-encephalitis 23 (42). The graph shows the notifications each week from May 31 to Sept. 20.

A most interesting feature of the returns is the sudden fall in notifications of polio-encephalitis, which are lower than they have been since the week ended July 19. The figures are small, and it is of course impossible to draw any firm conclusions from the notifications for a single week.



The notifications in London fell again 53 (63), and other figures were: Counties—Lancashire 76 (65), Warwickshire 36 (30), Middlesex 31 (32), Yorkshire W.R. 31 (35), Essex 24 (20), Kent 23 (21), Surrey 22 (29), Hants 21 (11), Durham 20 (15), Staffordshire 20 (20); County Boroughs—Birmingham 26 (21), Manchester 16 (16), Leicester 15 (11), Bristol 8 (8), Sheffield 7 (7), and Liverpool 6 (7). The general picture is one of a slight fall in London and little change elsewhere.

In the week ending Sept. 13 the 572 notifications of poliomyelitis were the lowest for five weeks. The disease was still widespread, and only three English counties—Norfolk, Rutland, and Westmorland—did not report a single case. In Wales the notifications were confined to the southern counties; six counties in the north—Anglesey,

Caernarvon, Flint, Merioneth, Montgomery, and Radnor—had no notifications. The largest returns among the county boroughs were: Birmingham 21, Manchester 16, Leicester 11, Bristol 8, Liverpool 7, Salford 7, Bradford 7, Sheffield 7, Derby 6, and Leeds 5. In London the largest returns were from the boroughs of Lewisham 7, Wandsworth 7, Lambeth 6, and Shoreditch 6. In the remainder of the country the only large centres of infection were Middlesex, Willesden M.B. 6, and Kent, Bromley M.B. 5.

## Neonatal Gastro-enteritis at Rochdale

The Birch Hill Maternity Home at Rochdale is contained in a separate block of the hospital and is divided into two floors with separate staff and independent equipment. The top floor only was affected. This floor consists of a private wing with six single wards (1-6); one two-bedded (7-8); and wards with four beds (9-12), two beds (13-14), three beds (15-17); and eight beds (18-25), together with a common baby nursery and bathroom.

The outbreak began on Aug. 26-7, when a baby 9 days old began vomiting. This was at first regarded as probably due to loric stenosis. The appearance of green stools on Aug. 27 the occurrence of another case on the same day aroused suspicion. The sequence of events is shown in the table.

riefly, following these first two cases, 13 other cases occurred, and there were in all 7 deaths, although one was probably due in the main to prematurity. The last deaths occurred on Sept. 1. Of these cases, 8 (2 deaths) were breast-fed, 6 (3 deaths) were breast- and artificially fed, and one baby which died was fed by expressed breast milk (Case 6).

Of 14 other children not affected 10 were breast-fed, 2 breast- and artificially fed, and 2 artificially fed. In all but the first

case green stools were the first abnormality to be noted, preceded by a few hours of variable malaise and lethargy. Later the stools became loose, and then yellow and watery in the worst cases. Dehydration was rapid and jaundice was present at some stage in most cases. Blood was present in the stools in only one case and mucus in one other case. Both oral and intramuscular penicillin were used, but fatalities occurred so rapidly that assessment of treatment was almost impossible.

Investigation was undertaken by the Rochdale Public Health Laboratory and the Manchester University Laboratory. The only significant organism found was coagulase-positive *Staph aureus* in the post-mortem material, in the stools of certain survivors, and in the nose and throat of mothers with one exception, and of 8 members of the nursing staff on this floor. Confirmation awaits phage-testing.

The floor was cleared of patients and staff on Sept. 12. It has been cleaned, aired, and redecorated, and was reopened on Sept. 30.

## Discussion of Table

In England and Wales infectious diseases were less prevalent during the week; the only rises were in the notification of scarlet fever 134 and diphtheria 17, while decreases were recorded for measles 409, whooping-cough 164, acute poliomyelitis 90, paratyphoid fever 15, and cerebrospinal fever 11.

A small rise in the incidence of scarlet fever occurred in most areas; the largest increase was 31 in Yorkshire West Riding. An outbreak of diphtheria was reported from Warwickshire, Birmingham C.B., where the notifications rose from 2 to 17. In all other areas there was practically no change in the trend of diphtheria.

Relatively substantial falls in the notifications of measles were recorded in most areas of the country. The local trends of whooping-cough fluctuated; the decreased incidence was mainly contributed by Lancashire, London, and the South-eastern counties, while the largest increases were those of Essex 38, Warwickshire 30, and Yorkshire West Riding 25.

The outbreak of paratyphoid in Bedfordshire subsided; only 3 cases were notified during the week. The chief centre of dysentery was Lancashire 19 (Liverpool C.B. 10 and Prestwich M.B. 5).

In Scotland there were rises in the notifications of acute primary pneumonia 46 and scarlet fever 44, while falls were recorded for acute poliomyelitis 19, and cerebrospinal fever 8. The rise in the incidence of pneumonia occurred throughout the western area. The only notable exception to the small general decline in poliomyelitis was a rise of 10 in Ayr county.

In Eire the chief feature of the returns was an increase of 24 in the notifications of diarrhoea and enteritis. In Dublin C.B. 109 of the 120 cases were notified; the other 11 cases involved 5 registration areas.

## Recent Birth-rate Trends in Europe

In the *Monthly Supplement* for August to the Weekly Epidemiological Record of the United Nations World Health Organization the trend of the birth rate, between 1911 and 1946, for European countries has been reviewed. Broadly, the course of the birth rate for all European countries has been the same—a very steep fall during the war of 1914-18, followed by a large increase in 1920 with a subsequent steady decline until 1941, when the rate began to rise again. The only notable exception to the general trend was Germany, where the rate rose during 1934-9 and then fell in 1942. There have been minor changes in the relative positions of some countries, but the changes have been small and, generally, the countries with the lowest rates in the pre-war period had the lowest rates in 1946.

## Week Ending September 20

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 805, whooping-cough 1,378, diphtheria 189, measles 1,066, acute pneumonia 252, cerebrospinal fever 35, acute poliomyelitis 571, acute polio-encephalitis 23, dysentery 100, paratyphoid 23, and typhoid 16.

Case	Date of Birth	Bed No.	Date of Onset	Symptoms	Date of Death	Feeding	Remarks
1 HO.	Aug. 16	3	Aug. 26-27	Vomiting and diarrhoea	Aug. 29	Breast till Aug. 26	Bronchial pneumonia
2 HA.	" 22	11	" 27	Diarrhoea	"	Breast and comp.	Renal damage
3 O.	" 23	2	" 28	"	Aug. 30	Artificial and breast	P.M.—Purulent urethritis
4 W.1	" 22	20	" 29	"	" 30	Breast and comp.	Prematurity
5 MU.	" 23	17	" 30	"	" 31	Breast	
6 MA.	" 22	19	" 30	"	" 31	Breast (expressed)	P.M.—Purulent bronchitis
7 W.2	" 22	20	" 31	"	Sept. 1	Breast and comp.	
8 S.	" 20	1	" 31	"	"	Breast	
9 T.	" 26	5	" 31	"	"	"	Renal damage
10 B.	" 27	22	" 31	"	"	"	
11 MAU.	" 29	6	Sept. 1	"	"	"	
12 SH.	" 19	7	" 1	"	Sept. 1 (at home)	Breast and comp.	Home Sept. 1
13 BA.	" 22	14	" 1 (at home)	"	"	Breast	Discharged Aug. 30
14 D.	" 13	23	" 1	"	"	Breast and comp.	Discharged Aug. 30
15 WA.	" 20	24	" 2	"	"	Breast	Discharged Aug. 30

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## INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Sept. 13.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1947					1946 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	25	—	26	1	2	28	4	19	1	—
Deaths .. ..	—	—	—	—	—	—	—	2	—	—
Diphtheria .. ..	162	11	48	10	6	255	22	82	35	21
Deaths .. ..	1	—	—	—	1	5	—	2	—	—
Dysentery .. ..	69	6	17	—	—	68	17	42	1	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Encephalitis lethargica, acute .. ..	—	—	—	—	—	1	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Erysipelas .. ..	—	—	23	6	—	—	1	38	6	5
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Infective enteritis or diarrhoea under 2 years .. ..	—	—	—	—	—	—	—	—	—	—
Deaths .. ..	80	4	24	120	9	54	3	10	55	5
Measles* .. ..	1,038	36	51	113	6	1,213	78	75	19	6
Deaths .. ..	1	—	—	2	—	3	1	—	1	—
Ophthalmia neonatorum .. ..	63	7	5	1	—	75	7	10	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Paratyphoid fever ..	14	1	1(A)	—	—	33	—	14(B)	—	—
Deaths .. ..	—	—	2(B)	—	—	—	—	—	—	—
Pneumonia, influenzal ..	203	15	1	2	2	284	21	3	2	1
Deaths (from influenza)† ..	4	2	—	—	—	2	—	—	—	—
Pneumonia, primary ..	—	15	142	20	—	—	22	136	15	—
Deaths .. ..	—	—	13	9	—	—	—	3	3	5
Polio-encephalitis, acute ..	42	3	—	—	—	1	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Polio-myelitis, acute ..	572	63	155	11	12	22	3	—	3	2
Deaths .. ..	2	—	—	—	—	—	—	—	—	—
Puerperal fever .. ..	—	2	19	—	—	—	2	10	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Puerperal pyrexia‡ ..	124	7	9	—	2	100	12	6	1	—
Deaths .. ..	—	—	—	—	—	1	—	—	—	—
Relapsing fever .. ..	—	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Scarlet fever .. ..	674	54	157	25	28	791	68	157	34	25
Deaths .. ..	1	—	—	1	—	—	—	—	—	—
Smallpox .. ..	—	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Typhoid fever .. ..	13	1	4	1	4	17	2	6	3	2
Deaths .. ..	—	—	—	—	2	1	—	—	—	—
Typhus fever .. ..	—	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Whooping-cough* ..	1,519	145	67	78	8	1,744	142	119	30	30
Deaths .. ..	6	—	1	1	—	10	1	2	—	1
Deaths (0-1 year) ..	316	37	63	31	17	359	43	53	27	12
Infant mortality rate (per 1,000 live births) ..	—	—	—	—	—	—	—	—	—	—
Deaths (excluding still-births) ..	3,678	558	490	134	123	3,793	603	561	151	99
Annual death rate (per 1,000 persons living) ..	—	—	10.2	8.5	—	—	—	12.3	9.7	—
Live births .. ..	8,266	1,279	949	447	242	8,953	1,339	1,028	437	276
Annual rate per 1,000 persons living ..	—	—	19.1	28.2	—	—	—	20.7	28.0	—
Stillbirths .. ..	210	24	26	—	—	243	37	36	—	—
Rate per 1,000 total births (including stillborn) ..	—	—	27	—	—	—	—	34	—	—

\* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

## Medical News

## Sir Andrew Davidson's Visit to America

Sir Andrew Davidson, Chief Medical Officer, Department of Health for Scotland, has left for America, where, on the invitation of the president and council of the American Public Health Association, he is to address the association's annual conference at Atlantic City on Oct. 7 and 8. Sir Andrew is also to visit Canada, where, on Oct. 14, he will address a conference on rheumatism and arthritis convened by the Department of Health and Welfare, Ottawa. He will return at the beginning of November.

## To Lecture in Hungary

Prof. W. C. W. Nixon, Professor and Director at the Obstetric Clinic of University College Hospital, London, left Britain on Oct. 1 to lecture in Hungary, under the auspices of the British Council, on analgesia and anaesthesia in obstetrics, the development of maternity and child welfare services in Great Britain, and antenatal and post-natal care. He will also demonstrate surgical operations at Budapest.

## Hospitals for Streptomycin Treatment

The following hospitals should be added to those listed (Sept. 6, p. 399) at which cases of tuberculous meningitis and miliary tuberculosis may be received for treatment with streptomycin:

London.—Hospital for Sick Children, Great Ormond Street, W.C.1.

Birmingham.—The Queen Elizabeth Hospital (which takes adults; children are admitted to the Children's Hospital).

The total number of beds for which streptomycin treatment is available for cases of tuberculous meningitis and miliary tuberculosis in the United Kingdom is still 150, the number for which supplies of the drug are at present available.

## Penicillin Research

Miss W. G. Keepe, B.Sc., who has been engaged on penicillin research for the past year, has been appointed to the Wellcome Pharmaceutical Research Fellowship for the academic year beginning in October. She will carry out her research at Manchester University.

## Medical Historian Honoured

The King has granted to Dr. E. Ashworth Underwood, Director of the Wellcome Historical Medical Museum and Honorary Lecturer in the University of London (University College), permission to wear the Cross of the Chevalier of the Legion of Honour, which has been conferred on him by the President of the French Republic.

## London Hospital Old Students' Dinner

The London Hospital Old Students' Dinner and Course will not be held this year on account of catering restrictions.

## Wills

Dr. John Robinson Harper, C.B.E., Barnstaple, Devon, who died on April 30, left £20,207; Dr. Samuel Barratt Browning, of Birmingham, £24,403; and Dr. Prideaux George Selby, O.B.E., of Lyasted, Kent, £15,178.

## COMING EVENTS

## Whipps Cross Hospital Medical Society

The next meeting of the Whipps Cross Hospital Medical Society will be held at the hospital to-day (Friday, Oct. 3), at 8.30 p.m., when Mr. Alan Todd will deliver a lecture on "Cases Illustrating Certain Orthopaedic General Principles."

## National Hospital

An introductory lecture for the autumn term at the National Hospital, Queen Square, Medical School will be given by Dr. Gordon Holmes, F.R.S., on "Co-ordination of Movement and Its Disorders" on Monday, Oct. 6, at 3.30 p.m. in the lecture theatre. The lecture is open free to postgraduate students.

## London Jewish Hospital Medical Society

Dr. Hugh Gainsborough, F.R.C.P., will deliver the presidential address before the London Jewish Hospital Medical Society at Woburn House, Woburn Square, London, W.C., on Thursday, Oct. 9, at 3 p.m.

## Charing Cross Hospital Medical School

In view of the present crisis and the restrictions on rationing, it has been decided not to hold the annual dinner of Charing Cross Hospital Medical School this year. The prize-giving will take place in the council room of the Hospital on Tuesday, Oct. 14, at 3.45 p.m., when the Earl of Donoughmore will present the prizes.

## Conference on Food and Drink Infections

The Central Council for Health Education (Tavistock House (North), Tavistock Square, London, W.C.) has arranged a conference of representatives of local authorities in England, Wales, and Northern Ireland and of the food-handling industry on food and drink infections to be held at Friends' House, Euston Road, London, N.W., on Thursday, Oct. 9, at 10 a.m. The chairman, Lord Woolton, will deliver the opening address and a message will be read from the Rt. Hon. Aneurin Bevan, Minister of Health; Sir William Savage will speak on "The Problem"; Prof. G. S. Wilson on "The Nature of the Food and Drink Infections"; Mr. L. H. Lampitt, D.Sc., on "Present-day Practice and Problems"; Dr. Robert Cruickshank on "Food and Drink Hygiene in the U.S.A."; and Dr. Robert Sutherland on "Health Education and the Food and Drink Infections." A general discussion will follow. There will be an exhibition relating to food and drink infections on view in Friends' House on Oct. 9, from 9 a.m. to 6 p.m., and on Oct. 10 visits to a bacteriological laboratory and to food-handling establishments in London will be arranged. Dr. Robert Sutherland, medical adviser and secretary of the Central Council for Health Education, and Dr. Robert Cruickshank, director of the Central Public Health Laboratory, will be present at the Press conference on Monday, Oct. 6, at 11.30 a.m. at B.M.A. House, Tavistock Square, London, W.C., to answer questions of a technical nature.

## Royal Institute of Public Health and Hygiene

The Royal Institute of Public Health and Hygiene has arranged a series of lectures to be delivered in the Lecture Hall of the Institute, 28, Portland Place, W., on the following Wednesdays at 3.30 p.m.: Oct. 15, Prof. H. J. Seddon, D.M., F.R.C.S., Infantile Paralysis (illustrated); Oct. 22, Mr. J. Lyle Cameron, M.D., F.R.C.S., The Care of the Mother (illustrated); Oct. 29, Dr. W. G. S. Pepper, The Doctor in Industry (illustrated); Nov. 5, Mr. Arthur Ling, The Health Factor in Town Planning (illustrated); Nov. 12, Prof. W. C. W. Nixon, M.D., F.R.C.S., Diet in Pregnancy (illustrated); Nov. 19, Mr. L. Z. Cosin, F.R.C.S., Modern Methods in the Care of the Aged (illustrated); Nov. 26, Dr. Mary D. Sheridan, Hygiene in the Nursery and Playroom (illustrated). Admission to the lectures is free and applications for reservation of seats should be made to the secretary of the Institute.

## SOCIETIES AND LECTURES

## ROYAL SOCIETY OF MEDICINE

**Section of Epidemiology and St.** Monday, Oct. 6, 4.30 p.m. Papers by Mr. K. I. Nielsen, Heinen, 1945; Dr. L. M. Laurent: Acute Undetermined Virus Aetiology. A discussion will be opened by Douglas McAlpine with "Some Observations on the 1947 Outbreak of Acute Poliomyelitis."

**Section of Orthopaedics.**—Tuesday, Oct. 7, 8.30 p.m. Presidential Address by Mr. George Perkins: Flat-foot or Instability of the Longitudinal Arch. A discussion will follow.

**Section of Physical Medicine.**—Wednesday, Oct. 8, 4.30 p.m. Presidential Address by Dr. W. S. Tegner: Treatment of Rheumatoid Arthritis.

**Section of Ophthalmology.**—Thursday, Oct. 9, 5 p.m. (Cases at 4.30 p.m.) Paper by Dr. H. Arruga (Barcelona): Considerations on the Treatment of Detachment of the Retina.

**Clinical Section.**—Friday, Oct. 10, 5 p.m. (Cases at 4 p.m.)

**INSTITUTE OF PHILOSOPHY.**—At University Hall, 14, Gordon Square, London, W.C., Friday, Oct. 10, 5.15 p.m. Prof. H. B. Acton: Morals and Politics in Contemporary Society.

**CHADWICK TRUST.**—At 26, Portland Place, W., Tuesday, Oct. 7, 2.30 p.m. Brig. A. E. Richmond: Positive Health—Its Attainment in the Soldier, and the Army's Contribution to it in the Civilian.

**INSTITUTE OF LARYNGOLOGY AND OTOTOLOGY,** 330, Gray's Inn Road, W.C.—Friday, Oct. 10, 4.30 p.m. Annual Address by Sir Francis Fraser: The Training of Specialists: The Place of Postgraduate Institutes.

**LEEDS AND WEST RIDING MEDICO-CHIRURGICAL SOCIETY.**—At Leeds General Infirmary, Friday, Oct. 10, 8.30 p.m. Dr. John T. Ingram: Sir Jonathan Hutchinson, Dermatologist.

**LONDON: UNIVERSITY COLLEGE,** Gower Street, W.C.—Tuesday, Oct. 7, 5.15 p.m. Prof. J. Z. Young, F.R.S.: Structure of Peripheral Nerve and of Nerve Endings. Wednesday, Oct. 8, 5 p.m. Dr. M. H. Pirenne: Physiological Mechanisms of Vision.

**ROYAL DENTAL HOSPITAL OF LONDON AND LONDON SCHOOL OF DENTAL SURGERY (UNIVERSITY OF LONDON),** 32, Leicester Square, W.C.—Saturday, Oct. 11, 3 p.m. Prize Distribution by Sir Ernest Graham-Little and Conversazione.

**SOCIALIST MEDICAL ASSOCIATION.**—At Denison House, 296, Vauxhall Bridge Road, S.W., Thursday, Oct. 9, 7.30 p.m. Dr. Marc Daniels: Health Services in Post-war Poland.

## POSTGRADUATE DIARY

**GLASGOW UNIVERSITY: DEPARTMENT OF OPHTHALMOLOGY.**—Wednesday, Oct. 8, 8 p.m. Prof. A. Loewenstein: Pathology and Clinical Aspects of Ocular Glassmembranes.

**LONDON SCHOOL OF DERMATOLOGY,** 5, Lisle Street, Leicester Square, W.C.—Tuesday, Oct. 7, 5 p.m. Dr. R. T. Brain: Congenital Abnormalities. Thursday, Oct. 9, 5 p.m. Dr. C. W. McKenny: X-ray Technique.

The Fellowship of Medicine announces the following courses: (1) Obstetrics and Gynaecology, at Nuffield Department of Obstetrics and Gynaecology, Radcliffe Infirmary, Oxford, all day from Oct. 21 to 31. (2) Week-end course in Rheumatic Diseases, at Rheumatic Unit, St. Stephen's Hospital, Fulham Road, S.W., all day Saturday and Sunday, Oct. 25 and 26. (3) Week-end course in General Medicine and Surgery, at National Temperance Hospital, Hampstead Road, N.W., all day Saturday and Sunday, Oct. 18 and 19. Full particulars of these courses can be obtained from the Fellowship of Medicine, 1, Wimpole Street, London, W.

The series of neurological and psychiatric demonstrations by Dr. A. Feiling and Dr. D. Curran at St. George's Hospital Medical School resumed on Oct. 2, when Dr. Feiling gave a neurological lecture-demonstration. The series will be continued on Thursdays at 4.30 p.m. and is open to practitioners and senior students without fee.

## APPOINTMENTS

Dr. Alan C. Lendrum, Lecturer in Pathology at Glasgow University, has been appointed Professor of Pathology at St. Andrews University and Senior Pathologist and Clinical Pathologist at Dundee Royal Infirmary.

Prof. T. B. Davie, Dean of the Faculty of Medicine and Professor of Applied Pathology at Liverpool University has been appointed Vice-Chancellor of the University of Capetown.

Prof. Davie, who is 59 years old, took his M.B., Ch.B. (with first-class honours) at Liverpool in 1928, proceeding M.D. in 1931. In 1940 he was elected F.R.C.P.

Hugh Llewelyn Glyn Hughes, C.B.E., D.S.O., M.C., M.R.C.S., L.R.C.P., has been appointed Senior Administrative Medical Officer of the South-East Metropolitan Regional Hospital Board.

Hugh Montagu Cameron Macaulay, M.D., D.P.H., has been appointed Senior Administrative Medical Officer to the North-West Metropolitan Regional Hospital Board.

Dr. Macaulay is County Medical Officer of Health and School Medical Officer for Surrey and only recently completed his term of office as Honorary Physician to the King.

Percival V. Pritchard, M.D., F.R.C.P.Ed., F.R.F.P.S., D.P.H. Deputy Medical Officer of Health, St. Pancras, has been appointed County Medical Officer, Antrim, Northern Ireland, and will take up his new post this month.

HUGHES, E. S. R., M.S., F.R.C.S., Temporary Honorary Surgeon, Connacht Hospital, Walthamstow, London, E.

MAHONY, G. H., M.D., M.Ch., F.R.C.S.Ed., F.R.C.O.G., Lieutenant-Colonel I.M.S. (ret.), Professor in Obstetrics and Gynaecology, Royal College of Medicine, Baghdad, Iraq.

WHITELAW, A. D., M.D., D.P.H., Medical Officer of Health, East Pembrokeshire Combined Districts.

WREXHAM EMERGENCY (COUNTY GENERAL) AND WREXHAM AND EAST DENBIGHSHIRE WAR MEMORIAL HOSPITALS.—Physician: J. R. Forbes, M.D. M.R.C.P. Anaesthetist: R. J. Whiting, M.B., B.S., D.A. Assistant Physician: P. R. C. Evans, M.D., M.R.C.P. Assistant Ear, Nose, and Throat Surgeon: R. Barracough, M.B., Ch.B., D.L.O.

WOOD, PHILIP M., M.B., Ch.B., D.O.M.S., F.R.C.P., Visiting Ophthalmic Surgeon, Royal Halifax Infirmary.

## BIRTHS, MARRIAGES, AND DEATHS

The charge for an insertion under this head is 10s. 6d. for 18 words or less. Extra words 3s. 6d. for each six or less. Payment should be forwarded with the notice, authenticated by the name and permanent address of the sender, and should reach the Advertisement Manager not later than first post Monday morning.

## BIRTHS

GOLDING.—On Sept. 22, 1947, at Haslingden, to Frances Rosalie (née Heneghan) M.B., B.S. (Dun.), the wife of Dr. C. D. C. Golding, a son.

HALLIDAY.—On Sept. 4, 1947, at Wakefield, to Beryl, wife of Dr. R. Halliday, a daughter—Patricia Alexandra.

MACWILLIAM.—On Sept. 22, 1947, at Bank Hall Maternity Hospital, Burnley, to Cicely (née Gray), wife of Dr. J. C. MacWilliam, a daughter.

## MARRIAGE

MICHELL—PEARCE.—On Aug. 30, 1947, in London, Guy Michell, M.B., M.R.C.P., to Anne Pearce, S.R.N.

## DEATHS

LAPAGE.—On Sept. 23, 1947, at Didsbury, Manchester, Charles Paget Lapage, M.D., F.R.C.P.

STEPHEN.—On Aug. 30, 1947, at Cross Brook, Todmorden, Thomas Cook, L.M.S.S.A., L.D.S., R.C.S. (Eng.), aged 64 years, dearly loved husband of Alice Stephen.



## Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

### Spasm in Poliomyelitis

**Q.**—One hears a good deal about spasm of muscles in cases of anterior poliomyelitis. From the description given it seems that this occurs apart from the rigidity of the spinal muscles resulting from meningeal irritation, and is not due to an upper motor neurone lesion. How can this spasm be recognized and what is the physiological mechanism involved?

**A.**—The spasm that is alleged to occur in the muscles of the limbs in the acute phase of poliomyelitis is a great mystery. Miss Kenny and her disciples, particularly those in America, regard it as of frequent occurrence and, indeed, as an essential feature of the disease. On the other hand, many competent observers in America and this country have sought for it most diligently with almost uniformly negative results. In Chicago a team of clinicians directed by Dr. L. J. Pollock kept continuous watch over a number of patients in the acute phase of the disease and failed completely to detect spasm in the limb muscles at any hour of the day or night. In his recent article (Aug. 30, p. 319) Seddon mentions that he found no unequivocal evidence of spasm in the muscles of the limbs in some 1,500 early cases of the disease. On the other hand, the writer has seen electromyographic tracings made by competent observers from muscles said to be in a state of spasm, and they showed irregular electrical activity even when the muscle was apparently at rest. It appeared that the muscle was twitching in a fascicular fashion, and it would be proper to describe such a state as one of true spasm. Thus, in spite of much negative evidence, one cannot deny the possibility of its occurrence though there is no doubt that in this country, at any rate, the condition is rare.

No clear explanation of the pathology of spasm has yet been given, though it is agreed that it is almost certainly a lower motor neurone phenomenon, like the spasm that so commonly occurs in the spinal muscles in poliomyelitis and which is undoubtedly due to meningeal irritation. There are two possibilities: the origin of the spasm may be motor or sensory. It is conceivable that at the periphery of a zone of severe damage to the anterior horn cells of the cord the virus might be present in low concentration and exert an irritative strychnine-like action on the cells; these cells would then be in a state of irritation, firing off impulses which would throw the motor units they supplied into irregular contraction. The likelihood of spasm being due to a disturbance which is primarily on the sensory side, however, is supported by the recent demonstration of quite extensive changes in the posterior root ganglia in fatal cases of poliomyelitis; there is often a most intense cellular infiltration. These changes might be manifest clinically as pain in a limb, which is exceedingly common, and by reflex stimulation of anterior horn cells in the adjoining cord.

### Pituitary Extract and Obesity

**Q.**—Has anterior pituitary extract, when given by mouth, any effect on obesity associated with pituitary dysfunction, and, if so, what? A woman aged 41, with two children, has been grossly over weight since a girl, and has in the past been treated with tablets containing thyroid and anterior pituitary gr. 1½ (11 mg.). In her twenties a pituitary lesion was diagnosed radiologically. She had a breast removed for carcinoma in 1940 and subsequently had radium treatment. Lately she has had attacks of sleepiness that suggest a pituitary origin.

**A.**—Anterior pituitary gland or powdered extract by mouth in hypophysectomized tadpoles increases growth but does not lead to repair of atrophied adrenals, thyroid, or gonads. It has, however, no effect whatsoever in mammals. This is the experimental evidence, and clinically no objective data have been produced to indicate that man behaves differently from other mammals. Nevertheless, from time to time claims of benefit are made, and there is no doubt that pituitary by this route

will continue to be prescribed empirically, although it should be realized that it is contrary to scientific evidence. Sleepiness occurs with hypothalamic lesions, and also with so-called pituitary adiposity when there is no gross evidence either of an organic pituitary lesion or of a hypothalamic one.

### Syphilis and Marriage

**Q.**—A Southern European had a penile sore three months ago, with a positive blood test; he had a course of nine intramuscular and nine intravenous injections in his home country. He wants to get married shortly. What further treatment should be given, and how soon can he be allowed to marry? It is doubtful whether I can get Wassermann tests carried out here (East Africa).

**A.**—If penicillin is available 2,400,000 units should be given over a period of 7½ days in equally spaced injections; in addition a course of ten injections each of 0.6 g. of neoarsphenamine or similar drug and ten injections each of 0.2 to 0.25 g. of bismuth metal should be given concurrently over a period of nine to ten weeks, with the usual precautions. If penicillin is unobtainable at least three courses of arsenic and bismuth, as outlined above, should be given; intervals between courses may be four to five weeks. If there are no facilities to have Wassermann tests carried out it should be possible to get flocculation—for example, Kahn standard—tests done; for this purpose serum sent through the post should be satisfactory provided it is put up under strictly aseptic conditions. Marriage should be forbidden until five years have elapsed since the date of infection, but this period may be somewhat shortened if the patient reacts well to treatment and his blood reactions reverse rapidly.

### "Wax Rash"

**Q.**—Workers handling chlorinated naphthalene in the manufacture of certain types of wax suffer from chlor-acne. What are the prophylaxis and treatment?

**A.**—The rash is caused by the fumes from a heated wax containing chlorinated naphthalenes (or chlorinated diphenyls). Prevention of the rash lies, therefore, in avoiding contact between the skin and such fume. This can be effected by localized mechanical exhaust ventilation applied to the vessel in which the wax is treated. High-necked overalls should be worn by operatives, and careful washing of the skin is important. No food should be taken at the site of work. As well as causing a skin rash, the chlorinated naphthalene waxes and chlor-diphenyls may be toxic to the liver. Periodical medical supervision of workers in contact with these substances, whether heated or not, is desirable. The first step in the treatment of "wax rash" is, of course, removal from contact, and here the contamination of clothing should be remembered. The subsequent treatment is that appropriate to the acneiform eruption on the exposed skin, and a watch should be kept for any symptoms of hepatic origin.

### Gold Therapy of Rheumatism

**Q.**—In what proportion of cases of rheumatism is gold therapy effective? What are the dangers and contraindications?

**A.**—It is impossible to give an estimate of the effect of gold therapy in rheumatism. It is probably effective only in rheumatoid arthritis, though often given by those who are not acquainted with its use to patients suffering from other forms, such as osteo-arthritis and fibrositis, without any beneficial effect and with possibly harmful results. Its use should generally be limited to cases of active arthritis with an increased erythrocyte sedimentation rate, and the dosage should be low and only gradually increased. Modern views are that the dosage should not exceed 0.05 ml. of the usual preparations at weekly intervals for a course of three or four months, and it should be controlled by frequent blood counts, sedimentation rate tests, and urinary examination. To discuss in full the dangers and contraindications would be a lengthy matter, and they will be found set out in any modern book on the management of arthritis and rheumatic diseases. It is generally advisable where possible for the treatment to be initiated under hospital conditions where the necessary preliminary investigations can be carried out. It should be emphasized that it is a potent but sometimes dangerous remedy not to be lightly used.

## Control of Gastric Acidity

**Q.**—It is commonly taught that drugs which paralyse the parasympathetic nerves such as atropine or hyoscine cause a fall in gastric acidity. Is this really true even with full dosage? Could you inform me of any human experiments carried out to investigate this supposed action?

**A.**—Atropine, hyoscyamine, and hyoscine may all lower gastric acidity if given in full doses. The reduction is never profound, and can affect only the "psychic" secretion. This, in relation to peptic ulceration, is relatively unimportant because it is short-lived. Many experiments have been reported in this connexion. (See article by A. H. Douthwaite, *British Medical Journal*, July 12, 1947, p. 43.)

## Cerebral Arteriosclerosis

**Q.**—Eighteen months ago a man aged 50 had a head injury and was unconscious for three weeks. Nine months later he resumed work as vicar of a town parish. He now complains of a feeling of nervous tension in the early part of the day, of being more irritable, of periods of depression, of less ability to concentrate, and of some forgetfulness. He is more talkative than he used to be, and is himself conscious of this. What is the probable prognosis, and is there any particular treatment of value?

**A.**—The symptoms are consistent with a cerebral arteriosclerosis, which may well have been precipitated, or aggravated, by the injury. Full neuropsychiatric testing is advisable, however, especially from the standpoint of excluding (1) early dementia and (2) an affective psychosis.

## Treatment of Urticaria

**Q.**—What are the indications for autohaemotherapy? I refer to the intramuscular injection of 10 ml. of the patient's own blood, freshly withdrawn from a vein. Is it of use in urticaria? Are there likely to be any unpleasant reactions; if so, what form do they take? Are there any other suggestions for the treatment of urticaria apart from ephedrine, "benadryl," and adrenaline, which all provide temporary relief?

**A.**—Autohaemotherapy is sometimes very effective in the treatment of pruritus and urticaria and is sometimes helpful in the treatment of other functional disorders of the skin. It is probably a mild form of shock therapy, but is not associated with any untoward reactions unless they be psychological. All the measures mentioned are forms of symptomatic therapy. Greater success should attend rational therapy directed towards the cause of the urticaria. This may be dietetic, metabolic, toxic, or psychological, to mention some of the more common causes, but the problem calls for full investigation of the patient in relation to these or other environmental factors.

## Low Diastolic Pressure

**Q.**—A female aged 57 has complained of headaches and attacks of dizziness for many years. During one of these attacks she fell backwards and sustained a superficial incised wound of the scalp. On investigation the blood pressure was puzzling: the systolic pressure was 115; the diastolic pressure was present until it registered 0, so that the reading was 115/0 mm. Hg. What is the significance of such a reading and can you suggest any treatment?

**A.**—Very low diastolic pressure, or the persistence of sounds on sphygmomanometry down to zero on the scale, denotes high-grade vasodilatation such as occurs in free aortic regurgitation, arteriovenous aneurysm, and sometimes in patency of the ductus arteriosus. Lesser degrees of the same phenomenon are met with in thyrotoxicosis and neurocirculatory asthenia, including the effort syndrome. If there is a rotatory element in the dizziness the attacks are certainly of labyrinthine origin. Such attacks could occur if an arteriovenous aneurysm involved the circulation to the head. It is well known that aortic valvular disease is commonly associated with syncopal attacks, but in such circumstances vertigo would not be expected. No further speculation is likely to be profitable on the data provided. For full elucidation of the case a complete cardiac survey with electrocardiography and radiological examination would be necessary.

## INCOME TAX

All inquiries will receive an authoritative reply but only a select can be published.

## Appointment Expenses

C. S. asks what claims can be made under the following heads.

(a) Medical subscriptions and periodicals: no claim can be made unless membership of the organization, etc., is a condition attached to the appointment.

(b) A room in the residence exclusively for professional study: no claim.

(c) Use of a car for professional purposes: the running costs and depreciation (25% of the written down value), insurance, licence, repairs, etc., in the proportion which the mileage necessarily run on professional duties bears to the total amount.

(d) Replacement of medical textbooks and instruments: any reasonable expenditure is allowable, provided that the terms of the appointment (express or implied) require C. S. to maintain a medical library and a set of instruments.

C. S.'s earnings are assessable under Schedule E, and the expense rule under that Schedule is a rigid one. To be allowable, expense must be "wholly exclusively and necessarily in the performance of the duties of the employment," and the Courts have drawn fairly sharp distinction between expenses incurred "in the performance" and expenses incurred in order to put the individual in a position to perform them.

## NOTES AND COMMENTS

**Poliomyelitis and Chlorination of Water.**—Dr. HENRY BERN writes: Dr. Clement Francis (Sept. 13, p. 440) writes about chlorination of water and its possible effect on the poliomyelitis crisis. He might be interested to know that in this area—Stair and Egham—the water company have always chlorinated their water very well indeed, in fact to such an extent that there is a definite taste and slight odour of chlorine during the summer months. So far, I am pleased to say, we have been very free from poliomyelitis. There has been only one case, and this boy attended school out of the area, so he could have been infected elsewhere. We have been very surprised at the apparent immunity of the population in this area and have put it down to luck, but perhaps Dr. Francis has hit on something really important.

**Thumb-sucking.**—Lieut.-Col. H. H. KING, C.I.E., I.M.S. (re Leitchworth), writes: Under "Any Questions?" (Sept. 13, p. 43) there was a query about how to prevent thumb-sucking. The questioner might like to hear my suggestions which have worked in another case. Secure the co-operation of the boy by offering reward if he stops the habit, and, to help him stop it, get him wear the finger of a glove on the thumb he sucks. This is to be tied on round his wrist. Thumb-sucking is usually done absently, and the glove finger will stop this by immediately making the boy conscious of what he is doing. Then if he himself is trying to stop the habit he will refrain from pulling the glove off at from sucking his thumb. A little quinine on the glove might also help.

**Chronic Glaucoma.**—Dr. N. W. JENKIN (Hindhead, Surrey) writes: My own experience may be of value to your correspondents in the treatment of chronic glaucoma ("Any Questions?" Sept. 13, p. 404). I am 65 years old, and the condition was discovered this year ago. I have a fair-sized scotoma in the right eye. This eye was trephined three years ago and is now very satisfactory, with good central vision. The left eye has a full field but the tension is dangerously high. It was not controlled by pilocarpine. Eserine 1% kept the tension down applied as drops twice a day. But after a year the conjunctiva became sensitive and the eserine drops had to be discontinued. I now use eserine ointment 3% applied generously at bedtime. This causes no irritation, has a strong miotic action for 24 hours, and keeps the tension below continuously. For me it is the perfect answer. I am in full and vigorous work.

All communications with regard to editorial business should be addressed to the EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Armedads, Western, London.* ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* and unless the contrary be stated, authors desiring REPRINTS should communicate with the Publishing Manager, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs. Authors overseas should indicate on MSS. if reprints are required, as proofs are sent abroad. ADVERTISEMENTS should be addressed to the Advertisement Manager, B.M.A. House, Tavistock Square, London, W.C.1 (hours 9 a.m. to 5 p.m.). TELEPHONE: EUSTON 2111. TELEGRAMS: *Armedads, Western, London.* MEMBERS' SUBSCRIPTIONS should be sent to the SECRETARY of the Association, TELEPHONE: EUSTON 2111. TELEGRAMS: *Mediseca, Western, London.* B.M.A. SCOTTISH OFFICE: 7, Drumsheugh Gardens, Edinburgh.

# SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY OCTOBER 4 1947

## British Medical Association

### REPORT OF INSURANCE ACTS COMMITTEE, 1947

#### Chairman

Dr. E. A. Gregg was reappointed Chairman of the Committee for the Session 1946-7.

#### Obituary

The Committee regrets to record the deaths of:

Dr. J. W. Hunter (Ipswich), representative of the Society of Medical Officers of Health on the Committee for three years; and Dr. S. E. A. Acheson (Belfast), a representative of Northern Ireland on the Committee for fifteen years, and Secretary of the Central Practitioners Committee for Northern Ireland.

#### Ministry of Health Distribution Committee

The Committee's nominees on the Ministry of Health Distribution Committee in connexion with the Central Practitioners and Mileage Funds are: Dr. E. A. Gregg (London), Dr. D. J. B. Wilson (High Wycombe), Dr. D. B. Evans (Wrexham), and the Assistant Secretary (Dr. L. S. Potter), together with Dr. J. A. Ridham (Weymouth), Dr. J. C. Pearce (Diss, Norfolk), and Dr. J. D. Wells (Billericay), when questions concerning mileage were under consideration.

#### INSURANCE CAPITATION FEE

Although the terms of the settlement of the claim for an increase in the capitation fee are well known to all concerned, this report would not be complete without a brief description of them.

Following the acceptance by the Annual Conference of the Minister's offer of immediate discussions "fully to apply the Spens Report to the current capitation fee with effect from Jan. 1, 1946," representatives of the Insurance Acts Committee (Drs. E. A. Gregg, H. Guy Dain, J. A. Brown, W. M. Knox, J. A. Pridham, and S. Wand) had three lengthy discussions with representatives of the Ministry. Towards the end of the discussions the Ministry made what was indicated to be its final offer of 15s. 6d., after arguing that the appropriate fee should be substantially less. The details of the offer, with effect from Jan. 1, 1946, were:

1. The increase recommended by the Spens Committee, excluding the special measures affecting rural practices, is taken as equivalent to an average for all general practitioners of £162. (This if taken in full would equal 3s. 3d. on the capitation fee.)

2. Of this increase, 90% is accepted by the Ministry as attributable to insurance practice. This figure is based on the view that, while undoubtedly by far the largest part of the underpayment of doctors before the war as found by the Spens Committee is applicable to health insurance remuneration, it is nevertheless fair to attribute a small part of this underpayment to other practice.

3. Allowing betterment at 30% on the gross fee, we get:

	s.	d.
Capitation fee (1939) .. .. .	9	0
Spens increase (90% of 3s. 3d.) .. .. .	2	11
	11	11
Betterment (30%) .. .. .	3	7
	15	6

The "betterment" figure takes account of increases in medical practice expenses and cost of living since 1939.

Coupled with the Ministry's offer was a statement to the effect that in making it the Minister was influenced by the fact that the calculation upon which the figure of 15s. 6d. was based had involved the assessment of factors which were relevant also to the determination of future remuneration and would have a bearing on any future negotiations concerning the new Service.

This offer of 15s. 6d. was not regarded as adequate, but the Committee's representatives undertook to put it before the Committee. Before the Committee met, Panel Committees throughout the country were asked for their views on the Ministry's offer and a large majority of them favoured acceptance but took strong exception to the reservation. After careful consideration the Committee passed the following resolution, which was sent to the Ministry:

"That the Minister's offer of 15s. 6d. as a capitation fee for medical service under the existing National Health Insurance Acts and his proposals for augmenting the Mileage Funds, both retrospective to Jan. 1, 1946, be accepted without prejudice to the remuneration in any future service and to the factors to be employed in its assessment."

#### MILEAGE

The application of the Spens Report to the remuneration of insurance practitioners necessarily meant an increase in the mileage grant, especially in view of the opinion expressed by the Spens Committee that the pre-war difference between the incomes of rural and urban general practitioners should be reduced. The Central Mileage Funds for England, Wales, and Scotland have together received an increase of £236,280 for each of the years 1946 and 1947, making a total overall sum of £615,380, or 94% above the 1939 figure.

This new money has been divided between the two central funds in proportion to the amounts they received in 1939, but it was represented that a proportionate increase in mileage payments to Highlands and Islands doctors would not give these practitioners the increase recommended by the Spens Committee—since their remuneration in 1939 was inadequate compared with that of other practitioners in rural practice. It was suggested that the augmentation of low incomes in very sparsely populated areas like the Highlands and Islands could best be secured by weighting mileage more heavily. After careful consideration by the Insurance Acts Committee and its Rural Practitioners Subcommittee, it was agreed that the special position of insurance practitioners in the Highlands and Islands should be recognized in this way and that an adjustment of the new mileage money should be made to meet the situation. Accordingly it was decided to authorize the transfer of £6,000 for each of the years 1946 and 1947 from the Central Mileage Fund for England and Wales to the Highlands and Islands Fund upon the understanding that a similar transfer of £1,500 for each of the two years would be made from the Scottish Central Mileage Fund.

The Committee felt that a substantial part of the new money for mileage should go to the truly rural practitioner, as distinct from the urban or semirural practitioner who is able to claim "ordinary" mileage for some of his insured patients. The Central Mileage Distribution Committee considered this suggestion, but decided that, having regard to the time it would take to collect data upon which a scientific redistribution of the

mileage grant could be based, the only practicable method of securing higher payments for rural doctors would be to increase the value of the higher mileage units. County Panel Committees have been recommended to consider suitable amendments of local mileage schemes to give effect to this suggestion.

### DISPENSING CAPITATION FEE

The capitation fee paid to doctors in rural areas for supplying ordinary medicines, etc., to insured patients was 2s. 6d. in 1939. Increases of 6d. were obtained in October, 1940, and November, 1945, and negotiations have been completed which result in a further increase of 1s. 3d., with effect from Jan. 1, 1947, making a current fee of 4s. 9d., or 90% above the pre-war fee.

### Higher Capitation Fee for Treatment of Discharged Services Personnel

In reply to an inquiry, the Ministry states that members of His Majesty's Forces who, subsequent to demobilization, are awarded a disability pension, come within the special arrangement for a higher capitation fee. The Ministry has been asked to arrange in such cases for automatic notification to the insurance committee for the area in which the discharged person resides.

### RESIGNATION ISSUE—POSITION OF OTHER SECTIONS OF THE PROFESSION AND CHEMISTS

Recent events in connexion with the insurance capitation fee have prompted two or three Panel Committees to suggest that steps should be taken to secure the co-operation of other sections of the medical profession and the chemists in the event of withdrawal from a publicly organized medical service. One suggestion is that all other sections of the profession should be asked to withdraw from any form of Government service in which they may be engaged. The Committee does not feel that it would be reasonable to support such a proposal.

Another suggestion is that if, in the event of insurance practitioners withdrawing from the National Health Insurance medical service, chemists are instructed to supply medicines and appliances prescribed on unofficial forms, they should be asked to refuse to dispense under the National Health Insurance Act during the emergency. The Committee has promised to bear this suggestion in mind.

### INSURANCE PRACTITIONERS WITH FINANCIAL COMMITMENTS

The Committee was asked by the 1946 Annual Conference (Minute 36) to consider the possibility of assistance being given to medical practitioners who, having borrowed money to buy their practices, find themselves unable to resign from National Health Insurance practice owing to the terms of their agreements with financial agencies. This question is likely to arise in another form if the medical profession is advised not to accept service under the National Health Service Act, and the Council of the British Medical Association has appointed a special committee to consider the problem. The committee has not yet presented its report to the Council.

### CERTIFICATION

An increasing number of employers are requiring National Health Insurance certificates as evidence of incapacity for work. This improper practice has been the subject of representations to the Ministry of Health over a number of years. In the first place it is specifically stated on the official National Health Insurance certificate forms that "These certificates are to be used for National Health Insurance purposes only." Secondly, it is not in the interests of the insured person that he or she should be required to produce an official form. For one thing, the employee cannot comply with the requirement to send it to his Approved Society on the day it is issued if he has to send it to his employer by post. Again, the doctor is obliged to state as precisely as possible the cause of incapacity, and there may be reasons why the insured person does not wish this information to be made known to his employer. He can adopt the expedient of asking the doctor

for a private certificate in less precise terms. But he may not realize this at the time. It has been demonstrated recently that even Government Departments are asking for National Health Insurance certificates to be provided when a member of the staff is absent on account of illness.

The view of the Ministry is that where some certificate is asked for by the employer and the official National Health Insurance certificate is produced no objection can be raised. The Ministry is willing to take action, however, when it can be proved that a Government Department or other employer insists on employees producing the N.H.I. certificate. Panel Committees are asked to send to the Insurance Acts Committee any written or printed evidence of this practice.

The Committee is not impressed by the Ministry's attitude and will continue to protest strongly against the use of official forms of certificate for other than N.H.I. purposes.

### DISPENSING AND PRESCRIBING

#### Capitation Fee for Emergency Drugs and Dressings

The Ministry of Health is being asked to increase the Capitation Fee (varying from 1s. 3d. to 2s. 6d. per 100 insured persons, according to local conditions) at present payable insurance practitioners for the provision of drugs and appliances supplied in an emergency.

#### National War Formulary

A third edition of the *National War Formulary* has recently been issued to insurance practitioners, and came into operation on Oct. 1. When the Ministry made known its intention to continue the use of this formulary the Insurance Acts Committee registered a protest, suggesting that, as insurance practitioners were hampered in their treatment of insured persons by the limitations of the *War Formulary*, an immediate return should be made to the pre-war *National Formulary*.

#### National Health Service Formulary

A Joint Committee of Representatives of the B.M.A. and the Pharmaceutical Society is engaged on the preparation of a formulary for use under the National Health Service Act.

#### N.H.I. Drug Tariff

The Ministry of Health agreed to the Committee's request for a reversion to the pre-war practice of issuing the Drug Tariff to individual insurance practitioners.

#### Chemists' Hours

It is understood that in a few areas difficulty is being experienced owing to the absence of facilities for the dispensing of insurance prescriptions after the usual retailers' closing hour. The Committee is convinced that the only practicable way of settling this problem is by an informal conference of representatives of the local Panel and Pharmaceutical Committee.

#### Schedule of Appliances—Tulle Dressings

Following an application by the Committee for the inclusion of a preparation of sterile vaselined gauze in the Schedule of Appliances, the Committee is informed that the B.P.C. Revision Committee has approved a suitable dressing for inclusion in the *Codex*. This dressing, when available, will be medicated gauze, obtainable as part of medical benefit without amendment of the Schedule of Appliances.

#### Especially Expensive Drugs

Application has been made for the inclusion of several suppositories and the whole range of sulphonamides (including sulphamerazine) in the list of drugs and appliances in Part of the Distribution Scheme, the cost of which does not fall on doctors in respect of their "dispensing" patients. The Ministry is unwilling to make any additions to the list at present, but is prepared to consider applications for special payment in cases where the doctor is involved in heavy expenditure. The Ministry is being asked to reconsider the matter.

#### Shortage of Medicaments

Representations have been made to the Ministry of Health on the shortage of liquid paraffin, olive oil, and glucose. The

shortage of liquid paraffin is stated to be due mainly to the fact that supplies, though up to 1939 volume, are inadequate to meet the present increased demand. Regarding olive oil, the Ministry of Health is continually pressing the Ministry of Food to increase the supply, but the main difficulty appears to be the difference between the price demanded by the supplying countries and the price Great Britain is prepared to offer. The shortage of glucose is a reflection of the world shortage of cereals, and there appears to be little prospect of an immediate improvement.

#### Dispensing for Rural Patients

The Rural Practitioners Subcommittee has been considering a suggestion by Derbyshire (Minute 44 of 1946 Annual Conference) that a drastic reduction in dispensing lists should be effected. The Subcommittee came to the conclusion that this would be impracticable.

The question of the extent to which general practitioners wish to continue dispensing for their patients under the National Health Service was also discussed. There is evidence that many country doctors would be very glad to give up dispensing if satisfactory arrangements could be made to supply medicines and appliances expeditiously through chemists. Those who practise in sparsely populated areas, however, are convinced that, apart from being uneconomical, a service provided by chemists in such areas would be unsatisfactory from the patient's point of view. The delivery of medicines would take longer, and the traditional faith of the countryman in the doctor's dispensing is an important factor. All are agreed on one point—that the remuneration must be adequate for whatever dispensing is required.

#### RURAL MEDICAL PRACTICE UNDER THE NATIONAL HEALTH SERVICE

The Rural Practitioners Subcommittee has discussed the difficulties associated with rural medical practice and has formulated the following points, which must be taken into consideration in the settlement of the terms and conditions of service for general practitioners under the National Health Service:

(1) The field of medical practice in rural areas is restricted on account of distances to be travelled and sparse population.

(2) The strain on physique is greater in rural than in urban practice.

(3) Special emphasis should be placed on the provision of an efficient ambulance service. At present the rural practitioner frequently has to provide the transport when a patient goes to hospital.

(4) The provision of adequate facilities by way of branch surgeries and places of call.

(5) The additional responsibility of the rural practitioner in cases of emergency (road accidents, etc.) owing to the long distance to the nearest hospital.

(6) The burden of dispensing and the delivery of medicines. It is essential that the doctor should be adequately paid for the time spent in dispensing as well as the ingredient cost.

(7) Special expenses, such as higher telephone costs, should be taken into consideration.

(8) The practicability of a special grant for travelling, unrelated to mileage, might be explored.

(9) In place of the suggestion in the Spens report (paragraph 17) that the Highlands and Islands system should be extended to other sparsely populated areas, which is not considered to be practicable in a publicly provided service covering the whole population, the possibility of a special grant, unassociated with mileage, for specified areas might be considered.

#### PATHOLOGICAL FACILITIES FOR INSURED PERSONS

For many years the Committee has been pressing the Ministry of Health to provide a complete pathological service for use by medical practitioners for their insured patients. Believing that such a service would conduce to the economic use of penicillin, a further appeal was made to the Ministry in the autumn of 1946. The Ministry is not prepared to extend the scope of the present National Health Insurance medical service in this way, but has recently announced the introduction of a partial laboratory service which is available to all general practi-

tioners—partial in the sense that, though organized on a regional basis, it has not yet been possible to cover the whole country. It is known as the Public Health Laboratory Service, and is under the direction of the Medical Research Council (for the Ministry of Health). In general it covers all bacteriological examinations in the laboratory and observations in the field in relation to diagnosis, prevention, and control of infectious diseases other than venereal disease. One of its advantages is that it offers an opportunity for consultation with the bacteriologist. Most of the public health laboratories are being absorbed into the service, and the Ministry is anxious that full use shall be made of it. It does not include clinical pathology. The clinical service will be provided by hospitals, organized by the Regional Hospital Board. It is hoped that a closer relationship between the two services will speedily develop. A more detailed description of the laboratory service will appear in an early issue of the *Supplement*.

#### REGIONAL MEDICAL SERVICE

##### Reference of Patients to Specialists

Over the past two years there have been exchanges with the Ministry of Health on the Ministry's attitude in cases where an insured person is examined by a Divisional Medical Officer and a tuberculous condition is diagnosed. The point at issue is whether the patient's own doctor should be given an opportunity of making arrangements for an examination by a specialist. The Ministry's contention is that it would be impracticable—because of the time factor—to leave the arrangements for such an examination in the hands of the patient's doctor in cases where the sole question was the patient's capacity for work. The Ministry agreed, however, that in cases where the opinion of a specialist was considered to be desirable for reasons other than an assessment of the patient's capacity for work, no steps would be taken without consulting the patient's own doctor. The Committee has maintained the view that it is in the interests of insured persons and of the community that doctors should be given every opportunity of discharging their responsibility to their patients and that all visits to consultants and specialists should be made through them or with their concurrence.

The Ministry's last word is a further refusal to meet the Committee's wishes in this matter for the limited time remaining of the present insurance medical service, and a reference to the opportunity which the profession will have of assisting in formulating the procedure to be adopted in the National Health Service for obtaining specialist advice.

##### Examination of Pregnant Women

The question here is the stage of pregnancy during which a woman should not be required to attend an examination centre for examination by a Regional Medical Officer. The Insurance Acts Committee's original request was that a woman should be examined in her own home if she is within eight weeks of the expected date of confinement. The Committee's point is that it is not in the patient's interest that any woman who has reached the thirty-second week of pregnancy should be required to attend an examination centre, whether or not she is physically fit to make the journey.

The Ministry drew attention to the arrangement made in 1935 that no woman who was stated by her doctor to have reached the thirty-sixth week of pregnancy would be summoned to a centre. The Ministry is prepared to extend this arrangement to women who have reached the thirty-fourth week of pregnancy, provided the doctor states, on Form R.M.2, the stage of pregnancy in weeks that has been reached, and indicates that the patient is not fit to attend an examination centre. The Ministry's view is that these arrangements are in line with the provision of the National Insurance Act (1946) for payment of a maternity allowance during the last six weeks of pregnancy.

##### Sickness Benefit in Relation to Pregnancy

At the Committee's request the Ministry of Health approached the Ministry of National Insurance with a view to arranging that in cases where sickness benefit is paid for incapacity for work due to pregnancy the attending doctor would not be required to give more than one certificate to



cover the whole period. The Ministry of National Insurance indicated that it could not agree to this proposal.

As an alternative the Committee asked that in cases where a doctor is satisfied that his patient will not be capable of work until after her confinement, he should be allowed to issue a special intermediate certificate (Form Med. 40B) without waiting for the qualifying period of twenty-eight days to elapse. The Ministry's reply is that, even if the desired amendment of the medical certification rules did not present serious difficulties, the introduction of a special long-term certificate of incapacity for pregnancy cases would not result in more than a very small saving of clerical work to individual doctors, as the patients concerned would normally continue to be seen at weekly or other fairly short intervals. The Ministry goes on to say that, under the provision of the National Insurance Act, certificates of incapacity will not be required during the material six weeks before confinement. The Committee is still not satisfied with the reasons given for the refusal to accede to its request, and is pursuing this question further with the Ministry.

### LIMITATION OF LISTS

At the beginning of the war the Ministry sanctioned a temporary addition of 500 to the maximum number of insured persons that a single-handed practitioner was allowed to have on his list, with corresponding increases for those in partnership and where assistants were employed. At the end of 1946 a decision in favour of reversion to the pre-war maxima was taken. The directive issued by the Ministry was carried out in some areas without regard to special circumstances and did not take account of increases approved when juveniles were added to the insured population. A further directive made it clear that these approvals would remain in force and that applications from other Insurance Committees for similar concessions, as well as for increases occasioned by the extension of medical benefit to non-manual workers with incomes up to £420 per annum, would be considered favourably.

### NEW ENTRANTS INTO INSURANCE

It was suggested by the Bristol Panel Committee at the last Annual Conference (Minute 39) that a new contribution card should be provided with a detachable section which would contain the particulars at present asked for on Form Med. 50 and a space for the employer's signature. The insured person would be instructed to present the detachable section to his doctor at once, and this would take the place of the medical card until the latter is received from the Insurance Committee. This proposal has been passed on to the Ministry of Health with the suggestion that it might be useful in an appropriate form under the National Health Service.

### SURVEY OF ELDERLY INSURED PERSONS

In some areas insurance practitioners are being asked to assist the Insurance Committee to trace insured persons who were 70 years of age or more on Jan. 2, 1928, by giving any information that may be in the doctor's possession. The question has been raised as to whether this is likely to form a precedent for similar information which may be required under the National Health Service. The Committee favours co-operation with Insurance Committees in this matter, believing that the safeguarding of the future position can be left with confidence to the body which will take its place under this new Service.

### POSTGRADUATE COURSES FOR INSURANCE PRACTITIONERS

The Ministry of Health has reintroduced postgraduate courses for insurance practitioners on the lines of similar courses available in 1938-9, pending the provision of such facilities under the proposed National Health Service. The resumption of these courses was made possible by the willingness on the part of the universities to continue during 1947 the courses of postgraduate instruction for demobilized doctors.

An insurance practitioner is given freedom of choice of the centres where courses are available, and financial assistance towards his expenses in connexion with the course will be paid out of National Health Insurance funds. Such expenses will include a grant for the provision of a locum tenent (maxi-

mum fourteen guineas), where necessary; the fee for the course subsistence allowance while attending the course, and actual first-class travelling expenses.

### RECRUITMENT OF DOCTORS—PROTECTION OF PRACTICES

The Committee was asked by the 1946 Annual Conference (Minute 49) to consider whether any hardship exists among doctors who are being called up for the Forces either as specialists or as general duty officers; and, if so, whether any steps should be taken to meet the position, possibly on lines similar to the wartime protection-of-practises arrangement. It is understood that the number of doctors in general practice now being compulsorily recruited is extremely small, and it is doubtful whether the situation calls for any wide spread protection-of-practises arrangement. The Committee feels that the interests of general practitioners are being carefully watched by their colleagues on Local Medical War Committees and by the Services Committee of the Central Medical War Committee, and that satisfactory arrangements of an *ad hoc* nature could be made for the protection of the practice of a doctor who is in need of such assistance.

### EXAMINATIONS BY MASS MINIATURE RADIOGRAPHY

The Ministry of Health was asked to arrange that in all cases where persons are examined by mass miniature radiography and the taking of a full-size skiagram is subsequently found to be necessary, the findings, whether positive or negative, would be communicated to the person's own doctor. It was contended that even in cases of a negative finding it was desirable that the doctor should be in a position to reassure the patient, and that it would be a valuable item in the patient's medical record. The Ministry has asked authorities operating mass radiography units to notify the result of the examination to all persons examined so that they may inform their own doctors on the next occasion on which they need medical attention. The Committee is still not satisfied and is continuing discussions with the Ministry.

### NATIONAL INSURANCE DEFENCE TRUST

The balance-sheet and statement of expenditure and income of the Trust for the year ending Dec. 31, 1946, are being sent to every Panel Committee.

The 1946 Annual Conference urged every Panel Committee to complete its quota to the Trust without delay. This appeal was followed by a communication to all Panel Committees with advice on how the object could be achieved, and copies of a statement on what the Trust is and how it works were sent to each Panel Committee for circulation to its constituents.

The response to this appeal is summarized in a separate document which is being sent to Panel Committees. Most of them have initiated action which is resulting in a substantial increase in the income of the Trust. Some Committees are doubtful about the need for a large fund of this description under the proposed National Health Service. The trustees do not share this doubt, believing as they do that the need for a strong fund will be greater than ever. Others feel that non-insurance practitioners should be brought into the fund, but it has been pointed out that until a decision to enter the new service has been reached it would be premature to attempt to bring them in.

The trustees wish to pay tribute to three Panel Committees which are the first to complete their quotas—West Bromwich (£2,055), Durham (£17,821), and Warrington (£1,940), in the order of their doing so.

### SCOTLAND

This particular section deals with matters which are of a purely domestic Scottish nature and which have not been referred to in the preceding paragraphs, or upon which action in England and Wales differs from that taken in Scotland.

#### Chairman and Deputy Chairman

Dr. A. F. Wilkie Millar and Dr. W. M. Knox were appointed Chairman and Deputy Chairman of the Scottish Subcommittee respectively for Session 1946-7.

**Advisory Distribution Committee of the Department of Health**

The following were reappointed as nominees of the Scottish subcommittee on the Advisory Distribution Committee: Dr. F. Wilkie Millar (Edinburgh), Dr. John Lambie (Glasgow), Mr. Robert Bruce (Culter), and the Scottish Secretary.

**Medical Advisory Committee**

The Department of Health was informed that all members of the Scottish Subcommittee would be available for service on Medical Advisory Committees constituted under the Medical Benefit Regulations (Scotland), 1938.

**Allocation of Additional Moneys following the 1946 Negotiations**

In February last a joint meeting of the I.A.S.C. and the Highlands and Islands Subcommittee of the Scottish Committee had under simultaneous consideration the Ministry of Health's proposals for the division between England and Scotland of the additional mileage grants (made available following acceptance of the Spens Report) and those of the Department of Health concerning revision of the Highlands and Islands grants. As a result it became apparent that if the distribution proposals were carried into effect without modification the proportion of the total sum which would be available for the Highlands and Islands doctors as a group would fall considerably short of that indicated in the Spens Committee's recommendations. The difficulty was brought to the attention of the Insurance Acts Committee and, following consultation with the Rural Practitioners Committee in both countries, it was decided to recommend to the Ministry that £7,500 should be paid into the Highlands and Islands Fund, of which £6,000 would be contributed from the English and £1,500 from the Scottish portions of the £236,000 distributable. The Highlands and Islands doctors have expressed their appreciation of this fair-minded action of their rural colleagues in both countries.

**Rural Practitioners Subcommittee**

The Rural Practitioners Subcommittee was reconstituted with Dr. Robert Bruce (Aberdeenshire) as Chairman.

**Remuneration of Dispensing Doctors**

The Subcommittee has considered the question of the substitution of a national rate for dispensing doctors in Scotland in the lines of that in operation in England for the existing method, where these doctors are paid according to the chemist's rate for the area. The argument advanced in support of the adoption of a national rate was that the cost of supplying expensive drugs would be covered and there would be no risk of patients being deprived of an essential remedy. In the view of the Subcommittee, however, against any such advantage must be offset the fact (i) that under the present system the cost of penicillin, liver extract, and insulin was already covered, and claim could be made for repayment in respect of any other especially expensive drug required over a long period; (ii) that owing to the differences in prescribing in the two countries—namely, 2 prescriptions per person per annum in Scotland, as compared with 4.4 in England—the national rate would be lower in Scotland—approximately 3s. as compared with 4s. 9d. in England. Such a rate would compare unfavourably on the average with the present area rate. Dispensing doctors consulted by members of the Subcommittee had expressed the view that the existing method of payment worked well and was on the whole equitable, and there was no desire to change to a national rate at the present time. This view is supported by the Subcommittee, and accordingly no action has been taken for variation at this stage of the system of payment.

**Health Centres in Rural Areas**

The Subcommittee has also considered the most useful type of Health Centre in rural areas under the National Health Service (Scotland). The view of the Subcommittee is that in rural areas a system of Health Centres in the sense of grouped surgeries is impracticable: centres should be developed on the lines of the cottage hospital, which would, *inter alia*, provide facilities for diagnosis, treatment by practitioners of those of

their patients who require hospitalization but not specialist treatment, physiotherapy, dental treatment, and maternity services. Provision should also be made for clerical assistance for the practitioners.

**Central Mileage Fund, 1946**

The attention of the Local Medical and Panel Committees in Scotland has been drawn to the desirability of action being taken to secure the implementation of the principle enunciated in the Spens Report that rural insurance practitioners should derive the greatest benefit from the increase in the Mileage Fund in respect of 1946. Secretaries of these Committees have been advised that, where necessary, approach should be made to the Insurance Committee with a view to securing appropriate adjustment to the area Mileage Scheme, and the following possible methods of approach have been suggested as a guide to the Committees: (a) stepping up the unit allowance for high mileage—e.g., four or more units for each mile over 5; (b) where schemes provide for percentage reduction in relation to numbers on doctors' lists, steeper grading of these reductions; (c) a combination of these methods.

**Drug Accounts Committee (Scotland)**

The Subcommittee has considered difficulties experienced by the Checking Bureau in preparing its accounts. An increasing number of practitioners are prescribing the quantities for an individual dose instead of quantities for the total prescription. Again, an increasing number of prescriptions have ingredient quantities written in metric weights and measures but total quantities written in terms of apothecaries' weights and measures. The attention of Panel Committees has been drawn to these difficulties, and they have been asked to co-operate in overcoming them.

**RELEASE OF MEDICAL OFFICERS FROM H.M. FORCES**

The following is the latest information received by the Central Medical War Committee regarding the release in Class A of medical officers from H.M. Forces.

**Royal Navy**

The Admiralty states that this programme is tentative and may require amendment.

Oct. 1–Nov. 30, 1947: Group 64; Dec. 1–Dec. 31, 1947: Group 65.

**Royal Army Medical Corps**

(a) *General Duty Officers*.—Oct. 1–Nov. 15, 1947: Group 62; Nov. 16–Dec. 31, 1947: Group 63.

(b) *All Specialist Medical Officers*.—Oct. 1–Oct. 31, 1947: Group 54.

(c) *Physicians and Surgeons only*.—Nov. 1–Nov. 15, 1947: Group 55; Nov. 16–Nov. 30, 1947: Group 56; Dec. 1–Dec. 15, 1947: Group 57; Dec. 16–Dec. 31, 1947: Group 58.

(d) *Specialists other than Physicians and Surgeons*.—Nov. 1–Nov. 30, 1947: Group 55; Dec. 1–Dec. 31, 1947: Group 56.

**Royal Air Force**

Oct. 1–Oct. 31, 1947: Group 63; Nov. 1–Nov. 30, 1947: no release.

**TRADE UNION MEMBERSHIP**

The following is a list of local authorities which are understood to require employees to be members of a trade union or other organization:

*County Borough Councils*.—Barnsley, Barrow-in-Furness, Gateshead.

*Metropolitan Borough Councils*.—Finsbury, Fulham, Hackney, Poplar.

*Non-County Borough Councils*.—Dartford, Leyton, Radcliffe (limited to future appointments), Tottenham, WallSEND.

*Urban District Councils*.—Denton, Droylsden, Houghton-le-Spring, Huyton-with-Roby, Portslade, Redditch (restricted to new appointments), Stanley (Co. Durham), Tyldesley.

*Scottish Burghs*.—Motherwell, Wishaw.

## HEARD AT HEADQUARTERS

### Committee Work

A formidable list of Council and committee meetings for 1947-8 has been issued from Headquarters. During October alone the committee meetings at B.M.A. House number 27, not to speak of a Council meeting and the Panel Conference. Altogether, reckoning not only standing committees, which have fixed dates, but special committees and joint committees, which meet as occasion requires, there must be as many as 180 committee meetings in a year, one for every other day, and this leaves out of account subcommittees and drafting committees and all the other little off-shoots of committee procedure.

### A General Practitioner's Contribution

At the International Conference of Physicians which was held in London last month one of the longest rounds of acclamation greeted the contribution of a general practitioner—perhaps the only general practitioner to take any conspicuous part in the Conference. This was Dr. W. N. Pickles, who related his experiences of infective hepatitis as he had encountered it in his general practice at Aysgarth, in Yorkshire. Lord Moran, who presided, said that Dr. Pickles had shown once more how a first-class piece of epidemiological study could be carried out under general practice conditions. Dr. Pickles began his contribution modestly by speaking of a friend of his, aged 5, an intelligent child who could read and write a little, play music a little, and so on. When he was asked if he would not soon be going to school the little fellow said: "I don't need to go to school. I know it all." Dr. Pickles said that when in 1910 he went as assistant in a large country practice in Yorkshire he thought he "knew it all," and he quickly got some shocks. One of these was the occurrence of what was to him at that time an entirely new epidemic disease.

### Senior Past President

Those who can cast their minds back for twenty-one years to the highly successful Annual Meeting in Nottingham in 1926 will remember the dignity and aptitude with which Mr. R. G. Hogarth presided on that occasion and will be interested in the announcement that this month he and Mrs. Hogarth celebrate their golden wedding. Mr. Hogarth began his career as the first house-surgeon to the late Sir Anthony Bowlby, and one of the recollections of Nottingham is of seeing Sir Anthony an interested auditor on the occasion of Mr. Hogarth's presidential address. In that address, in which he said that to be president of the British Medical Association was to be president of the finest association in the world, Mr. Hogarth dealt largely with the pay-bed system in hospitals, a subject which was then exciting a good deal of attention. He himself was chiefly responsible for building and equipping a pay-bed wing at the Nottingham General Hospital, a hospital where he began his service as senior resident medical officer 53 years ago. Mr. Hogarth, who is now 80, still lives in the Ropewalk. He is the senior surviving Past President of the Association.

### Foreign Visitors

The Great Hall and the forecourt of B.M.A. House were filled during the week Sept. 15-20 with people from almost all the countries of Europe and America. The Great Hall has rarely seen such a foreign invasion before. The International Congress of Surgeons was booked to hold its sessions at University College, five minutes' walk away, but such large numbers attended that the theatre there was inconveniently crowded, and an adjournment was made to the Great Hall; even there many had to stand throughout some of the proceedings. For the greater part of a week the walls resounded to French, Italian, and Spanish oratory, with an occasional voice speaking English or American, until one had to reassure oneself by looking at the pillars and flags of Lutyens's hall that one was in England and had not somehow gone abroad without any tourist allowance. The French have a curious way of conducting their discussions.

They collect in advance a large number of names—perhaps thirty or forty—of those who wish to take part in discussion on a paper, and call on them in quick rotation, and not half of them answer when they are called. One name—that of a British surgeon by the way—figured in the list of speakers in every one of the nine discussions, and not once did he appear when his name was reached. In this international assembly they had the same procedure as is so often seen in English gatherings whereby a time limit for speakers is laid down in advance and is disregarded by everybody without rebuke.

### AGREED SCALES OF REMUNERATION

*We published in the "Supplement" of March 22 (p. 37) a circular from the associations of local authorities to their member authorities recommending the adoption of the scale of fees agreed with the B.M.A. for medical practitioners employed on a sessional and case basis. Agreement on one point had still to be reached—namely, the payment of mileage allowance to general practitioners doing sessional work. This has now been settled, and on Sept. 19 the local authority associations sent the following circular to local authorities in England and Wales.*

#### Remuneration of Medical Practitioners Employed by Local Authorities on a Sessional or Case Basis

County Councils Association, Association of Municipal Corporations, Urban District Councils Association, Rural District Councils Association, Association of Education Committees, Mental Hospitals Association.

Dear Sir,

During the course of the negotiations referred to in the letter of Feb. 28, 1947, on this subject, the British Medical Association pointed out that, in the case of general practitioner a mileage allowance had only been included for diphtheria immunization and then only in exceptional cases. They maintained that there would be other exceptions, particularly in rural areas, where the mileage allowance would be justified as they asked for a more general provision in the agreement. The point raised by the British Medical Association was taken after agreement had been reached on the remuneration of medical practitioners as set out in the memorandum enclosed with the joint letter of Feb. 28, and the associations of local authorities took the view that instructions would have to be obtained upon it before it could be agreed.

In due course the following proposal was put to the associations of local authorities, namely, "a mileage allowance (as specified in the scale) should be paid to a general practitioner when travelling to a clinic in a rural area expressly for the purpose of a work of a clinic outside the area of a general practitioner's own practice." This proposal has been accepted by the associations of local authorities save that the Rural District Councils Association are only willing to recommend that the allowance for general practitioners should be the scale appropriate to the county.

The British Medical Association are prepared to accept the position as set out above, the reservation of the Rural District Councils Association being applicable only in the case of rural district councils. The operative date for the commencement of this additional arrangement is Oct. 1, 1947.

Yours faithfully,

G. H. BANWELL,  
Secretary, Association of Municipal  
Corporations.

JOHN J. MCINTYRE,  
Secretary, Rural District Councils  
Association.

S. M. JOHNSON,  
Secretary, County Councils  
Association.

W. P. ALEXANDER,  
Secretary, Association of Education  
Committees.

ARTHUR J. LEES,  
Secretary, Urban District Councils  
Association.

L. T. FELDON,  
Secretary, Mental Hospitals  
Association.

The Duke of Somerset recently opened the Bradford District Hospital at the home of the late Lord Fitzmaurice near Bradford-on-Avon, Wiltshire. Dr. C. E. S. Flemming said that the people of Bradford-on-Avon and district had contributed to the purchase of the building and to its conversion into a modern hospital.

## Correspondence

### Working Hours in the N.H.S.

SIR,—There have been many letters recently in the *Journal* expressing indignation because the A.R.M. turned down the motion by Paddington which said:

That in any National Health Service adequate provision shall be made for a rota of practitioners for duty at night, week-ends, holidays, and during sickness.

I think what the indignant writers fail to realize is that the reason this was defeated was that the meeting did not wish the Ministry to so control general practice, not that they did not think such leisure desirable.

In fact such a scheme has been working for years in my own area in relation to night duty, Sundays, holidays, and sickness, and has recently been extended to regular week-ends. All this has been done by the doctors (some forty in number) without any central direction. It has been done voluntarily without any compulsion, and is now spreading to the whole of the 500 general practitioners in Birmingham. The area includes partnerships and single practices. There is one essential in the establishment of such a system—namely, the good will and friendship of the doctors working the scheme.

Might I with all humility suggest that the malcontents get on with the job and get their schemes arranged *before* any new national health service comes into being?—I am, etc.,

Solihull, Warwickshire.

ARTHUR BEAUCHAMP.

SIR,—In recent issues of the *Supplement* letters have been published from Drs. H. Dakin (Aug. 16, p. 54), Joseph Bell, D. W. Mayman (Aug. 30, p. 63), and others disapproving the action taken by the A.R.M. last July when motions regarding working hours in the National Health Service were defeated. As one of those present at the meeting I feel that the reason for the rejection of the motions may not have been fully appreciated. Representatives were in no way opposed to a rota system which would give doctors reasonable time off for rest and leisure, but they were strongly opposed to the suggestion that the State, or its delegated authority, should organize that rota system for us.

Do we, in fact, wish to be told by bureaucrats when we are to work and when we are to rest? Have we no desire to exercise any choice of the doctor who will deputize in our absence? Some of us are independent enough to prefer to make our own arrangements. Speaking from personal experience in a single-handed practice, it is quite possible to make satisfactory arrangements for half-days and holidays with fellow practitioners, and such co-operation fosters a spirit of friendliness and good will.—I am, etc.,

Stanmore, Middlesex.

H. B. WOODHOUSE.

SIR,—In these days of paper shortage I am amazed that you can find space in the *Journal* for so many letters from the protagonists of the 24-hour day and 7-day week for the medical profession. The effusions of these elderly fifth columnists are doubtless being read with glee by Mr. Aneurin Bevan, who will be encouraged to turn the screw a little tighter even than he had planned when the conditions of service in the State scheme come to be revealed. What serried ranks of sanctimonious humbugs appear to be in the medical profession among the older practitioners, many of whom are considering retirement to escape the rigours of the State Medical Service.

Dr. C. Grantham-Hill (*Supplement*, Sept. 13, p. 67) regards with horror the possibility of medical practitioners' demanding time and a half for Sunday calls and double time for night work. From the depths of my depravity I humbly confess that I think this arrangement is long overdue and should be pressed for to the utmost when conditions of service are being discussed with Mr. Bevan.—I am, etc.,

Grimsby, Lincs.

W. R. HENDERSON.

SIR,—May I add my support to those doctors who have written protesting against the proposal that we should continue to stay on duty 24 hours per day when the N.H.S. is established. As far

as I can see one of the few benefits to the doctor in such a service is that he will have the opportunity to have decent leisure time. The idea of a pension on retirement is very comforting, but when one recalls that many doctors in G.P. work 80 or more hours a week one wonders how many of them will live to receive their pensions or have decent health when they do retire. It amazes me that it could be suggested even that we should stay on duty the clock round, and that the A.R.M. should uphold the proposal baffles me. To accept it means that we are willing to work harder for, probably, less money; for less than a year from the Service becoming fact we still have no idea of our terms of service or our pay. We know that to idealists in the Government the latter point is a mere detail, but it is nevertheless still of considerable importance to many of us, and I suggest that the Minister of Health be told this in no uncertain fashion now, with a request for a satisfactory answer to be quickly given.

—I am, etc.,

Hull.

W. M. GIBSON.

SIR,—I would like to give my full support to those letters in recent issues advocating regular working hours in the proposed National Health Service. We have now a good opportunity to change the most unsatisfactory conditions for general practice. Some attempt should be made by the medical profession to arrange more normal hours of work and leisure for its members. Only exceptional men can turn out good work in any of the 24 hours of the day, seven days a week, even though this is what the Representative Meeting, and probably the rest of the community, seem to expect.

Unless the planners produce definite prospects of a better deal for doctors, I for one will not enter general practice either as it is now or if State controlled.—I am, etc.,

R.N.V.R.

### National Health Service

SIR,—I heartily agree with Dr. J. J. Rohan's letter (*Supplement*, Sept. 20, p. 74). I have repeatedly stated at B.M.A. meetings that it is impossible for general practitioners (the alleged backbone of the profession) to form any conception of a national health service until conditions of service, remuneration, and hours of service are at least discussed. Again I heartily agree with Dr. J. F. Flanagan's letter (*ibid.*). Surely the reason the A.R.M. turned down the motion for fixed hours was entirely due to mass hypocrisy. Does the hierarchy of the B.M.A. really expect doctors in the future to overwork themselves for the miserly remuneration which the Government will offer? And if it is not miserly in the first instance that will only be in the nature of a sprat to catch a mackerel, and in a few months' time some Order in Council will be issued to reduce the pay of doctors on account of the state of the national finances. Bear in mind that the doctors will be ordered to accept less, but the miners—or their like—will not be even asked.

Another probable reason the A.R.M. turned down this motion was fear of the Press. It is time our leaders stood out boldly for the profession and were not always looking to see how the public or the Government would respond to such and such statement. The public, presumably, have Parliament to attend to their interests; the Government can well look after its own. Our leaders, however, are apparently prepared to sacrifice the majority of the profession in order to stand well with the Government, public, and Press. I might add that the net result is that the profession at the moment stands well with nobody.

After all, why did we take up medicine? Surely to obtain a living in that branch of life that most interested us. The great majority of us entered the profession after years of toil so that we could earn enough to live in comparative comfort and educate our children as we so desired. We did not enter it to treat the sick and suffering regardless of remuneration. Let us be honest with ourselves and keep those facts before our eyes and not prate all day about the doctor-patient relationship. In private practice we are able to earn enough to satisfy our very modest desires (or we were before the incidence of the present crushing taxation), subject to the fact that we gave a 24-hour service to our patients—and a very good service indeed in the vast majority of cases. If on the other hand we are pitchforked into that awful sea of contract practice, without any private practice wherein to assert our freedom and individuality, our incomes, at least in residential and rural areas, will be

diminished, but not our hours of work. Is that reasonable? Personally I detest the whole idea of being under a contract to treat all my patients, and I can foresee the time, not very far distant, when the patients will also suffer as well as us, not financially but sociologically.—I am, etc.,

East Grinstead, Sussex.

A. C. SOMMERVILLE.

### The Negotiations

SIR,—It is high time that the B.M.A. dropped this veil of secrecy which has hung over Tavistock House since the negotiations began in February and told us: (a) Whether or not we are to be forced into the National Health Service without any knowledge of the intended conditions of work, hours, pay, etc.; (b) whether or not we are to be given another opportunity to vote on the Service, and, if so, when; (c) whether or not we are to accept the Minister's refusal to appoint more than 5% of those representatives nominated by us on the various committees.

The whole matter is very urgent, and these conditions of silence and drift lead one to conclude that the B.M.A. too has come under the veto. It does seem highly important that those designing the Health Service should make sure that the doctors will enter it before going too far with its preparation. May I also suggest that the "compensation of £50,000,000-odd" would be much better employed in bolstering up the nation's general finances at the present time rather than the so-called morale of the profession.—I am, etc.,

Burton-on-Trent.

J. R. SALMOND.

### Dispensers in N.H.S.

SIR,—May I, through your columns, thank Dr. Reginald R. Halsall (Sept. 13, p. 68) for his concern on our behalf. We, the Apothecaries Hall dispensers, appear to have been either ignored or overlooked in the new State Service. I suppose we are still considered by some people as "those people who take the bread-and-butter out of the mouths of chemists."—I am, etc.,

"ONE OF THEM."

### Representation

SIR,—I see in the *B.M.J.* (Supplement, Sept. 13, p. 65) that Local Medical and Panel Committees are due to nominate direct representatives on the Insurance Acts Committee, and that voters in this election are the individual members of the committees. May I bring to your attention the fact that these committees are not, in some areas, representative of the profession, as they were elected before the last war? Thus many of us have had no opportunity to choose our Local Committees. May I also remind you that a few months ago these same committees nominated and elected members of the Executive Committees set up under the new N.H.S. Act?

Surely at a time like this, when we are all anxiously viewing more and more encroachments on our liberty, the profession should be particularly careful to keep its own house in order. Yet here we have bodies elected about nine years ago, who have retained themselves in office, and are performing functions which were never contemplated when they were formed.

Is this democracy?—I am, etc.,

Shoreham-by-Sea, Sussex.

J. MICHAEL JONES.

### Suspension of Basic Petrol

SIR,—*Re* basic petrol: it is time doctors put their claim for special treatment before the public. The miners have focused attention on the dangerous and exacting nature of their work and have successfully obtained prerogatives. The dangerous and exacting nature of a doctor's work must be equally made public if our life is to remain tolerable in the modern socialized State.

A doctor on call 24 hours a day handling increasing numbers of psychological cases—neurotics—as well as the responsible nature of his work, is subject to great nervous strain, which in many cases leads to a breakdown in health and puts the doctor high in the insurance companies' list of bad risks. To get the necessary relaxation to preserve his health and sanity a doctor needs to get away from his practice at least one afternoon a week and get out in the open air. As one of your correspondents says, this is quite impossible without a car. Owing to his limited spare time and liability to sudden recall, it is impossible

to use the ordinary public conveyances, at any rate until such time as we are working on a 40-hours-a-week basis.

I suggest that a deputation should see the Ministry of Transport to put our case, and, failing satisfaction, a meeting be called at Headquarters to draw up a plan of campaign. Believe me it only needs some such action by a section of the community to set the whole middle or oppressed classes in revolt. I believe we could retain our basic ration by concerted action and prove our strength for the many fights we are likely to have after the "appointed day." By insisting on justice for ourselves we would earn the gratitude of the nation—and, if not, what matter? Do the miners care?—I am, etc.,

W. B. PEMBERTON,

London, S.E.1.

Chairman and Representative, Camberwell Division

SIR,—Very properly some of your correspondents raise the issue of the effect of the withdrawal of the basic ration on their professional leisure. There is another aspect which should be covered by an authoritative opinion from Council—viz., the use of cars to attend meetings of the Association, especially meetings of the Branch Council.

In the Provinces often long distances have to be covered to the meeting place, and if the Association cannot secure a rule permitting the use of one's car the work of the Association bound to be very greatly hampered, and such meetings as held will necessarily be less representative. I should be glad through the medium of the *Journal*, to secure widest public to learn that officers of the Association will not be hampered their work.—I am, etc.,

WM. PARKER,

Swansea.

Secretary, Swansea Division

## Association Notices

### AREAS OF MID-ESSEX AND SOUTH-EAST ESSEX DIVISIONS

Notice is hereby given by the Council to all concerned that it is proposed to transfer the urban district of Burnham-on-Crou and the rural districts of Southminster and Bradwell-on-Sea from the area of the South-east Essex Division to that of the Mid Essex Division. Any member affected by this proposal and objecting thereto is requested to write to the Secretary of the Association by Nov. 1, 1947, stating the objection and the ground therefor.

CHARLES HILL,  
Secretary.

### Branch and Division Meetings to be Held

ISLE OF WIGHT DIVISION.—At St. Mary's Hospital, Newport Sunday, Oct. 5, 3 p.m. Film: Early Diagnosis of Anterior Poliomyelitis, followed by a discussion on Health Centres to be opened by Dr. W. S. Wallace. All island practitioners are invited to attend both the film and the discussion.

STOCKTON DIVISION.—At Stockton and Thornaby Hospital, Barmston, field Lane, Stockton-on-Tees, Monday, Oct. 6, 8.30 p.m. Scientific meeting. Prof. J. C. Spence: An Outline of Paediatric Knowledge necessary for the conduct of general medical practice.

### Meetings of Branches and Divisions

#### WANDSWORTH DIVISION

The Ministry of Health film "The Early Diagnosis of Anterior Poliomyelitis" was shown to a meeting of Wandsworth and Battersea medical practitioners at St. James' Hospital, Balham on Sept. 12. The film was introduced by the chairman, Dr. Harecourt Ellis, and was followed by a discussion on the subject opened by Dr. J. S. Anderson, Medical Superintendent, Groves Hospital for Infectious Diseases, who gave an account of the cases under his care and also answered numerous questions. A vote of thanks to all who had contributed to the success of the meeting was proposed by Dr. H. Alexander.

#### WORCESTER AND BROMSGROVE DIVISION

A special meeting of the Division was held in the Worcester Royal Infirmary on Sept. 2, when the Ministry of Health's film "The Early Diagnosis of Acute Anterior Poliomyelitis" was shown. Dr. R. S. MacArthur was in the chair. After the film an interesting discussion took place, opened by Dr. Brian Gaunt, Medical Superintendent of Hill Top Isolation Hospital, who described the cases admitted to the hospital during the present epidemic. Other speakers were Dr. Wyndham Parker, County Medical Officer, Dr. Corlett, Medical Superintendent of Hayley Green Isolation Hospital. Before the meeting adjourned the film was shown again and a vote of thanks to Dr. Gaunt was proposed by Dr. MacArthur and carried with acclamation.



# BRITISH MEDICAL JOURNAL

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## PENICILLIN IN NEUROSYPHILIS\*

BY

C. WORSTER-DROUGHT, M.A., M.D., F.R.C.P.

*Physician, West End Hospital for Nervous Diseases and Metropolitan Hospital*

### General Observations

Penicillin, introduced into therapeutics in 1941, was at first restricted to the treatment of certain specified infections. This limitation was by Government direction, and was mainly due to the necessity for conserving the somewhat scanty supplies. It is only within the last year that penicillin has become available for more general use, and especially for experimental therapeutics. Nevertheless, penicillin already has an established place in the treatment of neurosyphilis. It was recognized quite early that the substance had a definite antispirochaetal action, and in 1943 Mahoney, Arnold, and Harris published the results of treating a series of cases of early syphilis with penicillin. From these and the subsequent observations of other workers it became apparent that the immediate results of treatment with penicillin in early syphilis equalled if they did not exceed those obtained with intensive arsenical and bismuth therapy. Further, there was the added advantage that with penicillin there was little or no risk of toxic reactions. Subsequently, rapid improvement in both the clinical condition and the cerebrospinal fluid changes in various forms of late syphilis was reported.

From the follow-up of cases of early syphilis treated with penicillin alone; however, it became apparent that a moderately high rate of relapse occurred. In addition, it was noted that the percentage of cases relapsing was roughly inversely proportional to the total dosage of penicillin given, in the earlier cases treated this had no doubt been inadequate. These observations finally determined what was considered an optimal total dosage expressed in so many Oxford (now international) units. By June, 1944, penicillin was adopted as the "drug of choice" for the treatment of early syphilis in the U.S. Army in Europe, and, in the autumn of 1944, in the Royal Navy, R.A.F., and the British Army. The standard course was fixed at a total dosage of 2,400,000 units given in doses of 40,000 units every three hours, day and night (60 injections), over a period of seven and a half days. Even with this dosage the average relapse rate in early syphilis appears to have been as high as 15% in some series of cases (Marshall, 1946; King, 1946), while others report an 8% (Marshall, 1946) and 7% (Moore, 1945) relapse rate.

### Dosage and Methods of Administration

Most of the present-day experiences of penicillin in neurosyphilis are based on the results of a dosage and a frequency of administration similar to those of the standard

course referred to above. From subsequent variations of dosage, however, it is clear that we still have much to learn in order to evolve the most satisfactory method of applying penicillin, especially in the treatment of neurosyphilis.

Many authorities have considered it advisable, if not essential, that the concentration of penicillin in the blood should be kept at as high a continuous level as possible throughout the period of treatment. It was found that penicillin disappeared from the blood after four hours from the time of injection. The level of penicillin in the blood therefore could be kept up either by a continuous drip technique or by an intravenous, intramuscular, or subcutaneous injection given every three hours, the average period of treatment required to reach an adequate total dosage being seven and a half to eight days.

Intravenous penicillin therapy has little to commend it. The continuous drip technique is inconvenient, troublesome, and needs special apparatus, while even with repeated single intravenous injections there is a risk of thrombophlebitis (Kolodny and Denhoff, 1946). On the other hand, three-hourly intramuscular injections of penicillin in adequate doses yield equally good if not better clinical results than those following intravenous treatment. Thus, according to Mahoney and his co-workers (1944), relapse was more frequent after penicillin treatment given by intravenous injection (including continuous intravenous drip) than by repeated intramuscular injection.

The recent tendency is towards the administration of a somewhat larger total dosage of penicillin in neurosyphilis. Several authors (e.g., Olansky and Chinn, 1946; Marshall, 1946) advocate a total dosage of 4,000,000 units given in repeated intramuscular doses of 40,000 units every three hours.

Some authors consider that it may not be necessary to keep a measurable level of penicillin in the blood constantly throughout the period of treatment, but that equally good therapeutic effects might be obtained by administering much larger doses at considerably longer intervals—for example, twenty-four hours—until an adequate total dosage is reached. Thus Lloyd-Jones and Maitland (1945) state that single doses of from 300,000 to 500,000 units given daily for eight to fourteen days yield equivalent therapeutic results to those following the usual standard course—namely, 60 injections of 40,000 units given every three hours—although no trace of penicillin can be detected in the blood twelve hours after the massive injection.

I have treated some cases of meningovascular neurosyphilis by this method, giving a daily dose of 500,000 units of penicillin intramuscularly for 14 days, and agree that the immediate clinical response is good. It is far too early,

\*The opening paper read at a joint discussion between La Société de Neurologie de Paris and the Section of Neurology, Royal Society of Medicine, on April 15, 1947.

however, to judge the ultimate results; should these prove satisfactory when cases have been followed up for sufficiently long periods, the problem of treating cases of chronic neurosyphilis in out-patient departments, instead of admitting them to hospital as at present, would largely be solved. If it is eventually shown that a continuous and fairly constant level of penicillin in the blood is really necessary for full therapeutic effects, the preparations of penicillin in oil and beeswax may prove valuable—for example, injectio penicillin. oleosa, B.P.

I have invariably used sodium penicillin in watery solution for injection by all routes and have no personal experience of oil-wax preparations. Harrison (1946), who has been using these preparations, states that after a deep subcutaneous injection of 300,000 units in oil-wax, penicillin can be found in the blood serum for 12 to 16 hours but not at the end of 24 hours. Similarly, Kirby, Leifer, and their co-workers (1946) found that an injection of 300,000 units of highly purified calcium penicillin (of potency 1,000 units per mg. in 1 ml. of peanut oil with 4.8% of beeswax) given by subcutaneous injection maintains an assayable blood level of penicillin for 20 hours. Thus patients can be treated with one injection daily of 300,000 units in oil-wax for 10 to 14 days (total dosage of 3,000,000 to 4,200,000 units). From these observations it would appear that, if the maintenance of a fairly constant concentration of penicillin in the blood throughout the period of treatment proves to be necessary, the use of oil-wax preparations is the method of choice for daily injection in out-patient cases of neurosyphilis. If such a continuous level in the blood should not be necessary, however, then watery or saline solutions of penicillin are preferable, for I am aware that examples of persistence of the oily preparation in the tissues (non-absorption) have been reported, and occasionally a localized and tender induration appears three days after injection of the oil-wax penicillin (Pillsbury, 1945).

#### Penicillin Combined with Arsenicals and Bismuth

In view of the percentage of relapses reported in cases even of early syphilis treated with penicillin alone, and in spite of the initial beneficial effects following penicillin treatment, I have at no time abandoned the use of arsenicals and bismuth—in conjunction with penicillin—in treating cases of neurosyphilis. It is of interest to note that many authors (e.g., Marshall, 1946; McElligott, 1946; Olansky and Chinn, 1946) advocate the combined use of penicillin, arsenicals, and bismuth not only in neurosyphilis but also in early syphilis. It is even possible that a synergistic action exists between the two types of treatment as indicated by the animal experiments of Eagle and his co-workers (1946) and the observations of Levaditi and Vaisman (1946).

Using the standard course of penicillin administered parenterally, the most appropriate method of applying the combined treatment is to give three injections of arsenic and bismuth during the week of penicillin treatment in order to utilize the possible synergistic action (in doses of 0.3 g. of neoarsphenamine and 0.2 g. of bismuth). The course of penicillin is then followed up by 12 injections of an arsenical—0.45 g. of neoarsphenamine or 0.06 g. of "mapharsen" ("mapharside")—and bismuth (0.2 g.) at weekly intervals. Some observers prefer to give the arsenical and bismuth every four days for forty days—10 injections of each substance—using 0.45 g. of neoarsphenamine, 0.06 g. of mapharsen, or 0.09 g. of "neohalarsen," given intravenously, and 0.2 g. of bismuth intramuscularly (McElligott, 1946).

It will not be possible fully to assess the final results of penicillin treatment—even when combined with the older methods—for several years. A careful and prolonged

follow-up of cases is imperative. We can only wait and ascertain what proportion of the thousands of cases of early syphilis treated with penicillin alone in the British and U.S. Forces will eventually relapse or develop some form of neurosyphilis. Consequently, as a result of further observations, it may be necessary to amplify, extend, or otherwise alter the schemes of treatment at present in use.

#### Intrathecal Administration of Penicillin

However advisable in acute meningeal infections such as streptococcal and pneumococcal meningitis, is the intrathecal injection of penicillin either indicated or advisable in neurosyphilis—or can equally good therapeutic results be obtained by parenteral injection alone?

The evidence as to whether penicillin given by parenteral injection is able to penetrate the blood-brain barrier (choroid plexus) into the subarachnoid space has been somewhat contradictory. Thus it is stated that penicillin injected parenterally in standard doses does not reach the cerebrospinal fluid in demonstrable quantities (Marshall, 1946). McDermott and Nelson (1945) found only traces of penicillin in the cerebrospinal fluid after the intramuscular injection of a single dose of 300,000 units or over (which produced a blood concentration of penicillin of 10 units or more per ml.). On the other hand, Schwemlein and his co-workers (1946) claim that penicillin injected parenterally reaches the cerebrospinal fluid in adequate amounts. There is more recent evidence that massive single doses of penicillin—for example, 600,000 units given every hour—may penetrate the blood-brain barrier in larger quantities (Lourie *et al.*, 1945; Lloyd-Jones, Allen, and Donaldson, 1946; Schwemlein *et al.*, 1946).

It is considered by some observers (e.g., Rosenberg and Sylvester, 1944; Dickson Wright, 1946) that if the choroid plexus is damaged by inflammation—for instance, in meningitis—penicillin may reach the cerebrospinal fluid in somewhat larger quantities than normally.

Is it necessary for penicillin to pass the blood-brain barrier in order to exert an adequate therapeutic effect in neurosyphilis (including parenchymatous neurosyphilis)? My answer is "No," since adequate clinical response, with rapid reduction in cell and protein content of the cerebrospinal fluid towards normal, is obtainable in most, if not all, cases of meningovascular neurosyphilis treated by parenteral injections of penicillin; and, further, in forms of parenchymatous neurosyphilis (general paresis and tabes dorsalis) considerable improvement in the pathological cell content and total protein of the cerebrospinal fluid is observed in many cases—as well as a slower decrease in the intensity of the serological reactions. Consequently, whether or not penicillin passes the blood-brain barrier in "adequate" amounts, it is certainly capable of exerting considerable effect on the meninges and central nervous system when given by parenteral injection. In view of these facts it is probable that the reaction between the infecting organism and the antibiotic takes place mainly in the leptomeninges, these membranes being well supplied with blood vessels. In my earlier cases of neurosyphilis treated with penicillin I used the intrathecal route, giving 10,000 units in 10 ml. of normal saline by lumbar puncture every day for eight to ten days, at the same time administering the usual standard penicillin treatment by intramuscular injection (40,000 units every three hours for seven and a half to eight days). I was fortunate in meeting with no excessively severe reactions—as judged by certain published reports, to which I will refer later—but there is often a brisk meningeal reaction accompanied by some pyrexia and generalized pain after the first intrathecal injection. The cerebrospinal fluid drawn off by lumbar puncture on

the following day will be found to contain a larger number of cells (varying from 500 to 10,000 per c.mm. and including a high percentage of polymorphs) and an increased total protein of from 80 to 250 mg. per 100 ml. The pleocytosis persists, but with diminishing intensity, throughout the course of intrathecal penicillin. In *tabes dorsalis* the initial intrathecal injections may provoke a severe attack of "lightning pains."

As a result of further observation and experience with parenteral injections I have now abandoned routine intrathecal injection of penicillin in neurosyphilis, preferring intramuscular injection in adequate dosage, except for certain cases of *tabes dorsalis* with severe and frequent "lightning pains."

If intrathecal injection is decided upon it is best to give 10,000 units of penicillin in 10 ml. of saline daily by lumbar puncture, more than this quantity of cerebrospinal fluid having been drawn off, and to repeat the injection for seven to ten days. (In acute streptococcal and pneumococcal meningitis intrathecal penicillin may be necessary at intervals of 12 hours for the first three or four days.) It has been shown (Cairns *et al.*, 1944) that a single intrathecal dose of 4,000 units maintains an adequate level of penicillin in the cerebrospinal fluid for 24 hours. Penicillin appears in the lumbar cerebrospinal fluid after an intraventricular injection, and administration by lumbar puncture gives rise to a substantial concentration in the cerebrospinal fluid bathing the brain and even in the ventricular fluid. Cooke and Goldring (1945), however, advance the view that the presence of large amounts of penicillin in the cerebrospinal fluid after lumbar intrathecal injection suggests stasis to be the reason for such high concentration, whereas the presence of large amounts of penicillin in the intraventricular fluid suggests that the blood stream may be the source of the penicillin, as the direction of the flow of the cerebrospinal fluid is from the ventricles to the subarachnoid space.

The introduction of penicillin by cisternal puncture in neurosyphilis seems to be not only inadvisable but hazardous according to the results of Neymann, Heilbrunn, and Youmans (1945). These authors report muscular twitchings and generalized convulsions in cases of general paresis, as well as two deaths from what they term "chronic penicillin encephalopathy" following the injection of penicillin by the cisternal route. Lesions of the cauda equina following the injection of penicillin by lumbar puncture have been described, and convulsions have resulted from intraventricular injections (Smith, Duthie, and Cairns, 1946). Also, the American *Year Book of Neurology and Psychiatry*, 1946, refers to motor weakness, optic atrophy, bladder incontinence, neuroradiculitis, mental abnormalities, and cerebral atrophy occurring after the intrathecal and intraventricular administration of penicillin (Siegal, 1945; Walker and Johnson, 1945; Sweet, Stanley, *et al.*, 1945). Some of these effects may have been due to impurities in the penicillin used, as earlier preparations of penicillin issued were considerably less pure than those now available.

#### Therapeutic Reactions

All observers testify to the relative harmlessness of penicillin compared with its unexampled destructive effect on many bacteria. By rapid intravenous injection the penicillin concentration of the blood can be forced up to a level 1,000 times greater than is necessary to produce therapeutic effects without untoward incident (Fleming, Young, Suchet, and Rowe, 1944). Even in early syphilis, however, some 50% of cases treated with penicillin experience varying degrees of malaise and usually slight pyrexia after the initial doses (McElligott, 1946). A few individuals may be sensitive to some constituent of the

penicillin. Generalized urticaria, with or without constitutional disturbance, has occasionally been observed one week or so after the first injection, but it is not an indication for discontinuing treatment (Pillsbury, 1945). Only very few instances of more severe systemic reactions, including profound malaise, continued pyrexia, and toxicodermal reactions, have been reported (Kolodny and Denhoff, 1946). There is no recorded instance of any damaging effect on bone marrow, liver, or other organs. With the more recent, and purer, preparations of penicillin such reactions are less frequent; consequently, the earlier reactions recorded were probably due to impurities. Calcium penicillin is said to be six times more toxic than sodium penicillin, but even this is negligible, as the lethal dose in a man weighing 60 kg. would seem to be over 10,000,000 units (Welch, Chandler, Davis, and Price, 1945).

Herxheimer-Jarisch reactions have been reported from time to time in cases of neurosyphilis in addition to other forms of late syphilis, as well as in early syphilis, treated by penicillin alone. Personally, I have observed no more than a pyrexial reaction following the first or second dose of penicillin (given intramuscularly), and very occasionally some discomfort in the legs with temporarily increased spasticity in cases of meningo-myelitis. To judge from some of the published reports, however, it would seem that I have been fortunate, as various forms of exacerbation of symptoms, including thrombosis, have been observed, and even acute transverse myelitis (McElligott, 1946). In view of the possibility of Herxheimer-Jarisch reactions following penicillin injection, however, I now prefer to give six injections of bismuth (0.5 ml. of "bismostab") every four days in meningo-vascular neurosyphilis, and four injections of bismuth at the same intervals in parenchymatous neurosyphilis, before proceeding with the full course of penicillin.

#### Meningovascular Neurosyphilis

There is abundant evidence that penicillin—in adequate dosage and administered by whatever route—has a striking initial beneficial effect on all forms of meningovascular neurosyphilis, especially acute forms. The therapeutic effect is observed not only in the tendency to subsidence of clinical symptoms but more particularly in the rapid improvement in pathological cerebrospinal fluids. The pleocytosis and the increased protein content will often show a noteworthy decrease within a few days of starting treatment and reach a normal level within two to four weeks. The intensity of the Wassermann reaction (and other serological reactions) in the cerebrospinal fluid gradually decreases and may become negative within two to four months. These results suggest an actual selective action of penicillin on pathological cerebrospinal fluids or meninges, as there is no parallel decrease in the serological reactions of the blood. The blood Wassermann reaction may continue positive for many months, and even indefinitely, after treatment limited to penicillin.

The clinical response of syphilitic meningitis to penicillin (by parenteral injection) is usually immediate and dramatic. In acute forms of the disorder headache and neck rigidity may disappear within 48 to 56 hours, and the increased cell and total protein content of the cerebrospinal fluid rapidly reaches a normal level. The serological response, as stated previously, is somewhat slower. Cranial nerve palsies improve gradually and usually recover. Nelson and Duncan (1944) mention five cases of syphilitic meningitis with cranial nerve palsies, all of which made a good recovery with penicillin treatment, the cranial nerve lesions disappearing completely in four cases. In the remaining case some residual weakness was still present after 98 days.

From the observations of Stokes and his co-workers (1944 to 1946) it is doubtful if any further change towards improvement occurs after four months from the termination of penicillin treatment. Consequently these authors have thought it advisable to repeat the course of penicillin after this four-month interval. At the time of reporting, however, they had noted no conspicuous benefit as a result of repeating the course. Repetition is advocated by other observers. For example, two courses of penicillin of a total dosage of 2,400,000 units at a week's interval (Marshall, 1946) and the usual course of penicillin at intervals of three weeks for two or more courses (McElligott, 1946). Further time must elapse before the value of such repeated courses can be finally assessed.

As stated previously, in most cases of neurosyphilis (especially parenchymatous forms) the serological reactions in the blood—particularly the Wassermann reaction—are little affected by penicillin treatment and will often continue to show positive results long after the cerebrospinal fluid has become normal. This observation may furnish a further argument for following up the course of penicillin with arsenical-bismuth therapy; also relapse may occur in a cerebrospinal fluid that has become normal as a result of penicillin treatment although a return to the original pre-treatment severity is unusual.

### Parenchymatous Neurosyphilis

Even in parenchymatous forms of neurosyphilis, such as general paresis (G.P.I.), the initial effect of penicillin treatment—injected by whatever route—on the symptomatology (usually) and upon the cerebrospinal fluid changes is remarkably good. In cases of early general paresis treated with penicillin alone I have seen the cell and protein content of the cerebrospinal fluid become normal within four weeks, and even a strongly positive Wassermann reaction becomes negative within two months; the blood Wassermann reaction continued strongly positive. Six months later, however, the Wassermann reaction in the cerebrospinal fluid may be found weakly positive, the blood Wassermann reaction still remaining strongly positive. These later results determined me to combine penicillin treatment with the usual course of fever therapy—for example, malaria, 10–12 rigors—in all cases of general paresis; and in *tabes dorsalis* to follow up the penicillin treatment with full arsenical and bismuth therapy.

#### (a) General Paresis

Some authors claim definite clinical improvement in cases of general paresis treated by penicillin alone. As judged by the literature, however, most observers now use penicillin in combination with either the usual arsenicals, "tryparsamide," bismuth, or some form of pyrexial therapy for the treatment of this condition. The results reported are somewhat conflicting. All observers agree, however, that even when penicillin alone is used some improvement occurs in the pathological state of the cerebrospinal fluid in fully 60% of cases. This improvement is not sufficient to guarantee permanent benefit (confirmed by my own experiences); also, it has to be remembered that similar improvement in the cerebrospinal fluid in cases of general paresis may result from initial treatment with arsenical preparations, only to be followed by relapse at a later stage. So far as I am aware no case of general paresis has been reported to have become serologically negative in both cerebrospinal fluid and blood, with the maintenance of clinical improvement, on penicillin treatment alone. The best results appear to have been obtained in those cases treated with penicillin in combination with some form of pyrexial therapy (Goldman, 1945). Some clinicians have used a total dosage of 3,000,000 units of penicillin in conjunction with only "half the usual amount of fever therapy." Rose and his co-workers (1946), for instance, report 49 cases of general

paresis receiving this form of treatment: 25 improved, 21 showed no change, and 3 became worse.

In cases of general paresis treated with full malarial or fever therapy, whether or not followed by courses of arsenical and bismuth injections, the positive serological reactions in blood and cerebrospinal fluid take two to four years to become negative. The addition of an initial course of penicillin to therapeutic malaria certainly appears to hasten the reversal of the positive serological reactions, especially in the cerebrospinal fluid.

From my personal experiences the scheme I would advocate for the treatment of general paresis is as follows:

After four initial injections of bismuth—for example, bismotab 0.5 ml., or metallic bismuth 0.2 g.—to obviate Herxheimer-Jarisch reactions, a full course of intramuscular penicillin is given in doses of 40,000 units every three hours (preferably), or 300,000 units every 12 hours, for a total dosage of 4,000,000 or even 5,000,000 units. This is then followed by the usual standard course of fever therapy—e.g., induced malaria to 12 rigors (if possible, or at least 10). Arsenic and bismuth therapy is then given in weekly doses of neoarsphenamine (0.45 g.) or mapharsen (0.06 g.) or "acetylarsan" (diethylamine acetarsone) (3 ml.) and bismuth—e.g., 1 to 0.5 ml. of bismotab=20% suspension of precipitated metallic bismuth in isotonic glucose solution. Twelve injections of each substance constitute a course. Three such courses should be attempted during the year, the intervals between them depending upon the patient's tolerance and progress. The cerebrospinal fluid is examined every six months and treatment is continued until the serological reactions become negative. A further examination should be made six months later and then at intervals of one year for two years.

In cases of general paresis in which malarial or fever therapy is contraindicated by reason of hyperpiesis or cardiovascular disease one needs to rely on penicillin alone. So far I have had only two such cases, which I have been able to follow up for an appreciable period.

One case, that of a woman aged 47 with early general paresis showing the usual and typical cerebrospinal fluid changes (14 small lymphocytes, total protein 60 mg., Lange curve of parietic type, strongly positive Wassermann reaction, and Mciniec 4431), had aortic valvular disease with regurgitation and a blood pressure of 250/100. She was given 10,000 units of penicillin intrathecally in 10 ml. of saline daily for nine days, and at the same time the standard course of 40,000 units of penicillin every three hours for 7½ days, by parenteral injection. No noteworthy therapeutic reaction occurred, and meningeal reaction following the first intrathecal injection was comparatively slight (cerebrospinal fluid 420 cells—60% polymorphs and 40% lymphocytes—and total protein 100 mg.). Two months later the cerebrospinal fluid showed only two cells, total protein 25 mg., Wassermann reaction negative, and Lange curve still parietic. The blood Wassermann reaction was still strongly positive. Six months later her clinical condition remained satisfactory and the cells and total protein of the cerebrospinal fluid were normal; the Wassermann reaction of the cerebrospinal fluid, however, was now weakly positive and that of the blood still strongly positive.

The second case was that of a man aged 45 with early general paresis, hyperpiesis—blood pressure 240/120—and enlarged left ventricle. The cerebrospinal fluid changes were typical, with strongly positive Wassermann reaction and parietic Lange curve. The usual standard course of penicillin by intramuscular injection was given. He received no intrathecal treatment. Three months after treatment the cell and total protein content in the cerebrospinal fluid were normal and the Wassermann reaction was negative; the Lange curve was still parietic and the blood Wassermann reaction positive. Six months later, (nine months after penicillin treatment) his clinical condition had remained more or less stationary, but the cerebrospinal fluid Wassermann reaction was positive, as was that of the blood; the Lange curve was still parietic in type.

The persistence of the parietic Lange curve in both cases is of interest. With the tendency to serological relapse in these cases, it would seem inadvisable to rely on penicillin alone in the treatment of general paresis if malarial or fever therapy is likely to be tolerated. To detect any tendency to relapse the cerebrospinal fluid should be examined at intervals of six months until the serological reactions have been negative for two years, clinical improvement having been maintained. Taboparesis is treated in the same manner as general paresis.

#### (b) Tabes Dorsalis

No dramatic change is to be expected in *tabes dorsalis* following penicillin treatment, although in common with other forms of neurosyphilis a pathological cerebrospinal fluid usually shows definite improvement, and there is a

improvement in symptoms—even if temporary—in some 40% of cases.

As a result of earlier experiences I have not been in favour of treating *tabes dorsalis* with malarial or fever therapy; this I have stated elsewhere (Worster-Drought, 1940). After two or three years' intensive treatment with courses of arsenical and bismuth therapy most cases of *tabes dorsalis* (and especially early cases) can be arrested and the serological reactions rendered negative. Admittedly, a negative serology does not necessarily indicate arrest of the disease process, and some symptoms—more particularly attacks of lightning pains—are apt to persist.

I now treat cases of *tabes dorsalis* with an initial course of penicillin given intramuscularly. Although all the earlier cases received the usual standard course I have treated later cases with a larger total dosage (40,000 units every three hours, up to a total of 4,000,000 or 5,000,000 units); other cases have received larger doses at longer intervals (300,000 units every 12 hours or 500,000 units every 24 hours, for eight days). The course of penicillin is then followed up with arsenical (neoarsphenamine or acetylarsan) and bismuth therapy in the usual doses. I intend to continue this arsenical-bismuth treatment up to one or two years, according to the progress of the patient's symptomatology and serological reactions, which are determined from time to time at the same intervals as given for general paresis.

Attacks of so-called lightning pains often persist in *tabes dorsalis* even when other symptoms are absent and when the disease is apparently arrested, or at least has reached a quiescent stage, and long after the serological reactions have become negative and the cerebrospinal fluid is normal. I have now treated several cases showing negative serological reactions with courses of penicillin by intrathecal and intramuscular injection combined and by intramuscular injection alone. The results as regards the lightning pains have been variable. In a few cases treated by intramuscular injections only (the usual standard course), relief from lightning pains has occurred without relapse over periods of observation up to 12 months. In other cases a remission of several months' freedom from these pains has followed the course of treatment—that is, considerably longer intervals between the attacks of pain than before treatment—while other cases have remained unaffected.

I have also treated a few cases (*tabes dorsalis* with negative serology and apparent quiescence of the disease apart from the lightning pains) with penicillin given intrathecally (10,000 units in 10 ml. of saline daily for eight days and accompanied by the usual standard course of penicillin injections intramuscularly), and the results as regards subsequent freedom from lightning pains (up to six months' follow-up observation) have been rather better than in those cases treated by parenteral injection alone. The disadvantage of intrathecal treatment, apart from the usual risks, in these cases, however, is that the first intrathecal injection of penicillin is apt to provoke a very severe attack of generalized nerve-root pain accompanied by pyrexia and considerable meningeal reaction.

Some cases of gastric crises have been definitely improved by penicillin treatment, but a few have remained unaffected. I have not observed any material change in Charcot's arthropathy as a result of penicillin treatment.

#### (c) Primary Optic Atrophy

I have been able to convince myself that malarial therapy (preferably followed by bismuth and arsenical treatment) is capable of arresting primary optic atrophy of syphilitic origin (*tabes optica*) from a series of cases followed up to six years after treatment. It is known that 75% of untreated cases become totally blind within three years and 100% within five years (Lehrfeld and Gross, 1938). Consequently the observation of any patient treated must extend to five years or longer before success can be claimed.

The experiences of Moore, Woods, Hopkins, and Sloan in America, ranging from 1932 to 1942, also confirm the beneficial effects of malarial therapy in primary optic atrophy. Only 14.6% of 16 cases of primary syphilitic optic atrophy became blind within three years of treatment, and thereafter there was no rise in the incidence of blindness.

"Excellent initial effects" following penicillin treatment are reported by some observers. Rose and his co-workers (1946) record "apparent arrest of visual loss" in five of six cases of primary optic atrophy treated with penicillin and half the usual amount of fever therapy. In view of the fact, mentioned above, that primary optic atrophy can slowly progress for five years before blindness ensues, it is clearly far too early to consider possible arrest of primary optic atrophy following penicillin treatment alone, and I doubt if complete arrest is possible as a result of penicillin treatment, however administered, without concomitant fever therapy.

I would still advocate full malarial or fever therapy in primary optic atrophy, but I now start treatment with a course of intramuscular penicillin (total dosage of 4,000,000 units) and follow this with 10 to 12 malarial rigors, according to the patient's tolerance. Also, I prefer to follow the malaria with arsenical and bismuth therapy until the serological reactions become negative.

#### (d) Late Asymptomatic Neurosyphilis

Asymptomatic neurosyphilis is a term applied to the condition in which pathological changes due to syphilitic infection exist in the cerebrospinal fluid but the patient neither complains of symptoms nor shows any abnormal neurological signs.

Two types of asymptomatic neurosyphilis must be distinguished: (1) That occurring in the earlier stage of syphilitic infection coincident with or shortly after the secondary stage or period of general invasion (early asymptomatic neurosyphilis). This form of the disorder is of meningo-vascular type and readily amenable to treatment. (2) That detected long after primary infection as a result of an examination of the cerebrospinal fluid either because the blood has been found to yield a positive Wassermann reaction—for example, in a proposed blood donor—or during the routine investigation of a patient with a history of syphilis (late asymptomatic neurosyphilis). It is probable that this latter type is classifiable as a form of parenchymatous neurosyphilis in that the pathological changes in the cerebrospinal fluid are only slightly, if at all, influenced by intensive treatment with the ordinary antisyphilitic remedies. Observations have shown that late asymptomatic neurosyphilis often terminates in general paresis—a fact that led Solomon to term the condition "paresis sine paresi." Even with malarial or fever therapy followed by arsenical-bismuth treatment three or four years may elapse before the serological reactions in the blood and cerebrospinal fluid are favourably influenced.

From the reports on penicillin treatment applied to asymptomatic neurosyphilis it is clear that not sufficient distinction has been drawn between the "early" and the "late" type. As a form of meningo-vascular neurosyphilis early asymptomatic neurosyphilis is rapidly and favourably influenced by penicillin. Also, so far as can be judged at so early a stage, penicillin is most valuable in the treatment of late asymptomatic neurosyphilis even if regarded only as an additional measure. Reports indicate improvement in the cerebrospinal fluid of many cases treated with penicillin alone, although in some of the records it is by no means clear whether the authors are including cases of early asymptomatic neurosyphilis. Stokes and his co-workers (1946) report improvement in 60% of cases of asymptomatic neurosyphilis; also Lloyd-Jones and his co-workers (1946) report that of 10 cases treated with massive daily doses of penicillin (300,000 to 500,000 units) given intramuscularly to a total dosage of 2,400,000 to 5,000,000 units, the cerebrospinal fluids of four of the 10 cases reverted to normal within six weeks (these cases may have been examples of early asymptomatic neurosyphilis). Although the cerebrospinal fluids of the remaining six cases showed improvement (as one would expect) they had not become serologically negative at the time of reporting.

Owing to the known severity of late asymptomatic neurosyphilis as regards prognosis, my view is that the condition should be treated with a full course of penicillin consisting of a total dosage of at least 4,000,000 units given by intramuscular injection in doses of 40,000 units every three hours (preferably), of 300,000 units every 12 hours, or of 500,000 units every 24 hours; with the last-mentioned method the total dosage should



be 5,000,000 units. The period of penicillin therapy is then followed by full pyrexial therapy—for example, malaria, 10 to 12 rigors—and, finally, by the usual arsenical-bismuth therapy until the cerebrospinal fluid is normal and the serological reactions are negative. As with other cases of neurosyphilis, the cerebrospinal fluid should be examined at intervals of six months, and, following a negative result, at yearly intervals for two years.

#### (c) Erb's Syphilitic Spinal Paralysis

This form of parenchymatous neurosyphilis (antero-lateral spinal sclerosis of syphilitic origin) results from degeneration in the antero-lateral portions of the spinal cord, and is notoriously resistant to treatment by all previously known methods. Tucker (1946) has treated four cases with penicillin, giving a total dosage of 2,000,000 to 10,000,000 units by intramuscular injection in repeated doses of 25,000 units every three hours for 10 to 25 days. No improvement resulted. One patient died, six months after treatment, from *Clostridium welchii* infection, and the other three failed to show improvement after 121, 376, and 582 days. In the only case I have been able to treat with penicillin the result was similar.

#### Summary and Conclusions

Penicillin has a definite and established place in the treatment of neurosyphilis.

Most of the present-day experiences are based on the "standard" course of penicillin established in 1944 for the treatment of early syphilis in the British Services and in the U.S. Army in Europe (a total dosage of 2,400,000 international units given by parenteral injection in doses of 40,000 units every three hours, day and night, for seven and a half days).

In view of the percentage of relapses even in early syphilis it is considered doubtful if this course is sufficient for neurosyphilis. It is suggested that a total dosage of at least 3,000,000 units be given to all cases of neurosyphilis and that in parenchymatous neurosyphilis the total dosage should reach 4,000,000 to 5,000,000 units.

It may prove unnecessary to keep penicillin in the blood at as high a continuous level as possible throughout the period of treatment. If so, equally good therapeutic effects may be obtainable with larger doses of penicillin given at longer intervals (300,000 units given every 12 hours or 500,000 units every 24 hours for 8 to 15 days). Such a method would enable cases of chronic neurosyphilis to be treated as out-patients.

Intramuscular injection is the best method of administering penicillin. For reasons given, the intravenous route—either by continuous drip or by repeated single injections—has little to commend it.

There is no evidence that the intrathecal administration of penicillin is of greater therapeutic value in neurosyphilis than when the remedy is given by intramuscular injection. Because of the resulting reactions and the various additional risks intrathecal injection of penicillin is best avoided in most cases of neurosyphilis.

Owing to the risk of possible Herxheimer-Jarisch reactions following the first doses of penicillin, all cases of neurosyphilis should receive an initial series of bismuth injections before starting the full course of penicillin.

The rapid beneficial effects of penicillin on the cell and protein content of the cerebrospinal fluid suggest a special selective action on the meninges or cerebrospinal fluid.

In meningovascular neurosyphilis the course of penicillin should be followed by full arsenical and bismuth therapy in view of the percentage of relapses, even in cases of early syphilis treated with penicillin alone.

General paresis is best treated with an initial course of penicillin of total dosage of 4,000,000 to 5,000,000 units followed by full malarial or fever therapy (10 to 12 malarial rigors). Finally, the usual courses of arsenic and bismuth are advisable until the serological reactions become negative.

In cases of general paresis (and taboparesis) in which malarial or fever therapy is contraindicated by reason of cardiovascular

disease, one must rely on penicillin alone. Some improvement, but not cure, can be expected.

In tabes dorsalis no dramatic change follows penicillin treatment. Cases are best treated with an initial course of penicillin and then with the usual courses of arsenicals and bismuth for two to four years until apparently quiescent and the serological reactions have become negative. Special symptoms such as lightning pains and gastric crises benefit from penicillin in some cases, including those in which the serological reactions are already negative.

Primary optic atrophy of syphilitic origin can be arrested in a fair proportion of cases by malarial therapy. Penicillin alone is not likely to arrest the optic atrophy, but may prove useful in hastening arrest or in bringing about arrest in an even larger proportion of cases. Treatment should consist of an initial course of penicillin of total dosage 4,000,000 to 5,000,000 units, followed by full malarial therapy (10 to 12 rigors) and afterwards arsenicals and bismuth. Observation of any patient must extend to five years or longer before success can be claimed for any form of treatment.

A distinction must be drawn between early asymptomatic neurosyphilis and late asymptomatic neurosyphilis. The latter condition, being of serious import, must be treated with penicillin and malarial or fever therapy on the same lines as general paresis.

At least five years must elapse before we can determine fully the value of penicillin in neurosyphilis.

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## THE MODERN TREATMENT OF NEUROSYPHILIS

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During the last eight years over 50 patients suffering from various types of neurosyphilis, chiefly in the earlier stages, have been treated in this clinic by three different methods. Twenty-five who had not responded satisfactorily to pentavalent arsenic and bismuth were treated by infection with tertian malaria, followed by chemotherapy (Lescher and Richards, 1944). Ten more were given penicillin alone; and a further 19 were treated by malaria combined with penicillin. Forty-seven have been followed up both clinically and serologically, examinations of the spinal fluids having been made at definite intervals. It is our intention here to try to compare the results of these three different methods of treatment.

### Treatment of Neurosyphilis with Malaria and Chemotherapy

Until recently it was considered that the most satisfactory method of treatment of neurosyphilis was with malaria, followed by tryparsamide and bismuth. The latest review by Nicol (1946), who treated and followed up 217 patients suffering from taboparesis or dementia paralytica. Over 50% improved clinically, and in 70% the spinal fluids became negative. Of the 25 patients in our series who were treated by this method, 20 have been followed up for from five to eight years (Tables I and II).

TABLE I.—Clinical Results after Treatment with Malaria and Chemotherapy

Type	No.	Much Improved	Improved	Stationary	Worse
Meningovascular	5	4	1	—	—
Tabes	10	2	4	—	—
Tabes with marked optic atrophy	4	—	—	2	2
Dementia paralytica	1	—	1	—	—
Totals	20	6	6	4	4

TABLE II.—Serological Results after Treatment with Malaria and Chemotherapy

Type	No.	Cerebrospinal Fluid				Blood		
		Strong Pos.	Weak Pos.	In-active	Neg.	Neg.	Im-proved	Pos.
Meningovascular	5	—	—	2	3	3	2	—
Tabes	10	1	2	1	6	6	2	2
Tabes with marked optic atrophy	4	—	—	3	1	1	1	—
Dementia paralytica	1	—	—	1	—	—	1	—
Totals	20	1	2	7	10	10	6	4

In classifying the spinal fluids in neurosyphilis Dattner's method (Dattner *et al.*, 1944) has been adopted. The various groups may, however, merge one into another.

(1) *Strongly Positive*.—Cell count and total protein increased. Paretic gold curve (first zone). Strongly positive W.R.

(2) *Weak Positive*.—Cell count normal or slightly raised; amount of protein increased. Paretic gold curve. W.R. strongly positive to positive.

(3) *Inactive Fluid*.—Cell count normal; marked reduction in the total protein. Gold curve may or may not be positive. W.R. positive.

(4) *Negative Fluid*.—Cell count normal; normal amount of protein. Normal gold curve. Negative W.R.

Each patient in the series was infected with tertian malaria, and ten bouts of fever were generally allowed. The duration of each bout averaged from eight to twelve hours, and no difficulty was experienced in stopping the infection by means of quinine. During the stage of fever the intake of fluids and the output of urine must be watched, and the urine should be tested for its salt content, as there is a danger of salt depletion. No complication occurred. Care was taken, however, not to employ malarial therapy in any patient of poor nutrition, or in those suffering from debilitating diseases or infections, especially those of the kidneys and bladder. Further, malarial therapy was not given to those in whom there was evidence of damage to the cardiovascular, renal, or hepatic system.

To assess accurately the clinical results in a chronic disease so complex as neurosyphilis is far from easy, for clinical improvement depends not only on the death of the spirochaete and the subsidence of the inflammatory reaction but also on the extent of destruction of nerve tissue. It cannot be expected, then, that scarred and destroyed nervous tissue can ever be restored to normal by treatment, or that nervous wrecks can be rehabilitated. The results of treatment in the present series (Table I) conforms in most respects to the results obtained by others. There is often improvement in the general health, as well as in such symptoms and signs as lightning pains, ataxia, and disorders of micturition, and in libido. In some, arrest of failing vision was noted.

However, the clinical disappointments are to some extent offset by the almost mathematical accuracy of the information on the activity of the disease and the need for further treatment gained by serial examinations of the spinal fluid. For in neurosyphilis there is a definite relationship between the pathological state of the nervous system and its reflection in the spinal fluid. Dattner *et al.* (1944) say that "for evaluating the success of treatment in neurosyphilis the spinal fluid syndrome is a far better guide than clinical symptoms." Whelan (1946), after examining a series of patients suffering from dementia paralytica and taboparesis, found that the majority of spinal fluids became inactive within six to twelve months after the termination of treatment with malaria, and, further, that there was a strong probability that the reactions would become negative in from one to three years without any further treatment. She found also that these fluids seldom reverted. Our experience, on the whole, bears out these conclusions.

### Treatment of Neurosyphilis with Penicillin

Although penicillin is being used alone or combined with malaria in the treatment of neurosyphilis in many clinics in this country, few detailed accounts have as yet appeared in the medical press; a number of communications have, however, come from the United States. The earliest was from Stokes and his fellow workers (1944), but as it was a preliminary report no definite conclusion could be reached except that of encouragement. Later the same authors (Stokes *et al.*, 1946) claimed successful clinical and serological results from treatment with penicillin in 197 patients suffering from various forms of neurosyphilis. They found that the maximum improvement occurred in the first 120 days after its use, although it could continue beyond this time. Relapses were infrequent; little difference was found between high dosage (5–8 mega units) and low (1–4 mega units); no better results were obtained from a repetition

of the course. Gammon and his associates (1945), Nelson and Duncan (1945), Rose (1945), and Smith (1947) also reported successful results. O'Leary, Brunsting, and Ockuly (1946) and Mohr and Moore (1946) observed great serological improvement after the use of penicillin, but clinically the results were not so striking. No significant advantage was found to occur with amounts greater than 5 mega units. Marshall (1946) gives two courses of penicillin, followed by chemotherapy, with clinical improvement. Callaway and his associates (1946) consider that treatment with penicillin is more effective than with malaria. On the other hand, Rose and his colleagues (1945) concluded that there was little to choose between malarial therapy followed by trypanamide and that of penicillin alone. Bruetsch (1946) found that penicillin is not so efficacious as malaria in the treatment of syphilitic optic atrophy.

In the above reports a total of 1-10 mega units of penicillin was given in divided doses, intramuscularly, every three hours. The intrathecal route has also been employed. Goldman (1945) considers that the results justify further study, but he gives no account of a follow-up. O'Leary, Brunsting, and Ockuly (1946) and Thrasher (1945) also claim more rapid serological reversals with this method. McDermott and Nelson (1945), Marshall (1946), and Neymann, Heilbrunn, and Youmans (1945), however, consider that this route is dangerous. But as penicillin which contains at least 90% penicillin G (II) and is free from impurities has been issued for special purposes—for example, for intrathecal injection—since these reports, any irritant property that it formerly possessed should be of a lower degree.

Ten patients in our series were treated each with intramuscular injections of penicillin in oil, 125,000 units twice daily, until four mega units had been given. The course was preceded by smaller doses for the first two days to avoid the possibility of a Herxheimer reaction (Tables III and IV). They have been followed up both clinically and

give the answer to this problem; most investigators have certainly stressed this.

### Treatment of Neurosyphilis with Malaria and Penicillin

It is now established that penicillin is a definite spirochaetocidal agent; and malaria has stood the test of time as an effective therapeutic method in the treatment of neurosyphilis, very probably by raising in some manner the immunity of the host, besides having itself a spirochaetocidal action. Eagle and Musselman (1944) have found that the rate at which spirochaetes were killed *in vitro* by penicillin increased with a rise of temperature, the optimum being 39-40° C. It seems reasonable, therefore, to expect that owing to their complementary action a combination of these two methods may be likely to enhance the beneficial effects of either.

A few papers giving preliminary results of this combined treatment have appeared in the United States. However, no reports have yet been published in Great Britain, although the method is being employed in some clinics in this country. Rose and his associates have so treated 70 patients with clinical and, to a greater extent, serological improvement. Reynolds, Mohr, and Moore (1946), and Rose and Solomon (1947) consider that this combined method is superior to that with penicillin alone; Nicoll (1946), despite his success with malaria and trypanamide, advocates treatment with malaria together with penicillin. O'Leary, Brunsting, and Ockuly (1946), however, have found no appreciable difference either clinically or serologically with the combined treatment, compared with that of malaria alone, except in the asymptomatic and meningeal forms of disease.

We started in August, 1945, to use penicillin combined with malarial therapy. Nineteen patients suffering from various forms of neurosyphilis, mostly in the earlier stage, have been so treated and followed up (Tables V and VI); others are at present undergoing this method of treatment, but are not included in this review.

TABLE III.—Clinical Results after Treatment with Penicillin

Type	No.	Much Improved	Improved	Stationary	Worse
Meningovascular	2	2	—	—	—
Tabes	6	1	2	2	1
Taboparesis	2	1	1	—	—
Totals	10	4	3	2	1

TABLE IV.—Serological Results after Treatment with Penicillin

Type	No.	Cerebrospinal Fluid				Blood		
		Strong Pos.	Weak Pos.	In-active	Neg.	Neg.	Im-proved	Pos.
Meningovascular	2	—	—	2	—	—	1	1
Tabes	6	—	1	2	3	2	1	3
Taboparesis	2	—	—	2	—	—	1	1
Totals	10	—	1	6	3	2	3	5

serologically. There is a difficulty, however, in comparing the results obtained at the present time with penicillin with those obtained with the earlier preparations, for penicillin has been a changing mixture. Formerly much of it contained an appreciable amount of penicillin K, which is inefficacious against *Treponema pallidum*, and this may have been responsible for the poorer results obtained in the treatment of syphilis. At present penicillin of a purity of 90% can be produced, and it does not contain K substance in any significant amount; but to assess accurately the value of penicillin in the treatment of neurosyphilis more knowledge is required, especially as regards the dosage and the duration of treatment. Time and experience should

TABLE V.—Clinical Results after Combined Treatment with Malaria and Penicillin

Type	No.	Much Improved	Improved	Stationary	Worse
Asymptomatic	3	3	—	—	—
Meningo-vascular	1	1	—	—	—
Tabes	8	3	2	3	—
Dementia paralytica	7	2	3	2	—
Totals	19	9	5	5	—

TABLE VI.—Serological Results after Treatment with Malaria and Penicillin

Type	No.	Cerebrospinal Fluid				Blood	
		Strong Pos.	Weak Pos.	In-active	Neg.	Neg.	Im-proved
Asymptomatic	3	—	—	1	2	1	—
Meningo-vascular	1	—	—	1	1	—	—
Tabes	8	—	1	4	3	3	1
Dementia paralytica	7	1	—	5	1	2	—
Totals	19	1	1	10	7	6	2

A wax-oil preparation of penicillin was given just before and during the acute stage of the malarial infection, 250,000 units being injected twice daily, to a total of 4 mega units. To avoid the possibility of a Herxheimer reaction, a small dose was given for the first two days. It was confirmed that penicillin had no inhibiting effect on *Plasmodium vivax*. These patients attended the follow-up department at regular intervals afterwards, and the changes in the spinal fluids were carefully watched. One problem has been practically solved. A patient will not submit willingly

eriodic lumbar punctures if each is followed by a severe headache; but since we have started to use the fine Dattner needle the complaint of post-puncture headache has rarely been made. Follow-up lumbar punctures are performed in the out-patient clinic, and the patient leaves shortly afterwards.

### Comparison of the Three Methods of Treatment

Two difficulties are apparent in attempting a just comparison between these three different methods of treatment. The number of patients in each series is too small to draw an absolute conclusion; and enough time has not elapsed to complete a thorough follow-up of those who have been treated with penicillin or with penicillin combined with malaria. This paper must therefore be considered rather as an interim report.

In comparing the various tables, after reducing the figures to percentages, the best clinical results are seen to have been achieved with malaria and penicillin, closely followed by those obtained with penicillin alone; the results obtained by combined treatment with malaria and chemotherapy come last.

Serologically there are several points to notice. In our series a greater number of positive spinal fluids became inactive within six months after the combined treatment with malaria and penicillin than with the two other methods. So rapidly may this change occur that some fluids have been found to become inactive directly after the termination of this form of treatment. The total number of spinal fluids that have become inactive and negative is higher in those treated with malaria and penicillin and with penicillin alone; but more fluids have become negative and remained negative after malaria and chemotherapy. It is possible, however, that it is merely a question of time, since those patients who have been treated with the latter therapy have been followed up for a longer period; and there is reason to suppose that in time more spinal fluids of these patients treated with malaria and penicillin will eventually become negative. After treatment with malaria and chemotherapy a greater percentage of spinal fluids remain positive than with the two other methods.

It seems, therefore, that in active neurosyphilis the method of choice, at least for the present, is to treat the patient immediately with penicillin and malaria (provided there is no contraindication to the latter). If at the end of twelve months from the termination of this method of treatment the spinal fluid is still found to be positive, or if it remains inactive after two years, treatment with penicillin or with penicillin and malaria can be repeated. Even in "burnt-out" cases of neurosyphilis with subjective sensations and objective signs, but with negative spinal fluids, clinical improvement may still occur with further treatment.

### Treatment of Latent Neurosyphilis

There is enough evidence to show that *Treponema pallidum* may invade the central nervous system early in the septicaemic stage of the disease, yet the organism can remain latent for a varying period without showing clinical evidence. In asymptomatic neurosyphilis, which can easily be detected by the examination of the cerebrospinal fluid, correct therapy is of the greatest importance, for by it further progress can be prevented. Thorough treatment with trivalent arsenic, together with bismuth, will often at an early stage cause a positive fluid to revert permanently to normal. For in dealing with neurosyphilis it is not enough to wait for obvious clinical signs of disease, as by his time irreparable damage has been done. The spinal fluids of all patients who have received adequate treatment

for early syphilis should therefore be examined at the end of the first year of treatment. A positive fluid will mean that there is a danger that the patient may at any time develop clinical neurosyphilis, with pathological changes in the brain or spinal cord. In our opinion intensive treatment, preferably with penicillin and malaria, should under these circumstances then be started.

It is also advisable to employ the latter method of treatment in those who show evidence of latent neurosyphilis of longer standing. If a positive Wassermann reaction in the blood is found in a person with no other signs of syphilis, and who has not had adequate treatment, it will often be observed that the spinal fluid is also positive. (We have seen this a number of times in prospective blood-donor volunteers on whom a blood Wassermann reaction has been performed as a routine.)

### Summary

Forty-nine patients suffering from neurosyphilis in varying forms and degrees have been treated by one of the following three methods: 20 with malaria and chemotherapy, 10 with penicillin, and 19 with malaria together with penicillin.

Each patient has been followed up clinically and serologically. An attempt has been made to compare the results of these three different methods of treatment.

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The Communist Party has issued a pamphlet entitled *Health Centres* (3d. post free from Central Books, Ltd., 2-4, Parton Street, London, W.C.1). This memorandum outlines advantages to the general public to be obtained from health centres, as well as those to the medical profession, such as regular hours off duty and periods for postgraduate study. It suggests that the most suitable size for a health centre in an urban area covering a population of 10-20,000 would be for 5-10 doctors. There would be individual consulting rooms, one comfortably furnished waiting room, a large treatment room providing facilities for minor surgery, a rest room, a reception office, and a dispensary. In addition there would need to be W.C.s, store rooms, a kitchen, and accommodation for staff. Such a centre would require 4-8 nurses, 2-4 clerks, 1-2 dispensers, a cook, and several domestics. Ancillary diagnostic and therapeutic aids could be obtained at the nearest hospital, the patient being sent direct from the centre with a request for the desired examination without having to see a specialist at the hospital. In country areas health centres would be smaller, being staffed by perhaps 2-4 doctors. The memorandum contends that "there is an urgent need to get the idea of health centres realized in practice immediately following the inception of the National Health Service," but it recognizes that it will be necessary to improvise in view of the resources available.

## PRIMARY MENINGOCOCCAL OPHTHALMIA

BY

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The following two cases, seen in Leeds school-children, are considered worthy of record because the condition is uncommon and was relatively unknown until the recent war, during which several cases have been described. With the exception of the four cases of Hayden and Hayden (1939), Bennett (1940), and Clifton and Laird (1941); all cases in which the literature has been available to us have occurred in America.

## Case I

A boy aged 7 years reported at the ophthalmic casualty clinic with a sore left eye which had troubled him since the previous evening. Examination showed a left acute purulent conjunctivitis; the cornea was hazy, it did not stain, and there was no hypopyon. The right eye was white. Hot steam bathings, mercury oxycyanide lotion 1/8,000, and dark glasses were ordered. On the next day there was no pus but still a marked injection of the conjunctiva. Fluorescein showed a superficial corneal involvement. The following day the boy was admitted with a central corneal ulcer; a swab was taken, and the lacrimal sac syringed and found patent.

Treatment in the ward consisted of thrice-daily hot bathings and application of ung. atropin. 1% twice a day. In seven days the corneal lesion had healed, though there was slight peri-corneal injection, and he was discharged home. Seen as an out-patient three days later, he still had this residual injection, and 30% sulphacetamide drops twice daily were ordered. Six days later the eye was white. No corneal scar remains—evidence that Bowman's membrane was not involved in the ulcerative process of the cornea. Vision in both eyes is 6/6.

**Bacteriology.**—On first isolation a moderately heavy pure culture of *Neisseria* was obtained; the organism grew rapidly and healthily on ordinary chocolate agar without a carbon-dioxide atmosphere. It was strongly oxidase-positive and had the morphological and cultural characteristics of the meningococcus. In view of the possibility that this was a relatively non-pathogenic *neisseria*—such infections having been reported—an interim report was sent, and the organism was subcultured into fermentation-heated blood broth. As the organism fermented glucose and maltose but not sucrose it was considered to be a meningococcus. By the time these fermentation reactions had been checked the eye showed only slight injection.

## Case II

A year later a boy aged 6½ years reported to the out-patient department with a four-day history of a sore and discharging left eye. Examination revealed a chemosis of the left conjunctiva with pus at the inner canthus. There were also two raised nodules on the bulbar conjunctiva, some 2 to 3 mm. in diameter and each discharging pus. The cornea was clear. The right eye was white. A swab was taken and the boy sent home with the eye covered by a flap of lint, and with instructions that hot-spoon bathings should be given three times a day and penicillin drops, 2,000 units per ml., instilled three-hourly. Two days later the eye was much improved; treatment was continued. When seen after a further two days—that is, four days' treatment in all—the eye was white. The local penicillin treatment was continued for another two days. The vision in both eyes is now 6/6.

**Bacteriology.**—A swab was taken at the first attendance. On initial isolation a profuse pure culture of *Neisseria* was obtained. The coccus had exactly the same characteristics as that isolated in Case I, and gave a positive agglutination reaction with anti-serum to meningococcus Type II only. The organism was therefore a meningococcus. It was markedly sensitive to two

drops of penicillin (2 units per ml.), using the "punch-plate" technique. An eye swab taken one week later gave no growth on chocolate agar after incubation for three days. In view of the possibility of an auto-infection, if the child was a carrier, a West's nasopharyngeal swab was taken. No meningococcal colonies were obtained, though  $\beta$ -haemolytic streptococci, *Haemophilus*, and a few *Neisseria catarrhalis* strains were cultured. It was unfortunately not possible to obtain swabs from the patient's younger brother.

In both the above cases there was no complaint of a sore throat, either before or during the period of eye infection nor was any history obtainable of contact with a case of meningitis. No case of meningococcal infection (meningitic, septicaemic, or conjunctival) occurred subsequently among the family of either patient, although the boy in Case II slept in the same bed as his younger brother. It is, however, of interest that, two months later, both the brothers were attacked at the same time by bilateral pneumococcal conjunctivitis, and ten days later their father also became infected. The probability, therefore, may well be that meningococcal ophthalmia is not highly infective—a suggestion supported by the general rarity of the condition. It is, however, possible that some cases have remained undiagnosed because, as records show, confusion between this condition and blennorrhoea has been caused by direct examination of pus by the stained-smear technique only, a full cult investigation not being undertaken.

## Discussion

Cases of meningococcal ophthalmia so far reported appear to fall roughly into three natural groups:

**Primary cases:** (a) not complicated by meningitis; (b) which cerebrospinal fever follows the conjunctivitis (Re 1936; Mangiaracine and Pollen, 1944).

**Secondary cases**—those occurring as an associated infection during and/or shortly after an attack of cerebrospinal fever (e.g., Cushing, 1940).

The possibility of an ensuing meningitis indicates need for early recognition and treatment in uncomplicated primary cases. Meningococci have been isolated from conjunctiva by various workers (Duke-Elder, 1938), and is presumed that, like the nasopharynx, with which it is continuous, it acts as a "carrier" reservoir and is potential source of invasion, whether or not inflammation supervenes.

The records show that the methods of treatment adopted have been: (1) local symptomatic, with or without syster sulphonamide; (2) local sulphonamide, with or without systemic sulphonamide; (3) systemic penicillin (Herr 1945). Choice of method did not seem to affect noticeably the return of the eye to normal, but local chemotherapy would seem desirable from the point of view of removing the meningococcus from a potentially dangerous site soon as possible.

Some salient features of the condition, culled from the literature, with the addition of our own cases, are brought out in the following table.

	No. of Cases
Total cases .. .. .	2
Age group:	
Under 2 .. .. .	18
2-25 .. .. .	0
Over 25 .. .. .	10
No indication .. .. .	21
Sex:	
Male .. .. .	2
Female .. .. .	7
No indication .. .. .	8
Average duration in days .. .. .	12
Bilateral in .. .. .	5
Corneal ulceration present in .. .. .	1
Complications:	
Meningitis followed in .. .. .	2
Meningococcal septicaemia followed in .. .. .	1
Source of infection:	
History of sore throat (meningococci recovered in 1 case) .. .. .	1
History of contact with meningitis .. .. .	1
Direct implantation from throat .. .. .	1

\* Same cases.



The predominance among males is well seen, the only specifically mentioned female cases being direct contacts of meningitis. (Mangiaracine and Pollen give no indication of the sex of five of their patients.) In nearly half the cases both eyes were involved, either simultaneously or at short intervals; corneal ulceration is mentioned in one-sixth of cases; in no case was the eye permanently damaged by the infection. Meningitis is an unusual but possible sequel.

### Summary

Attention is drawn to the importance of recognizing the meningococcus as a primary cause of conjunctivitis.

Two cases in Leeds school-children are described, the first being treated eventually by local sulphacetamide and the second by local penicillin, with good results.

Some aspects of the literature are discussed.

We wish to thank Mr. John Foster, honorary ophthalmic surgeon of the Leeds General Infirmary, who was in charge of these cases, for his interest and encouragement and for his permission to publish this account. Our thanks are also due to Prof. J. W. McLeod, professor of bacteriology in the University of Leeds, to our colleagues in the department, and to Prof. A. Loewenstein for such helpful advice and criticism.

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Those marked with a \* were used in the compilation of the Table.

## THE BIOCHEMISTRY OF SENESCENCE\*

BY

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Ray Lankester differentiated between "specific longevity" (the expectation of life at birth of a normal individual) and "potential longevity" (the duration of life which might be expected under an ideal environment). Knowledge of the processes involved in senescence, by which term we usually imply the generalized weakening of the vitality that accompanies growing old, may be expected to narrow the gap between specific and potential longevity. No doubt a gap must always remain, for even if we knew enough to provide the ideal physiological environment with complete protection from disease, and if we had the wit to apply our knowledge, there would still be occasional accidents.

The use of the term "potential longevity" implies a belief that the life of an organism is in fact limited and that senescence with ultimate death is its necessary fate. It is perfectly possible to argue that certain single-celled organisms are potentially immortal, since, given the

proper environment, they appear to be capable of reproducing themselves indefinitely. In one experiment extending over five years a single cell of paramecium was shown to be capable of producing  $2^{3020}$  similar cells (equivalent to  $10^{900}$  times the volume of the earth), and the last cultures showed no signs of senility. But even if we admit that a complex organism such as man may be regarded as potentially immortal in the special sense that he can apparently produce children who in turn can reproduce their species, and so on *ad infinitum*, we have no reason for believing that the individual man can escape death. In studying senescence, therefore, we are not looking for the *elixir vitae*; we are seeking, from the point of view of abstract knowledge, to understand the changes produced by the passage of time; and by applying such knowledge we may hope to achieve a closer approximation between "specific" and "potential" longevity, with, in particular, an extension of the period of active and useful life. To believe in the possibility of such an approximation and to attempt its achievement is not to deny the proposition that heredity plays an important part in determining longevity. Whatever part heredity may play, be it great or small, the actual duration of life is the resultant of the effects of inheritance and environment. We may at least seek by knowledge and the application of knowledge to influence the latter.

### Changes in Basal Metabolic Rate

There are many scattered references in the literature to quantitative changes associated with old age, in the composition of body fluids, in the estimated need for particular nutrients, and in the functional capacity both of individual organs and of the body as a whole. Perhaps the best-known of these is the change in the basal metabolic rate. The "prediction tables," produced by estimating the B.M.R. of considerable groups of subjects of different ages, indicate that the B.M.R. is practically constant during adult life to the age of 40, but thereafter falls each decade by approximately 1 calorie per sq. metre per hour. The differences between the age groups are statistically significant. Since this relationship between age and metabolic rate may be of fundamental importance it behoves us to examine it very carefully before accepting it at its face value. We may believe that the average B.M.R. of 100 men in the age group 60-70 is lower than that of a similar number of men aged 30-40. But, even though gross disease be excluded, a group of 100 men may be expected to include some with pathological changes not detectable by anything short of a most rigorous clinical examination—and perhaps not even then. The number is likely to be greater among the old than among the young. Is, then, the lower average B.M.R. of the older men due not to their greater age *per se* but to the greater incidence of pathological changes which may occur at any age but are commoner among the old? This is, of course, a difficulty of interpretation which must occur in any measurement comparing the old and young when the subjects are chosen only as "apparently healthy." It is obviously a serious difficulty and one which must be faced if we are to disentangle the changes inherent in the ageing process from those due to coincident disease. It is possible to get evidence on this point. In a small number of individuals the B.M.R. has been measured at frequent intervals over a considerable number of years. In two such cases the measurements extended roughly from age 40 to 60, during which period there were no more than inconsiderable changes in height and weight; in both the B.M.R. was significantly lower at 60 than at 40, though both individuals remained in good health. In a third case, over approximately the same period, the B.M.R. did not fall, and in this case the body weight was greater and the general

\* Lecture to the Postgraduate Class of Internal Medicine, Edinburgh, June 10, 1947.

health was better at 60 than at 40 years of age. These results, though one would have preferred them from a greater number of cases, undoubtedly support the view that the B.M.R. is an expression of "vitality" and that in the absence of detectable disease it decreases appreciably in later life.

If, then, we accept the view that the observed decrease in the B.M.R. is an expression of the process of senescence, some at least of the other changes which have been reported may be related to it. For if the total energy production is decreased, a decrease in energy usage for certain of the individual processes must be postulated—there must be reduced activity in some of the directions in which energy is expended. Thus, although the secretion of gastric juice is not strictly a "basal" activity, the reduced cellular metabolic rate in old age may well be associated with the much greater incidence of hypochlorhydria (or even achlorhydria). It is stated that whereas achlorhydria occurs in about 4% of young adults it is found in some 30% of persons over 60—and one cannot imagine this phenomenon being accounted for by a differential death rate in favour of achlorhydric.

#### Other Changes

Similarly, we might consider the lowered rate of energy production as contributing to the change in glucose tolerance which appears to accompany old age. The range of the response to the ingestion of 50 g. of glucose is very different for young adults and for old. The old usually show a blood-sugar maximum later (and higher) than the young, and the subsequent fall is slower, so that in many cases the fasting level (itself higher on the average than that of young people) is not attained within the usual period of two hours. It is by no means unusual for the blood-sugar curve to be such that in a young person it would be regarded as frankly diabetic—and this in the complete absence of any of the symptoms indicative of diabetes. Apart from the question obviously raised—What is diabetes?—these findings could be explained on the supposition that in old age both absorption of glucose from the alimentary tract and glycogen formation have become less efficient, and, since both these processes involve the expenditure of energy, they could be regarded as associated with the more sluggish metabolism expressed in the lowered B.M.R. It is true, however, that other interpretations of the tendency towards reduced glucose tolerance are possible, and we shall have occasion later to refer to at least one of these.

Again, decreased metabolic activity may be considered a causative agent in the decreased concentration of plasma proteins which, with the expected accompaniment of an increased blood sedimentation rate, has been found in old age.

Some of the changes which have been reported as accompanying old age are almost certainly not factors in the process of "growing old"—that is, in the essential evolutionary processes—but are a statistical result of the more frequent occurrence among old people of diseases which may be found at any age. For example, it has been stated that the plasma non-protein nitrogen tends to rise in old age, that (as one would expect if the preceding statement were true) the blood urea is also raised, and that the urea clearance diminishes. Examination of the data shows, however, that there is no general progressive change of the blood urea or the urea clearance with increasing age; there is a tendency for the blood urea to be more often increased above the average for young people and for the urea clearance to be more often decreased. The "spread" becomes greater, suggesting strongly that the data merely express the increasing frequency of renal functional impairment.

Nevertheless, the very fact that renal failure and other "pathological" changes are much commoner in the aged than in the young indicates that, secondary though they may be to the fundamental changes involved in ageing, they may be closely bound up with those changes. Detailed examination of such functional disturbances and their age distribution might well yield valuable contributions to the solution of the major problem. The more information we can gain of the changes in old age, whether they form part of the essential process of ageing or whether they are secondary to these, the nearer we shall come to fitting together our jigsaw puzzle.

#### Nutritional Problems

In any comprehensive study of the ageing process nutritional problems must have an important part. We know a certain amount (though less than would sometimes appear) about the nutritional requirements during the period of growth. We know less about the requirements in later life. This is partly because growth itself is a phenomenon so obvious and easily measured that nutritional studies are much easier during that period than adult life, when the criteria of good nutrition are difficult to define. Partly it is due to the impression that proper nutrition during the growth period presented a problem more urgent than that of nutrition in adult life, when superficially at least, there seems to be greater tolerance of dietary variations. There are, however, some suggestions that more intensive investigation is required of the nutritional environment ideal for later life. Nor ought we to forget that senescence and growth are intimately related: a famous aphorism has it that senescence begins at birth.

Determination of the vitamin content of tissues has been possible for only a few years (and the results must still be accepted with caution), but there are indications of changes associated with age, although so far these have been demonstrated only by comparison of adult animals with young growing animals and with embryos. Extension of such investigations to old age is required, with further work on the influence of the nutritional environment on the tissue content of vitamins.

It has been shown in rats that a diet qualitatively as well balanced as possible but quantitatively insufficient for rapid growth promoted longevity and postponed the changes associated with old age. This, of course, is in keeping with the greater "expectation of life" of middle-aged people who are slightly below the average weight. Are we, then, wrong in providing (or attempting to provide) for our children a diet which not only contains the essential nutrients but is so generous in quantity that it induces rapid growth? A high-fat high-carbohydrate intake (which is in fact provided by any ordinary high-calorie diet) is by no means an unmixed blessing—it is no new idea that overfeeding may be a factor in the causation of diabetes, and various facts support the idea. Much evidence relates atherosclerosis to an excessive intake of fat and, especially, cholesterol; and there are data suggesting that the same factors may be concerned in the production of arteriosclerosis in man. Evidently research on the nutritional environment appropriate to maturity and old age may do much to diminish the incidence of serious metabolic disorders in older people, besides, in due course, contributing to our knowledge of the fundamental processes of growth and ageing. Elimination of disorders attributable to faulty nutrition would, apart altogether from incidental contributions to fundamental knowledge, undoubtedly reduce very considerably the gap between specific and potential longevity and so be of immense practical value.

### Rate of Growth

A single-celled organism implanted in a suitable medium multiplies and so grows, the rate of growth continually increasing until a point is reached at which the supply of nutrients becomes insufficient to maintain the rate; thereafter growth slackens and then ceases, and the organism eventually dies from what is, in effect, starvation, or from the accumulation of the end-products of metabolism. Man also grows, and after a period during which growth has apparently ceased he dies. His cells have not lost the capacity for new growth—a wound heals in the aged as in the young, and in animals (rats) rapid growth has been induced at an age beyond the normal life-span by keeping the animals in a state of "arrested development" using a diet deficient in lysine and supplying the missing amino-acid in extreme old age.

Now the complex and highly specialized organism man would appear to be in the position of the simple organism which is repeatedly transferred to a fresh medium (and so apparently maintained indefinitely in active growth), in that his supply of nutrients is continually renewed by his food and the excretory organs remove the end-products of his metabolism. If this were really so it would be necessary to attribute senescence and death to faulty environment. But the analogy between man and bacteria or fungi is a faulty one, for in the repeatedly subcultured colony we are really dealing with successive generations. It may be that, in man, changes in the intimate structure, which are natural in the sense that they form an essential part of the process of development, are harmful in that they ultimately affect adversely either the access of nutrient material to the cell (where alone metabolism occurs), and conversely the removal of waste products, or the enzyme systems which utilize this nutrient material.

Either of these hypotheses would account for many of the changes which have been reported as accompanying old age—the decreased basal metabolic rate, the tendency to hypochlorhydria, the decreased glucose tolerance, the increased requirements of certain of the vitamins which are concerned in enzymic activity, and so on. Equally, either would account for the increased incidence in old age of diseases which may be ascribed to metabolic disorders of particular organs—as, for example, hypertension may be the result of a failure of kidney metabolism.

### Alteration in Cell Surfaces

Whether the process of senescence can ultimately be explained in either of these ways only much further research can tell. In the meantime there are a few "pointers" which indicate that slowly developing changes in the structure (and therefore the permeability) of the cell surfaces may be of fundamental importance. Recent work has suggested that although the cells, both red and white, are present in the same numbers in the blood of old people as of young, they are qualitatively altered in the aged. The red cells, though containing the "normal" amount of haemoglobin with the "normal" oxygen capacity, have, in old age, an altered stability towards hypotonic salt solutions which must be explained as due to alteration in the cell surfaces. These changes can be explained on the basis of a decreased rate of formation of the red cells (which fits the idea of a generalized decrease in cellular activity) and a corresponding decrease in the rate of cell destruction. This implies, in the red cell population at any given time, a greater number of "old" erythrocytes than in the blood of young people. The same suggestion of a lowered rate of cell formation and destruction is implicit in the finding that in the blood of aged people there is a tendency to an increased number of multilobular polymorphonuclear cells. This amounts, as has

been said, to no more than a "pointer," but it is one that is well worth following.

Were some change in the structure of cell surfaces demonstrable as an invariable concomitant of senescence, we should need much more knowledge than we now possess of this structure, and of the factors which influence it, before we could hope to delve further into the mysteries of senescence or to control it. We would have to be on our guard against ascribing too much to changes in the concentration of any one substance at the cell surfaces: any fundamental structural and functional changes there may be due to the alteration of a single constituent, but they may equally be of multiple origin. That structural changes do occur is suggested not only by the indirect evidence already outlined but by more direct evidence. Thus it has been demonstrated for certain plant leaves that, with increasing age of the leaf, electrical stimulation causes more calcium to leave the cell cortex and appear in the vacuole. (The conclusion was reached that with increasing age more calcium is concentrated at the cell surfaces, and the hypothesis was advanced that this, altering the permeability, favours the accumulation of toxic metabolites and so senescence.) In animal tissues, too, histological methods have been claimed to show increasing accumulation of calcium at the cell surfaces.

### Conclusion

In this incomplete, and indeed sketchy, outline of some of the biochemical problems of senescence I have tried to indicate the kind of evidence which exists, the difficulties of interpreting it, and some of the directions which may profitably be taken by research. That the problems are complex is clear, but they are much more complex than would appear from this survey. For man, with his highly differentiated structure, is, in a sense, not one organism but many. His various tissues grow at different rates, in different ways, and, with different environmental demands, they age differently.

In research into the processes of ageing we must be clear as to our objects. One, of course, is the pursuit of knowledge for the sake of knowledge. Another is the application of such knowledge as we may gain. But our aim here is not merely to prolong life in terms of years; as has been wittily said: "It is for science not only to add years to life but, more important, to add life to years." There is the crux of our problem—so to control senescence that man's period of useful healthy life is prolonged, whether or not we succeed in increasing his total life-span. And I venture to suggest that such control will come, partly no doubt through study of the many degenerative diseases which more frequently affect the old, but chiefly and most completely through studies of the fundamental processes of cell metabolism and the effect of the nutritional environment on them. Among these latter studies an important place must be given to the problem of the structure and mechanism of the cell surfaces.

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The Secretary of the Department of Health for Scotland, Sir George Henderson, speaking at the Annual Conference of the Scottish Association of Insurance Committees recently, said that there was no intention of setting up a huge bureaucratic machine to run hospitals as appendages of St. Andrew's House. The Secretary of State intended to leave the administration of the new hospital system in the hands of local people. New hospitals would be sited for maximum use of the widest area and not by accident of charity or the financial resources of a local authority. He hoped that outpatient departments would be so organized as to avoid the long queues which were common to-day. Under the National Health Service the work of the old insurance committees would be taken over by Executive Councils, which would represent the whole community and not simply the present insured population. By regrouping the areas covered the work of 54 insurance committees would be done by 25 Executive Councils.

## TEMPORARY ILEOSTOMY DRAINAGE APPARATUS

AN APPARATUS FOR DRAINAGE OF A  
TEMPORARY ILEOSTOMY

BY

R. M. T. WALKER-BRASH, B.M., B.Ch.

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Hospital

The apparatus here described was devised in an effort to relieve the intolerable unpleasantness of a temporary ileostomy, but it is easily adaptable for the treatment of other digestive fistulae. An ileostomy discharges fluid or semi-solid products almost continuously over the abdominal wall, causing marked soreness and superficial ulceration of the skin despite the use of protective pastes. After several attempts the following means were adopted to control this secretion.

## Method

The skin around the ileostomy is smeared with a suitable ointment; a mixture of castor oil and zinc cream is very satisfactory. Over this is placed a layer of lint or petroleum-jelly gauze which fits neatly round the stoma. Over the whole is fixed an ordinary Irving box. Through the hole in the lid of the box a small-bore right-angled glass tube is strapped. This is placed directly over the stoma, with a clearance of about 3-4 mm. from the mucous membrane. The distal end of the tube is attached to a suction pump, which works night and day. By this means any quantities of fluid secretion or semi-solid material are aspirated as they appear in the lumen of the ileostomy. If a large solid motion occurs the lid of the box is removed by the patient and separated from the suction-tube, which can then be swept freely round the inside of the box until all the material is aspirated. At no time, therefore, is any quantity of irritating secretion left in contact with the skin of the abdomen.

The advantages of the apparatus are: (1) The skin is protected from the persistent discharge and there is no leakage to the back or groins however profuse the secretion may be. (2) No frequent changes of dressings are required, thereby giving minimal disturbance to the patient at all times and lessening the work of the nursing staff. At night the box is inspected hourly by the night nurse, and if a large motion

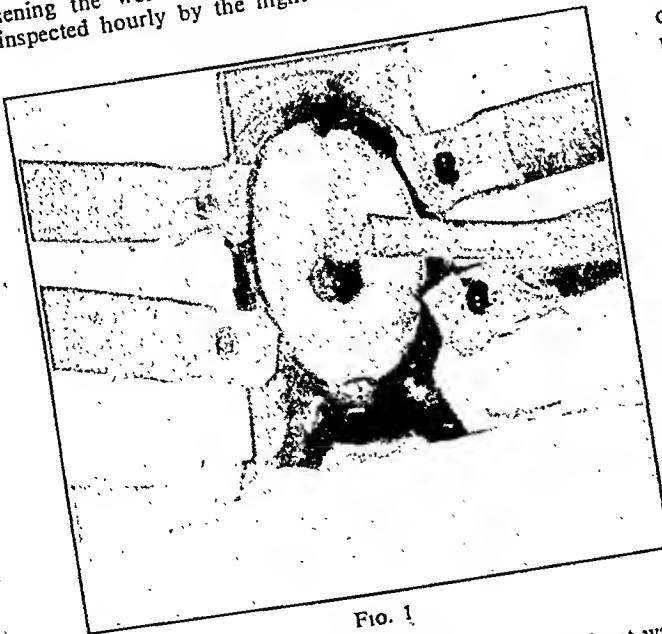


FIG. 1

has occurred it is aspirated as described above without waking the patient. (3) The patient, reclining comfortably against a suitable number of pillows, is in the best position from the point of view of post-operative treatment and general nursing.

(4) The method entails the use of only such simple apparatus as is found in any general hospital.

## The Apparatus in Use

The apparatus was developed in a case of acute intestinal obstruction, for which was established an ileostomy that could not be closed for three months owing to severe general peritonitis. After the operation the skin rapidly became sore, and remained so despite all remedies. Postural

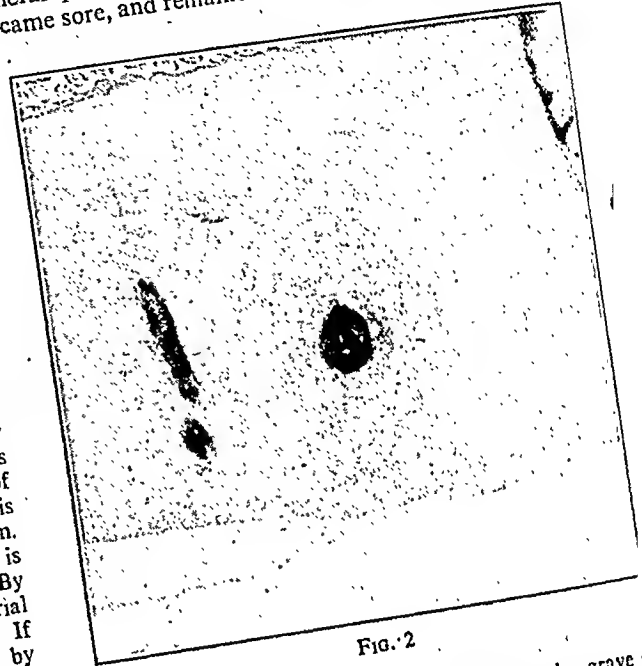


FIG. 2

drainage was out of the question owing to the grave condition of the patient. However, when the Irving box was applied the skin steadily healed. The efficacy of the apparatus was demonstrated on two occasions when the skin developed in twelve hours.

Fig. 1 shows the Irving box, suction-tube, and lint *situ*. The lid of the box has been removed for the sake of clarity. Fig. 2 shows the condition of the skin at the end of three months. There are areas of redness, but none of ulceration. The ulceration on the right of the abdomen is a result of the infection of the laparotomy scar from the peritoneal cavity.

My thanks are due to Mr. John Hosford for permission to publish this paper; to Dr. B. Wells for the photographs, to Miss E. C. Hall for the development of the apparatus, and to Miss "G." for criticism and co-operation in its use during a long and trying illness.

The Convalescent Homes Committee of the King Edward's Hospital Fund for London has recently prepared a *Directory of Convalescent Homes*. The Directory is attractively bound in loose-leaf form and from time to time further pages will be issued. Over a hundred convalescent homes in the Home Counties area are already listed, and details are given of each home further afield. Each entry gives all the information of routine, recreation, staff, number of beds, and charges. There are three indexes: the first is an alphabetical list of all homes; the second groups the homes according to whether they admit women, or children; and the third index is arranged according to the type of case with details of the various qualifications apply to patients seeking admission—religion, profession, residence, and so forth. The initial fee of 5s. for the Directory entitles subscribers to all additional pages and amendments. Further information may be obtained from the Convalescent Homes Committee, King Edward's Hospital Fund, London, 10, Old Jewry, London, E.C.2.

# SIX CASES OF CARDIOVASCULAR DISORDER WITH PERIPHERAL NEURITIS

BY

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AND

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*Medical Superintendent, Manley District Hospital, Manley,  
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Six cases were chosen from among many men suffering from a common complaint in a P.O.W. camp in Siam. Typical was a healthy-looking young male who complained of breathlessness on walking on the level, palpitation, and occasional precordial pain. The symptoms resembled those of effort syndrome. A history of malaria (several attacks), diarrhoea, or nutritional oedema was obtained, but none of diseases predisposing to cardiac disorders. There was no advantage to be gained by malingering at this period, nor was there any evidence of hysteria.

## Before Thiamine

On examination, tachycardia, abnormal increase of pulse rate on rising from the recumbent position, tumultuous heart action, some impurity of the mitral first sound, a

clusive (pulse rate was reduced in 1 case, increased in 2, unaltered in 3).

## After Thiamine

Each patient was then treated with thiamine, 17,000 units being given by intramuscular injection in a period of 13 days. During treatment the men were allowed to be up and about, and no change was made in their habits, occupation, or diets.

After this treatment pilocarpine increased the pulse rate in all 6 cases (average increase, 14). Atropine reduced the pulse rate in all 6 (average decrease, 14).

The stability of the vasomotor control was increased as shown by the results of injections of pilocarpine and atropine. Apparently at the high atmospheric temperature prevailing in Siam the effect of pilocarpine is to increase the pulse rate owing to reduced blood pressure secondary to vasodilatation. Atropine has the opposite effect. The side effects—salivation, dryness, etc.—indicated that there was no error in the use of the drugs.

A fall in the recumbent pulse rate, varying from 14 to 28 per minute, occurred in 5 out of the 6 cases. The sixth remained stationary at 80. The discrepancy between recumbent and upright pulse rates fell from an average discrepancy of 16 to 8 in 5 out of 6 cases.

Abnormalities in physical signs in the heart showed improvement in 4 out of the 5 cases showing them. The pistol shot sound in the groin in the recumbent position disappeared in 2 cases, was greatly reduced in 3 cases, and remained unaltered in the remaining case. Carotid sinus

	Case 1 (J. E. B.)		Case 2 (G. B. S.)		Case 3 (A. R. H.)		Case 4 (H. H.)		Case 5 (R. B.)		Case 6 (D. E. S.)	
	Before Thiamine	After Thiamine	Before Thiamine	After Thiamine	Before Thiamine	After Thiamine	Before Thiamine	After Thiamine	Before Thiamine	After Thiamine	Before Thiamine	After Thiamine
Recumbent pulse rate	92	74	84	70	112	90	84	56	92	64	80	82
Discrepancy between upright and recumbent pulse rates	16	8	20	26	12	6	18	10	14	10	20	6
Pulse rate after pilocarpine 1/5 gr.	+6	+8	No change	+10	+26	+10	No change	+20	+8	+14	+24	+20
Pulse rate after atropine 1/40 gr.	No change	-8	+10	-10	No change	-28	-6	-6	+5	-14	No change	-18
Ciliary fatigue time ..			1½ min.	8 min.	3 min.	4 min.	3 min.	5½ min.	4 min.	10½ min.	5 min.	25 min.
Pistol-shot sound ..	+++	+	++	++	+++	+	++	+	++	-	+++	+
Ergograph test carried to standstill	87 strokes in 2½ min.	260 strokes in 6 min.	100 strokes in 3 min.	206 strokes in 5 min.	89 strokes in 2 min.	400 strokes in 2 min.	65 strokes in 2 min.	122 strokes in 3 min.	164 strokes in 4 min.	350 strokes in 6½ min.	20 strokes in 40 sec.	226 strokes in 4½ min.
Carotid sinus irritability	+	+	-	-	++	-	-	-	-	-	+	-

pistol shot sound over the femoral artery, and carotid sinus irritability could be found. No cardiac enlargement, oedema, or anaemia was detected. The standard exercise tolerance test gave normal results in spite of dyspnoea on walking. Reduced sensibility of peripheral distribution to pin-prick and deep pressure, with sluggish reflexes and slight Rombergism, constituted the common neurological findings. Routine physical examinations were recorded and disease of other systems excluded (detailed case records are available).

The following investigations into the autonomic system were carried out and repeated after treatment with thiamine: the response of the recumbent pulse rate to atropine and pilocarpine (on separate days); ciliary fatigue-time; ergograph tests on skeletal musculature; carotid sinus irritability; dermatographia.

Before treatment with thiamine, pilocarpine 1/5 gr. (13 mg.) subcutaneously increased the pulse rate in 4 cases (average increase, 16 per minute), and did not alter it in 2. The effect of atropine 1/40 gr. (1.6 mg.) was incon-

clusive. Irritability disappeared in 2 out of 3 cases. Ergograph experiments showed improvement in all cases ranging from 68% to 800%. Ciliary fatigue time tests showed improvement in 5 cases, ranging from 33% to 500%. The sixth could not see the text and could not be tested. (The eye disturbances form the subject of a separate paper.) Examination of the C.N.S. gave evidence of partial return of the reduced function of the peripheral nerves in all 6 cases. No characteristic changes could be detected in the blood pressures, which were all normal.

Breathlessness was greatly reduced in all 6 cases. Precordial pain was reduced or abolished in 4 out of 4 who had complained of it. Palpitation was reduced or abolished in 4 out of 4. Sleep improved in 5 cases. Nocturnal frequency of micturition was reduced in 3 out of 6 (urine more concentrated in 5 out of 6). Frequency of bowel action was reduced in 2 out of 2. Appetite increased in 1 case, diminished in 1. Headaches were abolished in 2 out of 2. The improvement in symptoms began after the third injection.



It was felt that the dosage of thiamine had been inadequate, but supplies were very restricted.

### Conclusions

Thiamine benefited cases of a syndrome of cardiovascular derangement resembling effort syndrome with peripheral neuritis.

There was a disturbance of the autonomic system which appeared to be corrected by thiamine.

## Medical Memoranda

### Hypertension and Nephrectomy

Ever since Goldblatt demonstrated that hypertension could be produced experimentally by unilateral renal ischaemia, the hope has been present in the minds of physicians that some cases of hypertension would be amenable to treatment by nephrectomy. It was obvious that the necessary condition of a localized silent kidney lesion was not common, and the prospects of operative cure are correspondingly less so. Nevertheless, during the past ten years cases of pyelonephritis and hydronephrosis, and even of renal tuberculosis and neoplasm, have been reported as causing hypertension which was cured by this operation. Some American writers have suggested that 1 in 200 of all cases of hypertension fall into this category, but English opinion tends to regard this as over-optimistic. Ratcliffe, Nesbit, Plumb, and Bohne (*J. Amer. med. Ass.*, 1947, 133, 297), reviewing pyelograms on 2,055 hypertensives in the University of Michigan Hospital, found nephrectomy indicated in under 5%. Cases of hypertension found in members of the Armed Forces, being young and otherwise fit, would appear a suitable field for seeking such surgical opportunity. The following case report suggests that the search is worth while.

#### CASE HISTORY

On Nov. 7, 1944, a W.A.A.F. non-commissioned officer aged 27 was admitted to hospital with a history of headache and vomiting for eight months. The headache was worse in the mornings. There had been a slight loss of weight, but no other symptoms, in particular no urinary symptoms. Examination showed a normally developed girl with a forcible pulse and a blood pressure of 250/160. The apex beat was not palpable, the femoral pulses were easily felt, and the fundus oculi showed hypertensive change, in that the arteries were narrowed to fine threads. There was some white exudate but no haemorrhages. It appeared to me that early papilloedema was present, though on subsequent reflection I am not disposed to be definite on this point. She had no recollection of any previous illness, and her records showed that at a routine examination eleven months earlier her blood pressure was noted as 120/70. Experience has taught me, however, that the results of routine examination are not a suitable basis for scientific deductions.

**Investigations.**—The urine showed a cloud of albumin and a moderate number of red cells, but no casts. A radiograph of the pelvis revealed a heart at the upper limit of normal and a dilated

An intravenous pyelogram showed a normal left kidney but no excretion on the right. Retrograde pyelography by Squadron-Leader Gordon Lennon, surgical specialist, was reported on by Flight-Lieutenant Donnelly, radiologist, as follows: "A large hydronephrosis is present on the right side. It is of the combined intra- and extra-renal type. The right ureter appears normal. Most of the dye was retained in the pelvis five minutes after injection, suggesting a valvular action at the pelvi-ureteral junction. The above indicates that the hydronephrosis has been caused by an aberrant renal artery." The blood urea was 20 mg. per 100 ml. and the urea clearance was 118.5% of average normal (van Slyke).

**Progress.**—After a month in bed her blood pressure had fallen to 170/130 and was obviously going no lower. The consultant in surgery (Air Commodore Hall) and Squadron-Leader Lennon agreed that nephrectomy was indicated, and on Dec. 13 this was performed by the latter. Some difficulty was experienced in mobilizing the kidney, which was represented mainly by a hydronephrotic sac. Nothing untoward occurred, however, and on the day after operation her condition was excellent, with a blood pressure of 190/140. During convalescence she remarked that all headache and feeling of discomfort had gone, and that she felt well for the first time for many months. On her discharge from hospital on Jan. 8, 1945,

her blood pressure was 170/115. Three months later her health was excellent, the urine free from albumin or other abnormality, and the fundus oculi normal. Her blood pressure, however, continued to range around 180/130. It was obvious that restoration to normal had not occurred, and probably would not do so, but there was no doubt that she had been changed from an extremely sick young woman to one capable of enjoying all ordinary activities. In November, 1946, she was living a normal life free from symptoms with a blood pressure of 165/105 but no other detectable abnormality. When last seen in July, 1947, her condition was the same.

### DISCUSSION

By far the greatest number of cases of alleged hypertension referred to me from Service units were not hypertensive by ordinary standards. They represent an emotional rise of blood pressure associated with medical examination which reverts to normal when the patient is put at ease with the examiner. A few, however, as in the case quoted, have an undeniable hypertension. If surgery is to be considered, the most convenient preliminary investigation of such cases is pyelography since biochemical renal function tests, though useful later, do not give the needed information as to the anatomical distribution of the lesion. In dealing with large numbers of cases it saves time if the most selective procedure is done first. Of 36 genuine cases of hypertension that I dealt with unilateral kidney damage was found in two. The progress of one is recorded above. That of the other was cut short, after a successful operation for removal of an atrophic kidney, by an unrelated fatal illness.

C. P. PETCH, M.B., M.R.C.P.

Late Wing-Commander. R.A.F.V.R.

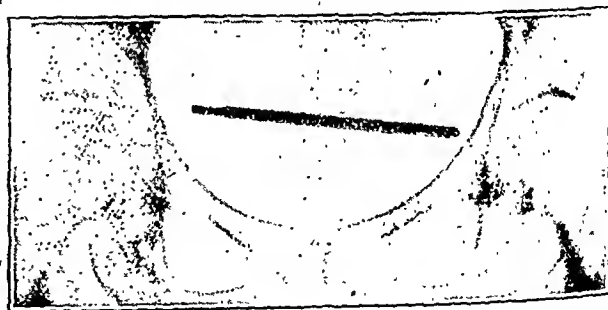
### A Complication of Birth Control

The following case report draws attention to a practice that may be gaining in popularity.

#### CASE REPORT

The patient, an intelligent married woman aged 31, was admitted on May 25, 1947, from the casualty department, having passed a clinical thermometer into the bladder via the urethra. She complained of slight lower abdominal discomfort, and there was a small quantity of blood in the urine; she passed urine without difficulty but had some discomfort at the end of micturition. The accompanying skiagram shows the thermometer lying transversely across the bladder.

The thermometer was easily visualized by cystoscopy, and the temperature was seen to be 100.5° F. (38.05° C.). The patient



was put in a partial Trendelenburg position and the smallest-size infants' proctoscope was passed through the urethra. Eve's nasal snare was placed round the constriction of the bulb of the thermometer, which was then extracted. There were no subsequent urinary difficulties, and the patient was discharged on the following day.

The explanation of this occurrence is as follows. The patient had read in a magazine of the so-called "safe period" method of birth control and the relation between the time of ovulation and a variation of vaginal temperature, and she was keeping a daily chart of that temperature. For ten mornings this had shown little change. On the eleventh day she carelessly passed the thermometer into the bladder. If this practice is becoming more common, the provision of a specially designed thermometer with flange or handle would seem desirable.

JOHN HANKINSON, M.B., B.S.  
St. Mary's Hospital, W.2.

## Reviews

### "NOVAK"

*Gynecological and Obstetrical Pathology. With Clinical and Endocrine Relations.* By Emil Novak, M.D., D.Sc., F.A.C.S. Second edition, revised. (Pp. 570; 542 illustrations, 15 in colours. 37s. 6d.) Philadelphia and London: W. B. Saunders Company. 1947.

Good clinical work is based on a sound knowledge of physiology and pathology, a fact especially true of gynaecology. The relationship is admirably brought out in this book, which is perhaps the chief reason for the enthusiastic welcome accorded the first edition in Britain and for its continued popularity. It is interesting to read, simple and clear as well as informative. It has become a standard book which most gynaecologists and pathologists not only possess but refer to constantly. Those studying for higher examinations pin their faith on it. Not the least of its attractions is that although it is fairly comprehensive it is not too detailed for those whose interests are mainly practical. The author provides a few important references for those wishing to delve more deeply into any subject. The book in its original form is so well known—indeed in Britain it is usually called "Novak" without regard for other books by the same author—that it seems hardly necessary to describe it in detail. The second edition conforms closely to the first in subject-matter, style, and layout. The increased size is largely due to additional illustrations; there are nearly as many of these as pages, and excellent they are too. The author has taken care to bring the text thoroughly up to date, but has wisely avoided any attempt to make the book "exhaustive or encyclopaedic." Had he done the latter much of its charm would probably have been lost. The obstetrical section is still strictly limited in its scope.

It is doubtful whether anyone without the special qualifications of Dr. Novak could have written this book, for he is a practising gynaecologist with a wide experience and interest in pathology and endocrinology. One small adverse criticism is of the author's use of the terms vaginal and vulval *mucosa*. It is a common enough error, but it is surprising that it should be perpetuated by one of Novak's undoubted authority.

T. N. A. JEFFCOATE.

### MEDICINE INTEGRATED

*An Integrated Practice of Medicine. A Complete General Practice of Medicine from Differential Diagnosis by Presenting Symptoms to Specific Management of the Patient.* By Harold Thomas Hyman, M.D. In four volumes with separate Diagnosis and Subject Index. (Pp. 4,621, with 1,184 illustrations, 305 in colour, and 319 tables of Differential Diagnosis. Complete set £12 10s.) Philadelphia and London: W. B. Saunders Company. 1947.

"If," the editor explains in his preface, "this book fulfils the requirements for which it has been devised, it should be possible for the practitioner, after taking the history and performing the physical examination, to turn to the Index of Differential Diagnosis, obtain a reference to the needed Tables of Differential Diagnosis, establish a definitive diagnosis or be guided to additional examinations and tests by which the diagnosis can be established; and then prepare a therapeutic routine to include symptomatic, specific and prophylactic therapy for the relief or cure of the abnormal manifestation concerning which his patient has consulted him." The book is thus an attempt to substitute for the complex mental processes by which diagnosis is achieved a mechanical device which supplies the diagnosis and "therapeutic routine" when applied to the "facts" of history and physical examination. Such a procedure reduces medicine to the status of a cross-word puzzle, a mechanistic ambition curiously at variance with the author's avowed objective of focusing "consideration on the human patient as a biologic unity."

Although the author in his prolegomena appears to stress the individuality of the patient, while tacitly denying that of the doctor, it is doubtful whether this attitude reflects either American practice in general or that of Dr. Hyman in particular. The book displays the breadth of Dr. Hyman's interests and the depth of his knowledge, for he considers the whole of general practice and, in addition, the special subjects and minor and

emergency major surgery. He describes the methods of physical examination and the simpler laboratory tests, lists the occasions when a second opinion should be taken, and gives a glossary of haematological terms. It is in writing of prognosis and of how to start in general practice that Dr. Hyman reveals a humanism which belies the mechanistic claims of his preface.

This massive work contains much information, and its unusual homogeneity suggests that the editor is at least part author of all its 4,000-odd pages. It would be hard to overestimate the labour involved in making this vast compilation. The book is addressed to the American general practitioner, whose professional existence must differ from that of his counterpart in Britain, and we therefore doubt whether it is a sound investment for the general practitioner in this country.

R. BODLEY SCOTT.

### TOMOGRAPHY

*A Manual of Tomography.* By M. Weinbren, M.R.C.S., L.R.C.P., F.F.R., D.M.R.E. (Pp. 270; with 138 figures comprising 397 illustrations. 45s.) London: H. K. Lewis and Co. 1946.

The author of this book is experienced in tomography and obviously an enthusiast. After a short introduction he considers tomography of the chest, the spine, the skull, the larynx and miscellaneous conditions. His discussion of chest tomography is clear and complete. In the chapter on the spine which is, curiously, the largest in the book, he explores the subject, recording the use of tomography for conditions in which it has so far been little used. He clearly demonstrates its value in some cases; in others the standard radiographic methods show the lesion equally well; and in one or two, judging by the illustrations, the tomographic method seems to be inferior, though this appearance may be the result of reproduction. This section is instructive for its account of the possible uses of tomography in obscure lesions of the spine and pelvis. The author records its value in compression fractures of the dorsal spine, especially in the cervico-dorsal region, where satisfactory lateral views cannot be obtained by ordinary radiography.

Tomography is particularly useful in spondylitis and spondylolisthesis, where it is often difficult to show the defect in the pars interarticularis, and in fracture dislocations for revealing the relations of the articular processes. For examining the healing of fractured vertebral bodies, the progress of Pott's disease, fractures of the odontoid process, and spinal metastases the author shows that tomography is sometimes effective. He has successfully used tomography for investigating various lesions of the skull and facial bones, including fractures, sinus infections, and intracranial and eighth nerve tumours. In a miscellaneous section he describes the tomographic appearances in lesions of the sternum, limb joints, gall-bladder, and kidney. When gas obscures the picture in cholecystography and intravenous pyelography, tomograms may clearly reveal the contrast filling.

This book, which has a good bibliography, will be of great interest to all who employ tomography, for it indicates how various are its applications and suggests further extensions of the method.

S. COCHRANE SHANKS.

### SURGERY OF DIABETES

*Le Chirurgien en Présence de l'Etat Diabétique.* By Jacques Bréhant. Preface by Prof. Sèneque. (Pp. 544; 44 figures. 1,200 francs.) Paris: Masson et Cie. 1946.

This book is mainly based on the author's experience before and during the recent war. In the first section he discusses what a surgeon ought to know about the treatment of diabetes. He uses the French classification of diabetes into, without, and with loss of weight, but advocates the use of large doses of insulin for all the serious surgical complications. The most important section is that describing the diseases of the legs and toes. He describes three main types—vascular, infective, and trophic. He fully considers the value of sympathectomy in these cases and points out that if a good response to the injection of procaine into the lumbar sympathetic has been obtained and the condition of the toes is stabilized lumbar sympathectomy is indicated. He strongly advocates using a Pachon oscillogometer in determining the site of amputation. He describes successful local amputations of toes and metatarsus and the ideal and unsuitable sites for amputation.

Although he mentions penicillin it is usually in conjunction with sulphonamides—probably because the book was written during the war, and before penicillin was available. Its use may cause him to alter his views considerably about the best time to operate. Discussing whether trauma causes diabetes mellitus, he quotes the evidence of de Laet, Labbe, and Joslin, who believe that it does not, and sets it against that of Rathery; he concludes that, though it can be only an exceptional occurrence, it does. The arguments are not very convincing. The rest of the book contains a short description of most of the other surgical diseases in so far as they are modified by diabetes. There is a good index.

GEORGE GRAHAM.

## REMINISCENCES

*János. The Story of a Doctor.* By John Plesch. Translated by Edward Fitzgerald. (Pp. 579; illustrated. 18s.) London: Victor Gollancz. 1947.

John Plesch has enjoyed a life of unusual variety. Born in Budapest in 1878, he was for more than twenty years a leading physician in Berlin, but when the Nazis took over he was one of the first fugitives to arrive in England to begin a new career. His practice in a second alien capital was rapidly and remarkably successful; indeed it was, as he writes, "something of an event." His christian name gives his book its title, and this is characteristic of his expansive personality. The eminent in art, science, and politics crowd into his book as they might jostle one another at an ambassador's cocktail party. All these diverse characters have enjoyed his friendship, for János, with disarming catholicity, is moved by the simple and massive integrity of such men as Einstein and yet is not unaware of the "fabulous leg" of Marlene Dietrich, "in a wonderful silk stocking visible well above the knee." The two chapters on Einstein are the most important in the book, and, for medical readers, his reminiscences of such scientific figures as Wassermann, Schaudinn, and Ehrlich are of great interest.

He is obviously a physician who brings to his patients a genuine humanity, and the only criticism of his English colleagues which he allows himself is that they incline towards a harsh and dogmatic prognosis. His advice is, "think pessimistically and act optimistically." He caricatures his own counsel, however, in an incident he relates on another page, when, having been called to St. Petersburg to the death-bed of a beautiful Russian actress, he "fought that day as I have rarely had to fight. As soon as a medicine failed to produce a response from the sinking organism, stronger methods had to be tried. Everything possible was done, and everything depended on the two finger-tips that controlled the failing pulse. Death was delayed for twelve hours, and at the end of that time I broke down myself and wept, the relaxation of tension was so violent."

János concludes with advice on such subjects as food, fatigue, slimming, exercise, surgery, constipation, homosexuality, and the natural position in coitus. These dialogues will be more nourishing to the layman than to the medical man, but they disclose an attitude to such problems which is characteristically European—realistic, intelligent, and humane. In short this book, while by no means another *San Michele*, is, as the Sunday viewers say, worthy of the library list.

D. V. HUBBLE.

*Pharmaco-Therapeutic Notebook*, by H. W. Tomski (London: Baillière, Tindall and Cox; 15s.), is intended for the pharmacists "who served in the Forces and have lost contact during the war with professional pharmacy," and also for the general practitioner. It gives concise information on drugs used in modern practice. These appear under alphabetical headings such as anaesthetics, analgesics and antipyretics, circulatory and respiratory stimulants, diuretics, hypnotics and sedatives, purgatives, etc. The book consists of comprehensive lecture notes, and does not replace but supplements textbooks and pharmacopoeias. It includes commonly used prescriptions for some drugs and a chapter on substitution therapeutics. There is a good index.

M. A. Kamath's *Ophthalmic Surgery and Sight-Testing*, a first edition of which appeared in 1926, is an elementary exposition of the common ophthalmic conditions; in spite of its name the author does not unduly stress surgery and sight-testing. The features that he emphasizes, based on Indian experience, are rather different from those generally observed in European textbooks. Copies may be obtained from the author at Planter's Lane, Mangalore, South Kanara, South India.

## BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

*Mothercraft in Pictures.* Compiled by M. Maslem Jones, S.R.N. S.C.M., M.T.S. (7s. 6d.) London: Faber and Faber. 1947.

A series of photographs illustrating care of the baby.

*Radium Dosage.* The Manchester System. Edited by W. J. Meredith, M.Sc., F.Inst.P. (Pp. 124. 15s.) Edinburgh: E. and S. Livingstone, Limited. 1947.

A collection of papers on mould, intra-cavitary, and interstitial gamma-ray therapy.

*The Social and Legal Aspects of Sexual Abnormality.* By Edward Glover, M.D. (Pp. 16. 1s.) London: The Institute for the Scientific Treatment of Delinquency. 1947.

A brief account of sexual perversion in relation to the law and society.

*Personal Mental Hygiene.* Don Thomas Verner Moore, O.S.B. M.D., Ph.D. (Pp. 331. 21s.) London: William Heinemann. 1947.

The author presents "various attitudes of mind, ideals, and principles which may be of value to the individual confronted with the difficulties of life."

*The Head, Neck, and Trunk.* By Daniel P. Quiring, Ph.D. (Pp. 115. 14s.) London: Henry Kimpton. 1947.

Diagrammatically illustrates the muscles of the head, neck, and trunk, with their chief arterial and nerve supplies.

*Radical Surgery in Advanced Abdominal Cancer.* By Alexander Brunschwig, M.D. (Pp. 324. 42s.) Chicago, Illinois: The University of Chicago Press. Great Britain and Ireland: Cambridge University Press. 1947.

An account of the author's operations on 100 cases of advanced malignant disease.

*Kompennum der Parasitischen Würmer im Menschen.* By Dr. Hans A. Kreis. (Pp. 136. 10 Swiss francs.) Basle: Benno Schwabe and Co. 1947.

A brief account of worms parasitic in man.

*Vegetative Funktionen und Zwischenhirn.* By Dr. W. R. Hess. (Pp. 65. 12 Swiss francs.) Basle: Benno Schwabe and Co.

A monograph, based on the author's experiments, on the vegetative functions of the mid-brain.

*Das Auge als Subjekt des Wahrnehmungsbild und Seine Prüfung.* By Dr. Fritz Rössler. (Pp. 190. 60 Swiss francs.) Vienna: Verlag Wilhelm Maudrich. 1947.

Examination of the eye by subjective methods, with particular reference to the cobalt lamp.

*Inter-Allied-Conferences on War Medicine Convened by the Royal Society of Medicine 1942-1945.* Edited by Major-General Sir Henry Letheby Tidy, K.B.E., M.D., and J. M. Browne Kutschbach, M.B., B.Ch., D.P.H. (Pp. 531. 50s.) London: Staples Press, Limited. 1947.

Communications delivered at conferences held by the Medical Services of the Allies.

*Electronics and their Application in Industry and Research.* Edited by Bernard Lovell, O.B.E., B.Sc., Ph.D. (Pp. 660. 42s.) London: The Pilot Press, Ltd. 1947.

Includes accounts of radar, the use of electronics in medicine and physiology, and electron-microscopy.

*The Art is Long.* By William Edwards, M.D. (Pp. 159. 10s. 6d.) London: Andrew Melrose, Ltd.

Describes for the layman the activities of medical men in general and specialist practice.

*Nursing.* By L. K. Wolf, R.N., B.S., M.P.H. (Pp. 534. 53s. 9d.) London and New York: D. Appleton-Century Company. 1947.

An account of the principles of nursing, with many diagrams.

*Biology for Medical Students.* By C. C. Hentschel, M.Sc., and W. R. Ivimey Cook, B.Sc., Ph.D. 4th ed. (Pp. 752. 25s.) London: Longmans, Green and Co. 1947.

The authors have largely rewritten this textbook emphasizing physiological aspects of botany and zoology.

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## TREATMENT OF NEUROSYPHILIS

Since the introduction of syphilis into Europe the incidence of neurosyphilis has markedly increased. It was rare in the early days, but in recent times has become comparatively common among the white though still uncommon among the coloured races. Many theories have been advanced to account for this difference, none of them very convincing. It has been suggested that the therapeutic use of arsenicals was one cause of the increased incidence of neurosyphilis, but it now seems clear that it was the employment of a sub-optimal dosage that was to blame. In the past the treatment of neurosyphilis was most unsatisfactory, since mercury had little or no effect on any except perhaps the very early asymptomatic cases. With the advent of the trivalent arsenicals the position improved, most of the earlier types of neurosyphilis, both asymptomatic and symptomatic, reacting well, though a diagnosis of general paralysis of the insane still remained virtually equivalent to a death warrant. Later, trypanamide proved considerably more effective than any of the trivalent preparations, but it was Wagner-Jauregg's introduction of malaria therapy which first offered any hope of curing, or at least arresting, G.P.I. Since then many of these patients have recovered sufficiently to be able to lead useful lives over a period of years.

Penicillin has now further advanced the treatment of all forms of neurosyphilis. Elsewhere in this issue (p. 565) Lescher and Richards describe their results in 49 patients suffering from various forms of neurosyphilis: 20 were treated by malaria and chemotherapy, 10 by penicillin alone, and 19 by malaria plus penicillin. The first group was observed for five to eight years; 6 were much improved, 6 improved, 4 remained stationary, and 4 became worse. Cases with meningo-vascular lesions gave the best results—4 of the 5 cases being "much improved." The cerebrospinal fluid became serologically negative in 10 and inactive in 7 of the 20 cases; blood tests gave 10 negative, 6 improved, and 4 positive results. Whelen<sup>1</sup> states that after the malaria treatment of G.P.I. the cerebrospinal fluid usually becomes inactive in six to twelve months and negative in one to three years, after which relapse seldom occurs. Of the 10 cases in the penicillin-treated group, 4 were much improved, 3 improved, 2 stationary, and one patient became worse; serologically their cerebrospinal fluids gave one weak positive, 6 inactive, and 3 negative results; blood tests gave 5 positive, 3 improved, and 2 negative results. Of 19 patients treated in or after 1945 with malaria and penicillin, 9 were much improved, 5 improved, and in 5 the

condition remained stationary. The cerebrospinal fluid in these cases showed 1 strong positive, 1 weak positive, 10 inactive, and 7 negative results. There were 11 positive, 2 improved, and 6 negative blood tests, showing that it is much easier to reverse the serological findings in the spinal fluid than in the blood. On the whole the third group showed most improvement, but the numbers were too small for clear deductions to be drawn as to the best treatment for each type of neurosyphilis.

In our opening pages Worster-Drought discusses the value and use of penicillin in the various forms of neurosyphilis and points out that penicillin, arsenicals, and bismuth are probably synergistic, and that a rise in temperature—as by malaria therapy—appears to enhance the effect of penicillin. He tried intrathecal penicillin but was not convinced of its value; it often caused an exacerbation of symptoms, particularly in tabes. Penicillin certainly affected the cerebrospinal fluid, and in some cases the number of cells rose to 10,000 per c.mm. and the protein to 250 mg. per 100 ml.; this might have been due to impurities. The question of the penetration of the blood-brain barrier by penicillin has been much discussed. It is stated that penicillin will pass the barrier if it is given in massive doses or if the choroid plexus is damaged, but the problem is mainly of academic interest, since this antibiotic is undoubtedly carried to the nervous system in the blood stream, and both clinical observation and pathological tests avouch its efficacy. Obviously neither penicillin nor any other remedy can resuscitate dead nerve cells. Penicillin given by cisternal puncture is dangerous, and this method should not be attempted. But when penicillin is given intramuscularly—and this seems the best method, whether it is given in solution or suspended in oil-wax—reactions are negligible. However, Herxheimer reactions are to be feared in patients with neurosyphilis, and Worster-Drought always starts treatment with a few injections of bismuth; urticaria appears occasionally but seldom calls for the cessation of treatment.

Meningo-vascular neurosyphilis responds best to penicillin, and cranial nerve palsies often improve greatly. In cases of G.P.I. the treatment recommended is: four injections of bismuth, 4-5 mega units of penicillin, malaria (twelve bouts of fever), and then three courses, each of twelve injections, of arsenic and bismuth in one year. The Lange curve is the reaction most difficult to reverse. In the treatment of tabes 4-5 mega units of penicillin should be followed by arsenic and bismuth for one to two years; malaria is not recommended, and intrathecal penicillin should be avoided as being likely to increase lightning pains. For optic atrophy treatment by 4 mega units of penicillin, plus malaria, plus arsenic and bismuth is suggested; the same would apply to late asymptomatic cases, and treatment should be continued until the serological tests become negative. Five years is the minimum time over which observation should continue properly to evaluate the effect of therapy.

Koteen,<sup>2</sup> reporting on 111 cases of late neurosyphilis treated with penicillin and observed for twelve to thirty months, suggests that penicillin is superior to "metal chemotherapy" and probably the equal of artificial fever, except in cases of optic atrophy. Of 11 patients with G.P.I., 6 had

<sup>1</sup> *Brit. J. vener. Dis.*, 1946, 22, 121.<sup>2</sup> *Amer. J. vener. Dis.*, 1947, 31, 1.

remissions lasting two years; 4 of the 5 others had deteriorated badly before being treated. In 41 tabetics 33 out of 57 symptoms were favourably affected; and in general the pathological changes in the cerebrospinal fluid showed a marked improvement. Nicol<sup>3</sup> treated 254 men and 180 women, half with malaria only and half with malaria plus tryparsamide, and concluded that the latter form of treatment was superior to the former; this is probably the most important series reported in this country. The patients consisted for the most part of cases of G.P.I., but a few cases, of taboparesis, congenital G.P.I., and congenital taboparesis were included. If tests of the cerebrospinal fluid are positive at the end of a year following treatment further treatment is indicated, but if negative on two consecutive occasions at yearly intervals a reversion to positive reactions is extremely unlikely. Speaking in April, 1946, Nicol gave it as his opinion that penicillin will probably replace tryparsamide as an adjunct to malaria therapy.

Kampmeier<sup>4</sup> stresses the need for individual treatment of neurosyphilis; patients with type I cerebrospinal fluids need only routine treatment with arsenic and bismuth, but those with type II or III fluids need long-continued treatment with arsenicals and bismuth, supplemented by tryparsamide and fever therapy if the fluid does not improve considerably after eight to ten months. Both McElligott<sup>5</sup> and Marshall<sup>6</sup> advocate repeated courses of penicillin, and there is much to support their view; it may be that a second or third "blow" is necessary to destroy the last spirochaete, as is the case with arsenicals.

Neurosyphilis cannot be dealt with as a single problem. Early cases with only slight changes in the cerebrospinal fluid, such as occur not uncommonly in the secondary stage, react well to routine treatment. Generally speaking, however, the more marked the changes in the cerebrospinal fluid the more intensive and prolonged should be the treatment. Frequent examinations of the cerebrospinal fluid are necessary to assess the progress of the disease and the effects of treatment. Though clinical improvement by no means always goes hand-in-hand with changes in the cerebrospinal fluid, nevertheless the results of tests of the cerebrospinal fluid are the best guides to prognosis, and if the fluid shows a steady return to normal the outlook is good. It is not to be expected that serious nerve damage can be repaired, but it can usually be arrested by energetic treatment of the right type, though many of the manifestations of tabes are particularly resistant. The blood serum reactions in patients with late neurosyphilis do not tend to reverse so easily as those of the cerebrospinal fluid; in practice they may be almost disregarded. It seems clear in the present state of our knowledge that penicillin, plus fever, plus arsenic and bismuth provides the most effective treatment of late cases. Penicillin in oil-wax given once or twice daily appears to be just as effective as penicillin in solution given 3-hourly, and is much more convenient for all but hospital in-patients. Little has been reported on the relative merits of malaria and hyperpyrexia induced by physical means, but they appear to act equally well, the latter being safer but requiring more skilled staff and equipment.

## CO-OPERATION IN MEDICAL ABSTRACTS

One of the last conferences held by Unesco before the meeting of the General Assembly in Mexico was on the co-ordination of abstracting services for medical science. This conference was held at Paris on Oct. 3, 4, and 5, and the session was opened by a welcome to the delegates by the Director-General, Dr. Julian Huxley, and by Dr. J. Needham, Director of the Natural Sciences Division. Dr. Huxley gave a brief exposition of some of Unesco's recent activities, and said that the unification of abstracting systems in the medical field was a step towards forming what H. G. Wells had called a world brain. He extended a particular welcome to the representative from the World Health Organization, and, after he had concluded his address, the Conference, acting on Dr. Huxley's suggestion, appointed the Editor of the *British Medical Journal* as Chairman of the Conference, and Mrs. Eileen Cunningham of the Medical Library Association of the U.S.A., as Vice-Chairman. Among those present were representatives of *Excerpta Medica* from Amsterdam, of the British Bureau of Abstracts, of *Biological Abstracts*, Philadelphia, and the Editor of *World Abstracts*; various experts from the Unesco Secretariat, and the Director of Technical Service of the World Health Organization. Dr. I. M. Zhukov, Medical Counsellor of the Natural Sciences Division of Unesco, reviewed the steps that had been taken towards the co-ordination of abstracting services, and mentioned that the *British Medical Journal* had been the first to suggest that this was a field of possible interest to Unesco in its task of disseminating scientific information.

The Conference began its work proper with a series of statements by the Editors of abstracting journals on the development of their services, of their aims and achievements. Dr. John L. Flynn, in an interesting exposition of *Biological Abstracts*, said that it had been founded by the amalgamation of two smaller abstracting services—the Bacteriological Abstracting Service, founded in 1917; and the Botanical Abstracting Service, founded in 1918. Prof. W. P. C. Zeeman gave an account of the approach of *Excerpta Medica*, which aimed at providing a comprehensive service by the publication of about fifteen different sections for the various special divisions of medicine. An example of amalgamation was given by Prof. Samson Wright, who observed that *British Abstracts* had been formed by the unification of the services of *Chemical Abstracts* and *Physiological Abstracts*. In addition to the statements of the Editors a number of documents had been laid before the Conference, including a communication from the National Research Council, Washington, in which it drew attention to the need for co-ordinating the abstracting services in biology and medicine, for eliminating wasteful duplication, and for publication at reasonable prices. The National Research Council also suggested that amalgamation of existing non-profit making abstracting agencies on an international basis might be made possible.

After these preliminary discussions the Conference took as the principal item on its agenda a document prepared by Unesco on co-operation in scientific abstracting. It was agreed that this co-operation should be between non-profit making organizations. The Conference scrutinized the document closely, and after detailed examination of each paragraph made a series of recommendations bearing

<sup>3</sup> *Brit. J. vener. Dis.*, 1946, 22, 112.

<sup>4</sup> *Essentials of Syphilology*, 1946, Blackwell, Oxford.

<sup>5</sup> *In Penicillin*, 1946, Edited by A. Fleming, London. P. 278

<sup>6</sup> *Proc. roy. Soc. Med.*, 1946, 39, 465.



on the question of collaboration. It was made clear by all the delegates present that they had no authority from their respective organizations to commit themselves to effective action at this stage. The delegates, who will receive a full précis of the proceedings, will report back to their constituent organizations with a view to finding out how far each one may be prepared to go in a co-operative venture which may resolve some of the existing difficulties in medical and biological abstracting. As the meeting progressed it soon became clear that there was much overlapping of effort and much need, also, for a clearer definition of some of the terms used in recurrent discussions on the abstracting of medical literature. For example, the word "comprehensive" is frequently used without anyone being clear as to what exactly this means, and after this had been debated the Conference passed a resolution that: "A comprehensive abstracting service in the sense of abstracting all articles of all journals is impossible and undesirable." It went on to agree that a medical abstracting service should be comprehensive in the sense that it *surveys* the whole of the world medical literature. Such a survey, it was agreed, should include those sciences having a bearing on medicine, and an attempt should be made to secure the co-operation of abstracting services of non-medical sciences in the hope that these would indicate to the medical services matters of possible medical interest. An example given of this need was the appearance in a journal devoted to electrical engineering of an article on electro-cardiography.

The Conference was impressed by the fact that in these days there was hardly any science whose work did not find at one point or another an application in the theory and practice of medicine. The need of the consumer was laid prominently before the Conference. First, of course, was the need for information. Secondly, it was felt essential that the consumer should be able to have this information at the lowest possible cost, and so that this should be possible it was felt desirable to eliminate profit-making wherever practicable. Such elimination is, of course, more easily within the reach of professional organizations either acting singly or working together in groups.

As the Conference proceeded it became clear that there were a number of points at which collaboration could be effected between the biological abstracting services among themselves and between the medical abstracting services among themselves, and also between these two principal groups. It is hoped that these possibilities will be explored during the next few months and that the various organizations concerned may agree to put such co-operation into effect, possibly on an experimental basis for a year or so in order to see whether what are undoubted practical difficulties may be overcome. Although there were points of disagreement, as, for example, on the value of an author's abstract, the Conference after two days of solid work felt so encouraged by the progress made that it decided to recommend that an Interim Co-ordinating Committee on Medical and Biological Abstracting should be set up under the auspices of Unesco. On this Committee, in addition to representatives of the abstracting services, it is hoped to have among its members representatives of the World Health Organization, of the International Federation of Documentation, of the International Federation of Library Associations, and of the Medical Library

Association. It was recognized, too, that there are other long-standing abstracting organizations representing more specialized branches of medicine not yet taking part in these preliminary discussions that should be represented on a committee of co-ordination if it does prove possible to secure agreement on the various proposals for collaboration. For this reason the Committee has been termed "Interim."

The fate of Unesco is indissolubly linked with the fate of UNO. If UNO can tolerate its existing discords and still remain in being then Unesco may be effective in furthering its object—to promote world peace and understanding—with some fair chance of success. Relating its activities to the more remote and idealistic conception of world peace and understanding, the conference on abstracting felt that it might have a part to play by disseminating information on the medical and biological sciences through the various professional groups in different parts of the world, thus bringing them closer together in a field where politics is much less obtrusive.

### SYMPATHETIC DISORDERS IN POLIOMYELITIS

Acute poliomyelitis often causes pain in the limbs, which is sometimes remarkably persistent. Because it is often evoked or aggravated by movement of the affected part this painful state is loosely referred to as "spasm" even though muscle spasm as usually understood may not be apparent. The pathology of these painful disorders is unknown; even the site of origin of the pain is in doubt, though it is generally assumed to be in the muscles. That certain of the affected muscles are in an irritable state can no longer be questioned. Though a muscle may appear to be completely paralysed, it may show electromyographically that irregular action-potentials are being fired off when the muscle is apparently at rest, and a great burst of them may appear when the muscle is stretched. Such a muscle is painful, and the pain is a serious obstacle to effective treatment.

Any observation throwing light on this strange condition is welcome, and in this connexion the work of Collins, Foster, and West<sup>1</sup> is of considerable interest. In the course of treating American Service patients suffering from poliomyelitis they made use of paravertebral sympathetic block for the relief of vasomotor and sudomotor disturbances. As would be expected, the effect of procaine anaesthetization was, while it lasted, the same as that of ganglionectomy. Cyanosis gave place to flushing and warmth of the skin; the skin became dry, and oedema disappeared gradually. These effects were of much longer duration than could be accounted for by the anaesthetic action alone. After the first block the improvement lasted for about three days, and even longer after subsequent injections. The authors do not distinguish very clearly between objective and subjective improvement, but the latter at all events often persisted for as long as ten weeks after the third injection. A remarkable change occurred in three cases showing muscle spasm, tenderness, and pain; the sympathetic block gave complete relief, which was much appreciated by the patient. In one case in which the painful disorder was severe and involved both lower limbs the first injection arrested the pain and spasm only on the side of the injection; relief on the other side followed anaesthetization of the corresponding lumbar ganglia. These findings suggest that the painful irritative phenomena of poliomyelitis may be vascular in origin. It is well known that applications of heat to the painful limb often give great relief, relief that must surely be due to

<sup>1</sup> *New Engl. J. Med.*, 1947, 235, 694.

increased vascularity of the part. Perhaps some of the more puzzling phenomena of poliomyelitis may be solved by investigation of the part played by the sympathetic nervous system.

### CONVALESCENT HOMES

The Institute of Almoners, through a committee of its members headed by Miss C. Morris, the almoner of the National Hospital, Queen Square, has lately undertaken a survey of the convalescent homes of England and Wales. There were 318 of these homes, with approximately 14,000 beds, known to be open in the middle of the present year; 270 have been visited by this energetic committee, and in 12 cases the visitors were refused admission. Convalescent homes have developed without co-ordinated planning or supervision. They are unevenly distributed; the greater number are on or near the southern and south-eastern coasts. Wales is inadequately served, and the barest region of all is the north-east, with only nine homes providing 420 beds. The homes are subject to a seasonal ebb and flow—waiting-lists are longest in the summer. It is said that some patients in the Midlands have to wait six weeks to two months for admission, and, in fact, nowhere is it possible to find immediate vacancies except in winter. There is, too, a tendency for some homes admitting elderly convalescents to become homes for semi-chronic cases; sometimes the convalescents and the chronic sick are cared for in the same wards, and this may give rise to a depressing atmosphere which is the very opposite to what a convalescent home should convey.

Most of the homes, according to their own statements, take general post-operative and medical cases. The almoners say that the provision for patients with gastric conditions requiring dieting is not adequate; that cases of cardiac disorder are accepted only in a few homes; that until recently there has been no convalescent home for patients suffering from fits; that it is very difficult to place patients with asthma or those suffering from pulmonary tuberculosis; and that there is hardly any provision for skin or for cancer cases or for patients with colostomies. The majority of homes also decline to take cases needing treatment in bed or nursing attention at night. Little treatment of any kind seems to be given, and a visiting doctor usually attends once a week, or when required. The number of homes where any but minor dressings are undertaken is very small. Occupational therapy is mentioned only in connexion with five homes. Other criticisms are that often the buildings are old or ill-adapted for their purpose, living rooms have a bare appearance, and there is lack of variety in the diet. The last of these faults is perhaps excusable at present, though there is room for imagination in the preparation and serving of food in many institutions, especially among convalescent patients whose appetites require coaxing. In many homes the rules are too rigid. The strict regime of the hospital is out of place in the convalescent home. Breakfast in bed was found to be usual in only six homes, though in nearly half of those visited the management was prepared to give breakfast in bed if required. The hour of rising is sometimes far too early; in one home patients have to get up at 6.30 a.m. The last meal may be taken in the late afternoon, and in many homes no hot drink is served at bedtime. Some homes have the nonsensical rule which forbids men and women in the same establishment from meeting or going out together.

The Institute of Almoners has again performed a useful piece of work. The majority of these institutions are voluntary, many of them connected with trades and professions, some with religious groups, others with social

agencies, some twenty or thirty with voluntary hospitals, and a smaller number with hospital contributory schemes. The National Health Service Act, in so far as it concerns itself with the after-care of the patient, places the responsibility for making arrangements upon the local health authority, which may, with the approval of the Minister, contribute to any voluntary organization formed for the purpose. Unfortunate convalescent surroundings may go far to undo all that the best hospital has done, and this report implies that there should be set up some minimal standards for convalescent homes.

### PANCREATITIS

Inflammatory diseases of the pancreas are not common, and our experience is usually confined to acute and chronic pancreatitis. The first of these, acute pancreatic necrosis, occurs as a sudden and often dramatic abdominal catastrophe. Chronic pancreatitis is less clearly defined: it may give rise to an indefinite dyspepsia the nature of which is often not apparent until steatorrhoea or calcification in the pancreas is detected. In both these disorders infection of the biliary tract is usually present and is thought to be the precursor of the inflammation in the pancreas. Recently Comfort, Gambill, and Baggenstoss,<sup>3</sup> of the Mayo Clinic, have described 29 examples of what they call chronic relapsing pancreatitis in patients who showed no signs of associated disease of the biliary or gastro-intestinal tracts. The chronicity of the disorder was shown by one case in which there were symptoms for over twenty years with recurrences at intervals of from two days to nineteen years; the pancreatitis was proved by histological section. In all the patients there was a transitory disorder of pancreatic function during the acute exacerbations, though in remissions all tests might be negative. In those, however, in whom single attacks were severe or in whom recurrent attacks led to progressive destruction of the organ permanent pancreatic insufficiency resulted, and there might be diabetes, steatorrhoea, or pancreatic calculi. In a few instances all three of these sequelae developed.

In all at least 89 cases were admitted to the Mayo Clinic between 1939 and 1943, but a close study was made of only 29. Twenty-five of these were males and only 4 females, in sharp contrast to infections of the biliary tract. One-third of the patients took alcohol in excess, and in four instances a drinking bout preceded the attack. Usually this type of pancreatitis began with acute pains in the epigastrium or right hypochondrium, though in some the pains generalized. Radiation to one or other shoulder tip was not uncommon. The pain was steady rather than colicky, and it was often so severe as to require repeated injections of morphine. Sometimes it subsided within a few hours, but in six cases it persisted for four or five weeks. Nausea and vomiting, diarrhoea or constipation, fever with occasional rigors, and jaundice occurred, and in two cases there were haematemesis and melaena. Some of the patients became very shocked. Tenderness and muscle spasm were usually confined to the epigastrium, more often on the left than the right, but true abdominal rigidity was not observed. Other physical findings included enlargement of the liver or spleen and the development of a pancreatic cyst or of persistent jaundice.

Laboratory findings were inconstant. Leucocytosis was uncommon, even in an acute episode; hyperglycaemia and glycosuria, an increase in the serum bilirubin, a raised serum amylase or lipase, and steatorrhoea were all found in some of the patients, though the diagnosis was made in

<sup>3</sup> *Trans. Amer. Soc. Heat. Vent. Engrs.*, 1939, 45, 161.  
<sup>4</sup> *Gastroenterology*, 1946, 6, 239.

many instances from the clinical history alone. Occasionally the abnormalities persisted during remissions, but more often there was a return to normal between attacks. In half the cases a skiagram showed calcification of the pancreas.

The pancreas was described as being firm at operation, or hard and nodular like a carcinoma, or showing a diffuse oedema. In only one case was there haemorrhagic necrosis. These changes, and calcification or calculi formation, might be localized to the head, body, or tail of the organ, or generalized throughout its length. When the head of the pancreas was involved and the common bile-duct compressed there were dilatation of the biliary system and jaundice. Histologically there was pronounced fibrosis of the pancreas, with cellular infiltration and varying degrees of atrophy and disorganization of the acini and islet tissue.

The results of treatment were uncertain. Medical treatment by means of a diet, with the addition of pancreatin or insulin when these were indicated, would control the sequelae of the disease but did not prevent recurrences. Twenty-two of the cases came to operation; various procedures were tried, but drainage of the gall-bladder, either externally or into the duodenum, appeared to be the best method. It was followed by complete remission of symptoms in 7 and by improvement in 4 of the 17 cases in which it was done.

The authors' claim that the symptoms of chronic relapsing pancreatitis are so striking that its recognition is a simple matter may be true if the doctor is aware of its existence and if there is a history of previous attacks; in a first or isolated attack the diagnosis must always be difficult. A knowledge of its existence may be important for two reasons: first, as an alternative diagnosis to a suspected perforated peptic ulcer, since many of these cases appear with all the signs of perforation except the characteristic board-like rigidity; and, secondly, as an alternative diagnosis to carcinoma of the head of the pancreas. Although severe pain is usually the leading symptom it may be slight or even absent in chronic relapsing pancreatitis, so that biopsy of the pancreas and drainage of the gall-bladder may completely alter the prognosis in what appears to be a hopeless case of malignant jaundice.

### CARDIO-PULMONARY FUNCTION AFTER PNEUMONECTOMY

The great advances made in thoracic surgery in the last decade have been largely in surgical technique and in knowledge of the anatomy of the lung. Now probably a stage has been reached when further advances will have to follow a greater knowledge of respiratory physiology, a relatively unexplored field. Bronchspirometry is likely to give much information about loss of respiratory function, and this application of physiology to the recently gained knowledge of pulmonary anatomy will help surgeons to know what procedures can be carried out safely. Estimates can also be made of the respiratory function left to patients who have had a pneumonectomy and lobectomy in the past.

Cournand and his colleagues<sup>1</sup> have just published the results of their studies of two boys and two girls in whom left pneumonectomy was performed for pulmonary supuration ten years ago. In two of the cases a radiograph of the chest showed no evidence of distension of the right lung as judged by the position of the trachea and heart and the absence of mediastinal herniae; in the other two cases there were mediastinal herniae. Further, on screening, the range of movement of the right diaphragm in

the first two cases was small. Physiological studies were made repeatedly on these two patients between 1940 and 1946. The measurements included lung volume, pulmonary emptying rate, and maximum breathing capacity; ventilation and respiratory gas exchange under basal conditions, during and after a moderate type of exercise, and during the last minute of an exhausting type of exercise; and the state of respiratory gases in the arterial blood, at rest and immediately following completion of the moderate and the exhausting exercises. The techniques used for these studies were those previously described by Cournand.<sup>2,3,4</sup> In the two cases which showed no distension radiologically the measurements of lung volume also showed no increase. The volume changes between full expiration and inspiration revealed that the remaining lung expanded more than one of a normal pair of lungs, presumably because there was no contralateral lung to prevent expansion into the opposite chest. The figures obtained by measuring the pulmonary emptying rate strongly suggested that at rest the ventilation of the various parts of the lung was equal even in the cases with distension of the lung. Since the residual air in the distended lungs was increased—and it is constantly found that as the ratio  $\frac{\text{residual air}}{\text{total lung capacity}} \times 100$  increases the

ventilating efficiency decreases—it was not surprising that the maximum breathing capacity was relatively smaller in the two cases with pulmonary distension than in the other two. Accordingly the breathing reserve during the last minute of exhausting exercise was much smaller in the cases with pulmonary distension.

Important observations were made on the oxygen saturation of the arterial blood. In all four patients at rest and after moderate exertion the blood was fully saturated; but in the two cases with pulmonary distension the arterial blood saturation immediately after the exhausting exercise was at the low levels of 83 and 84%, compared with 92 and 93% for the two cases without distension. There was in fact a marked anoxia which caused rapid muscular fatigue and mental lassitude. This occurred despite the fact that the CO<sub>2</sub> output and the oxygen intake in the alveoli was normal. The right heart was catheterized, and the systolic and diastolic pressures in the pulmonary artery were within the normal limits—findings which indicate that the total blood flow through the lung was approximately the same as that of the normal blood flow through two lungs. This normal pressure-flow relationship may be achieved by an increase in the number of capillaries and in their size. An increase of only 16% in the diameter of the capillaries would allow 100% increase in the pulmonary blood flow without any change in pressure in the pulmonary artery.

It is clear from these observations that pulmonary distension after pneumonectomy is not a compensatory process; in fact, it produces considerable disablement, and surgical ingenuity must be directed to its prevention. It depends strictly upon the prevailing mechanical condition, and in this the flexibility of, and the presence of weak points in, the mediastinum are the most important factors. In adults attempts can be made to keep the mediastinum in its proper place by means of thoracoplasty, which not only does not impair the efficiency of ventilation of the chest but may improve it by reducing the pulmonary distension. In children, however, thoracoplasty is a crippling operation, and other means must be sought for keeping the mediastinum in its proper position; perhaps it could be achieved by the introduction of air or oil into the hemithorax on the side of the pneumonectomy.

<sup>1</sup> *J. thorac. Surg.*, 1947, 16, 30.

<sup>2</sup> *J. thorac. Surg.*, 1942, 11, 529.

<sup>3</sup> *Ann. Surg.*, 1942, 116, 532.

<sup>4</sup> *Amer. Rev. Tuberc.*, 1941, 44, 123.

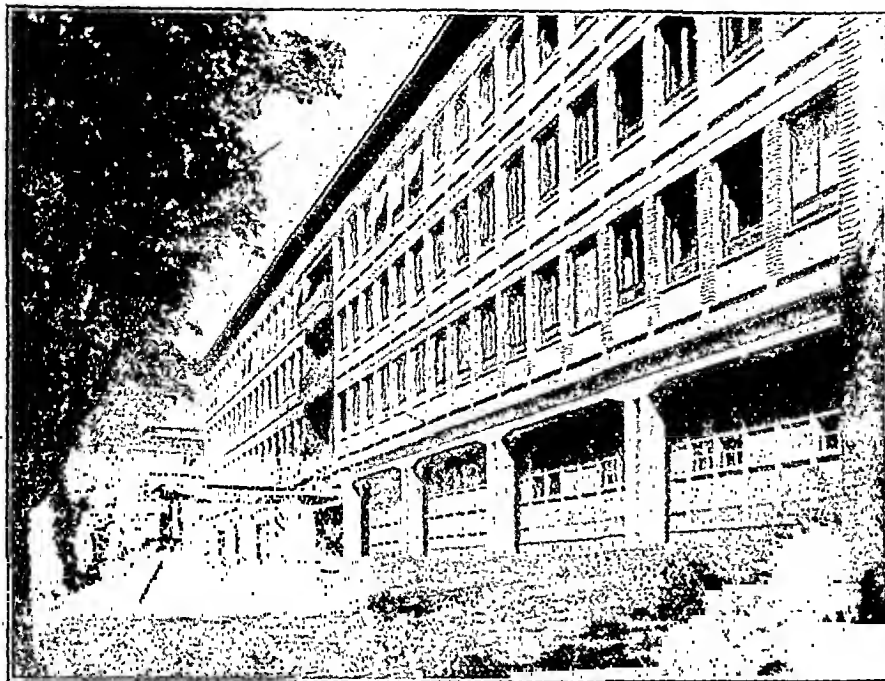


FIG. 1.—West elevation, with entrance ramp and principal entrance.

## A NEW SWISS OTOLARYNGOLOGICAL CLINIC

BY

E. D. D. DAVIS, F.R.C.S.

Many of the hospitals in this country are planning to rebuild or to reconstruct their buildings. It is hoped that the otolaryngological departments will have a full share in this necessary reconstruction. I have recently returned from a visit to the two newest Swiss hospitals at Zurich and Basle. I was very much impressed by Prof. Nager's new otolaryngological clinic at the Canton and University Hospital, Zurich, and decided that a description of the clinic would be useful.

### The Canton and University Hospital, Zurich

This new hospital is being built in sections in an open park on the site of the old one. It is situated on a steep incline, in a broad tree-lined avenue opposite the University buildings, and is about fifteen minutes' walk from the centre of Zurich. It will consist of one large central building of five stories, linked by bridge corridors to about five four-story buildings. A model of it is displayed in the entrance hall of the new polyclinic.

The polyclinic, or out-patient department, is only new building completed, and I spent separate days inspecting it. It is a four-story structure, with a long façade set back from main avenue (Fig. 1). I had the good fortune to know Prof. Nager, the director of the otolaryngological clinic, and he kindly gave up more than two hours of his valuable time showing me round. He has spent nearly fifteen years planning this new building, and for the result merits the highest praise. He insists that the medical staff should plan their own departments in collaboration with the architects, who would carry out their desires. It is essential that both medical officer and architect should visit other new hospitals, such as those at Stockholm.

The main entrance is on the ground floor in the centre of the building and has two sets of metal-and-glass swing-doors. This entrance opens into a large oblong hall, well lighted by large windows on both sides. On the street side there is a spacious registration office separated from

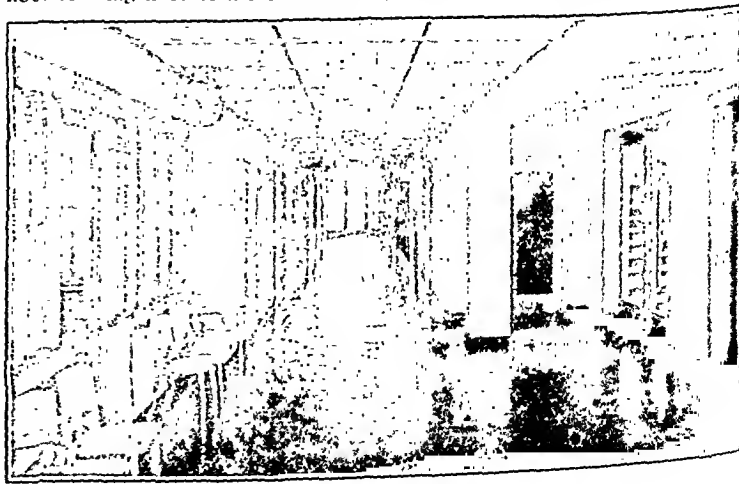
the hall by a glass-panelled partition. At the farther end is a waiting-room, at the near end a separate entrance to the clinic for students. The entrance hall covers a large part of the ground floor. The building is air-conditioned and sound-proof, and has panel central heating. As there was 12° C. of frost in Zurich it was a good test for an air conditioned centrally heated building. Both air and heat are excellent. During the winter in Switzerland air-conditioning is very necessary, but in summer the windows are opened both in the hospital and in the new Basle hospital. The straight, broad, well-lighted corridors are excellent. The walls and ceilings are lined with sound-proof panels which are easily removed for ready access to the pipes and electric wires etc., placed in the ceilings.

### The Otolaryngological Clinic

This occupies the second and third floors. A broad, well-lighted, straight and spacious sound-proof corridor passes from end to end of the clinic (Fig. 2). In the centre of this corridor is a roomy entrance lobby, with large windows and giving access to the lift and staircase. Immediately opposite the staircase, over a glass-panelled door of the large office of the secretarial staff is a clock. This office is separated from the corridor by a well-designed wood-and-glass partition, and anyone inside has a view of the corridor and its entrance. Adjacent to the secretarial office the director, Prof. Nager, has his suite, consisting of a large consulting-room with a smaller room for examining patients, an experimental research laboratory, a histological laboratory, and a third laboratory for microscopy. The laboratories are presided over by a skilled lady technician. On the opposite side of the corridor is a waiting-room, with the necessary cloak-room and lavatory accommodation for the director's private patients. On the other side of the secretary's office is a library of ample size. All these rooms have communicating doors. At one end of the corridor are two operating theatre suites, a special theatre for endoscopy, a room for labyrinth tests, etc., and a camera silentissima for hearing tests research and audiometry.

On the side of the corridor opposite to the director's laboratories is the sisters' room; a series of small rooms for treatment such as short-wave diathermy, light treatment, and an inhalatorium with electrically heated inhalers; and a large waiting-room. Next to the last-named is a spacious and well-lighted

FIG. 2.—Standard corridor connecting with the future ward block. Ceilings are reduced from the normal height of 3 metres to 2.45 metres by means of removable panels providing space for installations and reducing echo. The floor-covering is of cork sections.



out-patient clinical room (Fig. 3). This has nine sets of open cubicles for examination, separated into two groups of five and four by a room for washing and sterilizing instruments, etc., with a glass-panelled partition and door. There are surgeons' washing-basins within easy reach of every cubicle. Each cubicle is well equipped with double electric-lighting sets—one for the forehead reflecting mirror and the other a switch-board for head-lamp, transilluminator, cautery, etc.—a small sterilizer, a spittoon, a glass-door cabinet for special instruments, a trolley for small trays for examining instruments, dressings, and drugs, a small pull-out writing-table; in fact, a complete outfit for the examination and minor treatment of any ear-nose-and-throat patient. All this equipment is mobile. Each cubicle has an electric-light indicator signalling by numbers: 1, to summon the nurse; 2, to summon the next patient; and 3, to summon the secretary. In addition to the large waiting-room there are two recesses, opposite but not in sight of the examining cubicle, for three or four patients about to be seen or for a patient having cocaine or other local analgesic. In line with the recesses is a secretary's office, nurses' room, and lavatories. A record office and a series of small rooms for a speech clinic and for the treatment of defects of speech are near by. Immediately beyond the out-patient room is a narrow passage about 60 ft. (18 m.) in length, isolated by swing-doors, for the testing of hearing of the voice, whisper, etc. On the farther side of this passage is a small theatre for tonsil and adenoid operations and a complete suite of rooms for the recovery of these patients, who remain the whole day, or longer if necessary. Adjoining this suite is a recreation room and bathroom, etc., for nurses. There is a terrace balcony or solarium on the roof, and balconies are placed wherever practicable and desirable. There are many more details of equipment and accommodation which are better seen than described.

The 60 beds of the otolaryngological clinic are temporarily placed on the next floor, but the clinic is to be connected to the in-patient block for the special departments, and in future the beds will be on the same floor level as the theatres.

The director sees and treats all his private patients at the clinic. He does his hospital work usually from about 8 a.m. to 12 noon every day, and sees his private patients in the afternoon. He teaches students in the afternoon in the students' clinical and lecture theatre, where there are about thirty lamps and places to examine patients. From 60 to 150 students each year do a three-months session. The course is for three years, and they have to pass an examination in otolaryngology. The complete qualifying period for medical students is 6½ years. The director is given full secretarial assistance and is encouraged to do, and is given every facility for, clinical research and private practice. All the departments of the hospital are to have this generous accommodation and equipment.

#### Conclusion

The outstanding features of the new Swiss hospitals are:

- (1) The well-designed entrances and exits, with imposing well-lighted entrance halls.
- (2) The straight broad corridors, efficiently heated, air-conditioned, sound-proofed, and well lighted by windows. As many large windows as possible, glass-panelled doors, and glass-panelled partitions of the secretarial and registration offices and day rooms conserve the light. There are no "tube station" passages and no spots of congested traffic.
- (3) The recreation or day rooms on each floor, the numerous balconies, and the roof solaria, which are well placed and designed.
- (4) The provision by the Swiss authorities for their medical staff of every facility for private and hospital practice and for clinical research, as well as secretaries and technical assistants. These facilities are also now provided for those departments which have not been rebuilt.

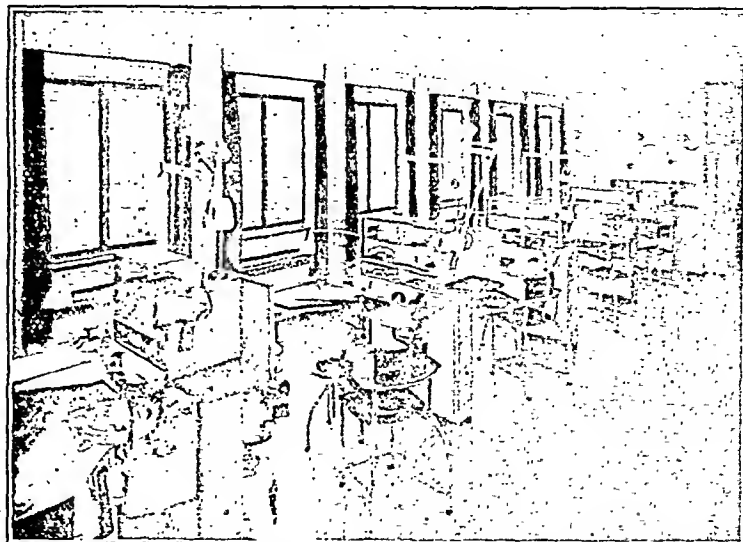


FIG. 3.—Northern half of the main treatment room of the E.N.T. clinic, with five treatment chairs. Sterilizing-room adjoins on right. Apparatus, desk, plumbing, etc., mounted on transversely placed units so that the treatment chairs are separated off while the unity of the room is preserved. Service passage alongside windows.

The medical officers have taken an active part in the planning and designing of their own departments, particularly with regard to such details as the placing and allocation of rooms, equipment, labour-saving devices, etc. This responsibility of planning is accepted with enthusiasm by all the medical officers concerned.

## ROYAL COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS

### Conferment of Honorary Fellowships

On the occasion of the grant of the Royal Charter to the Royal College of Obstetricians and Gynaecologists by H.M. the King this year the opportunity was taken to confer the Honorary Fellowship on the four surviving signatories of the articles of association whereby the College was incorporated—namely, Prof. J. M. Munro Kerr, Prof. C. G. Lowry, Sir Ewen Maclean, and Sir William Fletcher Shaw. The ceremony took place at the College, 58, Queen Anne Street, on Oct. 3. The President first paid a tribute to the signatories who had died—namely, Dr. H. Russell Andrews, Prof. W. Blair Bell, Sir Comyns Berkeley, Sir Francis Champneys, and Dr. T. Watts Eden.

Prof. Munro Kerr was introduced by Prof. R. H. Lennie, who spoke of Prof. Kerr's occupancy of the Muirhead chair of obstetrics and gynaecology at Glasgow University, a post which he held for sixteen years, and latterly his regius professorship at the University. Sir Eardley Holland introduced Prof. Lowry, emeritus professor of midwifery in the University of Belfast, where he had exerted a most beneficial influence on Irish medicine. The next recipient was Sir Ewen Maclean, introduced by Prof. G. I. Strachan, who spoke of Sir Ewen's work in the University of Wales and also of his wise counsel in all matters that concerned the Royal College. Finally, Mr. G. F. Gibberd, in introducing Sir William Fletcher Shaw, said that the very inception of the College was due mainly to his inspiration.

Sir William Fletcher Shaw, replying for the four Honorary Fellows, said it had been discovered recently that in the last century a number of obstetricians had suggested the foundation of such a college. Many of the leading obstetricians of that time had made suggestions which would have greatly improved the teaching and practice of obstetrics, but almost invariably the physicians and surgeons had joined together to prevent those suggestions from being carried out. The obstetricians, realizing that this was due to their opponents being organized in Royal Colleges, were of the opinion that they



ought to have a college of their own; but nothing had then been done in the matter, and the foundation of the present Royal College had come about in an entirely different way. Later it became obvious to some of them that something must be done to prevent the complete separation of obstetrics and gynaecology, and it appeared that the best course was to form some central body, preferably a college, which would bind together all those obstetricians and gynaecologists who believed in the indivisibility of the two subjects, and through the portal of which all must pass who wished to practise this particular branch of medicine.

He went on to speak of the early difficulties in the way of the formation of such a college. In the early 'twenties the support of the Gynaecological Visiting Society, whose members occupied almost every chair in this subject in the British and Irish universities, was enlisted, and a committee of four—Prof. Blair Bell, Sir Ewen Maclean, Sir Comyns Berkeley, and himself—was appointed to report on the matter. In 1927 the matter was made public, and opposition by the two existing Royal Colleges began and continued for the next two years. Finally, in September, 1929, the College received its registration from the Board of Trade. Those who had founded the College had handed on the torch to a new generation now being admitted to its membership. Whether it progressed or retrogressed would depend upon the amount of interest which the young people took in it and the sacrifices they were willing to make in its behalf. He and his colleagues had no fear for its future.

#### Dinner

In the evening Mr. W. G'lliatt, P.R.C.O.G., presided over a dinner at the Connaught Rooms. Mr. Aneurin Bevan, Minister of Health, proposing the toast of the Royal College, said that he had learnt from the newspapers that he was being moved about, and in the last few weeks he had been associated with every office under the Crown. He hoped that he would be spared to carry to maturity the great schemes which the Ministry of Health had launched. Mr. G'lliatt, in reply, referred to the ceremony which had taken place in the afternoon and described a project which was already under way for earmarking resident appointments for postgraduate students from the Dominions.

The toast of "The Guests" was proposed by Dr. H. R. MacLennan, of Glasgow, and Sir Herbert L. Eason and Mr. F. A. Maguire, of Sydney, replied. Mr. Maguire, who is chairman of the Regional Council in Australia of the Royal College of Obstetricians and Gynaecologists, gave some account of the present difficulties in medical education in Australia. Sydney in a normal year had 150 medical students. To-day there were 700 second-year and 800 first-year students. This problem continued into the postgraduate field. He referred appreciatively to Sir William Fletcher Shaw's recent tour of Australia and New Zealand and underlined the importance of continuing such links between Great Britain and the Dominions.

### FIRST EUROPEAN CONGRESS OF RHEUMATOLOGY

The first European Congress of Rheumatology was held at Copenhagen on Sept. 3-8 under the presidency of Prof. C. Holten, of Aarhus, Denmark. There were 400 delegates representing 25 countries, and guests of the Congress also came from Egypt, America, and Canada. At a meeting held before the Congress a European Section of the Ligue Internationale contre le Rhumatisme was founded on the same lines as the Pan-American Section formed during the war. Dr. M. P. Weil, of Paris, was elected the first president; Dr. W. S. C. Copeman (Britain) and Prof. B. Prusik (Prague) were elected vice-presidents; and Prof. E. Jarlov and Dr. K. Kalbak, both of Denmark, the secretary-general and the secretary respectively. It is hoped that the next congress of this body will be held in Prague in 1948.

At the opening session, for which the great town hall was packed, H.M. the Queen of Denmark was represented by H.R.H. Princess Caroline Mathilde, and the Ministers of Health and Social Affairs spoke of their daily contact with

the rheumatic diseases as a social problem of considerable magnitude. The help of their departments is already officially pledged to the campaign which enlightened public opinion has forced on them. The president then gave his inaugural address, and pointed out that the field of clinical observation has not yet been exhausted in this disease group. He emphasized the importance of correlating the recently gained knowledge of associated diseases such as periarteritis, myositis, and scleroderma, as well as of peripheral vascular and sympathetic nervous physiology. He referred to the increasing interest of the public in this group of diseases and their demand for action in Denmark and Sweden. All this increases the need for rheumatologists to take stock of their position and to combine to fill the many gaps in their knowledge of this new specialty. To aid in this respect is the object of the new body, whose aims are the exchange of current knowledge and the organization of team investigation in every country through the national branches and, in this country, through the Empire Rheumatism Council.

The outstanding contribution in the session which followed was that of Dr. G. D. Kersley (Britain) on the morbid anatomy and histology of rheumatic lesions. He confirmed the work of Freund and others in 1946 on the existence of a specific type of lesion in rheumatoid arthritis which occurs in any or all of the muscles of the body at any stage of the disease as well as in other mesodermal tissues and around the peripheral nerves. The lesion consists of a perivascular accumulation of lymphocytes, with degenerative and proliferative changes in all the coats of the small blood vessels and degenerative changes in the muscle fibres. He also spoke of nodule formation in various types of rheumatism; and he suggested the probability of a dual pathology in "fibrositis."

Most of the scientific contributions dealt with the question of the anti-streptolysin titre and similar antibody responses in both rheumatic fever and rheumatoid arthritis, notable among these being the papers of Winblad (Sweden), Kalbak (Denmark), and Prof. Svartz (Sweden). It is evident, however, that no finality of opinion has been reached on this subject.

The next session, under the chairmanship of Dr. W. S. C. Copeman (Britain), was devoted to the treatment of rheumatoid arthritis by means of gold salts and chemotherapy. This was introduced by a useful contribution by O. Steinbroeker (U.S.A.) on the criteria which should be employed for the assessment of results by these means. A full account of the subject by J. Forestier was presented by Coste (France), and confirmation of the value of various gold salts in rheumatoid arthritis came from papers by Secher (U.S.A.) and Clemmeson (Denmark), Sunderlin (Sweden), Kuipers (Holland), and Döbelie (Switzerland). Much less optimistic accounts came from Schlesinger (Britain), who was speaking principally of Still's disease, and from some speakers in the discussion.

The third and fourth sessions, under the chairmanship respectively of Prof. F. Coste (France) and Dr. Van Breeman (Holland), discussed various aspects of the social background of the rheumatic diseases, and the outstanding biochemical problems of rheumatism. In the former category important new statistics were produced from France, Sweden, Switzerland, Denmark, and Eire, and, in the latter, papers were read by Prof. de Sèze (France), Edström and others (Sweden), and Prof. Dirisu (Turkey). Papers on various other subjects (limited to ten minutes) were also presented by a number of delegates, including representatives of Belgium, Norway, and Czechoslovakia.

The Congress then moved from Copenhagen to the University of Aarhus on the mainland, where it split up into two sections, and reports of personal investigations into various aspects of rheumatism were briefly presented. These included liver tests in rheumatism, studies in the peripheral circulation of rheumatism, food allergy in rheumatoid arthritis, dental infection and joint disease in mediaeval Denmark, rheumatic fever among the partisan forces of Yugoslavia, jaundice as a "rheumatic" disease in Poland, and the role of wound sepsis in unmasking rheumatic syndromes during the war in Rumania.

In addition to the scientific programme much official hospitality was arranged by the Danish Rheumatism Association, of which Prof. Jarlov is president. The lavish private hospitalities which supplemented this was an atavistic experience enjoyed to the full by delegates from "austerity" areas.

## MEDICAL LIBRARIANS

At a meeting in London on Oct. 4 a new subsection of the Library Association devoted to the professional interests of medical librarians was inaugurated. Various projects which will advance the usefulness and efficiency of medical libraries throughout the country were discussed, some of which will shortly be started. These include a union list of medical serials and their location in British libraries, inter-library loans, and the exchange of material to assist the completion of imperfect sets of important journals. The committees and governing bodies of medical libraries will doubtless welcome the opportunity which will now be afforded of obtaining authoritative advice and assistance from this new professional group. It is of interest to record that Sir William Osler suggested the formation of such a body as long ago as July 28, 1909, at the Annual Representative Meeting of the British Medical Association at Belfast; his suggestion did not then bear fruit, but we hope that success will attend this new venture.

At future meetings papers of a technical and bibliographical nature will be read, and members of the medical profession will always be welcomed as guests. Further details may be obtained from the secretary of the group. The following committee was appointed to manage its affairs: C. C. Barnard (London School of Hygiene and Tropical Medicine); W. J. Bishop (Wellcome Historical Medical Museum); W. A. Lee (Liverpool Medical Institution); W. R. Le Fanu (Royal College of Surgeons); T. J. Shields (British Medical Association); Miss E. Wigmore (National Institute for Medical Research); G. F. Wilson (Manchester Medical Society).

## Reports of Societies

## THE CHARTERED SOCIETY OF PHYSIOTHERAPY

The Annual Congress of the Chartered Society of Physiotherapy was held in Edinburgh on Sept. 25-28 under the chairmanship of Dr. W. S. C. COPEMAN by invitation of the Edinburgh branch of the Society. In addition to a considerable attendance of medical men, 500 members were present.

Prof. J. R. LEARMONTH gave the inaugural lecture on "Arterial Supply and Function in the Extremities." Miss Gertrude Hertzfeld was in the chair. The lecturer summarized the present knowledge of the peripheral vascular system and described its application to medicine and the part that surgery can play. He described his experiments on the reflex effect of heat applied at distal portions of the body and suggested these might ultimately affect the practice of physical medicine. This was illustrated by slides and a film. Prof. R. J. KELLAR then spoke on "Physiotherapy in Relation to Gynaecology and Obstetrics." During the afternoon session Dr. ANTHONY RITCHIE spoke on the experimental side of electrotherapy in somewhat iconoclastic vein, and suggested that many of the hitherto established tenets of electrotherapy are due for revision in the light of modern physics. Dr. DAVID YELLOWLEES followed with an address on the psychological aspect of physical disorders.

The Founders lecture was delivered on Saturday morning on "Mind and Body," by Mr. W. J. STUART (in the absence of Prof. F. A. E. Crew). The chairman was Lord Horder, the President of the Society. The final lectures were by Prof. CHARLES CAMERON on "The Physiotherapist and the Treatment of Tuberculosis" and by Prof. R. W. B. ELLIS on the modern status of the poliomyelitis problem, principally as it affects children. He felt unable to support the Kenny method of treatment fully, although he considered that it had drawn attention to a subject that was previously somewhat neglected. He also warned delegates against placing their faith in convalescent serum for this disease.

Visits were arranged on each afternoon to the Pollock Institute of the University of Edinburgh, the Astley Ainslie Convalescent Hospital, the Simpson Maternity Department of the Royal Infirmary, and the Princess Margaret Rose Hospital for Crippled Children. The Congress was honoured by the Lord Provost, who gave a reception.

## Preparations and Appliances

A NEW AID FOR PHOTOMICROGRAPHY AND  
GENERAL LABORATORY PHOTOGRAPHY

Dr. A. C. LENDRUM, of the department of pathology University and Western Infirmary, Glasgow, writes: The grainless photographic emulsions evolved for microcopying and now available in the larger sizes, provide a valuable new tool for the photomicrographer and laboratory worker. This type of emulsion, which allows a remarkable degree of grain-free enlargement, is of high contrast; but, as Tritton (*Brit. J. Photography*, 1946, 93, 374) observes, this steep contrast can be flattened as desired by modifying the developer, thus offering two distinct advantages. First, with this material alone (e.g. Ilford panchrom line flat film) one is equipped to reproduce anything from the steepest contrast to the softest gradation. Secondly, the grain-free nature of the emulsion allows one to print enlargements of so-called "contact quality." The slowness of this stock is of no disadvantage in photographing the inanimate.

Tritton advises the following dilutions as giving gradations or the negative corresponding to the range of tones in the object named. For the copying of photographs or printed half-tone illustrations use A; for lower contrast (e.g., in the photography of solid objects with their longer range), use B.

## Kodak Ilford

A:	One part	DK.20 or 1D-48	with 4 parts water for	5½ mins. at 65° F.
or	"	"	D.76 " 1D-11	" 5 " " " 5½ " " "
B:	"	"	DK.20 " 1D-48	" 9 " " " 10-13 " " "
or	"	"	D.76 " 1D-11	" 9 " " " 6-8 " " "

In photomicrography, too many workers who are skilled in the use of a single type of emulsion fail to employ a more or a less "contrasty" emulsion for the section that in fact demands it. Admittedly some meet this situation fairly well by altering the colour of the taking light, but this is often really an abuse of the filters and produces an undesirable shift of emphasis in the opacities of the different tissues. It is not always easy to judge the tone range of a section as seen on the ground-glass screen, but a trial negative will show if higher or lower contrast is desirable. Undiluted 1D-11 for 5½ minutes at 65° F. (18.3° C.) gives about as high contrast as is likely to be needed in photomicrography if one intends to enlarge.

Any advocacy of enlarging from photomicrographic negatives is usually met with dark hints about the utility and wickedness of empty magnification, and until now it has not been easy to obtain visually satisfactory enlargements from quarter-plate negatives. An unfortunate result of the techniques available in the past has been the frequent use of the 2-in. (5-cm.) circular print; the critical worker insisted that anything bigger than this showed obvious lack of definition. For most observers, however, this is too small a picture, and if the magnification be under fifty times in order to show the architecture of a tissue, then the cellular detail is quite beyond the middle-aged eye. It is to be hoped that, when conditions permit, editors will accept, as they have to some extent in America, the desirability of larger reproductions. Using this new emulsion one can enlarge from the critically focused central part of the negative, with the further benefit that one obtains the greater depth of focus of the longer focal-length objective. One is thereby not confined to the circular shape which, so long as we have rectangular journals, is extremely wasteful. The surface coating ("bloom-ing") of the enlarging lens is another modern aid to the production of the technically satisfying print.

There is an old saying that the negative must be judged by the print, but the intrinsic virtue of this new film is strikingly shown by comparing with a lens (eight times magnification) a quarter-plate negative on this and on an ordinary emulsion: with the ordinary emulsion resolution of detail tends to be lost in grain, whereas the new emulsion reveals unsuspected and perfectly defined detail.

## Correspondence

### R.M.B.F. Christmas Appeal

SIR,—Christmas comes but once a year, and when it comes should bring good cheer. I therefore appeal to your readers to help those who have to look to others for whatever extra comforts may come their way. The beneficiaries of the Royal Medical Benevolent Fund are either aged or infirm practitioners, their wives, widows, or children; and, but for the grace of God, any one of us or our families might be in like need.

I hope subscribers to the Fund will send an extra donation to make this Christmas a little less bleak and grim. I earnestly ask those who are not subscribers to show their sympathy for their less fortunate colleagues, not only by sending Christmas gifts, but by becoming regular supporters of the Fund.

Contributions and subscriptions should be sent to the Secretary of the Royal Medical Benevolent Fund, 1, Balliol House, Manor Fields, Putney, London, S.W.15, and marked "Christmas Gifts."—I am, etc.,

ALFRED WEBB-JOHNSON,  
President,  
Royal Medical Benevolent Fund.

### Poliomyelitis

SIR,—I was interested in the letter from Dr. J. M. Alston (Sept. 13, p. 432) calling attention to the evidence suggesting that infection by poliomyelitis virus is common, with paralysis occurring in only a small proportion of those infected. Investigation of another neurotropic virus, that causing louping-ill in sheep; has emphasized to me the importance of factors which in the individual animal allow a potentially neurotropic virus to invade the nervous system from the blood.

Injected directly into the brains of non-immune mice and sheep, louping-ill virus always causes fatal encephalitis. Injected peripherally (intraperitoneally or subcutaneously), it multiplies and reaches the blood, but in only a proportion of animals does it subsequently invade the brain. There is evidence that environmental conditions affecting nutrition determine the proportion of sheep which develop encephalitis. In two experiments carried out in June and July of successive years a group of four and a group of three sheep were inoculated subcutaneously with virus, and none developed encephalitis. Of 27 sheep similarly inoculated during winter and early spring 55% died.

It has been shown that the virulence of louping-ill virus and some other encephalitic viruses can be modified by culture in the developing chick embryo or in tissue culture. Although virus thus modified retains unaltered its ability to produce encephalitis after intracerebral inoculation, it progressively becomes less capable of invading the brain after peripheral inoculation. A strain of louping-ill virus attenuated in this way, so that normally not more than 10% of sheep inoculated subcutaneously developed encephalitis, proved capable of killing nearly 50% of sheep when the inoculations were made during severe weather of last winter.

These observations call attention to the importance of the mechanism ("the blood-brain barrier") which tends to prevent spread of virus from the blood into the brain. They suggest that in these neurotropic infections one must study not only the virus but the factors which influence this spread in the individual animal under different environmental and nutritional conditions.—I am, etc.,

Frant, Kent.

D. G. ff. EDWARD.

SIR,—I was most interested to read the letter on this subject from Dr. E. C. H. Huddy (Sept. 20, p. 468). While in India in 1944 I was medical officer to an officers' training school where we had 500 British and Indian cadets continuously in training. These cadets messed in six separate messes, which I supervised as regards cleanliness and administration, assisted by a most precise non-medical lieutenant.

We had a sudden outbreak among newly arrived British cadets of poliomyelitis. We had six cases in all, of which two died in iron lungs and four recovered with varying degrees of

disability. On the assumption that intestinal infection spread the disease I ordered all eating and drinking utensils to be soaked in chlorine baths for some hours before re-use, and following the implementing of this order the spread of infection ceased. It was significant that the ordinary British Tommy (of whom there were several hundreds in the station), using his own individual eating and drinking utensils, was not affected at all by the outbreak, which was confined to the British cadet messes, where eating and drinking utensils were used communally. The fact that the last two cases occurred 17 days after the commencement of the outbreak suggests infection before the institution of the precautions described.—I am, etc.,

Burton-on-Trent.

J. R. SALMOND.

### Disseminated Sclerosis and Poliomyelitis

SIR,—Your annotation entitled "On the Track of Disseminated Sclerosis" (Sept. 20, p. 460) was of very great interest to me, and I write because I think I can make a useful contribution to the discussion. I am familiar with the experimental work done on swayback in the Peak district under the auspices of the Derbyshire Agricultural Committee, with the help of Dr. Innes. It was thought that the problem had been solved by giving the ewes long before the birth of their lambs salt blocks containing copper to lick. Undoubtedly this treatment considerably reduced the number of cases, but anyone visiting these sheep farms and talking to the shepherds and farmers would soon be convinced that we have still a long way to go.

I think it may be admitted that the element copper is essential to the conduction of nerve energy, and when it is absent in those nerves supplying muscles we get paralysis and changes in the nerve leading to degeneration and demyelination. A copper deficiency in the soil would no doubt predispose to the paralytic condition, but the point that has been overlooked is that copper may be abundantly present, but supplanted in the nerve tissue by some other mineral.

In 1938 I made a determined effort to find the cause of fowl paralysis, and, profiting by the results obtained in swayback, I put great faith in copper. For several years the mortality from this disease had been very high, and the complaint was invariably fatal, although the bird might live for a few weeks. I determined to try one mineral after another in dilute solution injected daily into the crop. The bird was artificially fed as well. I began with a typical and unmistakable case of fowl paralysis. When copper solution had been injected for a fortnight without the slightest benefit, my assistant said: "Don't you think, sir, we have tried copper long enough? May I go on to the next mineral?" I explained I was loath to abandon copper because it was the substance from which I expected most benefit. I said: "Go on to No. 2, but continue with copper as well." The next on the list was cobalt, and the third was nickel, neither of which we had in the laboratory, but we had manganese, which we used. The bird had not had this combination of copper and manganese for more than two days before a remarkable effect was produced. It could stand up and peck. In a few days it had the appearance of a healthy bird. Its comb became red and it started to lay, giving me an egg nearly every day. We had cured fowl paralysis, but my poultry friends who had watched the experiment could not believe it. They reasoned: "As fowl paralysis is an incurable disease there must have been a mistake in the diagnosis." My reply was: "If my theory is correct I can bring back the fowl paralysis." Accordingly I administered a solution of zinc sulphate, and in two days the bird was again on its side, unable to stand. I did not attempt a second cure, but killed the bird and sent the corpse to Weybridge Research Station for a report. The answer soon came: "Advanced fowl paralysis." Since that time I have treated 28 cases, and nearly half of the number have been completely cured. In half of the failures the post-mortem revealed that some other disease was present; and in the remainder probably treatment had not been started early enough. Copper by itself was ineffectual and so was manganese. It required the combination. Probably the manganese acts as a catalyst.

The conclusion I reached was that fowl paralysis is a disease in which copper in some of the nerves is displaced by another metal, usually zinc, derived from the galvanized poultry utensils so commonly used, or from lead which is present in the flint stone used as a powder in the mash, and as grit. Referring

once more to swayback, I have ascertained that the soil in the Peak district where swayback is prevalent is heavily charged with lead. Is it possible that the present outbreak of infantile paralysis has a copper displacement factor in its aetiology? One mineral has been used to an extraordinary extent during the war years and since. I refer to tin. Aluminium cooking vessels were difficult to get during the war years, but since the shops have been flooded with them. Might I suggest that in each case of infantile paralysis the urine should be tested for traces of tin and aluminium?—I am, etc.,

Kenwood, Chesterfield.

J. A. GOODFELLOW.

### Miliary Appearances in the Lungs in Mitral Stenosis

SIR,—I was most interested to read Dr. T. E. Gumpert's article (Sept. 27, p. 488) on "Miliary Appearances in the Lungs in Mitral Stenosis." In the past year I have noted three such cases. Two of these cases had had mitral stenosis of long standing. The miliary appearances in the lungs were seen shortly before death from congestive cardiac failure.

The third case was rather different. The patient, a woman aged 36 years, was admitted to hospital in an extremely collapsed condition with cyanosis, orthopnoea, marked tachycardia, pyrexia, venous distension in the neck, and widespread adventitious sounds in the lungs. She had a previous history of rheumatic fever. X-ray examination of the chest showed widespread miliary appearances very similar to those seen in miliary tuberculosis. Her pyrexia was intermittent in type and proved resistant to penicillin and sulphathiazole in full doses. She had no sputum.

After four days she was put on full doses of salicylate. Her temperature subsided rapidly and her tachycardia became less marked. As it did, a well-marked mitral stenosis was discovered. She remained afebrile though the tachycardia tended to persist. X-ray examination of her chest 14 days after the first film showed the lung fields almost clear. Although she remained afebrile her convalescence was protracted, with marked tachycardia on the least exertion. She had no peripheral manifestations of rheumatic fever.

I should very much like to hear Dr. Gumpert's views on this case.—I am, etc.,

Dublin.

HALDANE G. NELSON.

SIR,—I read Dr. T. E. Gumpert's interesting article (Sept. 27, p. 488) on "Miliary Appearances in the Lungs in Mitral Stenosis," but do not agree with the pathological interpretation or the radiological findings. The haemosiderin-laden histiocytes from the alveoli are motile and travel to the intralobular collections of lymphoid tissue. Here fibrous tissue reaction results in the formation of pseudo-tubercles, at first microscopic, but later increase in the amount and maturity of the fibrous tissue gives the appearances of nodulations apparent in the photograph. The rosette-like appearance he describes in the magnified photograph I should interpret as hyaline degeneration in the centre of the fibrous nodule, which is more opaque to the x rays than the young fibrous tissue at its periphery. The pathology is in fact extra-acinar. The diffuse haziness in the later photograph suggests interstitial fibrosis—i.e., in the inter-alveolar and interlobular lymphatics—seen in Whitehaven in the lungs of haematite miners from Egremont. I think if a photograph were taken now of this patient it would show the same pattern as that seen in 1946.—I am, etc.,

Belfast.

MURIEL O'DOHERTY.

### Early Diagnosis of Tuberculous Meningitis

SIR,—Dr. M. C. Wilkinson's call to the profession (Sept. 27, p. 507) for early diagnosis of hitherto incurable tuberculous conditions will be welcomed by all tuberculosis workers. While there is little one could add to Dr. Wilkinson's observations, I would like to call attention to a recent work which had purely academic significance at the time of its publication, namely, that by biopsy typical miliary tubercles may be demonstrated in the bone marrow in some cases, without any changes in the C.S.F. and before radiological evidence of pulmonary invasion.—I am, etc.,

Colchester.

FRANCIS KELLERMAN.

### Fungus Poisoning

SIR,—The article by Mr. J. Ramsbottom (Aug. 23, p. 304), the annotation (p. 302), and the letters by Dr. C. Allan Birch (Aug. 30, p. 348) and Dr. A. T. Todd (Sept. 6, p. 395) deal with mushroom poisoning, making reference to *Amanita phalloides*. I have had occasion to observe two families poisoned by this mushroom, the full details of which I published in the *Revista Clínica Española* (1945, 17, 211). Pathologically the most striking things to be found were: intense fatty degeneration in the liver with bands of total necrosis and haemorrhagic infiltration; in the suprarenal capsules turbid degeneration in the cellules of the second and third zones of the cortex.

In diagnosis the late onset of the symptoms, almost without exception ten to twelve hours after ingestion, is of great value. The treatment of Limousin (fresh rabbit's stomach and brains) broke down in my cases, as did the intravenous glucose in large doses of Binct. and the draughts of a saturated salt solution of Le Calve, and likewise all the cardiac tonics. I was not able to give the "antiphalloid" serum treatment of Dujarric de la Rivière. My impression is that many of the cases reported as successful through various treatments are caused by other mushrooms, different from the *Amanita phalloides*, the intoxication of which I consider to be almost always fatal. I think transfusions of plasma ought to be tried.

Of the nine individuals under my observation eight died; the only survivor was a woman who had been pregnant for five months, and whose pregnancy went on successfully to its conclusion. This I believe was due to the fact that vomiting began before the others (in shortly under eight hours). In any case it would be interesting to investigate whether pregnancy embraces a state refractory to the amanita toxin, and why.—I am, etc.,

Soria, Spain.

J. CALVO MELENDRO.

### Treatment of Injuries following Insertion of Gastroscope

SIR,—Drs. C. M. Fletcher and F. Avery Jones (Sept. 29, 1945, p. 421) discussed the risks involved in using the flexible gastro-scope. This article brings to my mind the treatment of oesophageal injuries from the gastro-scope practised by me as well as the treatment of inflammatory lesions in the neck region. From 1931 until the beginning of the war I have done many gastroscopies. My results have been very good in the diagnosis of diseases of the stomach. Naturally it is necessary to make an x-ray examination beforehand to be certain there are no pathological changes in the oesophagus, stomach, or neighbouring organs. Marked kypho-scoliosis, a displaced vertebra, or marked aortic sclerosis may make an examination through the oesophagus very dangerous or impossible. One must also bear in mind that the oesophagus of older people is less elastic and more vulnerable to injury. Areas in which generally are found diverticula have a thinner pile of muscles and are easily injured. Introduction of the gastro-scope must be done without pressure. Even so, injuries to the oesophagus and hypopharynx have occurred by experienced physicians, as borne out in the report, by Fletcher and Jones.

In the treatment of such accidents and as well as dangerous anginal septic states—e.g., post-tonsillectomy and so on—the following method used by me has given excellent results. According to the old surgical principle of putting at rest inflamed areas—as, for example, suppuration in the extremity—I apply a padded wire splint to the patient extending over the head, neck, and back, securing it with bandages at the thorax and head and the latter about the forehead, thus preventing any side-to-side or forward-and-backward motion. In this manner all the muscles of the neck and upper parts of the oesophagus will be put at rest. Forbidding the patient from speaking and giving him only liquid food, one has produced the best conditions for localizing the inflammation and its healing. In all my cases within a few days the temperature fell, the inflammation disappeared, and the patients recovered.

This treatment is not only suitable for injuries following the gastro-scope introduction but excellent results by me have also been obtained for all other inflammations in the neck region. The following case was very characteristic: A tonsillectomy performed by a specialist was followed by a septic state lasting five weeks, with fever between 38° and 39.5° C. (100.4° and 103.2° F.), greatly swollen glands of the neck, and a bad general state of

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modified. The objection regarding education would not arise if amblyopic eyes were treated before serious schooling began, the ideal being before 6 years of age. Unfortunately many children are not brought until later, sometimes not until young adult life, and at this stage the recognition of the existence of three types of amblyopia is a guide to the value of treatment and will avoid useless occlusion and unnecessary nerve strain.

The three types of amblyopia are:

(1) The "purposive" amblyopia associated with concomitant squint, which may be regarded as a deliberate act of suppression designed to avoid the psychic trauma of diplopia.

(2) The "passive" amblyopia resulting from failure to condition in infancy the central pathways subserving macular perception. This form is a legacy of some condition which interfered during the first two years of life with the visual acuity necessary to educate macular function—uncorrected refractive errors, congenital cataracts, infantile keratitis, ophthalmia neonatorum, etc.

(3) "Pseudo" amblyopia in which, despite a fundus of normal appearance, developmental defects such as macular dysplasia, or acquired defects such as macular haemorrhages at birth, have made central vision impossible. These conditions are frequently termed "congenital" amblyopia and by orthoptists "intractable" amblyopia, but actually are not examples of true amblyopia.

These three types can usually be differentiated clinically, and distress to the child can be avoided if their varying response to treatment by occlusion is borne in mind.

Passive amblyopia is most satisfactory to treat, even in adult life, for there is no active desire to suppress and vision rapidly improves. Treatment of the defective vision due to pseudo-amblyopia is useless and occlusion should be stopped directly the condition is recognized. It is unfair to a child to force it to depend on an eye which is often anatomically incapable of acquiring even central fixation. The value of treatment by occlusion for purposive amblyopia lies between these two extremes. One is fighting the child's active desire to avoid binocular vision, and each case must be considered on its merits, having regard to the fact that the treatment of the amblyopia is only part of the general plan of treatment for the associated squint. In general, occlusion should be used as a routine up to the age of 12 years and tried in a tentative way after that age.

Dr. Moodie has rightly stressed the importance of not subjecting a child with amblyopia to unnecessary nerve strain, but he must recognize the equal importance of securing where possible some vision for an amblyopic eye. It is the first step towards securing the benefits of binocular vision, and, even more, it may be the means of averting the tragedy of blindness later in life should the vision of the other eye be lost from accident or disease.—I am, etc.,

Southsea, Hants.

W. HEDLEY SUMMERSKILL.

### Retained Placenta

SIR.—Some months ago, and again recently, you published correspondence about retained placenta. On neither occasion was a method mentioned which I have used for the last five years. It was first described to me by A. W. Andison, now of Winnipeg, and is mentioned in the Annual Report of the Liverpool Maternity Hospital for 1941. Who originated the method I have been unable to discover. I suspect it is so old that no one knows. When a mare "holds her cleanings" it is the practice in some farming communities to attach a piece of lead piping to the cord and to allow the animal to walk about at will. I do not use lead piping; the method as modified by me is to attach to the cord, by means of a length of bandage, a weight of 2 lb. (0.9 kg.). After a few minutes to allow for stretching of the cord the bandage is marked in ink where it passes over the end of the bed. In many cases, after a variable interval, the mark will be found 4–6 in. (10–15 cm.) lower than this, indicating that the placenta is now awaiting expression from the lower segment and upper vagina.

This is an "over the telephone" method. It can be used in desperate cases while the blood loss is being made good by transfusion. It can be used in cases where the general condition has not deteriorated. If the patient is fit but is bleeding, more immediate treatment, either by manual removal or intravenous ergometrine, is to be preferred. The obvious danger of this method is theoretical only. I refer, of course, to inversion of the uterus. The traction is not sufficiently strong to bring about this catastrophe. I suggest that the mechanism by which a

successful result is obtained is that the empty lower segment is folded upon itself in a concertina-like manner. Stimulation of the lower segment in this way causes the upper segment to contract and expel the placenta. If the placenta has partly occupied the lower segment, as is often the case when it is retained, this concertina effect should, and in fact does, stop bleeding from the area of detachment.

However the result is produced, it is extremely gratifying to find, after waiting possibly for hours for blood transfusion to render a patient fit for manual removal, that this hazardous procedure is not required. The descent of the mark on the bandage indicates that gentle fundal pressure is all that is necessary. For recording purposes I have called this method "continuous light cord traction."—I am, etc.,

Stockport, Cheshire.

WALTER CALVERT.

### Planning and World Population

SIR.—In his letter (Sept. 6, p. 395) on this subject Dr. E. F. Griffith states: "Now that modern contraceptive methods are so reliable and comparatively cheap, it should be possible, by means of a well-thought-out education policy, to bring a knowledge of these matters to the women of the East." It would be just as logical to state: "Now that motor banditry is so reliable and comparatively safe (vide records of undetected crime), it should be possible, by means of newspaper reports and cinema films and other methods, to bring a knowledge of these matters to the men of the East," because both practices are intrinsically evil—i.e., in the acts themselves and not merely on account of their consequences.

One of man's functions as made known to him by his reason is the continuance of the race, and contraception, by frustrating this function, although using the physical act of sexual intercourse, thereby becomes intrinsically evil, and this applies to each individual contraceptive act.—I am, etc.,

London, W.C.1.

G. E. PAUL.

### Contact Lenses

SIR.—As a recent convert to the wearing of Hamblin-Dallos contact lenses, from my own experience I can scarcely agree less with the remarks of Mr. A. Seymour Philips (Sept. 20, p. 469). The sensation of a foreign body beneath the lids is very soon lost, and I have found that after only a month of systematic and careful conjunctival training I am now able to wear them without embarrassment up to 16 hours, with occasional removal for clearing off epithelial debris and immediate replacement. The secret for complete comfort is the use of a physiological saline eye-bath as part of the daily toilet. As a microscopist these lenses take an invaluable place in my daily work, and the sense of ocular fatigue and lid weariness experienced in my spectacle days is now relegated to past memories.—I am, etc.,

Exeter.

PETER WARREN.

### Salaries of Specialists in N.H.S.

SIR.—I cannot think that any difference of opinion which may have arisen over the payment of psychiatrists as compared with physicians and surgeons is due, as Dr. Northage J. de V. Mather suggests in his letter (Sept. 6, p. 398), to fluctuations in the standard of the D.P.M. as opposed to that of the M.R.C.P. and F.R.C.S. I would almost, with respect, suggest that there exists here either a confusion of thought or even a wishful thinking. Surely the D.P.M. is, with many others, a special diploma—no more and no less than that. The M.R.C.P. and the F.R.C.S. are higher qualifications and rank accordingly; they are difficult to obtain—and rightly so—without considerable postgraduate learning and experience, and the whole background which a successful candidate must possess is a wide one.

In my opinion (which I know is shared by many others) the psychiatrist would do well to aim at attaining, in the realm of medicine, something of the standard demanded by the M.R.C.P. before he embarks seriously upon his chosen specialty. There can hardly be any comparison between the M.R.C.P. and the D.P.M. The latter cannot equal (which appears to be Dr. Mather's suggestion) the former, and never was it meant to do so. If the consulting psychiatrist is to rank as does the consulting physician, he should in my view possess both the higher qualification and the diploma of his own specialty.—I am, etc.,

London, W.1.

MAURICE L. YOUNG.

## The Extent of Neurosis

SIR,—I seem to have been more fortunate than Drs. L. F. Donnan (Sept. 6, p. 396) and H. G. St. M. Rees (Sept. 20, p. 468), as my figures for neuroses (and psychoses) are far less than their estimates. In his book *The Common Neuroses* T. A. Ross stated that investigation over 1,000 consecutive insurance cases showed 33½% were neurotic. It was to verify this figure that I started to keep records. Most of my colleagues would say I was biased towards psychiatry. During my Army service I went into psychiatry, as I felt such knowledge and experience would be invaluable in general practice. I submit all my neuroses to psychotherapy, and a consultant psychiatrist is called in when necessary. The time taken in dealing with psycho-neurotics is very considerable, and they certainly appear more numerous than is actually the case.

My diagnoses were put down under the headings of medical, surgical, obstetrical, and neuropsychiatric. Since Jan. 1, 1947, I have made a total of approximately 9,000 consultations and visits. Of this, 66% were medical, 16% surgical, 5% obstetrical, and 14% neuropsychiatric.

I would stress the point that any assessment of this nature is bound to be very approximate, as there are so many variables. In the first place in any disease there is an upset of both psyche and soma. Even a streptococcal sore throat, so typically somatic, carries with it a certain degree of anxiety. Secondly, the diagnosis of a functional complaint is not as easy, or as readily confirmed by scientific test-tube medicine, as are somatic disorders; and I suggest that, in the present state of our knowledge, if six partners made an estimate of neurosis in the same practice, each would give a different figure. Thirdly, the locality definitely influences the incidence of neurosis. In one isolated row of miners' cottages here most of the women (not the men) are neurotic. Buses are few and far between, shopping is most difficult, and there is no social life. Housework and having babies are the only occupations open to the female population, and many crack under the strain.

On the whole our rural community here is a very fortunate one in these hard times. Gardens, fowls, and the back-yard pig eke out the rations. Half the population are miners and have no fuel difficulties. There are a dozen industries in the district, so that the young people have a reasonable choice of work. Social life could be much better, but sport, dances, and the cinemas do offer scope for leisure hours. Perhaps it is this happy combination of circumstances which makes the figures for this area lower than for most places.—I am, etc.,

Ibstock, Leicester.

C. A. H. WATTS.

SIR,—Dr. D. Yellowlee's letter on the subject of the inadequate treatment of the neurotic (Sept. 20, p. 468) is provocative—no doubt intentionally. When I started in general practice I held views very similar to his on the subject. I have referred as many as possible of these patients to the psychiatrists. So far the results are, roughly: cured, nil; improved, nil. The attitude of the patient on returning from "adequate treatment" is, "Now, after this somewhat mystifying interlude, let's get a bottle of medicine."

I am grateful to the psychiatrists for considerable help in diagnosis, and for taking the patients off my hands, but I am becoming convinced that they are quite as impotent as the G.P. in removing the underlying causes of neurosis.—I am, etc.,

Beaminster, Dorset.

ARTHUR DEARLOVE.

## Dyspepsia and Aspirin

SIR,—Now that the incidence of upper respiratory infections is increasing I feel that it is no coincidence that the number of patients complaining of dyspepsia is also increasing. Proprietary preparations containing acetylsalicylic acid are numerous, and the usual story is, "I've had a cold, Doctor, and it's settled on my stomach." Invariably I find that self-medication with one of the above is the cause of the dyspepsia.

There are few ulcer patients who can tolerate acetylsalicylic acid, and yet year after year so many of them are allowed to suffer winter exacerbations due to failure to warn them of the danger of such drugs. The odd thing is that so few patients discover this for themselves, yet so readily agree when it is pointed out to them. I have a patient in whom even gargling with aspirin is sufficient to cause a relapse owing to the fact that even a few grains are inadvertently swallowed.

Calcium aspirin is not the answer to all patients who wish to treat themselves for a headache or simple cold. So far I have found that phenazone 5–15 gr. (0.32–1 g.) seems to be harmless. Recently, having seen a severe haematemesis in an aspirin-sensitive patient, I feel that it is not too early to advise all dyspeptics to avoid any drug containing acetylsalicylic acid. The characteristic of dyspepsia so caused seems to be its stubbornness in reacting to the usual alkalis. I might end by pointing out that the "stomach trouble" so often complained of by sufferers from migraine frequently has a similar aetiology.—I am, etc.,

St. Helens, Lancs.

JAMES KAY.

## POINTS FROM LETTERS

### Acute Haemolytic Anaemia (Lederer type)

Dr. G. A. D. writes: With reference to Dr. G. Papayannopoulos' communication on the above subject (Sept. 6, p. 371) I write in the hope that my personal experience may help in earlier diagnosis and also to support the infective theory of origin. From Sept. 3, 1939 to Aug. 1, 1945, I had done two doctors' work and was a bit tired but in reasonable health. On Aug. 1, I felt a persistent nausea and abhorrence to food. On Aug. 2, I had to take charge of a cadet camp for 300 which I could not leave and so remained a my post for 10 days. On Aug. 3, I passed dark red urine in the morning. On Aug. 4, I was so breathless I could not walk the length of the field. On Aug. 5, my hands became jaundiced in the palms. On Aug. 7, I thought I heard a gas engine running, but soon realized it was a drumming in my own head. Any exertion caused breathlessness, and gradually my limbs became weaker until Aug. 18, when I consulted a heart specialist, who found tachycardia and advised consulting a haematologist, whom I saw on Aug. 20 who diagnosed Lederer's anaemia. My haemoglobin was then 19%; no megaloblasts, no oedema, and no splenic enlargement were present. During the following week a swinging temperature made me finally take to my bed, and within a week, in spite of liver injections, iron, etc., I became unable to lift my head from the pillow and went to the Bristol Royal Infirmary by ambulance almost unconscious. Following 6 blood transfusions, I gradually made a complete recovery. May I emphasize that the onset, while it appears acute, is not so much sudden as obscure, insidious, and unusual and is not recognized by patient or doctor, as a rule, to be of serious import. In addition, the continual drumming noise in the head renders the patient completely mentally bewildered, causing a definite lack of appreciation of the seriousness of the symptoms or their progressive nature. The nausea, "head noises," dulness of visual and mental perception, the breathlessness and asthenia are so easily confused with nervous exhaustion due to overwork, etc., that it is not until the jaundice, fever, and red urine appear that the diagnosis is made and the life-giving blood transfusions commenced.

### Poliomyelitis

Dr. J. C. JONES (London, S.E.25) writes: May I be permitted to indicate a line for the treatment of infantile paralysis that I used in previous epidemics which appeared to give a very rapid cure from the paralysis if given immediately after the pyrexial stage had ended. . . . As soon as the temperature is flat and the paralysis has happened, the patient is at once put on to full doses of strychnine in relation to the age of the patient. This is given for 24 hours, when the dose is increased to 1 min. (0.06 ml.) above the maximum dose. After the next 24 hours the dose is raised again by 1 min., and so on. . . . My experience was that before the dose got dangerously high there was sufficient improvement for one to be able to form a judgment. My opinion is that one should be prepared to push the dosage if necessary until three times maximum is reached. This presupposes that there are no contraindications and that the patient is kept under close observation. Of this I feel confident, that maximum doses are useless, that the cure is established only on the level of over double maximum dosage. . . .

### Symptoms of Varicose Veins

Dr. A. P. BERTWISTLE (Dumfries) writes: In their excellent article on "Treatment of Varicose Veins" (Sept. 20, p. 452) Prof. A. M. Boyd and Mr. D. J. Robertson rightly stress lack of pain, save when phlebitis is present. They do not, however, mention a somewhat distressing symptom—namely, a sense of weight and dragging; the limb seems to tire with the least exertion.

### Bodies for Dissection

D. M. A. (Birmingham) writes: There is a Cremation Society in existence for those who favour cremation, and I should like to see a "Body Donors" (or some other suitably worded title) Society formed in this country.

## Obituary

### E. ff. CREED, M.A., D.M., F.R.C.P.

Edward ffolliott Creed, who was the second son of the late Rev. E. Creed, died suddenly, on Sept. 27 after a myocardial infarction at the age of 54. He entered Trinity College, Oxford, in 1910 as a Millard Scholar, and took honours in the Final School of Natural Sciences (Chemistry) in 1913. Going on to King's College Hospital Medical School as a Burney Yeo Scholar, he took the B.M. degree in 1916, and served in the R.A.M.C. as a captain, working on malaria problems at Sierra Leone. His early experience and training in scientific laboratory work led him to the pathological department at King's on his return from war service, and he was appointed bacteriologist. On the retirement of Dr. d'Este Emery in 1921 Creed was appointed director of the pathological department, and director of pathological studies in the medical school.

Always keenly interested in the clinical side of pathology, he took the M.R.C.P. in 1923, being elected F.R.C.P. in 1932. He proceeded D.M. in 1927. His disposition was rather quiet and retiring, but in matters which concerned him, his work, or his department he could always state a case with logic and vigour. His shrewd common sense, precise outlook, and retentive memory made him a capital chairman of committees, so that in hospital affairs his advice was always welcomed, and was always the product of sound judgment and balanced consideration. As a teacher the qualities of lucidity and careful preparation were notable in his lectures. Although a hard worker for long hours, he always had time to explain the technical side of any problem and to give useful suggestions as to some line of investigation. To the clinician a chat with Creed about the pathological aspects of some puzzling case was stimulating and instructive. As an examiner his sane judgment made his conclusions fair to the candidates and helpful to his colleagues. His knowledge was wide and his memory excellent, and one rarely turned to him in vain for accurate and helpful information. For young workers in his laboratory it was a privilege to enjoy the time he would always gladly spend on demonstrating a section or explaining a technique. Nothing was too much trouble for Creed in these matters; and I well remember the pains he took in revealing to me the then complex mysteries of the Wassermann reaction twenty-five years ago.

Creed was not a voluminous writer, but his small output was of high quality. Nothing but the very best would satisfy his fastidious standards or reach his level of meticulous accuracy. Here was an excellent example both to the clinician who sought his advice and to the young pathologist learning his trade. Although mainly interested in bacteriology, he was also attracted to haematology, and carried out some ingenious researches on acholuric jaundice. His early training in chemistry gave him a good appreciation of biochemistry and a long experience of necropsies for coroners completed his equipment in morbid anatomy. He was, indeed, an all-round pathologist in a sense that is likely to become rare in the future as specialization divides the subject still more deeply. His colleagues, who were all his friends, will find him hard to replace. Those informal chats in his room, on a hundred and one subjects, always stimulating and instructive, and seasoned by his lively humour, will be sadly missed. All will sympathize with his widow and two daughters.—T. E.

A memorial service for Dr. Creed was held in the Hospital Chapel at Denmark Hill, on Oct. 8.

### H. COURTNEY GAGE, M.R.C.S., L.R.C.P.

Dr. Harold Courtney Gage, director of the radiological department of St. Mary's Hospital since 1935, died in London on Oct. 4, a few days before his sixty-second birthday. Before 1914 Gage worked with Sir James Mackenzie Davidson, one of the pioneer radiologists in this country. He went to France with the Essex Yeomanry, was wounded early in the war, and was invalided out of the Army. Before long he was back in France with the American Red Cross as an x-ray technician, and he was responsible for a great deal of radiographic work

on war casualties; he also assisted at two large French civil hospitals near Paris, and the French Government made him Officier de l'Instruction Publique. He originated a number of techniques for the investigation of spinal injuries and the localization of foreign bodies, which were described in the *Journal de Radiologie* in 1916-18.

Courtney Gage joined St. Mary's Hospital Medical School in 1919 and qualified in 1924. He came to medical radiology with an unrivalled technical experience behind him, and was elected assistant honorary radiologist at St. Mary's Hospital in 1926. He became director of the radiological department in 1935, holding this appointment until his death. He was honorary radiologist to the Hampstead General Hospital from 1925 to 1939, and consulting radiologist to St. Luke's hospital for many years. He served with distinction on the councils of the British Institute of Radiology and of the Section of Radiology of the Royal Society of Medicine. Although invited to become president of both these bodies, he declined since he felt he could not preside effectively because of his deafness, which grew worse about 1934.

He was the honorary editor of the *British Journal of Radiology* from 1940 to 1943, and no one could have given more care and attention to its publication. The Institute made him an Honorary Member, a rarely bestowed honour, in 1943 as a token of appreciation of his devoted work. He was a founder Fellow of the Faculty of Radiologists and the first examiner in diagnostic radiology in the fellowship examination. He also served on the British X Ray and Radium Protection Committee, and was a member of the council of the Medical Defence Union.

During the second world war Gage did as much as any other worker to bring "mass miniature radiography" to a high standard. He gave devoted service to the Norwegian Forces in Britain, and for this work he was created a Knight of the Royal Order of St. Olaf (in the First Class) by King Haakon of Norway. As a radiologist Courtney Gage was held in high esteem by both his clinical and his radiological colleagues; his advice was constantly sought and was always most willingly given. His opinion was always of the greatest practical value, and though his academic knowledge was seldom aired it was indeed profound. As a teacher he gave his time unsparingly to post-graduate students, and many radiologists in this country and in the Dominions, especially in New Zealand, would acknowledge their indebtedness to Gage.

His outstanding characteristics were perhaps his devotion to the service of others, his quiet and determined thoroughness, and his kindness. No one could have been more considerate of the opinions and feelings of others. Away from his professional work Gage was devoted to music. The most successful musical society at St. Mary's Hospital, grew out of the gramophone recitals Gage gave to those on duty during the London air raids. He was also a great authority on photography and a skilled photographic craftsman. Perhaps Gage was happiest of all when he was entertaining a few friends. He was an excellent host and delighted in the preparation and service of a perfect meal. He bore his final illness with resolution and fortitude.

### C. M. BEADNELL, C.B., M.R.C.S., L.R.C.P.

Surgeon Rear-Admiral C. M. Beadnell died at Petersfield, Hants, on Sept. 27, at the age of 75, after a short illness. He was appointed C.B. in 1924, and made honorary physician to H.M. the King a year later.

Charles Marsh Beadnell was born on Feb. 17, 1872, in a military camp at Rawalpindi. The eldest son of Major C. E. Beadnell, R.A., he was educated at Cheltenham College and Guy's Hospital. He qualified in 1895 and entered the Royal Navy in the following year. He volunteered as a surgeon in the American-Filipino war and was landed with American troops on the island of Luzon, where he saw much fighting. In 1899 he was in action with the Naval Brigade in South Africa and was mentioned in dispatches three times. For these services he was awarded eight years' special accelerated promotion to staff surgeon. When H.M.S. *Renown* was conveying the King and Queen of Spain to the Continent in 1907, Charles Beadnell was the medical officer of that ship. He also served in H.M.S. *King Alfred*, the flagship on the China station. He was on active service again as S.M.O., 2nd Cruiser Squadron, in the war of 1914-18. He was for three years the Naval

## OBITUARY

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Member of the Medical Consultative Board of the Admiralty, and from 1923-6 he commanded the R.N. Hospital at Chatham.

Admiral Beadnell was a man of wide and varied interests. As a young man he collected human skulls showing the effects of gun-shot wounds. He wrote papers, pamphlets, and books on such subjects as small-bore projectiles, disposal of casualties in naval warfare, environmental factors afloat, the evolution of scientific and the origin of the kiss. He compiled a dictionary of scientific terms and an encyclopaedic work on science and war. His special interest in evolution made him a rationalist early in life; indeed, before he left Guy's Hospital he confessed that he was "a devout agnostic." His views, of course, were not universally acceptable, but his sincerity and tolerance often disarmed criticism. He had been a member of the British Medical Association for over fifty years, and for many years past he had been one of our most constant correspondents. The last letter of his to appear in the *Journal* was published as recently as Sept. 13. After his retirement Admiral Beadnell became a director of the Rationalist Press Association, and later its president. He married Ellen Louisa, daughter of George Bailey, of Gloucester, who survives him.

Dr. EDWARD GEORGE PERODEAU died at the age of 81 at his home in Twickenham on Aug. 22. Dr. Perodeau was a student at University College Hospital, and he graduated in 1904, proceeding M.D. in 1912. He was for a time clinical assistant at the ear and throat department of the Royal Northern Hospital. Since 1914 he had acted as medical officer to the Metropolitan Water Board, and he had been associated for nearly forty years with St. John's Hospital, Twickenham, as consulting physician and latterly as chairman of the medical staff. Dr. Perodeau had been a member of the British Medical Association for over forty years and was chairman of the South Middlesex Division in 1922. He was seeing patients up to the day before his death, and only a week previously had spent a few days in his caravan trailer on Box Hill. He was one of the oldest members of the Camping Club of Great Britain.

Dr. JAMES YORK MOORE died at Worthing on Sept. 10 at the age of 56. Dr. Moore, who was a student of Guy's Hospital, qualified in 1913 and was in general practice near Sawston, Cambridge. During the first world war he served with distinction in France and Gallipoli, and was awarded the O.B.E. After the war he remained in the Service for a short time before settling in general practice in Sawston. In 1939 he rejoined the R.A.M.C. and went to France where he served as A.D.M.S. for the Surrey and Sussex areas. He reached the rank of colonel, but was invalided in 1945, when he developed progressive muscular atrophy. Although considerably handicapped he returned to practice, but his condition deteriorated so rapidly that he had to retire at the end of 1946.

Dr. L. A. Parry writes: I first met Colonel York Moore during the last war when he was A.D.M.S. stationed at Hayward's Heath and I was liaison officer between, first, the Canadian Army stationed in Sussex and, later, the 21st Army group and the E.M.S. We came frequently and intimately in contact. During our many meetings, both at Hayward's Heath and at the various hospitals throughout Sussex which we visited together, I was struck by his invariable good temper and his admirable method of carrying on his duties and work, his tactfulness, his care of, kindness to, and thought for, his patients. He saw in hospital, and his general sturdy way of doing his work and his duty in such a satisfactory way under such great strain. All of us who came in contact with him will remember him as the soul of kindness. We all valued him as a man well worth knowing and working with. We regret very deeply the passing of a beloved friend.

J. D. S. writes: York Moore was really a fine country general practitioner. He was intensely interested in all branches of medicine and always kept abreast of modern developments. A deeply religious and philanthropic man, he was always ready to help with any activity in his village community. The "Ox-Road" which he organized is well remembered to-day. He was secretary of Cambridgeshire Insurance Committee for many years, and during his last year of practice he entertained his colleagues as president of the Cambridgeshire and Huntingdonshire Branch of the B.M.A. His many friends both within and outside the profession and his village of Sawston will miss him sadly. He leaves a widow, a son who is also qualified and serving in the R.A.F., and two daughters who are nursing.

C. F. S. writes: No reference to the late Mr. Ernest Miles would be adequate without special mention of that masterpiece of surgery, the abdomino-perineal excision of carcinoma of the rectum. It is not too much to say that there are many thousands of people to-day enjoying good health, able to work and lead an ordinary life, who not so long ago would have been condemned to a miserable, painful, and lingering death. Not only did he himself bring the technique of the operation to a high degree of perfection but he was always only too glad to teach others; no young surgeon ever went away from seeing him without some friendly advice and encouragement. Although Miles's work was widely known and appreciated abroad, especially in the United States and Canada, I feel that it never received the recognition it should have done in his own country. Perhaps it is not generally realized that he was essentially a shy man and quite incapable of seeking the limelight. His large and extensive practice was due not only to his outstanding skill and ability but also to his natural courtesy and kindness of manner and to the unremitting care and attention he gave to all his patients, whether in hospital or in private practice.

## Medico-Legal

DESERTION BY THE FEEBLE-MINDED  
(FROM OUR MEDICO-LEGAL CORRESPONDENT)

The case of *Brown v. Brown*<sup>1</sup> illustrates the bewildering difference of outlook which occasionally shows itself between the legal and the medical mind, especially in mental matters. A woman deserted her husband in March, 1938, and in the following October she was charged before magistrates with stealing. Found on medical examination to be feeble-minded, was certified for over three years, but the wife's advisers answered that, as a husband petitioned for divorce on the ground of her desertion for over three years, but the wife's advisers answered that, as a certified mental defective, she could not be considered capable of forming an intention to continue the desertion. They pointed to the earlier case of *Williams v. Williams*,<sup>2</sup> in which the Court of Appeal had held that a person certified of unsound mind must be regarded as incapable of forming the intention to desert or return, and that evidence of his actual state of mind is inadmissible. The President of the Divorce Division, Lord Merriman, would not accept this analogy, but held that the wife was capable of forming the necessary intention and granting the husband a decree of divorce. In doing so he came to a decision with which no reasonable person will quarrel, but the grounds on which he reached it are enough to drive a medical mind to despair.

Lord Merriman said that under the Lunacy Act, 1890 lunatic is defined as "an idiot or person of unsound mind," the Mental Treatment Act, 1930, the word "lunatic" is replaced by "person (or patient) of unsound mind." Meanwhile the Mental Deficiency Act, 1913, amended by the Act of 1927, with idiots as the lowest of four classes of mental defectives, which the definitions are framed on a diminishing scale, other three being imbeciles, feeble-minded persons, and imbeciles. Therefore, said the President, a feeble-minded person is three statutory removes from a person of unsound mind, and, though a person who is certified as of unsound mind cannot form an intention to desert, no such presumption need attach to one who "is not of unsound mind but is merely a mental defective and in the third category of such persons . . . three degrees lower in the scale of mental illness."

With the greatest respect to the learned President, this assessment of volition by categories, beginning with the certified through idiots and imbeciles to moral defectives, though doubtless correct in law, bears little relation to reality. Volition can be assessed only by examining the individual patient. The law already does this when a certified mental patient is accused of a crime, and when one has made a will. That it should not do so in divorce matters is an anomaly.

<sup>1</sup> 1947 2 All E.R. 160.  
<sup>2</sup> 1939 3 All E.R. 315.

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References: Shortage of space precludes list of references but full documentation may be obtained on application to Clinical Research Dept. 27A.



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References: Lancet, 1944, 247, pp. 175 and 176. British Medical Journal: 1945, 1, p. 50. Pharmaceutical Journal: 1945, 155, p. 245. Original Bottles—100 cc., 250 cc., 500 cc., 1,000 cc. and 2,000 cc.

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## Universities and Colleges

### UNIVERSITY OF SHEFFIELD

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FINAL M.B., Ch.B.—J. H. Blaskey, J. A. Chisholm, Elinor Dubas, D. Hobson, V. H. Morris, J. B. Parkin, D. Rider.

### UNIVERSITY OF LEEDS

The following candidates have been approved at the examinations indicated:

M.D.—E. C. Armstrong, P. D. Bedford, M. Braithwaite, M. H. Catverley, J. Dawson, O. G. Jones, J. McKennell, I. G. W. Pickering, E. E. Rawlings, A. H. Rivett, D. E. H. Robertson, W. S. Saffern, R. Varley.

FINAL M.B., Ch.B.—*Part I (Pathology and Bacteriology, Pharmacology):* Z. Briery, E. M. Chippindale, J. W. Daggett, P. H. Daley, N. J. Dowdall, R. England, E. E. Green, C. M. Inebnit, W. K. Shanks, O. J. Sharp, M. C. Simpson. *Part III (Medicine, Surgery, Obstetrics and Gynaecology, Therapeutics):* 121. A. Tolgate, V. A. Bell, M. Benard, R. M. Bowker, K. A. Exley, J. A. Gawthorpe, W. J. Glover, A. E. W. Gregson, J. K. Hardy, B. Jennings, G. A. Kiething, B. G. Peet, J. H. Rust, J. Samuel, B. K. Scott, J. D. Thornton, G. C. Turner, I. M. Vella, J. K. Walker, N. M. Whalley.

<sup>1</sup> With distinction. <sup>2</sup> With first-class honours.

### UNIVERSITY OF DURHAM

The title of Emeritus Professor of Surgery has been conferred on John Hamilton Barclay, M.D., M.S., F.R.C.S., who retired from the Chair in January.

### UNIVERSITY OF EDINBURGH

Prof. N. Hamilton Fairley, M.D., F.R.S., F.R.C.P., Director of Special Research, Hospital for Tropical Diseases, London, will deliver the Cameron Prize Lecture for 1947 in the Anatomy Lecture Theatre, University New Buildings, Teviot Place, Edinburgh, on Friday, Oct. 24, at 5 p.m. His subject is: "Chemotherapy in Malaria." All students and graduates are invited to attend the lecture.

### ROYAL COLLEGE OF PHYSICIANS OF LONDON

In view of the Government's decision about dinners, it has been reluctantly decided to cancel dinners of Fellows on the nights before committees. The October dinner, therefore, is cancelled; the possibility of holding dinners will be reconsidered later in the year.

### ROYAL COLLEGE OF SURGEONS OF ENGLAND

The following lectures will be delivered at the College (Lincoln's Inn Fields, W.C.): Thursday, Oct. 16, 3.45 p.m., Surgery Lecture by Prof. John H. Garlock, Surgical Treatment of Carcinoma of the Oesophagus and Upper Stomach; Friday, Oct. 17, 5 p.m., Hunterian Lecture by Prof. Murray A. Faconer, A Study of Principles and Results of Lumbar Intervertebral Disk Surgery; Wednesday, Oct. 22, 5 p.m., Arris and Gale Lecture by Mr. H. F. Lunn, A Contribution to the Anatomy of Inguinal Hernia; Friday, Oct. 24, 5 p.m., Arnott Demonstration by Mr. Lunn, The Pelvis and the Erect Posture; Monday, Oct. 27, 5 p.m., Arnott Demonstration by Mr. Lunn, The Applied Anatomy of Testicular Descent; Tuesday, Oct. 28, 5 p.m., Arnott Demonstration by Mr. Lunn, The Cerebral Cortex and the Status of Man; Wednesday, Oct. 29, 5 p.m., Moynihan Lecture by Mr. W. R. Douglas, Surgical Treatment of Metastatic Carcinoma of the Cervical Glands; Thursday, Oct. 30, 5 p.m., Imperial Cancer Research Fund Lecture by Dr. James Craigie, Viruses, Self-producing Substances and Tumours. The lectures are open to those attending courses in the College and to all other medical practitioners, dentists, and advanced students.

At an extraordinary meeting of the Council of the College, held on Sept. 22, with Sir Alfred Webb-Johnson, Bt., President, in the chair, the Hallett Prize was awarded to Dr. Natalal Jivan Shah (Guy's Hospital).

It was decided that the additional six months' period of surgical training of candidates for the Final Fellowship examination should take effect as from Jan. 1, 1949.

It was resolved not to hold the Buckston Browne Dinner in 1947 on account of the food crisis.

A Diploma of Fellowship was granted to F. J. A. H. Blackwood (St. Thomas's Hospital).

A Diploma of Membership was granted to J. B. Binks (Birmingham).

A Diploma in Public Health was granted, jointly with the Royal College of Physicians of London, to A. McFarlane (Glasgow).

Diplomas in Tropical Medicine and Hygiene, in Ophthalmic Medicine and Surgery, and in Physical Medicine were granted,

jointly with the Royal College of Physicians of London, to the following successful candidates:

DIPLOMA IN TROPICAL MEDICINE AND HYGIENE.—G. T. Allen, J. H. C. Clarke, P.-L. Lim, H. J. A. Richards, W. P. Stamm, and to the candidates whose names were printed in the *Journal* of Aug. 23 (p. 313).

DIPLOMA IN OPHTHALMIC MEDICINE AND SURGERY.—S. Adler, L. P. Agarwal, R. M. Archer, N. K. Barber, J. Bienkowski, M. W. Bird, W. G. Bridges, K. B. Brown, R. A. Burn, Helena B. A. Casey, D. Christison, C. A. G. Cook, E. H. L. Cook, B. C. Curwood, L. W. Davies, E. A. Donegan, G. F. Ensor, K. B. Forsyth, D. P. Greaves, T. S. S. Gregory, F. B. Halliday, H. J. Hamelberg, J. M. Heller, C. R. S. Jackson, N. S. Jain, Sarah J. Jenkins, T. S.-B. Kelly, P. J. M. Kent, D. A. Langley, Marion McArthur, P. H. N. Matthews, W. S. Milne, D. G. Mody, E. S. Perkins, J. S. Phillpotts, F. C. Rodger, Maevae Rusk, M. H. M. Ryan, Q. R. Schindler, D. T. Shortridge, F. N. Shuttleworth, D. G. Simpson, C. S. Smalley, J. L. S. Smith, C. H. B. Sparrow, G. Sutherland, W. M. Walker, Nina S. S. S. Warwick, S. E. White, Eunice M. Wilson.

DIPLOMA IN PHYSICAL MEDICINE.—A. C. Boyle, M. C. Woodhouse, A. Zinovieff.

## The Services

Surgeon Lieutenant-Commander R. E. C. Copithorne, R.N.V.R., has been awarded the R.N.V.R. Officers' Decoration.

Captain W. F. Smith, R.A.M.C., has been awarded the Long Service and Good Conduct Medal, without gratuity.

Major J. P. Parkinson and Captain (Honorary Major) W. A. Bellamy, R.A.M.C., have been awarded the Efficiency Medal (Territorial).

The following appointments and mentions in dispatches have been announced in recognition of gallant and distinguished services while prisoners of war in the Far East:

M.B.E. (Military Division).—Major G. A. Graham, Major (temporary) B. M. Wheeler, Captains J. J. Woodward and J. P. Zachariah, and Lieutenants R. K. Saksena and T. A. J. Wickham, I.M.S.

Mentioned in Dispatches.—Major T. F. O'Donnel, Captains B. B. Choksi, R. S. Gupta, and P. M. Kirkwood, Jemadars I. S. Bedi and R. Ullah, I.A.M.C.

### DEATHS IN THE SERVICES

Flying-Officer CHARLES JOHNSON was killed in a flying accident on Sept. 17. A student of Durham University he graduated M.B., B.S. in December, 1945, at the age of 22. After a period as junior resident at the Royal Infirmary, Sunderland, he was granted a commission in the Medical Branch of the R.A.F. almost exactly a year ago. At the time of his death he was serving as medical officer at a Royal Air Force station in England.

Col. GEORGE KEITH FULTON, C.B.E., graduated M.B., Ch.B. at Glasgow in 1917 and before joining the R.A.M.C. was a house-surgeon at the Glasgow Royal Maternity and Women's Hospital.

Lieut.-Gen. Treffry O. Thompson writes: The sudden death of Col. George Fulton was a great shock and loss to those who had worked with him or known him well and a great loss to the Corps to which his life's work had been given. He had proved himself to be a great hygienist, both in peace and war. His knowledge of hygiene and preventive medicine was profound and wide, more particularly of course in its application to the armed Forces of the Crown and of India. But apart from mere knowledge he had that inestimable gift of common sense in the application which led to success in his contacts with every type of man and woman, and in his achievement of raising the hygiene of the Forces to a level second to none. Before his death he had the satisfaction of completing, among many other activities, two works typical of his determined energy and enthusiasm: the co-ordination of the multiple complicated documents which afflicted the medical services of the three armed Forces in India, and the 1946 Annual Hygiene Report, the last of the reports for the Army in India. The latter places on record the work of the hygiene branch and the preventive medicine of the medical services of India which, as deputy director of hygiene and pathology at General Headquarters, India, he so ably led to the end, and, in fact, shows that "records" in preventive medicine have been achieved. The sick rates and particularly the malarial rates for the Army in India constitute low records which have never before been achieved. George Fulton had the satisfaction of knowing that he himself had been very largely instrumental in producing those records and that excellent standard of health. He did a grand job and died peacefully in full harness.

The Minister of Health recently met at his personal invitation the members of the Regional Hospital Boards and discussed with them some of the problems that may occur. Mr. Bevan said that it was best to bring the members together at the start so that they might see themselves as part of a great health service—an integrated service in which they would not live in separate compartments.

No. 38

## INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Sept. 20.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1947					1946 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	35	6	17	3	—	36	3	12	1	1
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Diphtheria .. ..	189	13	50	6	8	240	16	78	24	16
Deaths .. ..	2	—	—	—	—	3	2	1	—	—
Dysentery .. ..	100	18	25	1	—	66	14	22	1	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Encephalitis lethargica, acute .. ..	3	—	—	—	—	1	—	2	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Erysipelas .. ..	—	32	7	2	—	—	43	4	3	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Infective enteritis or diarrhoea under 2 years .. ..	82	4	30	9	6	38	3	10	60	9
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Measles* .. ..	1,066	48	53	84	2	1,208	82	61	29	2
Deaths .. ..	2	—	—	1	—	1	—	—	—	—
Ophthalmia neonatorum .. ..	55	6	4	—	—	69	8	15	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Paratyphoid fever .. ..	23	2	6(B)	—	—	17	7(B)	1(B)	4(B)	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenza .. ..	252	8	—	3	1	312	10	1	1	—
Deaths (from influenza)† .. ..	1	—	—	—	—	5	1	2	—	—
Pneumonia, primary .. ..	—	12	141	20	7	—	18	117	12	2
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Polio-encephalitis, acute .. ..	23	1	—	—	—	3	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Poliomyelitis, acute .. ..	571	53	148	11	10	28	11	2	1	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Puerperal fever .. ..	—	—	10	—	—	—	—	18	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Puerperal pyrexia‡ .. ..	115	8	8	1	1	106	6	11	—	1
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Relapsing fever .. ..	—	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Scarlet fever .. ..	805	57	142	21	44	853	71	158	16	40
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Smallpox .. ..	—	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Typhoid fever .. ..	16	4	4	3	2	13	1	1	2	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
typhus fever .. ..	—	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Whooping-cough* .. ..	1,378	131	38	51	6	1,610	110	105	25	24
Deaths .. ..	9	—	1	1	—	6	—	2	—	—
Deaths (0-1 year) .. ..	348	29	67	23	15	352	40	57	31	11
Infant mortality rate (per 1,000 live births) .. ..	—	—	—	—	—	—	—	—	—	—
Deaths (excluding stillbirths) .. ..	3,721	579	517	147	114	3,838	612	491	163	97
Annual death rate (per 1,000 persons living) .. ..	—	—	10.7	9.3	—	—	—	10.8	10.4	—
Live births .. ..	8,350	1,395	960	452	253	8,617	1,301	1,082	428	273
Annual rate per 1,000 persons living .. ..	—	—	19.3	28.5	—	—	—	21.8	27.4	—
Stillbirths .. ..	209	23	32	—	—	266	41	29	—	—
Rate per 1,000 total births (including stillbirths) .. ..	—	—	32	—	—	—	—	26	—	—

\* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

## EPIDEMIOLOGICAL NOTES

## Poliomyelitis

The number of notifications of poliomyelitis in England and Wales in the week ended Sept. 27 was 441 (571) and of polio-encephalitis 32 (23). The figures for the week ended Sept. 22 are given in parentheses. Thus there was a fall of 130 in the notifications of poliomyelitis and a rise of 9 in those of polio-encephalitis. This is the largest fall in notifications since the epidemic began. Both in 1938 and in 1926, when there was a high prevalence, falls in incidence occurred in September but were followed by increases in early October. It is therefore too early to assume that the incidence will continue to fall, though the fact that the high incidence started early may be some justification for hoping that the decline may come early also.

The decline in London continued 30 (53), but figures for admissions to London hospitals since Sept. 27 suggest that the fall may not be so marked when the next weekly figures become available. Most of the counties showed decreases, the principal exceptions being Bedford 6 (3), Cheshire 15 (11), Lines (Lindsey) 16 (8), and Carmarthen 6 (2). The general picture is one of some decline, which is perhaps a little more noticeable in the South than in the North.

## Poliomyelitis in Germany

In July of this year a small outbreak of poliomyelitis was reported in the Friedrichshain district of Berlin. A score or more cases were limited to a block or two in this district. The incidence increased steadily and fresh notifications began to come in from all districts, although the majority still came from Friedrichshain and Lichtenberg in the eastern part of Berlin. By Aug. 17 the notifications had reached a total of just over 300; within a period of ten days this figure was more than doubled, and in one day there were as many as 69 notifications. The average daily number of notifications is now 18.

The clinical features of the present epidemic are unfamiliar to Berlin physicians. There are not so many cases of spinal paralysis as in former epidemics, and bulbar or meningeal signs are more frequent and tend to be associated with paresis of the third, sixth, and seventh cranial nerves. The age-incidence is as follows:

Age		Age	
0-3 years ...	7.5%	10-16 years ...	17.3%
3-6 " ...	26.9%	16-20 " ...	7.3%
6-10 " ...	24.5%	Over 20 " ...	17.2%

The highest proportion of fatalities is in the over 20 age group and largely in the better fed. In the ten weeks ending Sept. 29 there were 1,347 cases notified, with 118 deaths. Over this same period the incidence rate per 10,000 population was 19.0. Figures for former outbreaks in Berlin are given as: 1926-121 cases; 1933-213; 1937-460; 1939-359; 1941-472; 1942-274; 1943-149; and in each of the last three years there have been fewer than 100 cases.

In the present epidemic in Berlin, with a population of 3,300,000, the distribution of cases is as follows:

	Cases	Deaths
Russian Sector ...	782	75
U.S. Sector ...	314	25
British Sector ...	147	11
French Sector ...	104	7
Total ...	1,347	118

Patients with poliomyelitis are being treated in special hospitals by teams of physicians, orthopaedic specialists, and physiotherapists. Penicillin has been made available for cases complicated by pneumonia. A poliomyelitis commission has been flown over from America, and these experts have given advice and material aid to the German hospitals. Iron lungs have also been flown in from the U.S.A. The German officials could easily have had "iron lungs" made up from cast material, but they are slow in showing initiative of this sort. Some German physicians have been experimenting with insulin in certain cases; the rationale of this treatment is not known at present. Swimming-baths have been closed and the German authorities have been instructed to examine sewage farms and the like in regard to the possible spread of the virus.

So far no British personnel have been affected. One American sergeant who took part in a horse show in the British Sector on Sunday, Sept. 21, died of poliomyelitis on the following Tuesday.

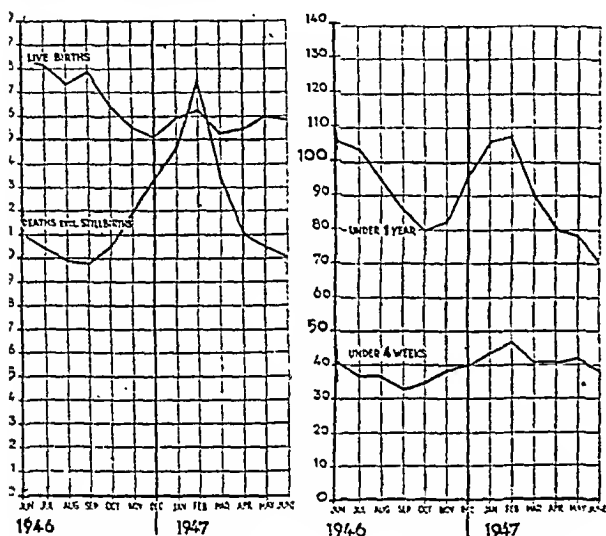
In the British Zone of Germany up to Sept. 6 there had been 51 cases of poliomyelitis and 76 deaths, distributed as shown in the table among a population of 22,324,600.

	Cases	Deaths
Schleswig-Holstein ... ..	132	23
Niedersachsen ... ..	263	30
"Northrhine" Westphalia ... ..	159	16
Hamburg ... ..	97	7
Total ... ..	651	76

In the U.S. Zone and the U.S. Sector of Berlin from July 12 to Aug. 30 there were a total of 222 cases and 22 deaths, the highest figures being those for the week ending Aug. 30, when there were 71 cases and 11 deaths.

### Births and Deaths in Germany

We print below, from the August Monthly Report of the control Commission for Germany, two graphs showing the fluctuations in live births, deaths, and infant mortality in the British Zone of Germany, excluding the British Sector of Berlin, from June, 1946, to June, 1947.



Birth and death rates per 1,000 population per year.

Infant mortality per 1,000 live births.

### Discussion of Table

In England and Wales infectious diseases were more prevalent than in the preceding week. Rises in incidence were recorded for scarlet fever 131, acute pneumonia 49, dysentery 31, measles 8, diphtheria 27, cerebrospinal fever 10, and paratyphoid fever 10. Only whooping-cough 141 showed a decreased incidence.

The incidence of scarlet fever has been increasing steadily during the past four weeks; an increase of 85% in the number of notifications occurred during the month. During the week under review the rate of increase was fairly uniform in the various regions of the country.

The only large variation in the local trends of diphtheria was an increase of 15 in Lancashire due to the experience of the county boroughs. Notifications of whooping-cough declined in most areas; the largest fall was 61 in Essex. Little change occurred in the local trends of measles, apart from a rise of 42 in Somersetshire.

New outbreaks of dysentery were reported from Devonshire, t. Thomas R.D. 11, and Cornwall, Bodmin M.B. 8. The other large centres of dysentery were London 18 and Lancashire 12.

In Scotland only small changes were recorded in the incidence of infectious diseases. Decreases were reported for whooping-cough 29, scarlet fever 15, cerebrospinal fever 9, and acute poliomyelitis 7, while an increase of 8 was recorded in the notifications of dysentery—due to an outbreak affecting 10 persons in the city of Dundee. An increase in the notifications of poliomyelitis occurred in the eastern area, where the cases rose from 18 to 31.

In Eire infectious diseases were less prevalent and falls were recorded for whooping-cough 27, diarrhoea and enteritis 28, and measles 29.

In Northern Ireland the only change of note in the trends of infectious diseases was an increase of 16 in the notifications of scarlet fever due to a small general rise.

### Health of Scotland

The Department of Health for Scotland in its first full report since before the war has reviewed the period from July, 1945, to December, 1946. In 1946 the birth rate was 20.3 per 1,000, the highest rate since 1926. The infant mortality rate was 53.8 per 1,000 live births, the lowest on record, while the maternal mortality, 2.2 per 1,000 total births, was also the lowest rate ever recorded. Notifications of diphtheria declined from 12,391 in 1941 to 4,988 in 1946. Deaths from pulmonary tuberculosis numbered 2,932 in 1945 and 3,226 in 1946. Deaths from non-pulmonary tuberculosis totalled 871 in 1945 and 757 in 1946. The number of new cases of venereal disease in 1945 was 10,051, compared with 13,651 and 10,651 in 1943 and 1944; the figures for 1946 show a substantial rise.

### Quarterly Returns for England and Wales

The birth rate during the June quarter was 22.0 per 1,000, compared with 22.8 for the preceding quarter and 16.6 for the average of the second quarters for the five years 1941-5. The infant mortality rate was 40 per 1,000 live births and was 9 below the average rate for the June quarters of the preceding ten years. The general death rate was 11.1, compared with 10.7 for the preceding second quarter and 11.3 for the average of 1941-5. During the quarter 60 cases of smallpox were notified, and 8 deaths were attributed to this cause.

### Week Ending September 27

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 880, whooping-cough 1,105, diphtheria 184, measles 1,139, acute pneumonia 257, cerebrospinal fever 30, acute poliomyelitis 441, acute poliomyelitis 32, dysentery 87, paratyphoid 10, and typhoid 22.

## Medical News

### Register of Chiropodists

A new *Register of Chiropodists* has been published by the Board of Registration of Medical Auxiliaries, and medical practitioners can obtain copies free on application to the Registrar of the Board at Tavistock House (North), Tavistock Square, London, W.C.1.

### Van Meter Prize

The American Association for the Study of Goiter again offers the Van Meter Prize Award of three hundred dollars and two honourable mentions for the best essays submitted concerning original work on problems related to the thyroid gland. The Award will be made at the annual meeting of the Association, which will be held at King Edward Hotel, Toronto, Canada, May 6-8, 1948, providing essays of sufficient merit are presented in competition. The competing essays may cover either clinical or research investigations; should not exceed 3,000 words in length; must be presented in English; and a typewritten double-spaced copy be sent to the corresponding secretary, Dr. T. C. Davison, 207, Doctors' Building, Atlanta, 3, Georgia, not later than Feb. 1, 1948.

### March of Doctors

"Your Doctors To-day," the new March of Time film which began its West End run at a Leicester Square cinema last week, is a survey of recent discoveries in the field of medicine and surgery. The camera moved briskly from Prof. Henry C. Sherman carrying on nutritional experiments at Columbia University to Dr. V. G. Korenchevsky at Oxford. The use of the artificial kidney is shown and so is the application of radio-iodine in the treatment of cancer of the thyroid. Lord Horder appears in an introductory shot which leads on to some of the rehabilitation work being done at Roffey Park. Some features of modern psycho-analysis are dramatically depicted, and there are many other points in this film which will interest most doctors. They may become a little wistful, however, on seeing great quantities of streptomycin displayed in an American chemist's shop. The commentary is spoken in English by Alistair Cooke.

### Neurology Research Grant

The Burden Neurological Institute at Bristol has been granted £12,500 by the Rockefeller Foundation for the purpose of research in neurophysiology and neurosurgery.

**Eire Medical Grants Doubled**

The existing Eire Government grant of £5,000 a year to the Medical Research Council of Ireland has now been doubled, as has the usual £3,000 annual grant for research into the treatment of tuberculosis. These grants are guaranteed for five years and are likely to be renewed afterwards. The sums will enable research workers to be adequately remunerated, essential apparatus to be procured, and accommodation at medical schools, hospitals, and universities to be improved.

**Private Secretary to Minister of Health**

The Minister of Health, the Rt. Hon. Aneurin Bevan, M.P., has appointed Mr. E. J. S. Clarke to be his private secretary.

**Christmas Cards**

The Grenfell Association of Great Britain and Ireland, which carries out medical work among settlers in Labrador and Northern Newfoundland, has produced a delightful range of Christmas cards at a reasonable price. They are obtainable at prices ranging from 5d. in black and white to 1s. in colour, envelopes included, post-cards in black and white at 2d. each, and six reproductions of seascapes at 2s. a packet. An illustrated leaflet can be supplied for 1d. They may be obtained from the Secretary, The Grenfell Association, 66, Victoria Street, London, S.W. For the philatelist packets of stamps (no duplicates) are available containing 18 British Commonwealth for 1s. 6d. or 7 mint U.S.A. for 1s. Orders should be sent to Mrs. D. W. Mackay, 88, Exeter House, Putney Heath, S.W.15. The Grenfell Mission is still in desperate need of funds if it is to continue the only medical and social service that exists in these snowy outposts, and we take this opportunity of drawing the attention of our readers to these cards.

**Summer Schools in Health Education**

Two Summer Schools in Health Education were held this year by the Central Council for Health Education under the direction of Dr. Robert Sutherland, assisted by Dr. N. Parfit, Miss P. M. Taylor, and Mrs. K. M. Catlin. Of every seven students attending the schools one was a medical practitioner or medical student, two were nurses, two were teachers, and two were social or health education workers. The students came from Great Britain, Eire, India, Belgium, Czechoslovakia, Denmark, Portugal, and Sweden. The school at Keble College, Oxford, was held from July 25 to Aug. 8, and that at Bede College, Durham, from Aug. 20 to Sept. 3. Lectures on general background studies were given in the mornings at each school by four lecturers working as a team. At Oxford Prof. H. P. Gilding spoke on "The Physiology of Growth," Prof. C. W. Valentine on "Psychology," Dr. Maurice Mitman on "The Biology of Infection," and Dr. Robert Sutherland on "Social Factors Affecting Health." At Durham these lectures were given by Dr. T. E. Barlow, Miss Anna Freud, Dr. Robert Cruickshank, and Mr. Leonard England respectively. Evening lectures, given by speakers prominent in the fields of medicine, education, or industry, covered the wider aspects of health education in the field. Discussion groups were led by the students, speaking in the first week to small groups representing a cross-section of the school and later to their own professional groups. Tuition in physical recreation and ball-room dancing, under expert leadership, was much appreciated, as were opportunities for taking part in local expeditions, tennis, swimming, and other sports. Civic welcomes were much appreciated and enjoyed. At both Oxford and Durham the Mayor and Mayoress entertained the students.

**Wills**

Dr. John Brook Henderson Holroyd, of Sheffield, who died on Feb. 8, left £2,839. Dr. John Dewar Robson, of Dumfries, who died on April 26 last, left £3,773. Dr. Kenneth Robert Hay, O.B.E., of London, W.14, who died on March 12, left £48,221, and he bequeathed £300 to St. Bartholomew's and £250 to the Royal Medical Benevolent Fund.

**COMING EVENTS****National Institute for the Deaf**

The annual general meeting of the National Institute for the Deaf will be held at the Connaught Rooms, Great Queen Street, Kingsway, London, W.C., to-day (Friday, Oct. 10), at 2.30 p.m., when the Duke of Montrose will preside.

**Zoological Society**

The next meeting of the Zoological Society of London for scientific business will be held on Tuesday, Oct. 14, at 5 p.m.

**Edinburgh Clinical Club**

The first meeting of the 1947-8 session of the Edinburgh Clinical Club will be held at B.M.A. House, 7, Drumsheugh Gardens, Edinburgh, on Thursday, Oct. 16, at 8 p.m., when Dr. J. D. S. Cameron will open a discussion on "Modern Drugs in General Practice."

**Institute of Public Administration**

Mr. L. John Edwards, M.P., Parliamentary Secretary to the Ministry of Health, will deliver the first of a series of lectures arranged by the Institute of Public Administration (18, Ashley Place, Victoria Street, London, S.W.1) at King's College, Strand, London, W.C., on Tuesday, Oct. 14, at 6 p.m. His subject is "Building Health Service." Full particulars of the other lectures, which will be delivered on Nov. 4 and Dec. 2, 1947, and Jan. 13, Feb. March 2, April 6, and May 4, 1948, can be obtained from the director of the institute. The fees for admission to the lectures are: Members, 5s., and non-members, 12s. 6d., for the whole series; individual lectures, 2s. 6d.

**Royal Medical Society of Edinburgh**

The Royal Medical Society of Edinburgh, which was founded in 1737, opens its 1947-8 session with an address by the Marquis of Linlithgow, Chancellor of the University of Edinburgh, on "Medical Rehabilitation" on Friday, Oct. 17, at 8 p.m. at the Society's Hall, 7, Melbourne Place, Edinburgh. Other meetings will be announced in the diary column of the *Journal* for appropriate weeks.

**Irish Tuberculosis Society**

The annual general meeting of the Irish Tuberculosis Society will be held at Crookslings Sanatorium, Co. Durham, on Friday, Oct. 1 at 4.15 p.m., and will be followed by a clinical meeting at 5 p.m. when Dr. Arthur Walsh will speak on "Trends in Treatment Pulmonary Tuberculosis in Scandinavia." At 5.30 p.m. Dr. P. Dunleavy will discuss "Dispensary Organization in Tuberculosis in Scandinavia," and at 6.30 p.m. Dr. Peter W. Edwards will present "Some Essential Requirements in Tuberculosis Schemes." Membership of the Society is open to all registered medical practitioners on an annual subscription of 10s. 6d. The address of the honorary secretary is the Hospital, Newcastle, Co. Wicklow, Eire.

**Prevention of Blindness**

The National Society for the Prevention of Blindness announces that a three-day conference will be held at Hotel Radisson, Minneapolis, Minn., U.S.A., on April 5, 6, and 7, 1948. The conference will be of interest to persons who are directly or indirectly concerned with eye health and safety. Details concerning the programme may be obtained from the society at 1790, Broadway, New York 19, N.Y., U.S.A.

**SOCIETIES AND LECTURES**

**ROYAL COLLEGE OF PHYSICIANS OF LONDON**, Pall Mall East, S.W. Saturday, Oct. 18, 3 p.m. Harveian Oration by Dr. C. E. Lask. Our Founders and Benefactors.

**ROYAL COLLEGE OF SURGEONS OF ENGLAND**, Lincoln's Inn Fields, W.C.—Thursday, Oct. 16, 3.45 p.m., Surgery Lecture by Prof. John H. Garlock, Surgical Treatment of Carcinoma of the Oesophagus and Upper Stomach; Friday, Oct. 17, 5 p.m., Hunterian Lecture by Prof. Murray A. Falconer, A Study of Principles and Results of Lumbar Intervertebral Disk Surgery.

**ROYAL SOCIETY OF MEDICINE**

**Section of Psychiatry**.—Tuesday, Oct. 14, 5 p.m. Presidential Address by Sir David Henderson: Psychiatric Hypothesis as Practice.

**Section of Comparative Medicine**.—Wednesday, Oct. 15, 5 p.m. Presidential Address by Mr. R. E. Glover: The Influence of the Small Animal Breeder on Biological Research.

**Section of Dermatology**.—Thursday, Oct. 16, 5 p.m. (Cases 4 p.m.)

**Section of Obstetrics**.—Friday, Oct. 17, 8 p.m. Discussion: Post-operative Thrombosis. Openers: Drs. Helen P. Wright and Magnus Haines, and Messrs. A. Dickson Wright and Leslie Williams.

**Section of Radiology**.—Friday, Oct. 17, 8 p.m. Paper: Dr. R. G. Reid: Inter-atrial Septal Defect—A Radiological Study of Recent Cases.

**BRITISH INSTITUTE OF PHILOSOPHY**.—At University Hall, 14, Gower Square, London, W.C., Friday, Oct. 17, 5.15 p.m. Mr. H. Lewis: Religion and Morality.

**LONDON: UNIVERSITY COLLEGE**, Gower Street, W.C.—Thursday, Oct. 14, 5.15 p.m. Prof. J. Z. Young, F.R.S.: Structure, Peripheral Nerve and of Nerve Endings. Wednesday, Oct. 15 p.m. Dr. M. H. Pirenne: Physiological Mechanisms of Vision.

**MEDICAL SOCIETY OF LONDON**, 11, Chandos Street, W.—Monday, Oct. 13, 8 p.m., General Meeting; 8.30 p.m., Pathological Meeting.

**ROYAL INSTITUTE OF PUBLIC HEALTH AND HYGIENE**, 28, Portico Place, W.—Wednesday, Oct. 15, 3.30 p.m. Prof. J. L. Sedgwick: Infantile Paralysis (Illustrated).

**ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE**.—At 26 Portland Place, W., Thursday, Oct. 16, 7.30 p.m., Presidential Address by Sir Philip Manson-Bahr: The Practice of Tropical Medicine in London.



## POSTGRADUATE DIARY

EDINBURGH POSTGRADUATE BOARD FOR MEDICINE.—At West Medical Lecture Theatre, Edinburgh Royal Infirmary, Tuesday, Oct. 14, 5 p.m. Dr. R. McWhirter: Living Crystals.

EDINBURGH ROYAL INFIRMARY.—Thursday, Oct. 16, 4.30 p.m. Honyman Gillespie Lecture by Dr. A. S. Paterson: Electro-shock and Electroanesthesia in the Treatment of Mental Disorders.

GLASGOW UNIVERSITY: DEPARTMENT OF OPHTHALMOLOGY.—Wednesday, Oct. 15, 8 p.m. Prof. A. J. Ballantyne: Some Problems in Ophthalmoscopic Diagnosis.

LONDON CHEST HOSPITAL, Victoria Park, E.—Friday, Oct. 17, 5 p.m. Mr. T. Holmes Sellers: Surgery of the Heart and Pericardium.

LONDON SCHOOL OF DERMATOLOGY, 5, Lisle Street, Leicester Square, W.C.—Tuesday, Oct. 14, 5 p.m. Dr. I. Muende, Pathological Demonstrations.

The Edinburgh Postgraduate Board for Medicine has arranged, in connexion with the postgraduate courses in medicine and surgery, a series of open lectures on subjects of wide biological interest to be given in the West Medical Lecture Theatre of the Royal Infirmary on alternate Tuesdays from Oct. 14 to Dec. 9, at 5 p.m. All graduates and students are invited to attend the lectures, details of which will appear in the diary column of the *Journal* for the appropriate weeks.

The Fellowship of Medicine announces the following courses: (1) Obstetrics and gynaecology, at Nuffield Department of Obstetrics and Gynaecology, Radcliffe Infirmary, Oxford, all day from Oct. 21 to 31. (2) Week-end course in rheumatic diseases, at Rheumatic Unit, St. Stephen's Hospital, Fulham Road, S.W., all day Saturday and Sunday, Oct. 25 and 26. (3) Week-end course in general medicine and surgery, all day Saturday and Sunday, Oct. 18 and 19. (4) Course in proctology, at St. Mark's Hospital, City Road, E.C., all day, Oct. 27 to Nov. 1. Full particulars can be obtained from the Fellowship of Medicine, 1, Wimpole Street, London, W.

An additional clinico-pathological meeting will be held on Monday, Oct. 20, at 5 p.m., in the Meyerstein Lecture Theatre, Westminster Hospital School of Medicine, Horseferry Road, S.W., when a sound film on the detection of unsuspected tuberculosis in hospital out-patients (running time 20 minutes) will be shown and generalized amyloidosis in pulmonary tuberculosis discussed.

A concentrated week-end course on the chronic rheumatic diseases for general practitioners and demobilized officers will be inaugurated by Lord Moran, P.R.C.P., at the L.C.C. Rheumatism Unit, St. Stephen's Hospital, Fulham Road, S.W., on Saturday, Oct. 25. Full details of the course can be obtained on application to the Fellowship of Postgraduate Medicine, 1, Wimpole Street, London, W.1.

## APPOINTMENTS

Kenneth Cowan, M.D., D.P.H., has been appointed Senior Administrative Medical Officer to the South-West Metropolitan Regional Hospital Board.

Dr. Cowan has been medical officer of health and school medical officer for Gloucestershire for the past ten years and was formerly deputy medical officer of health for Leicestershire.

KENT AND SUSSEX HOSPITAL.—Honorary Assistant Physician: P. T. Cooper, M.B.E., M.D., M.R.C.P. Honorary Anaesthetist: G. P. Goodwin, M.R.C.S., L.R.C.P., D.A.

MACPHERSON, IAN, M.D., M.R.C.P., Honorary Physician, Leeds Public Dispensary and Hospital.

MILLER, C. M., M.D., M.R.C.P., Assistant Physician, Smithdown Road Hospital, Liverpool.

## BIRTHS, MARRIAGES, AND DEATHS

The charge for an insertion under this head is 10s. 6d. for 18 wards or less. Extra wards 3s. 6d. for each six or less. Payment should be forwarded with the notice, authenticated by the name and permanent address of the sender, and should reach the Advertisement Manager not later than first post Monday morning.

## BIRTHS

ADAM.—On Sept. 18, 1947, to Dr. and Mrs. R. H. Adam, 71, Busby Road, Clarkson, Renfrewshire, a daughter.

CHADWICK.—On Aug. 31, 1947, at Manchester, to Sybil (née Kinsey Williams), wife of Lieut. D. A. Chadwick, R.A.M.C., a daughter—Jacqueline Anne.

FERREIRA.—On Oct. 3, 1947, at the Wimbledon Nursing Home, to Joan (née Hilditch), wife of Dr. Harold Ferreira of 22A, Arterberry Road, Wintledon, a son.

HEAP.—On Oct. 1, 1947, at Scarborough, to Betty (née Heather), wife of Dr. K. I. Heap, "One Oak," Pickering, Yorks., a daughter.

NEAL SMITH.—On Oct. 1, 1947, at Queen Charlotte's Hospital, to Joan, wife of D. J. Neal Smith, M.D., M.R.C.O.G., a daughter—Susan.

SUMNER.—On Sept. 22, 1947, at Newcastle General Hospital, to Audrey (née Hutchison), wife of Dr. John Sumner, M.C., M.D., a son—Jeremy Hutchison.

WOODS.—On Sept. 19, 1947, in Dublin, to Valerie, wife of Dr. F. B. B. Woods, a son.

## MARRIAGE

HARVEY—WOODWARD.—On Sept. 27, 1947, at St. Peter's, Littleover, Norman William Allan Harvey, M.B., B.S., to Betty Woodward.

## DEATHS

DICKSON.—On Sept. 17, 1947, at 95, Rose Hill, Oxford, Francis Henry Dickson, M.B., Ch.B. (Edin.), aged 67.

STROVER.—On Sept. 27, 1947, at 90, Redland Road, Bristol, Henry William Martyn, O.B.E., M.B., Ch.B., aged 71.

## Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

## Abdominal Actinomycosis

**Q.**—A patient with caecal and hepatic actinomycosis has had intensive treatment with penicillin, sulphonamides, and iodides for three months; her sinuses have now healed and she is afebrile, but there is still induration in the right loin. How long should treatment be continued? What is the probability of relapse? Is the condition still considered invariably fatal when the above remedies are used?

**A.**—The advent of penicillin has entirely altered the outlook and prognosis in abdominal actinomycosis: the condition is now much more amenable to treatment and cure. It is, however, necessary to give large doses of penicillin for long periods without intermission—half a million units daily until all evidence of the disease has disappeared. The induration in the loin should serve as a warning that recurrence will take place unless the penicillin treatment is continued. The drug need not be given in frequent small doses; one daily dose of half a million units will serve. It can be given in small bulk, and will not cause discomfort if a few drops of local anaesthetic are added to it. In this case skiagrams of the hepatic region should be taken to see if there is any enlargement of the liver upwards: rupture of a hepatic abscess into the lung sometimes occurs, and this would modify the prognosis.

## Syphilitic Aortitis

**Q.**—Is it correct that in syphilitic aortitis good results have been obtained with penicillin preceded by a course of bismuth? If so, would you give me details of dosage, duration, etc. I believe there is a danger of a Herxheimer reaction in these cases. What precautions should be taken to prevent this, and, should it occur, what would be the immediate treatment?

**A.**—Yes, bismuth and penicillin are indicated, but too much must not be expected in the way of results. First a course of intramuscular injections of an insoluble bismuth preparation should be given, starting with 0.05 g. of bismuth metal and increasing gradually to 0.2 g.; injections should be given every five to seven days; at the same time large doses of potassium iodide should be prescribed up to the limit of tolerance. At the end of three months penicillin may be employed, in small doses at first; for example, 5,000 units three-hourly, increasing gradually to 20,000 units; the total dosage should be 4 mega units if no untoward reactions occur. A severe Herxheimer reaction might be very dangerous; it can be prevented by using mild therapeutic measures at first. Should such a reaction occur symptomatic treatment is indicated.

## Correction of Presbyopia

**Q.**—In the treatment of presbyopia where it may be necessary to incorporate prisms in the lenses to relieve the internal recti—as in instances where the near point has to be brought closer than is ordinarily desirable—it is said that the prisms should be of a strength to bring the near point of convergence to that of accommodation, and that the strength of the prisms normally corresponds to that of the sphere required. By "sphere required" I presume is meant the presbyopic correction. Is this so? Also, should the strength of the prism before each eye be that of the sphere, or should a prism the strength of the sphere be divided between the two eyes?

**A.**—In tasks performed closer to the eyes than that of reading, the use of prisms together with spheres stronger than those required for reading is of definite advantage. In such cases the prism should be equally divided between the two eyes. Tables have been compiled and were printed before the war showing the sphere and prism to be added to the distance correction for varying distances at the ages of 40, 45, 55, and 65

and taking into consideration the interpupillary measurement. Such tables form a useful basis for prescribing, but in every case the problem must be considered on its own merits and no hard-and-fast rule connecting sphere and prism should be slavishly followed.

### Food Allergy

**Q.**—An infant of 13 months who had a very severe attack of gastro-enteritis just after birth suffers from extreme collapse followed by vomiting and diarrhoea almost immediately after being given egg, even in minute amounts; the attack lasts about eighteen hours. On several occasions, unrelated to any specific food, he has had a cutaneous eruption similar to lichen urticatus; otherwise he is perfectly healthy. How should he be treated? Is there any danger in immunizing against diphtheria and/or pertussis, and what preparation should be used?

**A.**—Symptomatically, elixir "benadryl," 0.5 to 2 mg. per lb. body weight daily, divided into four doses, is likely to help the irritation. Thermal factors, environmental factors, and food allergy all play a part in this disorder. Investigation is by trial dieting, eliminating and later reintroducing suspected foods, as skin tests in this condition are not reliable. Treatment consists in elimination of any proved food allergen. Immunization of an allergic child with diphtheria toxoid and pertussis vaccine is without risk.

### Small Stature

**Q.**—Can anything be done about a girl aged 17, just over 5 feet (152 cm.) in height, who appears to have stopped growing? She is at school and her general health is good. Both sides of the family are above average height.

**A.**—In most girls the epiphyses are united at the age of 17, and in many at the age of 15. Growth is therefore unlikely in this case under any treatment. The usual treatment when the epiphyses are ununited—as can, of course, be seen by x rays—is by thyroid extract and injections of anterior pituitary growth hormone. On the whole the latter is clinically disappointing and does not fulfil the high expectations of animal experiments.

### Diaphragm Pessary

**Q.**—When fitting a diaphragm pessary how is the size required by a particular patient decided? How often is it advisable to check the fitting—with special reference to a patient who has had a child (by normal delivery) two months ago?

**A.**—It is customary to choose the largest diaphragm pessary which will reach from the posterior fornix into the small sulcus behind the pubic bone. It should fit tightly but stay up when the patient bears down. By no means all women can wear this type, and a sloping anterior vaginal wall is a frequent contraindication. A "Dumas" type of pessary is then required. Relevant information will be found in the article on contraception in Butterworth's *Encyclopaedia of General Medicine*. The woman could be fitted in the puerperium, but it is often advisable to refit after three or four months, or when the baby is weaned.

### Enteritis and Steatorrhoea

**Q.**—For some years a patient has had alternating attacks of diarrhoea and constipation, diagnosed as intestinal carbohydrate maldigestion. Two months ago there was an attack of acute enteritis with pale, fatty, liquid stools. Improvement has taken place on a fat-free diet, but the stools remain pale and he has lost weight. He has previously been treated with arsenic for the control of a long-standing dermatitis herpetiformis. Has this any bearing on the present condition? What treatment should be prescribed?

**A.**—It is not rare for an attack of acute enteritis to be followed by a period of steatorrhoea. This seldom lasts more than a few weeks, and in most instances the bowel habit and the character of the stools rapidly return to normal. The cause of this transient defect in fat absorption is unknown, but it is noteworthy that tropical sprue may be a sequel of the acute enteritis known as hill diarrhoea. It has been suggested that changes in the flora of the bowel may be responsible for these attacks.

While steatorrhoea continues, it is wise to restrict fat. Symptomatic improvement has followed nicotinic acid (50 mg. four

times daily), and folic acid (20 mg. daily) is worth a trial. Neither of these substances causes a significant increase in the absorption of fat, but this has been noted after full doses of yeast extract. It is improbable that arsenic plays any part in the causation of the symptoms. These therapeutic suggestions are made on the assumption that organic disease of the bowel has been excluded.

### Treatment of Obesity

**Q.**—Do you consider ammonium chloride a better treatment for obesity than thyroid?

**A.**—These substances act quite differently. Ammonium chloride is a diuretic and is given because adiposity is often associated with some element of water retention; and also because low-calorie diets are effective up to a certain point, when weight becomes stationary and no further progress is made. Diuretics are given to remove an accumulated retention of fluid. Thyroid acts by increasing the metabolic rate, but as its effect is on protein its use is not logical in the absence of evidence of associated thyroid deficiency. It is dangerous in larger doses where fatty infiltration of the heart is suspected. In moderate doses it is used as an adjunct to therapy even in the absence of a lowered basal metabolism, and it may be of some help as an auxiliary method of treatment.

### Tobacco and Poliomyelitis

**Q.**—Is there any evidence that non-smokers are more susceptible to poliomyelitis than smokers? Children are non-smokers and are very susceptible.

**A.**—A very large number of possible factors influencing susceptibility to the virus of poliomyelitis have been studied in U.S.A. and other countries where the disease is endemic; there have been many epidemics. It is unlikely that if tobacco smokers were less susceptible to poliomyelitis virus than non-smokers (other than children) it would have gone unnoticed.

## NOTES AND COMMENTS

**Angina Pectoris.**—Dr. C. W. F. McKean (London, W.1) writes: Your questioner (Sept. 13, p. 439) should be reminded to do a W on his patient, as the atypical angina pectoris he describes—sternal pain radiating to the arm, but less severe and of longer duration than true angina of effort—in the absence of hypertensive arteriosclerosis, or valvular disease, is one of the ways in which specific aortitis may present itself.

**Funds for X-ray Plant.**—As a result of an appeal for funds (Sept. 20, p. 476) to provide an x-ray plant for the London Missionary Society £54 15s. has been subscribed. The Victoria Hospital, Kingston-on-Thames, kindly provided an x-ray diagnostic unit, and another £250 is still required to meet the cost of transporting the unit and its transport to India. Contributions would be gratefully received by Dr. Cecil Cutting, London Missionary Society, 42, Broadway, London, S.W.1.

### Corrections

It was Prof. Lambert Rogers who introduced Dr. Albin Blalock, professor of surgery at Johns Hopkins University, Baltimore, for admission to the Honorary Fellowship of the Royal College of Surgeons of England, and not Prof. H. W. Rodgers reported in the *Journal* of Sept. 27 (p. 505).

A small, but vital, printer's error crept into the summary of Dr. McWhirter's paper on carcinoma of the breast (*Journal*, Oct. 4, p. 542, column 2, line 18, "the first-year" should read "the 5-year survival rate was 50.1%."

All communications with regard to editorial business should be addressed to the EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: Medica London. ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* unless the contrary be stated. Authors desiring REPRINTS should communicate with the Publishing Manager, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs. Authors overseas should indicate on MSS. if reprints are required, as proofs are sent abroad. ADVERTISEMENTS should be addressed to the Advertisement Manager, B.M.A. House, Tavistock Square, London, W.C.1 (hours 9 a.m. to 5 p.m.). TELEPHONE: EUSTON 2111. TELEGRAMS: Britmedad, Western, London. MEMBERS' SUBSCRIPTIONS should be sent to the SECRETARY of the Association, TELEPHONE: EUSTON 2111. TELEGRAMS: Medica, W.C.1. London. B.M.A. SCOTTISH OFFICE: 7, Drumshough Gardens, Edinburgh.

# SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY OCTOBER 11 1947

## INSURANCE ACTS COMMITTEE

### The Information on Certificates

One of the longest meetings of the Insurance Acts Committee of recent years—lasting four and a half hours—was held, under the chairmanship of Dr. E. A. Gregg, on Sept. 25. The deaths of two members of the committee, Dr. S. E. A. Acheson, a representative of Northern Ireland, and Dr. J. W. Hunter, representative of the Society of Medical Officers of Health, were reported and tributes paid.

Dr. A. Massey, chief medical officer of the Ministry of National Insurance, attended to discuss with the committee a proposal to include in the wording of certificates to be used by general practitioners under the National Health Service Act a reference to the patient's employment. He said that his department, in considering the new National Insurance scheme, had felt that it would be advantageous to obtain from certificates information about morbidity, in which employment was an important factor, which would assist in prevention. The patient's own description of his employment was often too vague to be of much use, but the doctor, as a result of his talk with the patient, might be expected to give a description which would lend itself to better classification. Another point was that in the certificate handed to the patient it was sometimes undesirable to state the illness from which the patient was suffering, and a vague certificate was given. It was now suggested that there should be attached to the final certificate a slip on which the real nature of the illness might be stated and which might be torn off and sent to the Ministry.

It was pointed out in discussion that the useful information from the morbidity point of view was often not the patient's present occupation but his previous one, as for example the phthisical patient who had left coal-mining for gardening. It was also suggested that such a requirement might prove to be onerous in view of the many changes in occupation which a man might have, and the difficulty of some technical descriptions. One member of the committee, while fearing that there might be an enlargement of such duties thrust upon the practitioner, said that he had gathered that the information which the patient gave to his doctor about his occupation was almost invariably more accurate than that which he gave to the insurance agent.

If it could be proved that this information about occupation could be obtained in no other way there was much in the argument that doctors should accede to the request. On the other matter, the statement of the real nature of the illness on the slip to be sent to the Ministry, the question of confidence came in, and Dr. Massey agreed that it required some further thought.

It was mentioned that the Ministry had set up a small committee on the general question of certification, to which the Association would tender evidence.

Prof. G. S. Wilson attended to explain the scope and facilities of the new laboratory service. A report of his statement is given on p. 86.

### Reports to Practitioners

It was reported that the Ministry of Health still considered it not practicable, during the limited time remaining of the present insurance scheme, to adopt the committee's suggestion that the patient's own doctor should be given an opportunity

of arranging for an examination by a specialist in all cases where the regional medical officer considered that a second opinion was desirable. The Ministry was similarly unmoved by the request that the doctor should be allowed to issue a special intermediate certificate in connexion with pregnancy sickness benefit, without waiting for the qualifying period of 28 days to elapse, in cases where the doctor was satisfied that the patient would not be capable of work after her confinement.

Dr. Gregg said that both these questions would be kept on the list and brought forward on every occasion on which they went to the Ministry.

On the findings obtained in mass radiography the Minister was more amenable. He considered it desirable that even negative findings, that the chest condition was normal, should be notified to the patient's doctor. The feeling of the committee, however, was that it was not the best course, as the Ministry proposed, that such negative finding should be recorded on a card to be handed to the patient for the information of his doctor if he had occasion to go to him for advice or treatment, but that the notification should be sent to the doctor direct.

### Week-end Arrangements by Practitioners

The committee considered a scheme put forward by the Birmingham Insurance Committee for week-end rota arrangements by practitioners. It was agreed that the Editor be requested to publish the scheme in the *Journal*, but the committee withheld any comment. One member pointed out the difficulty in rural areas in making arrangements for transfer of telephone calls.

A request from the London Panel Committee for views on the advisability of endeavouring to secure an increase in the existing scale of fees for emergency treatment was considered. Dr. Gregg said that in London it was felt that these fees were too low, but any increase should be on a national basis. The opinion of the Insurance Acts Committee was that the fees should be increased to a figure which would not be an embarrassment in any negotiations, and that panel committees should be communicated with, attention being drawn to the position. Uniformity was felt to be very important.

It was agreed also to take up with the Ministry a request from the London and West Riding Panel Committees for the upward revision of the capitation fee for emergency drugs and appliances. It was pointed out that the drugs had become more expensive. The capitation fee at present varies from 1s. 3d. to 2s. 6d., the higher fee obtaining in areas where local conditions impose upon general practitioners abnormal liability for supply of dressings.

On a resolution from the Somerset Panel Committee requesting action for doctors' priority in the sale of new cars, it was stated that 10,000 doctors were waiting for cars, in which state of affairs, of course, priority ceased to have any effectiveness. It was pointed out that when the basic petrol ration came to an end a new supply of second-hand cars might become available for purchase.

The committee agreed to the principle of "one man, one vote" on national issues—in other words, if a practitioner was on the panel in two areas he should vote only in one. It was remitted to the office to prepare a detailed scheme.

A report on the National Insurance Defence Trust was given by Dr. Bone. Subscriptions during the previous five months had been three times what was received during the whole of last year. The fund was now approaching the half-million.

## PUBLIC HEALTH LABORATORY SERVICE

## FACILITIES FOR GENERAL PRACTITIONERS

Prof. G. S. Wilson, Director of the Public Health Laboratory Service, gave an address at a meeting of the Insurance Acts Committee on Sept. 25 on the scope and facilities which the new service affords to general practitioners. He reminded the committee of the decision, made when war seemed to be impending, to establish an Emergency Medical Service with which, wherever possible, pathological laboratory facilities were to be associated. The Medical Research Council was asked by the Committee of Imperial Defence to run the Emergency Public Health Laboratory Service on a national basis, and the Council thereupon made its preparations, establishing a number of laboratories in different parts of the country, and the service came into operation at the beginning of the war. At the end of the war it was considered inadvisable to discontinue a service which had proved extremely useful, and provision was made in the National Health Service Act for its continuance on a peacetime basis.<sup>1</sup>

The Public Health Laboratory Service, unlike other features of the Act, came into operation immediately, without waiting for any "appointed day." The Medical Research Council agreed to administer the service, at least for an initial period of five years. In taking this decision the Council was influenced by the big opportunities afforded for research not only in the laboratory but in the field. Under the Act there would be two administratively distinct pathological services, one related to hospitals and the other to public health in the field of bacteriology and epidemiology. While the hospital pathological service was concerned essentially with the treatment of the individual patient, the Public Health Laboratory Service concentrated, in conjunction with the medical officers of health, on the diagnosis, prevention, and control of infectious disease in the community as a whole. The hospital pathologist's work was therapeutic; the public health pathologist's work was preventive. The hospital pathology service would come under the Regional Hospital Board; the public health laboratory service would be on a national basis and would be run on behalf of the Ministry of Health. In the bacteriological diagnosis of infectious disease the two services would overlap to some extent, but precautions were being taken to avoid trouble from this cause. Presumably the hospital service would come into operation on July 5; the other service was now being developed. It would provide, so far as possible, free diagnostic facilities for dealing with infectious diseases, including all respiratory and intestinal and other forms of infection, but excluding venereal disease.

The headquarters of the service were in the office of the Medical Research Council, and the main Central Public Health Laboratory—really a congeries of laboratories—was at Colindale. Regional public health laboratories were established in some of the university towns—Oxford, Cambridge, Cardiff, Newcastle—and it was hoped to extend these later on. Meanwhile, other university laboratories were being associated with the service. Area laboratories, roughly equivalent to county laboratories, but not working within strict county limits, were so in existence, and arrangements were being made with hospital laboratories in smaller districts for the examination of public health laboratory specimens. In addition there were a series of reference laboratories, many of them centred at Colindale, for special diagnosis and identification work. For example, the central enteric reference laboratory was engaged in the Vi-phage typing of typhoid and paratyphoid strains and in keeping a record of enteric carriers throughout the country; the *Salmonella* reference laboratory was responsible for the serological identification of organisms of the food-poisoning group, which now numbered over 160; the streptococcal reference laboratory undertook the serological typing of haemolytic streptococci from scarlet fever, puerperal fever, and wound infections, as well as the phage typing of staphylococci, which was becoming of increasing importance in the investigation of

pemphigus and of food-poisoning outbreaks; the virus reference laboratory helped in the serological diagnosis of smallpox, and carried out investigations on influenza and poliomyelitis. There was also a standards laboratory, which supplied diagnostic reagents to laboratory workers, and provided the agents occasionally needed by the practitioner for the diagnosis of trichiniasis, hydatid disease, lymphogranuloma inguinale, and undulant fever.

## Consultative Service

So far as general practitioners were concerned, Prof. Wilson said that what was proposed to be provided was a consultative service. The service hoped to be in as close touch with general practitioners as possible and to help them in the diagnosis of all cases of infectious disease of any public health importance. It was responsible for the distribution of A.P.T. and T.A.F. for diphtheria prophylaxis; and it was supplying now to vaccination officers, and would supply direct to general practitioners as soon as the Act came into operation, vaccine lymph for vaccination against smallpox. Most of the other materials for vaccination against typhoid, cholera, and the like would be supplied probably through the ordinary commercial agencies, and general practitioners might have to make their own arrangements; this was still undecided. He added that a complete service covering the whole country could not be given at the present time, and it might be ten or twenty years before the country was covered adequately; but the service was gradually expanding, and it was hoped that practitioners in areas in which there were laboratories would not hesitate to make the utmost use of them.

In reply to a question on the relation of the new service to the public health service already in existence in large cities, Prof. Wilson said that what had been done with many of the pre-existing public health laboratories was, with the consent of the local authorities concerned, to take them over completely, relieving the local authorities of the responsibility for running them, and employing the staffs already there, supplementing them if necessary. If local authorities preferred to run their own laboratories, of course the new service would not intervene. Asked about the situation in the North of England, he said that there were laboratories at Wakefield for the West Riding and at Northallerton for the North Riding; there was an associated laboratory at Leeds; the Bradford laboratory had just been taken over; and the Hull laboratory had been taken over, though the service there was not yet working. He made it plain that the hospital pathological service and the public health bacteriological service were administratively distinct, although in practice they would doubtless work very closely together, and that—wherever possible there would be one pathological centre for a whole district to which the general practitioner could send his specimens and go for consultation. How far the hospital pathological service would develop on domiciliary lines he could not say. The public health pathological service did not touch on treatment, nor interfere in any way with the general practitioner's handling of the case.

It was pointed out that occasionally there was difficulty of access of general practitioners to the pathological service in hospitals, but Prof. Wilson replied that, while he could not speak for the hospital service, on the public health side general practitioners were welcomed and were perfectly free to consult with the laboratory. He added that there had been no serious competition between the two branches of the service as regards staff, and as soon as the National Health Service was in being with presumably one general salary scale for pathologists and one scale for technicians, there would be no rivalry of any sort.

Prof. Wilson was asked about the prevention of whooping cough. He said that a whole-time worker was organising special vaccination trials. Whooping-cough vaccination had been reported on very favourably in the U.S.A. It was now being tested out in this country with one or two of the American vaccines and other special vaccines. Trials were being made in North London, at Wembley and Tottenham, and also at Manchester and Leeds. But it was an extraordinarily difficult task of investigation to make it was to be properly controlled, that is to say, if the vaccinated and control groups of children were to be perfectly comparable in every respect. They were proceeding satisfactorily. They were trying to make a proper bacteriological diagnosis of every case of whooping

<sup>1</sup> Sect. 17. "The Minister may provide a bacteriological service, which may include the provision of laboratories, for the control of the spread of infectious diseases, and the Minister may allow persons to make use of services provided by such laboratories."

cough. Post-nasal swabs, obtained before the "whoop" started, were very valuable, and special transport for such swabs, as well as for other specimens, was being considered so that they would reach the laboratory on the same day as that on which they were taken if possible, and might be reported on next morning.

A cordial vote of thanks was accorded to Prof. Wilson, who promised to do what he could to circulate to members of the profession a list of centres—necessarily incomplete at present—where specimens might be collected.

## BIRMINGHAM INSURANCE COMMITTEE

### WEEK-END ROTA ARRANGEMENTS BY PRACTITIONERS

*The following notice has been issued by the Birmingham Insurance Committee to local insurance practitioners concerning the formation of a rota of practitioners available for the treatment of insured patients during week-ends.*

Practitioners desirous of entering into arrangements to provide for a rota being formed of practitioners who would be in attendance at their surgeries on Saturday evenings to provide treatment for the insured persons included in the lists of all the practitioners forming the rota for the district, and to provide all emergency treatment required by such persons during the period from 3.30 p.m. on each of the Saturdays on which the rota duty shall fall to 9 a.m. on the Monday following, are required to comply with the following conditions:

(a) A rota shall be formed which shall make provision for at least one practitioner included in the rota being in attendance at his surgery or surgeries at the times to be arranged to the satisfaction of the committee on every Saturday evening. The practitioner in attendance shall provide treatment for the insured persons included in the lists of all the practitioners included in the rota (hereafter referred to as the participating practitioner) who shall attend for treatment. During the periods commencing at 3.30 p.m. on each of the Saturdays on which a practitioner shall be in attendance at his surgery under these arrangements and ending at 9 a.m. on the following Monday such practitioner shall visit and treat any of the insured persons included in the lists of the participating practitioners whose condition so requires at any place where the patient may at the time be within the districts in which the participating practitioners have undertaken to visit patients.

(b) Each participating practitioner shall be responsible for making arrangements for a practitioner to act on his behalf when he is prevented from giving treatment personally to insured persons during any of the periods in which he is responsible, in accordance with the rota arrangements, for providing such treatment.

(c) For a period of four weeks prior to any rota arrangements becoming operative a notice giving particulars of the arrangements shall be exhibited in the surgery of each of the participating practitioners and such notice shall be displayed during the continuance of the arrangements.

(d) A notice shall be displayed in a prominent position at the surgery and shall be visible to callers at the surgery of each of the participating practitioners who are not in attendance on a Saturday evening stating the name, address, and times of attendance of the practitioner responsible for providing treatment for the insured persons on that particular evening and referring all callers to the practitioner in attendance.

(e) In cases in which a surgery of any of the participating practitioners who is not in attendance under these arrangements is left unoccupied the practitioner shall make arrangements for all telephone calls to be diverted to the surgery of the practitioner in attendance during the times mentioned in paragraph (a).

(f) If a participating practitioner desires to withdraw his name from a rota his name shall be removed therefrom at the expiration of one month from the date of the receipt of the notice or of such shorter period as the committee may agree.

(g) These arrangements shall only remain operative for so long as the committee are satisfied that an adequate medical service is being provided for the insured persons included in the lists of the participating practitioners, and the arrangements shall be terminated at the expiration of one month from the date of the receipt by the participating practitioner of a notice from the committee terminating the arrangements.

(h) A notice announcing the discontinuance of these arrangements shall be exhibited in a prominent position in the surgery of each of the practitioners who ceases to participate in the arrangements, and such notice shall be exhibited for a period of one month immediately preceding the date of such discontinuance.

(i) Rota to be formed in accordance with the foregoing arrangements shall consist of not less than four practitioners.

The committee have no power to relieve a practitioner from any of his obligations under the regulations or the terms of service and in particular the responsibility which is borne by each practitioner for all acts and omissions of any practitioner acting as his deputy or assistant.

## HEARD AT HEADQUARTERS

### Intraprofessional Courtesy

It is a pleasant courtesy—but not a compulsory ethical requirement—whereby members of the medical profession refrain from charging a fee when attending another doctor or his family. We like to think that in the vast majority of cases the courtesy is appreciated, and, if opportunity arises, reciprocated. Sometimes the doctor who has performed the service is gratified to receive at Christmas a box of cigars or a book token. But from correspondence which has reached this office it appears that sometimes the courtesy is taken too much for granted. A radiologist who writes to us on the subject comments on the sad lack of manners displayed by some professional colleagues. Perhaps he has a special grievance, because, while in many cases the attendance given by a doctor to a colleague or his family may not involve him in actual out-of-pocket expenses, in the case of the radiologist, whose opinion has to be founded on the use of some rather expensive material and apparatus, it may mean, if the examination is elaborate, an expenditure of perhaps £3 or £4. Our correspondent says that he has carried out x-ray examinations on members of doctors' families, and has reported to another consultant, and sent copies of the report to the husband, sometimes making long-distance telephone calls, "but not one in twenty, if that, have expressed the slightest gratitude." This is a very discouraging testimony, and one can only hope that the experience is exceptional.

### Informing the Patient's Doctor

The Minister of Health has at last fallen in with the suggestion made by the Insurance Acts Committee that patients' doctors should be informed of the findings in all cases of mass radiography examination, not merely when something abnormal is found, but when the result is negative. A letter has been sent out from the Ministry to all the authorities operating mass radiography units to the effect that the Ministry considers it desirable that all persons whose chest condition is found to be normal on examination should be individually notified, to that effect for the information of their own doctors should they have occasion later to need medical attention. A specimen card has been prepared on which it is stated that "Your x-ray film is satisfactory and no further attendance is required," followed by the injunction to keep the card carefully and show it to your own doctor if you have occasion to require any medical attention from him. It will be noted that the information goes to the examinee, not to the doctor direct. On another matter the Minister has not seen fit to give way. The committee had requested that the patient's own doctor should be given an opportunity of arranging for examination by a specialist in all cases where the regional medical officer considered that a second opinion was desirable; but the Minister still considers that it is not practicable to adopt this suggestion during the limited time that the present National Health Insurance Scheme has to run.

### Patients' Occupation

The Ministry of National Insurance is asking the co-operation of general practitioners in stating on the medical certificate the occupation of the patient. As the Chief Medical Officer of the Ministry told the Insurance Acts Committee, occupation is a primary factor in morbidity, and some useful information might be gathered from statistics of occupations of people treated for both major and minor illnesses. But it soon became evident in discussion in the committee that, while doctors may quite readily accede to this apparently simple request, the matter is hedged about with difficulties. Occupations are of infinite variety and many of them have curious technical descriptions. Even in a single trade there are enough separate occupations to cause con-



fusion. We were told, for example, that "cider maker bottle-mucker" is a well-recognized occupation in the Potteries. In Lancashire we have the "flicker," which may have a different connotation in other parts of the country. The Ministry should provide a schedule of occupations, so that it would be sufficient to designate an occupation according to that schedule. Moreover, it is surely not so much the occupation which is concerned in morbidity as the conditions under which the occupation is carried on. What is the use of saying that a patient is a clerk? The important thing is to know whether he is employed in a decent office or in one of those underground unhygienic warrens which are still too common even in the City of London.

### Agenda

When the members of the General Practice Committee of the Association assembled for the first meeting of the new session recently, encouraged by the praise which the Annual Representative Meeting had extended to them—the only standing committee ever to get a vote of thanks—they needed all such fortification in view of the agenda confronting them. The main agenda consisted of 49 closely typewritten foolscap pages, containing 51 separate items of business, each of them highly detailed. Another document added a further 19 pages. There must have been 40,000 words for them to assimilate, enough reading matter to occupy the whole of the journey of the member who had to cover the longest distance—from Glasgow. Of the main agenda 24 pages were occupied with matters arising out of the minutes of the previous meeting. Then there were 15 resolutions from the Representative Body which had been referred to the committee. One item alone—the remuneration of medical officers to emergency training colleges for teachers—spread itself over 6½ pages. A dispute between one of the Branches of the Association and the National Union of Mine-workers over miners' contributory schemes for medical attendance on dependants occupied another 3½ pages.

### TRAVEL ABROAD FOR HEALTH

The recent currency restrictions of the Foreign Exchange Control present a considerable problem, and they will affect sanatorium beds in this country as well as the patients who wish to undergo treatment in Switzerland. It would appear that restriction is inevitable for those who want to travel abroad for health reasons and whose lives are not in danger; but for those who are recommended to go to sanatoria in Switzerland for early treatment of tuberculosis it is a different matter.

About 500-1,000 patients suffering from tuberculosis go annually from the U.K. to Switzerland, where the facilities are adequate and the waiting lists are not unduly long. Patients admitted to Swiss sanatoria do not have to wait more than one or two months after application. These patients, if unable to go to or remain in Switzerland, and if in need of sanatorium treatment, will inflate the already overcrowded waiting lists in Britain, where in some areas nine to twelve months elapse before admission.

The main difficulty is the selection of cases for overseas treatment. The Foreign Exchange Control have made provision for certain cases, but the method of certification is ambiguous. Two conditions must state on a special form that the patient's life is endangered if he or she does not go abroad forthwith. To remain abroad, for a period of so many weeks. This is unsatisfactory, for some would hold the view that the life of any patient suffering from tuberculosis is endangered. But the certificate suggests that only those *in extremis* should be allowed to proceed abroad, yet those cases would be most unsuitable to travel.

The choice, apart from humane considerations, is between allowing the early cases, who under treatment will become economic assets to the country, to go abroad, and risking their becoming a constant liability by keeping them in Britain. It is clearly impossible to provide at short notice a sufficient number of sanatorium beds in this country to accommodate those patients who would in normal times go overseas. If patients are to be allowed to go at all, and from every point of view it is desirable that they should be, their cases should be submitted to a board specially appointed for discrimination.

## Correspondence

### Suspension of Basic Petrol

SIR,—When it is found that some austerity measure is particularly unfair to a certain class of people steps are usually taken to exempt them—for example, cheap tobacco for old-age pensioners, and extra bread and cheese for agricultural workers, etc. The loss of the basic petrol ration affects our profession more than anyone else. It is undeniable that we work longer hours than most people, and are always on call for our patients, so that when we take a few hours of leisure we use our cars to enable us to return with the least possible delay.

Without a basic petrol ration many doctors will be unable to have any recreation, and I hope that the Association will use its influence with the Government to restore to us our basic ration on the grounds that it is a greater hardship for doctors than for the rest of the community.—I am, etc.,

Woburn, Bucks.

WARREN A. BARNES.

SIR,—All through the war doctors paid taxes for their cars as if they were still "private" motorists. The allowance of the small basic ration made it possible for us to imagine once again that our taxation was at least partly justified. If our cars cannot be used at all for any but professional work, how has the Government the face to soak us in taxation, and why are we such softies as not to protest? Even the insurance companies showed appreciation of the situation, but the Government's ways are very hard. If we were using our cars for pleasure alone we could lay them up and save a good deal of money, but we can't, so we are "had" both ways.

As some of your other correspondents have remarked, it was painful to watch the flimsy protests allowed to obtain petrol for some people during the war, while we might have almost unwittingly been judged "of infamous conduct." We don't want to see all this happening again. "Fair's fair all the world over."—I am, etc.,

Coldingham, Berwickshire.

F. O. TAYLOR.

SIR,—With reference to the suspension of basic petrol, I feel that the strongest possible action should be taken by the Association to get this restored to doctors, the elderly, and those in scattered districts. With regard to doctors, no man works in such depressing circumstances. He is constantly in association with disease and death. Unless he has some outlet to counteract this depression both his health and his work must suffer.

In this area during the past two or three years two men in the fifties and sixties have had to give up owing to disease, and two have had periods of absence from their practices, also owing to disease. To this must be added the sense of frustration, as the measure is useless as a means of meeting the crisis.—I am, etc.,

Handley, Salisbury.

G. BAYNTON FORGE.

### National Health Service

SIR,—We have now been negotiated into a national State health service assumedly with the consent and the satisfaction of the majority of the medical profession. What astounds me is that two negotiating parties have agreed to buy and sell goods and/or services without any settled financial considerations as far as we know. It has been agreed that some time in 1948 every man, woman, and child will be a State patient, and every medical man will be a State doctor if he wishes to earn a living by his profession. We are now in the "closed shop."

Those of us who have bought, are buying, or have built up practices, which are probably our only capital assets, have not the foggiest notion of what is to happen to these assets. Are the people who have negotiated us into this condition to be the people who will negotiate our terms and conditions?

After 35 years, two wars, and a Spens Committee a capitation fee which started at 7s. in 1912 has been raised through struggles and stages to 15s.—a figure which, according to the Secretary of the B.M.A., has met with the general satisfaction of practitioners and has been negotiated without prejudice to future arrangements. With all due deference to the knowledgeable Secretary of the B.M.A., it is my humble opinion that it does prejudice future

arrangements, for, as Mr. Lloyd George used the old club figure of 4s. for his basis of the capitation fee of 7s. in 1912, it is all what used to be Lombard Street to a halfpenny orange that the 15s. agreed in 1947 will be used as the basis of remuneration for State G.P.s in 1948. Taking all things into consideration and comparing the 7s. of 1912 or, if you like, the 9s. of 1938 (which was a grossly inadequate figure), the recently negotiated figure of 15s. is shillings below what in fairness it should be. We are the only utility workers in the country to-day who are and have been gallantly doing our best, and we are getting a "raw deal."—I am, etc.,

St. Osyth, Essex.

R. E. CLARKE.

SIR,—The delay in putting to the profession the results of the negotiations with the Minister can now, after so long, only be due to one of two causes: (a) The proposed National Health Service is being quietly shelved—far too prudent a step for a spendthrift Government in spite of the cost and the economic condition of the country. Such a step, moreover, would at the approaching general election lose the votes of so many people dazzled by the idea of "free" medical attention ("What, still another broken promise!"). (b) The Minister, having announced that the Act will come into force next July, is astutely holding things up so that he can invite us to sign on the dotted line without allowing time for individual and collective consideration.

Yes, we know he has promised it, but what on earth does that matter? "Infiltration" has already proceeded apace. Our position is very nearly surrounded and is beginning to crumble.—I am, etc.,

Alesley, Bedfordshire.

M. L. FARMER.

### Working Hours in the N.H.S.

SIR,—Dr. John F. Flanagan (*Supplement*, Sept. 20, p. 74) and others who support nationalization of medicine are trying to make us believe that there will be less work under such a scheme. In fact there would be much more work and probably less workers. How then can this "calling" be any lighter? The public (and ourselves when we chose the career) knows our job is a trial of patience and tiring in many ways.

It is up to groups of doctors through the B.M.A. or otherwise to arrange the five-day week, or at any rate shorter hours. If they do not choose to do this, then it is their own fault. We do not need a further example yet of nationalization after the 1947 debacle.—I am, etc.,

Newquay, Cornwall.

JOHN P. O'SHEA.

SIR,—In the *Journal* of March 22 (p. 391) you kindly published a letter of mine under the heading "An 84-hour Week." There now appears to be a belated realization that a 24-hour day is envisaged for general practitioners.

It is suggested that an emergency night service scheme, similar to the one in the Danish State Medical Service, be incorporated in our Service. This night service is welcomed by doctors and patients alike in Denmark, would be so here, and would go a long way to answer the requirements of your many correspondents on the hours of work under the N.H.S.—I am, etc.,

London, S.W.6.

G. ROSEMONT.

### Working Day in the Services

SIR,—As another under-employed medical officer I write to underline and add to previous comment on this subject. Not even in more than a year's service have I had a full day's work; my average for work of a purely professional nature is 1½ hours per day, with perhaps thirty minutes for paper work. This of course is spread throughout the day and interferes with any secondary industry I might care to develop. I share this work and my consulting-room with a colleague, for whom apparently no work can be found at present. We realize that we are serving the need to "maintain establishment"; we also feel that at the same time we are supporting a top-heavy structure of administrative organization.

Within this organization restrictive practices are at work. I quote from a document recently issued to me: "Under no circumstances will routine pelvic examination be carried out other than by a Specialist Gynaecologist." Too often, when specialists' advice is sought, the Service mind shows itself occupied with the problem of disposal rather than treatment; too

often in simple matters no treatment can be undertaken "until the medical documents are forthcoming."

Now, I have no grievance against conscription. It is eminently reasonable that those of us who were fortunate enough to continue study and qualify in wartime should take the place of men who have served far longer than we. I merely claim that my time and such little skill as I have are being unnecessarily wasted. If this is a foretaste of a full-time health service I shall probably take my professional appetite elsewhere.—I am, etc.,

FL./LIEUT., R.A.F.V.R.

### Buying and Selling of Practices

SIR,—As I see it the subject of continuing the buying and selling of medical practices has reached the height of nonsense in medicine that "Adam's navel" attained in the realm of religion. I understand that in the forefront of the matters under negotiation with the Ministry is this subject. Should the negotiators succeed in their object most of the present generation of practitioners will find that they have become their own executioners.

Look at the position. In round figures about 20,000 doctors out of a total of 60,000 after being appointed would each have to buy, or hold, that job at a cost of £3,000 to £6,000, a sum not only dead for the remainder of his career but the interest on which could not be deducted for income tax purposes (of course borrowed money would carry a rebate). An even more serious position is involved in that the paying off of this debt would be well-nigh impossible on projected incomes, particularly with high income tax, exorbitant car and house prices, etc. Would it not seem prudent for a young man to seek employment among the more privileged 40,000? Or is there some hidden glamour in G.P. which compensates for the financial strait-jacket?

Again, take the question of distribution of doctors. Where there is a surplus a doctor retiring would not be replaced. How would he be bought out? Or take the reverse case of additional doctors being introduced to an area. From whom would they buy? Then there is linked up with this last point the present shortage of doctors. It is estimated that an extra 30,000 will be required to work the N.H. scheme. There is little doubt that a majority of these would be essential for G.P. Now if we assume even 10,000 introduced, that would mean the capital values of the existing 20,000 practitioners would be reduced by at least one-third in the next ten years, since we are working in a fixed economy—i.e., unless some genius devises a method of bartering "capites." Apart from this devaluation, the present dispensation is hardly encouraging with regard to the availability of several thousand pounds for such a risky investment. It will be obvious that the proposition works equally unfavourably for both seller and purchaser.

Now, it is contended that buying one's practice gives greater independence. I cannot see this. I can see that without full co-operation of the Executive Council the acquisition of capital after a sale could be a very risky business, and it seems too much to expect the Council to act as a transfer agent. There is another aspect which scarcely enhances the vaunted independence: suppose differences arose with an Executive Council, would the fact that several thousands of pounds were at stake make for greater freedom?

In the light of this reasoning what would be achieved by purchasing a medical practice? Certainly not ownership, since control is vested in the E.C., and certainly not freedom. After an essentially clumsy, meaningless, and expensive procedure the unfortunate doctor would only have provided for his own neck a millstone. Since the question under consideration here holds such a prominent place in negotiation there must be another side. A presentation of this side will be greatly appreciated, especially as many doctors are beginning to feel that it would be more reasonable to negotiate acceptable terms for Government purchase.—I am, etc.,

Southport.

S. H. STEWART.

### Compensation for I.M.S. Officers

SIR,—The *British Medical Journal* has reported in some detail the tributes which have been paid to the retiring Indian Medical Service. Kind words are, however, not enough, and all of my colleagues with whom I have been in contact consider that the terms of "compensation" offered to the I.M.S. are ridiculous. Only a small number of officers qualify for the maximum of £6,000, and these are those officers who enlisted shortly before the war. Many in their forties will qualify for less than half this plus a small pension, and if £2,500, which they could draw under existing rules, is deducted from this the net compensation becomes very small indeed. Furthermore, as "Also I.M.S."

points out (Sept. 13, p. 66), the cash grant when paid is attached to a string and may be withdrawn if the officer accepts service under the Crown, whatever the definition of this.

No doubt the British Medical Association has reasons for the apparent delay in representing the matter to the Government, but the members who are affected would like to be convinced that there have been strong reasons for not opening at least preliminary negotiations before this, and it would seem that greater publicity could have been given in the *Journal* to the complete absurdity of these terms and to the fact that no separate scale was drawn up for medical personnel. It is true that most of the medical officers affected will ultimately be able to find appointments or practices, but no scheme is in existence at present to help them, and they are left entirely to their own devices and need fair compensation. It is presumed, however, that, since the Government retains an interest in the compensation paid, it will not reasonably be able to claim that the terms so hastily announced are final.—I am, etc.,

I.M.S.

### TRADE UNION MEMBERSHIP

The following is a list of local authorities which are understood to require employees to be members of a trade union or other organization:

*County Borough Councils.*—Barnsley, Barrow-in-Furness, Gateshead.

*Metropolitan Borough Councils.*—Finsbury, Fulham, Hackney, Poplar.

*Non-county Borough Councils.*—Dartford, Leyton, Radcliffe (limited to future appointments), Tottenham, Wallsend.

*Urban District Councils.*—Denton, Droylsden, Houghton-le-Spring, Huyton-with-Roby, Portslade, Redditch (restricted to new appointments), Stanley (Co. Durham), Tyldesley.

*Scottish Burghs.*—Motherwell, Wishaw.

## Association Notices

### Sir Charles Hastings Clinical Prize

The Sir Charles Hastings Clinical Prize, which consists of a certificate and a money award of fifty guineas, is again open for competition. The following are the regulations governing the award:

(1) The prize is established by the Council of the British Medical Association for the promotion of systematic observation, research, and record in general practice; it includes a money award of the value of fifty guineas.

(2) Any member of the Association who is engaged in general practice is eligible to compete for the prize.

(3) The work submitted must include personal observations and experiences collected by the candidate in general practice, and a high order of excellence will be required. If no essay entered is of sufficient merit no award will be made. It is to be noted that candidates in their entries should confine their attention to their own observations in practice rather than to comments on previously published work on the subject, though reference to current literature should not therefore be omitted when it bears directly on their facts, their interpretations, and their conclusions.

(4) Essays, or whatever form the candidate desires his work to take, must be sent to the British Medical Association House, Tavistock Square, London, W.C.1, not later than Dec. 31, 1947. The prize will be awarded at the Annual General Meeting of the Association to be held in 1948.

(5) No study or essay that has been published in the medical press or elsewhere will be considered eligible for the prize, and a contribution offered in one year cannot be accepted in any subsequent year unless it includes evidence of further work. A prize-winner in any year is not eligible for a second award of the prize.

(6) If any question arises in reference to the eligibility of the candidate or the admissibility of his or her essay, the decision of the Council on any such point shall be final.

(7) Each essay must be typewritten or printed, must be distinguished by a motto, and must be accompanied by a sealed envelope marked with the same motto and enclosing the candidate's name and address.

(8) The writer of the essay to whom the prize is awarded may, on the initiative of the Science Committee, be requested to prepare a paper on the subject for publication in the *British Medical Journal* or for presentation to the appropriate section of the Annual Meeting of the Association.

(9) Inquiries relative to the prize should be addressed to the Secretary.

### Nathaniel Bishop Harman Prize

The Council of the British Medical Association is prepared to consider a first award of the Nathaniel Bishop Harman Prize in the year 1948. The value of the prize is approximately £100.

The purpose of the prize is the promotion of systematic observation and research among consultant members of the staffs of hospitals who are not attached to recognized medical schools. It will be awarded for the best essay submitted in open competition. The work submitted must include personal observations and experiences collected by the candidate in the course of his practice. A high order of excellence will be required. No study or essay that has previously been published in the medical press or elsewhere will be considered eligible for the prize.

Any registered medical practitioner who is a consultant member of the staff of a hospital in Great Britain or N. Ireland and is not attached to a recognized medical school is eligible to compete. If any question arises in reference to the eligibility of a candidate or the admissibility of his essay, the decision of the Council shall be final.

Should the Council of the Association decide that no essay submitted is of sufficient merit, the prize will not be awarded in 1948 but will be offered again the year next following this decision, and in this event the money value of the prize on the occasion in question shall be such proportion of the accumulated income as the Council shall determine.

Each essay must be typewritten or printed in the English language, must be distinguished by a motto, and must be accompanied by a sealed envelope marked with the same motto and enclosing the candidate's name and address.

The writer of the essay to whom the prize is awarded may be requested to prepare a paper on the subject for publication in the *British Medical Journal* or for presentation to the appropriate section of the Annual Meeting of the Association.

Essays must be forwarded to reach the Secretary, British Medical Association House, Tavistock Square, London, W.C.1, not later than Dec. 31, 1947. The prize will be awarded at the Annual Meeting of the Association to be held in 1948. Inquiries relative to the prize should be addressed to the Secretary.

CHARLES HILL,  
Secretary.

### B.M.A. LIBRARY

The Association's Library is to be transferred from its present accommodation in the main building at B.M.A. House to the first and second floors of the Garden Court wing. To facilitate the removal the Library will be closed from 12.30 p.m. on Saturday, Nov. 1, until 9.30 a.m. on Monday, Nov. 17.

### Diary of Central Meetings

OCTOBER

29. Wed. Council, 10 a.m.

### Branch and Division Meetings to be Held

**HYDE DIVISION.**—At Hyde Municipal Offices, Wednesday, Oct. 15, 8.30 p.m. Dr. T. H. Chadwick: Anaesthetics in General Practice.

**NORTH OF ENGLAND BRANCH.**—At Royal Victoria Infirmary, Newcastle-upon-Tyne, Thursday, Oct. 16, 7.15 p.m., Clinical Demonstration by Dr. W. G. A. Swan: Thyrotoxic Heart Failure; 8.45 p.m., Address by Dr. C. C. Ungley: Neurological Disorders in Pernicious Anaemia.

**WINCHESTER DIVISION.**—At Royal Hotel, Winchester, Wednesday, Oct. 15, 8.15 p.m. Third Annual Medico-Legal Dinner, Address by Dr. Donald Teare: Forensic Experiences.

General practitioners of West Bromwich, Staffs, have arranged an off-duty rota. Twenty practitioners are divided into groups of five, the four men on duty at any given time taking all the calls. The scheme covers week-ends—that is, 1 p.m. on Saturday to 9 a.m. on Monday—and also bank holidays. The Post Office is co-operating by switching over incoming telephone calls to the practitioners on duty.

LONDON SATURDAY OCTOBER 18 1947

## THE AETIOLOGY AND PROPHYLAXIS OF PUERPERAL SEPSIS\*

BY

JOSEPH W. BIGGER, M.D., Sc.D., F.R.C.P., F.R.C.P.I.

*Professor of Bacteriology and Preventive Medicine, Trinity College, Dublin*

As this Congress is being held to celebrate the two-hundredth anniversary of the foundation of the Rotunda Hospital it is not, I hope, inappropriate to attempt to correlate the battles in the long war against puerperal sepsis with the history of the hospital. I propose to divide the two hundred years of the hospital's existence into four periods each of half a century.

The first half-century, 1745-95, presents a melancholy succession of epidemics of childbed fever alternating with brief interludes during which the prevalence of the disease was endemic rather than epidemic. In founding a lying-in hospital, Mosse was trying a more dangerous experiment than he realized. Childbed fever existed in the homes of rich and poor alike in the eighteenth century, but it was not then a very prevalent condition. When the attendants were aged wise women, with an amateur rather than a professional status and a strictly limited clientele, the danger of transfer of infection from one woman to another was slight and epidemics were unlikely to occur. Mosse's plan of herding in one building a number of parturient women and entrusting the supervision of their deliveries to professional midwives had inherent in it the seeds of disaster. So long as no case of childbed fever occurred all was well, but a single case had as its almost inevitable sequel an epidemic.

The rise of the man midwife was in itself responsible for an increase in the number of cases of puerperal sepsis. The man midwife undertook the care of a far larger number of labours than did the woman, and to the risk of transferring the seeds of sepsis from uterus to uterus he added the further risks of transferring by his hands to the birth canal of his patient these seeds derived from other fertile nurseries—wounds with their "laudable pus," droplets from the throats of scarlet fever patients, corpses in the anatomy room of the medical school. The wonder is not that puerperal sepsis was constantly present in the Rotunda, as it then was in every other lying-in hospital, but that these institutions did not acquire an even more evil reputation and that they and their staffs escaped from the fury of the mob, incensed at the slaughter of so many innocents.

In the next half-century (1795-1845) two remarkable Masters, Labatt (1814-21) and Collins (1828-33), stand out above the others. They sought, not entirely unsuccessfully, to combat the disease by such limited degree of isolation as was available, by scouring of furniture, by washing and stoving of bedding, by fumigation of wards, by applications

of chloride of lime, and by whitewashing. They anticipated Holmes and Semmelweis in suspecting that puerperal fever was infectious, that infection was conveyed from the woman suffering from puerperal sepsis to the healthy parturient woman, and that the transmitting agent was far too often the hands of the doctor.

The third half-century, 1845-95, started badly. Reactionaries such as Denham (1861-8) and Johnston (1868-75) opposed the new ideas of Labatt and Collins and of Holmes and Semmelweis, but slowly those ideas spread, and when in 1879 Pasteur dramatically demonstrated the cause of childbed fever as "chapelets en grain," the time was ripe and a new era was born. Pasteur inspired Lister, and the third half-century ended nobly in the Rotunda with Atthill (1875-82), Macan (1882-9), and Smyly (1889-96), under whom, within a period of less than twenty years, scepticism and opposition gave place to a whole-hearted acceptance of Listerism, and the antiseptic era reached its peak.

The fourth half-century (1895-1945) brings us almost up to to-day. In no previous half-century had similar discoveries been made in aetiology, therapeutics, and prophylaxis. So numerous were the advances that it is difficult even to catalogue them. At the beginning of this period bacteriologists had largely accepted the streptococcus as the cause of puerperal sepsis, but it was hard to keep one's faith when streptococci were so frequently present without sepsis. With Schottmüller's application of culture on blood agar to the differentiation of *Str. haemolyticus* from *Str. non-haemolyticus* a real advance was made. Now all was well: puerperal fever was due to *Str. haemolyticus*. But doubts again appeared. A haemolytic streptococcus could be cultivated from the lochia of a woman who was certainly not suffering from puerperal sepsis, who was not even morbid. Further subdivision of the haemolytic streptococci was urgently required. Fermentation of carbohydrates was used by many workers, including myself, but without either satisfaction or enlightenment. Then serological methods, for which credit must be accorded to Lancefield (1928, 1933) and Griffith (1926-8), were introduced, and almost at once the dark places were illuminated. We now group the haemolytic streptococci by Lancefield's method and recognize an organism of group A as the *Streptococcus pyogenes*, the main cause of puerperal sepsis. By Griffith's technique we subdivide *Str. pyogenes* into more than a score of types, and so, not rarely, it is possible to trace to its source the streptococcus responsible for a case of sepsis.

In therapeutics, vaccines and antisera had their day: but only a few enthusiasts had faith in them, and both are now

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discarded. In 1935 came Domagk's "prontosil," to be followed hot-foot by the polyonymous sulphonamides. In 1929 Fleming discovered and described most of the properties of penicillin, but it was only after ten years that the greatness of his discovery was realized. It required the vision and persuasiveness of Florey and a world war to make available the first, and still the greatest, of the antibiotics.

In the field of prevention progress was steady if not spectacular. The application of Lister's antiseptic methods to midwifery ended for all time the major epidemics of puerperal fever characteristic of the practice of the Rotunda, as of other lying-in hospitals, in the eighteenth and the early nineteenth century. The combination of antiseptics and asepsis prevents the transfer of infection from patient to patient by the hands or instruments of doctor or nurse. But sporadic cases still occur and, much more rarely, small epidemics. Once the infectivity of puerperal sepsis had been realized the transfer of the causative organism from the uterus of one woman to that of another could be stopped relatively easily. Comparatively little effort yielded a large return, but puerperal sepsis did not cease to exist.

The uterus is a hollow viscus in relatively free communication with the exterior at a situation on the surface of the body where bacteria of various types abound. After childbirth it contains in its interior blood clot, an excellent nutrient for bacteria, and this is in contact, at the placental site, with underlying tissue temporarily deprived of the protective covering of epithelium. The uterus itself and the surrounding parts have recently suffered various insults incidental to the process of childbirth. The fire is set: only a spark is required to start a conflagration. Others who follow me will deal with the nature of the conflagration and how it may be extinguished. My concern is with the spark which may kindle the fire, its nature and source, and how it may be kept at a safe distance.

The most important cause of puerperal sepsis to-day is *Str. pyogenes*. There is little doubt that the same organism was responsible for the epidemics of the eighteenth and nineteenth centuries, but the sources have changed. Then the main source was the uterus of the septic patient. Other sources were septic wounds, sore throats, erysipelas, and impetigo. Transmission was accomplished, all too easily, by the unwashed hands of the doctor. Now conditions are entirely different. There are far fewer cases of puerperal sepsis to act as sources of infection, the obstetrician's hands are much less often contaminated with *Str. pyogenes* from other infections, and the barriers of washing, antiseptic lotions, and rubber gloves are interposed to prevent the transfer of the organism to the genital passages of the woman at the time of childbirth. When a group of cases occurs in a ward at intervals of a few days there is a presumption that the infection has been transferred from one to the other—not usually, it should be said, owing to a lack of cleanliness of the obstetrician's hands but to some less obvious break in the essential barrier between patient and patient. The ideal method of avoiding case-to-case transfer of infection is to provide a separate room for each woman admitted. The next best is prompt isolation of any woman on the first suspicion of sepsis: morbidity demands isolation. But there is a period, possibly only of hours, before sepsis suggests its presence by morbidity, and during this period *Str. pyogenes* is multiplying in and being discharged from the affected uterus. We cannot make a diagnosis of sepsis early enough to avoid all risk of spread, so we employ additional defences. These are isolation, as complete as local conditions permit, and the making over to each woman admitted of a set of all essentials of toilet and

hygiene. The dangers of the communal bed-pan are lessened by disinfection: they are still further reduced if a bed-pan is reserved for each woman and if it is disinfected.

Limitation of vaginal examination, a strict ritual of hand and glove preparation, the wearing of gowns, and disinfection by steam of all instruments eliminate relatively easily the major risks of introducing streptococci into the birth canal.

At one time it seemed possible that puerperal sepsis would become extinct, but the curve showing its prevalence, which declined sharply as a result of the application of antiseptic and aseptic precautions to midwifery, failed to reach the zero line. There is a hard core of puerperal sepsis, and only by the greatest exertions can this hard core be reduced. An explanation of the sporadic case of puerperal sepsis which for a time appeared adequate was that the source of infection was endogenous—that is, that the *Str. pyogenes* was present in the vagina before the onset of labour and that from that situation it spread to the then highly vulnerable uterus after delivery. Some twenty-five years ago this seemed reasonably probable. Support for the theory was given by the finding of haemolytic streptococci in the flora of the vagina, both before and after labour, in from 3 to 6% of parturitions. But when our fumbling attempts to group haemolytic streptococci on the basis of fermentative capacities were replaced by surer serological methods and *Str. pyogenes* was accurately delimited, it was found that the haemolytic streptococci of the vagina were never, or practically never, of group A. The journey of that organism to the uterus is a longer one than from the adjacent vagina.

The proximity of the anus to the vulva suggested the possibility of infection of the uterus being derived from the faeces. This actually occurs, but not in the case of *Str. pyogenes*. This organism never gives rise to the carrier state in the intestine, and only very infrequently does it occur there as a pathogen.

### Throat Carriers

We now know that the main reservoir of *Str. pyogenes* is the human throat. There it flourishes as a pathogen, producing scarlet fever or simple sore throat, and, still more commonly, there it lurks as a saprophyte on a mucous membrane which appears slightly, if at all, abnormal. The rate of throat carriers of *Str. pyogenes* varies greatly with time, population, place, and season, but a conservative estimate is that some 5% of a group of people harbour *Str. pyogenes* in their throats. Having traced the chief organism of puerperal and, indeed, of all types of sepsis to the not obviously abnormal throat, little imagination is required to picture its transfer to the uterus. Every time we cough or sneeze, shout or speak loudly, we spray out from our mouths and noses thousands of small droplets of saliva and mucus. If the sprayer is a throat carrier of streptococci these organisms leave his body in enormous numbers in the droplets. Good manners demand that, when coughing or sneezing, the hand or handkerchief be held before the face, and so the hand is contaminated directly from the droplets or indirectly from the handkerchief or the pocket into which it is put. It may be further contaminated by contact with objects on which droplets have fallen.

The hands of the doctor are, as we have seen, usually adequately prevented from becoming the transmitting agent of the streptococcus; but there are other hands, and especially there are the hands of the woman herself. If she is a throat carrier of *Str. pyogenes* her hands may easily transfer the organism to her vulva: but even if she is not a carrier her hands may transfer the organism, picked up from the air, from bedding or clothing, or from the



ther source. The other hands to be considered are those of the nurse. When carrying out treatment involving contact with the genital tract they should be, and presumably be, just as carefully prepared as are those of the doctor; but the nurse has many duties—dressing and washing the patient, making her bed, handling her bed-pan, and adjusting the vulval pad—and some of these involve either direct contact with the vulval region or contact with something which later makes such direct contact.

The hand has been dealt with first because it is the main vector of streptococci on their journey from the mouth and nose to the uterus, but transfer may occur in other ways. Few doctors or nurses sneeze upon the vulvae of their patients, and so direct transfer by droplets from throat to genital tract is rare, but direct transfer from throat to throat does occur. A carrier, whether patient, doctor, nurse, or visitor, may introduce *Str. pyogenes* into a ward, where it may establish itself in the throats of several inmates, each of whom constitutes a fresh focus of infection. Sooner or later droplets fall to the ground, the bed, or other surfaces, where they dry and enrich the dust with their streptococci. *Str. pyogenes* is usually considered to be a rather delicate organism, but when dried in dust it can survive for a period to be measured in weeks rather than days.

#### Droplets and Dust

The dangers of droplets and dust can be and should be reduced by the wearing of adequate masks and by the application of dust-controlling oils to floors and bedding. Only exceptionally should it be necessary to resort to disinfection of the air in a ward by ultra-violet radiation or, more simply and economically, by disinfecting mists. Valuable as these measures are, they come into operation at too late a stage. They seek to limit the diffusion of *Str. pyogenes*, but our aim should be to exclude that organism completely from our wards.

Each person regularly visiting a ward in a maternity hospital should have a throat swab examined for *Str. pyogenes* every week. If gentian violet blood agar is used it is possible, within 24 hours, to isolate streptococci from a throat and to identify those which are haemolytic even when very few are present. All found harbouring these organisms should be put off duty for 24 hours while the haemolytic streptococci are being grouped. If they are of group A—that is, if they are *Str. pyogenes*—the off-duty period should continue until in three consecutive daily examinations the throat is found to be free from that organism. If the streptococcus does not belong to group A the carrier presents but a slight danger and may be returned to duty.

This control should be applied to all members of the staff, whether doctor, nurse, or maid, whose duty takes them into a ward used for women before, during, or after labour. I fully realize how unpopular this would be and how liable it might be to disorganize the usual routine of a hospital; but a carrier of *Str. pyogenes* is such a menace that, in my opinion, eradication of puerperal sepsis will not be possible without it. Since there is an almost universal tendency to regard oneself as indispensable, efforts may be made to obtain a falsely negative result by various subterfuges, which must be rigorously guarded against. The duration of the carrier period may be greatly reduced by local application of a sulphonamide or penicillin. I do not advocate these substances for the prevention of the development of the carrier state.

Casual visitors, who should be reduced to a minimum, present a smaller problem, but still a problem. They should wear masks and gowns and should not be allowed to approach the patient too closely. I scarcely dare to advo-

cate that, during the visit of the husband or mother of the patient, a glass screen should be interposed between her visitor and herself and that conversation should be conducted by microphone, but it would be a rash man who would say that such precautions will not ultimately be instituted.

What of the throat of the patient, which we have so far neglected? A *Str. pyogenes* of the same type has so often been found in the throat and septic uterus of a patient as to suggest that in such cases the uterus became infected from the throat. The alternatives that the throat was infected from the uterus or that both were infected from another person cannot, however, be overlooked.

*Str. pyogenes* in the throat of a woman at childbirth constitutes a danger to her own uterus and also to the uteri of other patients. That danger may be guarded against, in part, by bacteriological examination of throat swabs, but an obstetrical hospital is often an emergency hospital in that the patient is not always, or not even usually, admitted sufficiently long before labour to permit the bacteriologist to report whether she is a carrier of *Str. pyogenes* or not before delivery. The history of the Rotunda could furnish details of delivery occurring at every stage of the patient's journey from her home to the labour ward. The ideal arrangement is, as I have already stated, a separate room or cubicle for every patient. The second best is isolation, as complete as possible, from other patients of all new admissions until they have been found not to be carriers of *Str. pyogenes*. A patient found to be a throat carrier of *Str. pyogenes* should be isolated completely from all other patients and provided with her own nurses for as long as she is a carrier. Local treatment of her throat should be promptly instituted, and if she is still a carrier at the onset of labour her uterus should be safeguarded by systemic administration of penicillin.

The only other precaution to be considered is the general prophylactic use of chemotherapy. Sulphonamides have been used to some extent for this purpose, but the results have not been encouraging. Penicillin has not, so far as I am aware, been extensively reported upon as a prophylactic. I certainly would not advocate its routine use, but, if a case of puerperal sepsis should occur in a hospital, I believe that every woman admitted should receive systemic penicillin from the onset of labour until five days after delivery. I do not believe that the introduction of antiseptic substances into the vagina before or after delivery should be required for the prevention of puerperal sepsis due to *Str. pyogenes*. The advisability of such prophylactic methods as a guard against other organisms will be considered later.

Up to the present I have dealt with puerperal sepsis as if it were a specific disease like scarlet fever, due always to a haemolytic streptococcus of group A. I have done so because the epidemics of the past and the majority of cases of what I may call classical puerperal sepsis of to-day are due to this organism. But other bacteria must also be considered.

Let us deal first with those organisms so commonly found in the vagina ante partum as to constitute its normal bacterial flora. The most numerous of these are lactobacilli and anaerobic streptococci. It is probable that these came originally from the faeces, from which they may again be reintroduced from time to time, for they readily adapt themselves to the conditions present in the vagina. The lactobacilli may at once be exonerated. So far from being dangerous, by their powers of glycolysis leading to acid production they are highly beneficial commensals. The anaerobic streptococci are much less innocent and, indeed, present a special problem which will be considered later.

The richest bacterial flora of the body is found in the faeces, and the proximity of the anus to the vulva makes it obvious that the complete exclusion of faecal bacteria from the birth canal would be quite impossible. Coliform bacilli, so characteristic of the faeces, are but rarely found in the vagina ante partum. Their numbers increase somewhat post partum, but it seems clear that they are merely saprophytic in the lochia and are very rarely, if ever, the primary cause of puerperal sepsis, although by their presence they may have some enhancing effect on the virulence of other organisms.

Disease, and indeed disease of severe and often fatal type, may be produced by *Cl. welchii* and *Cl. tetani*. These organisms may be derived from the faeces, but, since their highly resistant spores have been found in cotton-wool and in sanitary pads prepared from it, an obvious alternative source of infection is available. Danger from this source must be guarded against by thoroughly efficient heat sterilization of cotton-wool used in connexion with midwifery. These clostridia have slight invasive power and present little danger provided there is no retention of lochia, no necrosis of tissue, and no extensive multiplication of other bacteria which might render conditions suitable for their development.

The faeces may be the source of many other bacteria sometimes to be found in the vagina ante partum and, in still larger numbers, post partum, but even in the post-partum uterus they have little if any pathogenic power—they are mere saprophytes.

It is curious that *Staphylococcus pyogenes*, such an important cause of sepsis elsewhere, is so rarely incriminated in puerperal sepsis. Cases of undoubted infection produced by it are recorded, but much less frequently than its ubiquity would suggest. Midwifery practice cannot ignore this organism, on account of its frequent association with sepsis of perineal lacerations and its marked tendency to cause thrombosis. Its reservoir is the nose, in which, as also on the skin and particularly the skin of the hands, the carrier condition is established. The wearing of adequate masks and of rubber gloves, and preparation of the hands, are probably adequate safeguards against it. *Staph. albus*, so slightly pathogenic as to be regarded as a saprophyte, may be found in the lochia but is not important.

Haemolytic streptococci, other than *Str. pyogenes*, which gave rise to so much confusion before the introduction of Lancefield's serological grouping, have quite often been isolated from the lochia of women who show no evidence of puerperal sepsis. Their pathogenic powers are much more feeble than those of group A streptococci, and in the uterus they usually behave as saprophytes. Occasionally, however, one or other gives rise to serious and even fatal sepsis. Streptococci of these groups show a marked tendency to spread from the uterus to the blood stream, causing fatal endocarditis. Streptococci of groups C and G, like those of group A, are unable to survive long in the vagina, and so in order to cause puerperal sepsis they must be introduced shortly before, during, or soon after delivery. The usual source of both is the human throat, for the organisms are harboured there in the carrier state or as causes of mild tonsillitis. Direct infection from the horse, in which group C organisms cause strangles, is improbable. Streptococci of groups B and D are occasionally found in the vagina, where they can apparently persist as saprophytes, and so have an easy route to the uterus after delivery. Direct infection of the uterus post partum by milk of cows suffering from bovine mastitis, which is caused by group B streptococci, is not a likely accident. Group D streptococci are commonly present in the faeces, from which methods of transfer to the uterus are obvious.

The measures suggested to reduce the dangers of infection by group A streptococci apply to exogenous infection by other haemolytic streptococci foreign to the vagina (C and G) and should prove adequate for the purpose.

### Endogenous Infection

We are now left with the difficult problem of endogenous infection of the post-partum uterus by organisms of the vagina and particularly by anaerobic streptococci and by aerobic streptococci of groups B and D. Again I wish to emphasize the frequency with which these organisms are found in the uteri of women whose puerperium causes their obstetricians not a moment's anxiety. They are not commonly the cause of puerperal sepsis, and in the uterus they usually behave as saprophytes. Only in a small proportion of cases in which they are present in the uterus do they give rise to morbidity, and in only a small proportion of such cases do they actually cause sepsis. Of the two, the anaerobic streptococci are of much greater importance. They are, in fact, second only to *Str. pyogenes* as causative organisms of puerperal sepsis. They are rarely present in the lochia in pure culture in cases of sepsis, but are usually accompanied by other organisms, such as *Staph. albus* or diphtheroid bacilli, which, alone, are devoid of pathogenic power. It may be that the combination of one or more saprophytes with anaerobic streptococci endows the latter with abnormal pathogenicity. While the streptococci are endogenous the other bacteria are exogenous, and thus all the precautions which are effective in excluding bacteria from the genital tract should be of value in reducing sepsis due to endogenous anaerobic streptococci.

Prophylaxis by the application of antiseptic substances to the vagina has been fairly extensively, but not very critically, tried. I am somewhat prejudiced against this method, but some American experiences seem to show that it is of value, and it certainly appears to be safe. If any such application is to be made it should, in my opinion, be made before the onset of labour rather than after. In place of mercurochrome, which has been used for the purpose, I would advise a combination of penicillin, a sulphonamide, and proflavine. The first two are suggested because some of the organisms against which protection is sought are sensitive to one and some to the other. Proflavine is added to deal with bacteria resistant to both. The combination is unlikely to damage tissue and so open fresh portals to infection, but there is a danger that by inhibiting the growth of lactobacilli it may deprive the birth canal of a valuable means of protection.

I do not wish it to be thought that I am a strong advocate of this procedure, and I suggest its use only because we have no other method of protection against endogenous infection. If it is to be used at all, it should be so used as to demonstrate beyond doubt whether it is of value or not. This requires a large series of treated cases with an equal number of strictly parallel controls so as to yield statistically significant figures.

I have attempted to lay before you the essentials of the bacteriology of puerperal sepsis, and I have ventured to make recommendations which might, I believe, reduce still further the present satisfactorily low level of the disease. I propose to conclude with a warning. The continuation and extension of the precautions which have been so successful will in time make puerperal sepsis such a rare condition that obstetricians even of considerable experience will never have seen a case and will tend to regard it as a disease as extinct as cholera. It will then be very hard to maintain, day by day, month by month, and year by year, all the elaborate, time-consuming, and irritating precautions which we now know to be essential and which have given

the victory, but which to the young obstetrician will appear but meaningless ritual. Then there will be a tendency, which it will be hard to resist, to relax some of the precautions, but so long as *Str. pyogenes* continues to exist the throats of the people such relaxation will inevitably be followed by the reappearance of puerperal sepsis, the story of which is reflected in the history of the Rotunda hospital.

## PENICILLIN AND THE TREATMENT OF INFECTED HANDS IN OUT-PATIENTS

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Penicillin is widely used in the treatment of the infected hand. It has been employed as a cream or powder for local application, and by direct injection into the theca in cases of suppurative tenosynovitis. In this review of cases treated at the Westminster Hospital it is our aim to assess the value of a method of administering systemic penicillin which can be used on out-patients. Only two of the patients treated with penicillin were admitted to hospital. This was from necessity rather than choice in the first instance, but later, when supplies of penicillin became available, out-patient treatment was deliberately adopted to save blocking ward-pressed bed space.

Eighty-five per cent. of all cases reviewed, and all cases receiving penicillin, were seen and treated by us throughout. In the remainder incision was done by casualty officers, but after-treatment was prescribed by us. This insured uniformity for the purpose of assessment. The cases are considered under two groups: Group I consisted of 168 cases treated without systemic penicillin, and Group II of 17 cases treated with systemic penicillin. Within each group the following types of lesion are differentiated: (1) paronychia and pulp-space infections; (2) tenosynovitis; (3) palmar-space infections.

It is not feasible to give penicillin at four-hourly intervals to out-patients, and it was therefore hoped that a therapeutically adequate serum level might be maintained by very large doses, given morning and evening by intramuscular injections of aqueous solutions or beeswax-oil suspensions. The aqueous solutions produce high serum penicillin levels of brief duration, whereas the wax-oil suspensions produce a lower but more prolonged serum level and were found clinically to be more efficacious. No untoward effects, such as urticarial reactions or marked pain, were noted.

### Diagnosis

(1) Pulp-space infections and paronychia were usually only too obvious, as the average duration of symptoms before the patient arrived at the surgery was six days.

(2) Tenosynovitis was diagnosed by the following criteria: swelling of the whole finger, which was held in a semi-flexed position; great tenderness on pressure over the tendon sheath; and severe pain on attempted passive extension.

(3) Palmar-space infection (middle and thenar spaces) was diagnosed by diffuse tenderness, convexity of the palm overlying the affected space, and gross dorsal oedema.

### Treatment

Palmar-space infections were drained by incising into the web, passing a Spencer Wells forceps into the space, and inserting a corrugated rubber drain deep into the space, to be left in place for three days. In the tenosynovitis cases incision of the tendon sheath was not needed. When the inflammation was secondary to superficial infection the latter was drained by through-and-through incisions, with administration of systemic penicillin in Group II cases. When secondary to puncture wounds, penicillin only was used, without incision. Pulp-space infections were treated by bilateral incision with through-and-through drainage. In most cases of paronychia the entire nail was removed, as attempts to save part of it resulted in slower healing with a distorted nail and nail-bed.

The dressing applied at operation was changed after three days, when any drain was removed; the wound was then dressed with 17½% sodium sulphate and left for four days. Subsequent dressings, if required, were done at intervals of a further five to seven days. Soaking in hydrogen peroxide to facilitate removal of hardened dressings was reduced to a minimum. Some wounds were dressed with gentian violet, soda sulphate and acriflavine, "tulle gras," or penicillin cream, but the impression was that the medication made little difference to the rate of healing. All septic hands were kept in a sling at least until the first dressing was done. Adequate analgesics were given on the first two to three days after incision, but, if incision had been adequate, little was needed after twenty-four hours. Most noticeable was the great relief of local pain on starting systemic penicillin. Patients were instructed to keep the dressings dry and undisturbed. This ideal could not be attained by all of them—for example, mothers of young children. Such patients were instructed to remove the wet sodden dressing and replace it with a clean piece of dry lint or gauze with no ointment of any kind. Otherwise all dressings were done separately from the rest of the surgery cases, with sterile dressings by a "clean" nurse. No patients were discharged until they were able to do full work with either no dressings at all or a dressing of such size that it would not interfere with their manual skill or render them liable to accident due to clumsiness because of the bandage—an important consideration, as many of these patients were skilled workers.

### Results

An analysis of the 168 cases treated without penicillin is given in Table I. The period of unfitness for work is

TABLE I.—Details of 168 Cases Treated Without Penicillin (Group I)

Lesion	No. of Cases	Av. Duration of Symptoms before First Attendance (Days)	Day of Incision after Treatment Started				Average Time Unfit for Work (Days)
			Same Day	1st	2nd	3rd	
Paronychia and pulp-space infections ..	135	6.1	91 (67.4%)	23 (17%)	10 (7.4%)	11 (8.2%)	21.0
Tenosynovitis .. ..	16	5.5	9 (56%)	5 (31%)	2 (13%)	—	17.5
Palmar-space infections .. ..	17	4.6	9 (53%)	4 (24%)	3 (17%)	1 (6%)	16.5

Average days unfit for work, 20.3.

calculated from the first hospital attendance till discharge. The shorter convalescence of the tenosynovitis and the palmar-space infection cases is explained by the fact that, though the lesions were more serious, it was possible to send a man back to work with a strip of "clastoplast" over his finger or palm when it would have been impossible with a dressing on his finger tip.

In the 17 cases in Group II two forms of penicillin were used—the ordinary water-soluble penicillin and a suspension of penicillin in beeswax and oil. Patients in bed were given intramuscular injections of 30,000 units of the former four-hourly. Out-patients were given massive doses, up to 300,000 units, of water-soluble penicillin morning and evening, or 100,000 to 150,000 units in beeswax and oil at similar intervals. Details are set out in Table II. These cases

TABLE II.—Details of 17 Cases Treated With Penicillin (Group II)

Case No.	Lesion	Days of Symptoms before First Attendance	Day of Incision after Treatment Started	Days Unfit for Duty	Treatment with Penicillin (Units)
1.	Pulp infection or paronychia	5	Same day	10	7 × 300,000 W.S.
2	"	5	"	8	6 × 125,000 B.O.
3	"	6	"	7	8 × 150,000 B.O.
4	"	4	1st	4	4 × 300,000 W.S.
5	"	4	Same day	9	4 × 300,000 W.S.
6	"	4	"	8	300,000 W.S.; 3 × 150,000 B.O.
7	Tenosynovitis	6	"	12	6 × 150,000 B.O.
8	"	2	Not incised	3	1 × 500,000 B.O.
9	"	3	"	8	6 × 125,000 B.O.
10	"	3	Same day	10	8 × 300,000 W.S.
11	"	5	"	8	4 × 300,000 W.S.
12	"	1	Not incised	8	4 × 100,000 B.O.
13	"	14	Same day	22	4 × 300,000 W.S. (b.d.) (bed 5 days)
14	Palmar-space infection	4	1st	12	6 × 200,000 W.S.
15	"	2	Not incised	8	4 × 125,000 B.O.
16	"	3	2nd	41	860,000 (30,000 4-hourly) (bed 5 days)
17	"	5	Same day	8	4 × 150,000 B.O.

W.S. = water-soluble penicillin. B.O. = penicillin in beeswax and oil.

received treatment with penicillin because they were clinically more serious than those in Table I. In spite of this the duration of treatment was considerably shorter.

The three cases below are described, as they represent the two extremes in the duration of incapacity. Case 8 was able to return to duty only two days after receiving an unintentionally large dose of penicillin, while the other two patients were away from their work for 22 and 41 days respectively.

**Case 8.**—This was a nurse who two days previously had run a needle through her left index finger. When seen she had every sign of a severe suppurative tenosynovitis of the finger. By an error she received a dose of 500,000 units in beeswax at one injection—five times greater than intended. Twenty-four hours later every sign and symptom had completely disappeared, and two days later she returned to full duty.

**Case 13.**—This was the worst case of tenosynovitis seen in nine months. The patient was a soldier who had complained of symptoms suggestive of a pulp-space infection for a fortnight but had nevertheless been on full duty, including work as a porter at Billingsgate during a strike. He had been carrying crates of fish the night before he was sent to hospital with all the signs of suppurative tenosynovitis. He was ambulant and fit for discharge to light duty after five days in bed, but it was thought wiser to keep him in "protective custody" for a further seventeen days.

**Case 16.**—This patient had a severe palmar-space infection which was almost healed on discharge from hospital to the out-patients' department after five days. Contrary to advice, while still under treatment he returned to his work as a cook and dishwasher with the result that his wound became sodden and re-infected and his convalescence was prolonged to 41 days.

If Cases 13 and 16 are excluded the remaining fifteen cases give an average duration of days unfit for work as follows:

Type of Lesion	No. of Cases	Average Loss (Days)
Paronychia .. .. .	7	9.9
Tenosynovitis .. .. .	5	7.4
Palmar-space infection ..	3	9.3
Total .. .. .	15	8.9

#### Notes concerning Serum Penicillin Levels obtainable with Wax-Oil Suspensions

Serial serum penicillin levels were estimated in one case (No. 13) following a single intramuscular injection of 150,000 units of penicillin in beeswax and oil; these are shown in the Chart. Estimations made at random on other cases conformed with this curve. In one case in which an estimation was made twelve hours after a single injection of 150,000 units the neat serum was found to have no inhibitory power. In a further case (No. 8) a single intramuscular dose of 500,000 units was given: no inhibition was detectable nineteen hours after injection.

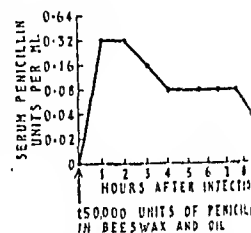


Chart showing serum penicillin levels following a single intramuscular dose of 150,000 units of penicillin in beeswax and oil.

It is clear from these few observations that a practically continuous level of penicillin, averaging only 0.08 unit per ml., can be maintained throughout the twenty-four hours by giving late evening and early morning doses of 150,000 units of penicillin in wax-oil suspension. It is to be noted, however, that the peak level obtainable with such a scheme is only 0.32 unit per ml. From the gratifying results achieved in the series of cases here reported it would appear that the need for higher peak levels has not arisen. But it is most necessary to remember that organisms only slightly more resistant than the Oxford staphylococcus would be quite unaffected by the levels obtained with this mode of treatment. Moreover, such levels do not provide a sufficient "head" for the penetration of necrotic tissue. For these reasons the use of wax-oil preparations should be abandoned if no response is apparent at the end of forty-eight hours. It should be noted that, clinically, nearly as good results were obtained with 300,000 units of penicillin in watery solution twice a day. Serum penicillin estimations were not made on cases so treated.

#### Commentary

Since the disability from a septic finger treated without penicillin lasts nearly as long as that ensuing in the average case of appendicitis any form of treatment that will appreciably reduce this time is justified. In the above series the period of disability has been reduced by 56%—from 20.1 days to 8.9 days. Though this series be small, it justifies in our opinion the use of penicillin in all severe or potentially severe cases of septic hands and in all cases needing incision. The dosage will vary with the clinical picture, but the minimum dosage should be 125,000 units of penicillin in oil or 300,000 units of water-soluble penicillin morning and evening for at least forty-eight hours. At the time these observations were begun it was impossible to carry out this as a routine owing to the shortage of penicillin in oil and the expense of massive doses of water-soluble penicillin.

As it is possible to treat these cases in the out-patients' department there is a considerable saving in bed space.

well as in man-hours. Even better results would be obtainable if patients could be seen in the earlier stages of infection. Of the cases detailed in Table I, 65% needed immediate incision; in the three cases in Table II in which penicillin treatment was started less than three days after the onset of symptoms incision was unnecessary. This once again emphasizes the need for early diagnosis of the various infections of the hands and for appreciation of their serious nature.

### Summary

A review is presented of 185 cases of infected hands seen in the surgery of Westminster Hospital—168 treated without, and 17 with, penicillin.

Cases treated without penicillin included 135 of paronychia and pulp-space infection, with an average loss of 21 days' duty; 16 cases of tenosynovitis, with an average loss of 17.5 days; and 17 cases of palmar-space infections, with an average loss of 16.5 days. The average loss of duty for these 168 cases was 20.3 days.

The penicillin-treated series comprised 7 cases of paronychia and pulp-space infection, with an average loss of 9.9 days' duty; 5 cases of tenosynovitis, with an average loss of 9.9 days (excluding Case 13, 7.4 days); and 4 cases of palmar-space infection, with an average loss of 17 days (excluding Case 16, 9.3 days). The average loss of duty in these 17 cases was 10.9 days. If the two unusual cases, Nos. 13 and 16, are excluded, the final average is reduced to 8.9 days—a saving of 56% compared with the non-penicillin series.

On the basis of these results it is suggested that the administration of penicillin in all severe infections of the hand, both in the early stages and after any necessary surgical intervention, should be adopted as a routine method of treatment.

In practice a dosage of 125,000 units in oil or 300,000 units in aqueous solution twice daily has been found adequate.

We are indebted to Mr. G. T. Mullaly, Senior Surgeon, Westminster Hospital, whose enthusiasm and interest made this experiment possible; to Prof. R. J. V. Pulvertaft, who made penicillin in beeswax-oil available at a time when supplies were limited; and to the nursing staff of the surgery for their co-operation in carrying out treatment.

One of us (C. M. F.) is grateful to the Medical Director-General, Royal Navy, for permission to publish.

The President of the Medical Defence Union, Mr. St. J. D. Buxton, speaking at the Annual Meeting on Sept. 16, said that during the preparation by the General Medical Council of a Bill to amend the Medical Acts, representatives of the Medical Defence Union (together with those of the sister societies) had been received by the President of the G.M.C. and a subcommittee. Many of the recommendations made by the Union had been well received, but there was not agreement on all matters. In view of a clause in the Bill allowing appeal to a court from a decision by the G.M.C., the position of any member who had been defended by the Union was somewhat anomalous. In order that he should remain a member during the time allowed for decision as to whether an appeal should be lodged and during the hearing of such an appeal, the Articles of Association would be amended. Speaking of the National Health Service Act, he said that legal representation would be permitted on specified occasions, when practitioners were summoned regarding professional procedure and conduct. The Council periodically had to consider whether the Union could defend members against whom proceedings were being taken by patients in a matter not directly one of professional principle. Although the Council might wish to assist the member, the Union's Memorandum would not permit of the risk being covered by the Union. Hence it was recommended that members should take out a policy with a reputable insurance company to cover injury to patients, not connected with professional affairs, when on the practitioner's premises. Those who read the medico-legal matters in the medical and lay press would be aware of the importance of an action concerning assistants' agreements. He advised any members employing or seeking to employ an assistant, and all assistants who were members of the Union, to seek the Union's advice regarding the wording of the agreement, as the Council had obtained leading counsel's opinion and the Secretary was in a position to submit a suitable clause. With regard to swabs, it was noticeable that the retention of swabs in the pharynx after nose and throat operations had recently been more frequent than in the abdomen.

## RELATION OF ABACTERIAL PYURIA TO REITER'S SYNDROME

BY

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Abacterial pyuria has been discussed in several recent papers. Its general features are now well recognized, but its aetiology remains obscure. Probably the most commonly held theory is that it is due to a virus infection.

That Reiter's syndrome might be associated with a sterile cystitis has been known from the first. Later, Colby (1944) described three cases with renal symptoms. His second case is of particular interest, since it demonstrates the development and final resolution of a hydronephrosis. This has often been noticed as a renal complication in abacterial pyuria. In addition one kidney was removed because it was thought to be tuberculous. Section of this kidney showed a thin parenchyma with a dilated pelvis and calices and numerous scattered haemorrhages, but no evidence of tuberculosis. Unfortunately a report of the microscopical appearance is not given, but so far as it goes the condition seems to be similar to that described by Donovan (Moore, 1943) in a similar case later proved to be abacterial pyuria. Cystoscopy in Colby's case showed a diffuse reddening of the bladder. No specific treatment was given and the condition cleared up, but there was a relapse four years later. Prostatitis was present in two of Colby's cases, and an abscess formed and discharged in one. Hollander *et al.* (1945) noted a residual prostatitis in four of his cases.

Joint effusions have been reported in several cases of abacterial pyuria lately. If the cases reported below had come under observation at a time when the urethritis and cystitis were present but before the arthritis developed they would undoubtedly have been classified as abacterial pyuria, not as Reiter's syndrome. It would appear that there is nothing to distinguish the sterile urethritis, cystitis, prostatitis, and pyelitis found in Reiter's syndrome from abacterial pyuria. It has repeatedly been stressed that all cases of abacterial pyuria respond to N.A.B. (Baines, 1947; Moore, 1943; Vassallo, 1946). I have found the same response, so far as the urinary symptoms are concerned, in those cases of Reiter's syndrome that I have treated with N.A.B. The joint lesions did not appear to be greatly affected, though they all cleared up more quickly than might have been expected, and no new lesions were seen after the completion of the N.A.B. treatment. No relapses have been seen up to the time they were lost sight of (six to nine months). In so variable a disease this observation is not of much value. It should be noted that Reiter found arsenic, in the preparation used by him, ineffective, as also have some other workers. The failure of the joints to respond was not unexpected, and finds a parallel in the effect of arsenic on the genital tract lesions of abacterial pyuria.

I have suggested elsewhere (Baines, 1947) that abacterial pyuria is a coital, if not a venereal, disease. Vassallo (1946) came to the same conclusion. He assumed that the urethritis and cystitis were parts of an ascending infection. I have gone further and suggested that the whole urinary and genital tract may be infected by an organism gaining entrance through the urethra. It seems possible that the other symptoms seen in Reiter's syndrome may be a further extension of the same process. In the investigation into abacterial pyuria mentioned above it was thought that there was a characteristic cystoscopic picture in this condition. Two of the cases reported below underwent cystoscopic



examination in the acute stage and the findings were exactly similar to those seen in abacterial pyuria.

Lever and Crawford (1944) pointed out that the whole triad of Reiter's syndrome is not always present. This may be due to the urethritis or conjunctivitis not being severe enough to attract the patient's attention. Careful questioning will sometimes elicit a positive history that is not obtained by casual inquiry. However, at the present time many cases of large-joint arthritis of febrile non-rheumatic type are being seen in hospital and no cause found for them. So common were these in one military hospital that a special investigation was set on foot, the results of which are to be published elsewhere (G. Hearn and C. Tinker—personal communication). It is possible that some of these really belong to the same group.

I have not had the opportunity of examining large numbers of women, but the condition appears to be unknown in them. Hollander stresses the fact that although large groups of women were living under the same Service conditions as the men, he did not see a single female case. No undoubted case is reported in the literature. Dienes and Smith's (1942) series of women investigated for L organisms contained some with genito-urinary infections of a non-specific type associated with arthritis. This heavy preponderance of men is also seen in abacterial pyuria. This is a matter of some importance. If the view of the coital nature of the infection in both these diseases is upheld the organism should be found in both male and female tracts. It is possible that it is a normal inhabitant or common infector of the female, who is relatively immune to it. Urethritis in the female commonly goes unnoticed. Further investigation of the apparently minor lesions of the female genital and urinary tract would be interesting, though it is unlikely to progress far until a specific organism can be isolated. Women with arthritis should probably have a more detailed search made for associated lesions.

#### Aetiology of Reiter's Syndrome

Reiter himself attributed the condition to *Spirochaeta forans*. This has been a persistent suggestion, but there has never been any further evidence in favour of it.

More recently it has been suggested that it is due to a virus-like organism. This is probably based on Collier's (1938) work. He found a spontaneous transmissible arthritis in *Rattus norvegicus*, and was able to isolate inclusion bodies from them. He was also able to produce a similar disease in rats by injecting fluid from the joints or blood from a case of human acute rheumatism. This work was confirmed by Beeuwkes and Collier (1942), who gave warning that the results should be regarded with caution until similar inclusion bodies could be demonstrated in humans without transmission through rats, since spontaneous virus disease is very common in these animals. Findlay and co-workers (1939) confirmed these results and were able to show that the organisms resembled the virus of pleuropneumonia. Preston (1942) agreed with this, and incidentally pointed out that the reaction was a pyogenic one resembling human pyogenic arthritis rather than rheumatoid arthritis. Abscesses were sometimes found throughout the body of experimental animals, especially at the site of needling for injection purposes. This is of special interest, since one of the objections raised to a virus aetiology for Reiter's syndrome and abacterial pyuria is the fact that they are essentially purulent diseases; whereas virus diseases are not commonly so. Dienes (1940) and Dienes and Smith (1942) isolated pleuropneumonia-like organisms (L organisms) from the cervical, vaginal, and urethral secretions of women, and from the urethra and prostatic secretions of men. Some of these women had

gonorrhoea, non-specific infections, or arthritis, but some appeared to be normal. All the men had symptoms of prostatitis. Beveridge (1943) found L organisms in 10 out of 24 cases of non-specific urethritis. Klieneberger-Nobel (1945) found L organisms in 40% of patients under treatment for venereal diseases, 33% of patients attending with non-venereal gynaecological conditions, and in 14% of normal ante-partum women. Salaman and others (1946) found L organisms in 6% of normal women and 14% of normal men. The incidence was no higher in men with non-specific urethritis, but was 44% in women with non-specific cervicitis, possibly due to the greater difficulty in excluding gonorrhoea in women. If there was associated gonorrhoea (or *Trichomonas* infection) the incidence rose to 34% in men and 60% in women. If both gonorrhoea and *Trichomonas* were present it was 100%.

This fits in very well with the findings of Dienes and Smith (1942) quoted above, and of Coutts (1946). Denfield's (1946) observations in Nigeria may be of some interest in this connexion. He regards Reiter's syndrome as an allergic reaction to repeated attacks of gonorrhoea. It seems more probable that there is some sort of co-mensalism and that the L organisms (if indeed they have anything to do with the disease) grow more freely in the presence of other organisms.

It is perhaps permissible to speculate somewhat at this point. In my paper on abacterial pyuria I came to the conclusion that it was almost certainly acquired by coitus though not necessarily by extramarital infection. This was based on the almost constant history of recent intercourse, both marital and otherwise, in a series of cases occurring in an army stationed abroad. Urethritis was found in almost every case, though it varied from frankly gonococcal, through post-gonococcal and non-specific ones, to a mild mucoid discharge. In some cases there was a shred of evidence that there had ever been any extramarital intercourse, and the urethritis developed after home leave. One was driven to the conclusion that infection might be due to a normal inhabitant of the vagina. These cases were by no means common compared with those that were frankly venereal. This parallels the statistics of affairs found by Salaman (1946) and by Klieneberger-Nobel (1945), with L organisms present in about 10% of normal women and about 60% of those with gonorrhoea. Kristjansen's (1930) case is of some interest in this connexion. His patient developed a non-specific urethritis and arthritis a week after intercourse with a girl known to have a vaginal discharge, which was repeatedly found to be negative for gonorrhoea. Another man subsequently developed urethritis without arthritis following intercourse with her. There is thus a recurrent suggestion that there is some vague connexion with gonorrhoea; but that cases occur without it is not to be doubted. In this the clinical and pathological findings agree. Salaman has made an alternative suggestion that L organisms are stages in the life cycle of the gonococcus.

In view of the suggested mode of infection another organism which must be considered is *Trichomonas vaginalis*. This was strongly pressed as a likely cause of abacterial pyuria by Lydon (1945), but other workers have failed to find it in this condition, nor are the symptoms the usual ones of known *Trichomonas* infection in the male. Incidentally this organism does not usually respond to N.A.B. It is more probable that *Trichomonas*, when present, is a co-infectant. Its relation to L organisms is mentioned above.

One other organism has been mentioned. Coutts (1946) attributes Reiter's syndrome to the virus of lymphogranuloma venereum, and states that he found positive

rei tests in the condition. In the majority of his cases there was an associated gonococcal urethritis. As Coutts (1943) points out, double infections are not uncommon in venereology, and it is possible that yet another organism was acquired at the same time as his two other common infections. He also found a similar condition in women (Coutts, 1944), and in the so-called Behcet's syndrome. Frei tests are not infrequently reported as positive in Reiter's syndrome. This may be due to the fact that it is probably not entirely specific for lymphogranuloma. Some of the viruses of atypical pneumonia, and possibly psittacosis, appear to have antigenic affinity with that of lymphogranuloma (Sargent, 1945).

### Case I

The patient, a male aged 40, five years previously developed non-gonococcal urethritis one month after exposure. This responded to sulphonamides. Shortly afterwards he had a dry pleurisy which lasted only a fortnight. He remained well for two years, until he again developed pleurisy. This cleared in six weeks, but twice relapsed at intervals of a month. Full investigation revealed no cause for this. Shortly afterwards he had a recurrence of his urethritis, and at the same time developed a painful arthritis of his left knee. Tuberculosis was suspected. X-ray examination revealed an area of trans lucency at the upper end of the tibia which was not thought to be responsible, and the nature of which was not known. Lymph-gland biopsy was carried out and showed only "chronic inflammatory change." Guinea-pig inoculation with gland extract was negative. He also had a mild conjunctivitis at this time. Both this and the urethritis cleared up and the knee settled completely in about three months.

He had no further trouble until two weeks before his present admission, when his discharge recurred. Ten days later he developed a bilateral conjunctivitis and arthritis of the left shoulder and ankle and right elbow. Most of the inflammation was periarticular. There was some frequency of micturition and occasional "stammering" but no pain.

**Investigations.**—Urethral discharge and prostatic bead: pus + + + +; no gonococci; Gram-positive cocci; culture of *Staphylococcus albus*. Midstream urine: normal; dark-ground, no spirochaetes. Swab from eye: diphtheroids. Blood count: normal. E.S.R.: 29 mm. in 1 hour. Serum agglutinations for dysentery: negative. X-ray examination of joints revealed nothing abnormal. Cystoscopy: the bladder contained a large amount of pus which, in the absence of any sign of inflammation and a clear efflux from both ureters, must have come from the posterior urethra, which was markedly inflamed.

Once again the condition settled down without specific treatment, and at the end of a month he was nearly normal.

**Comment.**—This appears to be a classical case of Reiter's syndrome following on a non-specific urethritis. There have been three relapses in five years, with complete recovery on each occasion. The association of pleurisy may be of interest. It has not previously been reported as part of the syndrome, and may in fact have nothing to do with it. I have seen one other case in which a severe fibrinous pleurisy with marked x-ray changes was associated with a very acute abacterial pyuria. Further observations are required.

### Case II

A man aged 25, with a healthy history; no dysentery. Six weeks before admission he developed a watery discharge after several extramarital exposures. This was non-gonococcal (smears and culture), and cleared up with sulphonamides. Two weeks later he began to have haematuria, dysuria, and frequency (D/N=30/20). A fortnight before admission he developed bilateral conjunctivitis, and four days later his left ankle became swollen. During the following week the other ankle and both knees were involved.

On admission he had a mild conjunctivitis, and a peri- and intra-articular arthritis of the joints mentioned. Rectal examination showed a tender boggy prostate. Urethral smears were

repeatedly negative for gonococci, but contained a lot of organisms and grew staphylococci and *Ps. pyocyanea* on culture. Urine: pus + + + +; culture sterile. Cystoscopy: fluffy oedematous cystitis with multiple discrete ulcers closely resembling those seen in abacterial pyuria. The gonococcal flocculation test and Wassermann reaction were negative, as was the Frei test. Stools and agglutinations were negative for dysentery. The blood count was normal, and the E.S.R. was 18 mm. in 1 hour.

He was treated with penicillin, 1,000,000 units, and sulphathiazole, 30 g., without effect. He was then given N.A.B., 0.3 g., three doses at four-day intervals. Improvement in the urinary symptoms was rapid, and he was normal by the tenth day. There was a slight flare-up of the joints after the second injection, and at this time the E.S.R. was 30 mm. in 1 hour. From this time improvement was rapid and he was able to get up in a fortnight, being discharged a few days later. Cystoscopy sixteen days after N.A.B. was started showed a dramatic change in the bladder, which was now normal apart from slight congestion of the vessels.

**Comment.**—The urinary picture is that of abacterial pyuria, and is associated with conjunctivitis and arthritis. The joints were responding to rest, but the urinary lesions were untouched till N.A.B. was given, when the expected dramatic response was found. Thereafter the joints rapidly settled. It is not possible to say if the N.A.B. had any effect on the joints since they vary so much spontaneously. The flora of the urethra was not regarded as being of much importance in view of the sterile urine and characteristic cystoscopic findings.

### Case III

Two months previously the patient, a man aged 22, had been treated with penicillin for acute gonorrhoea. The urethritis never cleared and he began to have haematuria, dysuria, and frequency of micturition. He was given a course of sulphathiazole, which stopped his discharge, but this recurred a week before admission. Four days later his shoulder swelled and became painful. Two days after this the left knee was also involved.

On admission he had an irregular temperature of 100°–103° F. (37.8°–39.4° C.). There was a mixed intra- and extra-articular arthritis of the shoulder and knee. The leucocytes numbered 17,000; E.S.R. 30 mm. in 1 hour. Urine: pus + + + +; culture sterile. Repeated urethral smears were negative for gonococci. Mild conjunctivitis appeared on the following day; this lasted for four days, but recurred three weeks later and again disappeared. During the succeeding days various other joints were involved. The pain and swelling flitted from one to the other and recurred.

Cystoscopy showed severe patchy cystitis—parts of the apex and lateral walls being clear—maximal round the ureteric orifices; multiple plum-coloured small ulcers; the general appearance being one of pink fluffiness characteristic of abacterial pyuria. In view of this he was treated with N.A.B. in the usual way. The urinary symptoms cleared up within a week.

The E.S.R. rose to 95 mm. in 1 hour on the eighteenth day and thereafter fell. His joints slowly recovered, and he was able to get up at the end of two months, being discharged a month later.

During the course of his illness he had three attacks of nose-bleeding. It is possible that these were due to involvement of the nasal mucosa, but no ulceration could be seen in the nares.

**Comment.**—This case was actually the first one seen. The patient was examined at a time when abacterial pyuria was being investigated, and it was clear that so far as his urinary lesion was concerned there was no difference from the other cases we were seeing. (The original presence of gonorrhoea we regard as of no importance, since it is a not uncommon co-infectant in cases of abacterial pyuria. The reasons for thinking that this is so are given in full in the paper (Baines, 1947) on this subject.) This is why we started treating these cases with N.A.B. in spite of the

bad reports from the earlier workers. We found that the urinary lesions clear up in Reiter's syndrome, just as they do in abacterial pyuria. It is difficult to assess the effect on the joints, since these are so variable in any case, but we are inclined to think that, at any rate, no further involvement occurs after the use of N.A.B. An adequate opinion cannot be given until much further trial has been made. One wonders whether the joints may not be an allergic reaction to the primary urethral infection. The effect of N.A.B. on the urethral lesion is in any case obscure (in contrast to the effect on the bladder).

#### Case IV

A man aged 43 had been treated with penicillin for "urethritis" six weeks previously. Since the dose given was not the standard dose for gonorrhoea it is probable that a firm diagnosis was not made. The urethritis cleared up but relapsed a few weeks later, and at this time he had a mild conjunctivitis which lasted about a week. Shortly after this he began to have painful and frequent micturition. Within a few days he developed an arthritis of his left knee. During the next ten days various other joints became involved, including the right knee, ankles, big toe, shoulder, elbow, and spine.

On admission he was febrile—100°–101° F. (37.8°–38.3° C.) and in great pain. All the accessible joints had the same appearance, being hot, tender, and with intra- and extra-articular swelling. Urine: pus +++; culture sterile. Repeated urethral smears and prostatic beads were negative for gonorrhoea. The gonococcal flocculation test and Wassermann reaction were negative.

In view of the possibility of gonorrhoea, even in the absence of any positive findings (but after primary penicillin), he was given 1,000,000 units of penicillin and 30 g. of sulphathiazole concurrently. This had not the slightest effect. His urethritis and haematuria got worse. The joints varied from day to day. He then had a course of N.A.B. The urinary lesions cleared up in a few days and did not relapse. The joints continued to vary but improved slowly from this time, and he was able to get up in six weeks. When discharged to light duty a month later there was still some residual stiffness, and a little thickening round the ankles. A skiagram of the big toe showed a destructive arthritis of the metatarso-phalangeal joint; the other joints were normal.

*Comment.*—This case is somewhat similar to the previous one. It is obviously not absolutely possible to rule out gonorrhoea, but we do not regard this as essential. The presence of abacterial lesions responding to N.A.B. makes it pretty certain that even if gonorrhoea was originally present it was a dual infection. It certainly illustrates the difficulties of diagnosis. However, the remarkable recovery of these cases suggests that the condition is not gonorrhoeal in origin.

#### Case V

This patient, a man aged 26, had had a non-gonococcal urethritis and epididymitis three months before admission. Two weeks before admission he had a sore throat, and 12 days later he developed a mixed peri- and intra-articular arthritis of both knees and one ankle. There was a mild irregular fever. The urine was normal, and prostatic bead, W.R., and G.F.T. were all negative. E.S.R., 36 mm. in 1 hour. With rest in bed there was some improvement, but a week later he had an acute flare-up with pyrexia to 101° F. (38.3° C.). The leucocytes numbered 8,900. E.S.R., 80 mm. The joints continued to vary, the arthritis shifting from one to another and also involving the shoulder. The E.S.R. slowly sank. Since resolution seemed to be very slow he was given a course of N.A.B. After this the temperature remained steady, and the E.S.R. fell to 8 mm. Convalescence was uninterrupted.

*Comment.*—This case is probably not one of Reiter's syndrome. It is included to illustrate the difficulty in knowing what should be classed under this heading, and as an illustrative case of a type now common. The arthritic

lesions were typical enough of the variety seen in Reiter's syndrome, and it followed a non-specific urethral infection. Conjunctivitis was not seen, but this is often absent. N.A.B. was given to discover if it could be used in any way as a therapeutic test; but it was impossible to say what effect, if any, it had in this case. Certainly the condition settled rapidly after it had been given, but it was already beginning to do so before treatment was started. Until some specific test is evolved or an organism found, this difficulty will continue. All that one can hope is that in queer cases of arthritis the diagnosis will be considered and adequate investigations be made.

#### Summary

Reiter's syndrome is a convenient diagnosis for cases of arthritis associated with lesions of the mucosal surfaces. Whether it is a single and real entity will not be proved till a causative organism can be identified and Koch's postulates fulfilled.

There is enough evidence to show that it is neither gonococcal nor dysenteric in origin. The reasons for regarding it as being due to a virus are attractive, but at the moment there is little real evidence on this point.

I have tried to show that there is some reason for believing that the primary lesion is probably urethral. The importance of this has not been adequately stressed in the past. There is no apparent difference between the genito-urinary lesions of Reiter's syndrome and those of abacterial pyuria. It has been suggested that the latter is sometimes associated with other lesions of the genital tract, and this may be but another facet of a widely invasive disease.

Treatment is most unsatisfactory. It is exceedingly difficult to assess. The only thing which seems certain is that the urinary lesions when present in the florid state clear up with N.A.B. just as they do in abacterial pyuria. How far this affects the joints is open to doubt, and we must await the passage of time and a careful follow-up of many cases. It has been condemned in the past.

It is perhaps worth calling attention to the not uncommon cases which resemble Reiter's in one or more respects but can hardly be included with certainty. Many of these are associated with non-specific lesions of the genito-urinary tract. Too frequently it has been assumed that these are all gonococcal. This is probably not true, and they should repay a more careful study. Certainly the urethra and prostate must be searched in every doubtful case of arthritis. Greater knowledge will surely follow better investigation.

I am greatly indebted to Prof. A. P. Thompson for permission to use Cases I and II, which were under his care; also to his residents, Drs. Hayward and Fisher, who undertook most of the tests and investigations in these two cases.

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# PHOTOSENSITIVITY TO SUNLIGHT FROM USE OF PROPHYLACTIC SULPHONAMIDES

## ITS RELATION TO VACCINATION REACTIONS

BY

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On an R.A.F. station during April and May an outbreak of streptococcal tonsillitis occurred, 65 cases being admitted to the isolation block in a period of 61 days. In the same period 7 cases of rheumatic fever developed, apparently as a sequel to a preceding throat infection. In an attempt to control the epidemic it was decided to administer prophylactic sulphanilamide tablets to a body of men exposed to the infection and to compare the incidence of infection in those receiving the drug with the incidence in those untreated.

The drug appeared to control the epidemic, for in the period of prophylactic therapy the cases occurring in comparable numbers of treated and untreated personnel were reduced to one-third in treated cases, and remained at eight-ninths of the previous admissions in those unprotected. The treatment, however, produced a high incidence of toxic effects, shown by transient photosensitivity rashes occurring only in personnel who had recently been vaccinated and coinciding with the development of the pustular stage of the vaccination lesion.

### Clinical Observations

The personnel studied comprised a training wing of a Royal Air Force unit. They received prophylactic sulphanilamide tablets in a dosage of 2 g. daily; in all 470 men were treated. While under training routine vaccination was performed, T.A.B. inoculation being no longer undertaken as a routine. The majority of the men received the tablets for 10 days (total 20 g.), when because of the high incidence of rashes the treatment was suspended. All men under treatment were questioned individually as to their regularity in taking the tablets and were asked if they had previously received sulphonamides orally or locally; they were also examined for rashes and the state of their vaccination lesions was noted. No history of previous sulphonamide therapy was obtained in any of the cases, while a few of the men admitted to taking less than 5 g. of the drug. Two such cases developed rashes at the height of their vaccination reactions.

Environment, diet, the effects of vaccination alone, and other factors which might have contributed to production of the rashes were excluded by a study of a large control body of men on the station subjected to identical living and training conditions in whom no rashes occurred. These controls comprised approximately 2,250 men not receiving prophylactic sulphanilamide and not recently vaccinated, and 1,500 not receiving sulphanilamide but recently vaccinated.

### Rashes Encountered

The development of the rash coincided in all cases with the development of the pustular stage of the vaccination lesion and occurred exclusively in areas exposed to sunlight. The cases, owing to standard Service dress, showed a striking similarity in the areas involved. These consisted

of the head and neck except a small V-shaped area on the forehead shaded by the forage cap; the arms and forearms unprotected by rolled-up sleeves; and, in a few cases, a small band round the ankles where the sunlight had penetrated the gaiters. A few men had sunbathed during the period of administration and had developed more extensive rashes in the areas exposed.

The rash consisted of small dusky-red papules on a dusky erythema, which in severe cases coalesced into a confluent large macular lesion. Severe cases developed a marked conjunctivitis with or without oedema of the eyelids. In four cases areas of small vesicles developed. The rash faded in less than a week, leaving brownish desquamating areas. The rash was intensely pruritic.

Rashes developed in 136 (34.6%) of the 470 personnel treated, a much higher incidence than reported by previous workers. The high proportion of rashes, we submit, is due to the combination of three factors—the sulphanilamide, excessive sunlight, and associated vaccination reactions.

The cases affected have been divided into three grades of severity: by "severe" rash is meant a confluent macular lesion on head, neck, and arms, associated with conjunctivitis, with or without oedema of the eyelids, fever, and constitutional disturbance; by "moderate" is meant a maculo-papular lesion involving the same areas but unassociated with fever and constitutional disturbance; and by "mild" is meant a small localized papular and erythematous lesion without general reaction. Of the 136 rashes 23 were severe, 43 moderate, and 70 mild.

### Relation to Vaccination Reactions

The 470 cases receiving prophylactic sulphanilamide were divided into four groups showing decreasing incidence of rashes; they varied only in the time at which vaccination was performed. All cases received 10 days' sulphanilamide, and were divided as follows:

*Group A.*—In this group 213 men received sulphanilamide from the first to the tenth day after vaccination—i.e., *when the reaction was developing*. An explosive outbreak of 106 (49.3%) rashes occurred on the tenth day, coinciding with the development of the pustular stage of the vaccination lesion. Of these rashes 20 were severe, 35 moderate, and 51 mild. The degree of rash appeared to be directly related to the severity of the vaccination reaction.

*Group B.*—This group consisted of 99 men who were vaccinated after receiving prophylactic tablets for eight days, the tablets being suspended two days later—i.e., *when vaccination reactions developed eight days after the treatment was suspended*. Despite the suspension of the tablets 26 rashes developed (26.3%), again coinciding with the development of the pustular stage of the vaccination lesion. Of these rashes 3 were severe, 8 moderate, and 15 mild.

*Group C.*—This contained 87 men who received prophylactic sulphanilamide from the fifteenth to the twenty-fourth day after vaccination—i.e., *when the vaccination reaction had subsided*. A much lower incidence of rashes was encountered, only four (4.6%) mild rashes developing. In all these cases it was found that the vaccination pustule was still unhealed; no rashes occurred where the lesion had become inactive.

*Group D.*—Ten days' prophylactic sulphanilamide was given to 71 men who had *either refused vaccination or in whom the vaccination had failed*. No rashes occurred in this group—stressing that in the absence of vaccination toxic effects would have been minimal.

These results are summarized in the Table.

### Discussion

Many observations concerning the prophylactic use of sulphonamides in the control of rheumatic fever, meningitis, and streptococcal and other infections are on record, these

Table of Results

Description of Cases	No. of Cases	Vaccinated	Rashes Developing	Incidence	Degree of Rash		
					Severe	Moderate	Mild
Group A	213	Day after starting tablets	106	49.8%	20	35	51
Group B	99	2 days before tablets suspended	26	26.3%	3	—	15
Group C	87	15 days before receiving tablets	4	4.6%	—	—	4
Group D	71	Failed or refused	Nil	Nil	—	—	—
Total ..	470	—	136	34.6%	23	43	70

drugs being effective protective agents and having been administered to large numbers of men with minimal toxic effects. Thus Coburn (1944) in the control of streptococcal infections administered sulphadiazine in doses of 1 g. daily for several weeks to some 250,000 personnel of a naval establishment. Mild evanescent drug rashes occurred in 0.2–0.7% of cases, necessitating suspension of the therapy in 0.3%. The rashes developed after two to three weeks' administration of the drug, when 7–20 g. had been given. Severe drug rashes occurred in 0.005%.

Similar figures are reported by Holbrook (1944), who administered daily 1-g. doses of sulphadiazine to 40,000 troops with only 33 rashes (0.08%). Lee (1944) reviewed reactions following the mass administration of a single 2-g. dose of sulphadiazine to 25,000 men and women, in whom 128 reactions developed, fifteen being classified as mild cutaneous rashes and four as severe cutaneous eruptions. Other workers dealing with the use of prophylactic sulphonamides quote an incidence of skin lesions of 0.03% in 18,000 men who received 4 g. of sulphadiazine in one day (Painton, 1944) and a 0.38% incidence of toxic effects, nature unspecified, in 9,000 men of the A.A.F. who received 3-g. doses of sulphadiazine twice weekly (Warren, 1944). The most recent series, that of Billow and Albin (1946), quotes an incidence of 63 rashes in 20,000 troops receiving daily doses of 1 g. of sulphadiazine (0.32%).

Our incidence of rashes (34.6%), therefore, was very much greater than ever previously reported in the use of prophylactic sulphonamides, the higher incidence, we submit, being due to a coincidence of the drug's administration and vaccination. In a search through the literature we could find no reference to this relationship.

The personnel receiving the therapy were divided into four groups according to their relation to the time of vaccination. The first group developed their vaccination reactions while the drug was being administered and showed the highest incidence of rashes (49.8%). The second group, in whom pustular vaccination lesions developed some eight days after the drug had been suspended, surprisingly developed rashes in a large percentage (26.3%). In this group the latent period between the suspension of the drug and the development of the rash was therefore much longer than previously reported, among others by Erskine (1942) and Park and Platts (1942), who described photosensitization rashes developing 48 hours after the drug had been suspended. In the third group, in whom vaccination reactions had subsided, four (4.6%) rashes occurred only in cases where the vaccination pustule remained unhealed. No rashes were present in a fourth group of 71 men in whom vaccination had failed or had been refused. It would appear, therefore, that a toxin eliminated from the vaccination pustule combined with the sulphonamide had acted as a powerful photosensitizer.

The rashes encountered conformed to descriptions given by other workers. Photosensitivity in sulphonamide therapy

was described first by Goodman and Levy (1937) and Ballenger *et al.* (1937) among others. Park and Platts (1942) recorded 27 cases, and Peterkin (1945), in a review of 500 sulphonamide rashes seen in North Africa and Italy, classified 361 (72.2%) as light-sensitization rashes. He described four types of light-sensitization rash—erythematopapular, vesicular, severe (which showed bullae, crusting, and oedema), and telangiectatic. In his series the severe type was the most common, comprising 61.8% of the total rashes. In the present series all but four cases were of the erythematopapular type, the remainder being vesicular. The presence of conjunctivitis sometimes associated with oedema of the lids was mentioned by Lee (1944) in his description of rashes occurring in his series. These symptoms appeared in all our severe cases. The conjunctivitis combined with a rash suggested rubella in some of our more diffuse cases, this point of differential diagnosis being described also by Billow and Albin (1946). Peterkin (1945) in his discussion on photosensitivity stated that duration of sensitivity may vary between forty-eight hours and two and a half years. He also stated that patch-testing gave erratic results, tending to be positive only in areas affected by the rash. In none of our cases did the rash recur on further exposure to sunlight, and patch-testing, both in areas affected and in those unaffected by the rash, gave uniformly negative results in 30 of the severer cases, stressing that the lesion was a transient photosensitivity rather than a true sulphonamide dermatitis.

Opinions vary whether any one sulphonamide compound is more prone to reactions. Erskine (1942) considered the incidence of toxic effects to be equal in the various compounds employed. In the 27 cases recorded by Park and Platts (1942) 21 were due to sulphanilamide. Peterkin (1945) considered sulphanilamide most likely to cause reactions, and attributed this fact to its wider use as a local application. Sulphanilamide was used in the present series in the interests of economy, and, although the dosage was heavier than that employed by some workers, it in no way exceeded the dosage used by Thomas (1944) in the prophylaxis of recurrences of rheumatic fever over a period of seven years. Aberrations of chemical constitution in the drug which might have contributed to the toxic effects were excluded by analysis kindly performed on tablets of the same batch by Messrs. Boots Pure Drug Co.

Three hypotheses have been advanced concerning the mechanism of sulphonamide photosensitivity. The phenomena of sensitization due to previous oral or local administration have been long recognized, but no history of previous therapy could be elicited in any of our cases. Secondly, Rimington and Hemmings (1938) found that an increased output of porphyrins occurred in sulphanilamide therapy together with coproporphyrin I, which is a photosensitizer. The amount excreted varied considerably in individuals and contributed to their proneness to toxic reactions. Facilities for the estimation of the urinary output of porphyrins were unfortunately not available, and no further observations could be made on this point. Our work would seem to support a third hypothesis put forward by Erskine (1939), who considered that drug reactions are due to the liberation by the drug of toxins from a buried toxic focus. In our series the vaccination pustule may have acted as an inflammatory focus from which toxins were liberated by the sulphonamide, causing photosensitivity.

There would seem, therefore, a considerable risk of light sensitization rashes if sulphonamides are administered, even in small dosage, in the presence of an active vaccination pustule, and their use in recently vaccinated ambulatory personnel is not advocated. Fortunately all the rashes developing were evanescent; but true sulphonamide sensi-



tivity remained a possibility, and subjects with rashes were advised to warn doctors in the future of the possibility of their being sensitized. The mechanism of the phenomena is obscure, the drug, the vaccination lesion, and light all playing a part.

### Summary

In the control of streptococcal infections in an R.A.F. station prophylactic sulphonamides were administered in a dosage of 2 g. daily for ten days to 470 personnel.

A high incidence (34.6%) of photosensitization rashes occurred, due to a combination of three factors—the sun, vaccination, and sulphanilamide.

The highest incidence of rashes was found in men recently vaccinated, and coincided with the development of the pustular stage even when this occurred after the drug had been suspended. No rashes appeared in personnel in whom vaccination had failed or was refused.

The literature relating to toxic reactions occurring in the use of prophylactic sulphonamides and to sulphonamide photosensitivity is discussed.

The evidence produced shows that a combination of sulphanilamide administration to ambulatory personnel and vaccination will cause a high incidence of transient photosensitization rashes.

Our thanks are due to the Director-General Medical Services, Royal Air Force, for allowing us to publish this article; to Air Vice-Marshal Rook, Consultant in Medicine, Royal Air Force, for his comments on the paper; and to Wing Commander S. B. S. Smith, who extended to us facilities for the study of the personnel treated.

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## BELLADONNA POISONING

BY

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Glaister (1944) states that cases of accidental poisoning by belladonna preparations are comparatively rare. The following case is, we think, unusual enough to merit publication.

### Case Report

A corporal in the Polish Air Force, aged 42, was admitted to a Royal Air Force hospital at 11.20 p.m. on Nov. 4, 1946. He was unable to give a clear account of himself, and the history was obtained from a sick-quarters orderly. The patient reported to the station sick quarters at 4.15 p.m. complaining of vague abdominal discomfort. He was given some medicine, stated to be a gastric mixture. About 7 p.m. others sharing his billet noticed his confused state and took him to the sick quarters, whence he was transferred to hospital. Before admission he was given omnopon, 1/3 gr. (22 mg.), and scopolamine, 1/150 gr. (0.43 mg.).

On admission he was found to be in an extremely restless and agitated condition. While awaiting transfer to a ward he

wandered aimlessly round the reception-room, picking up every object he encountered, including a telephone directory and the curtain, and attempting to eat it. He was unable to appreciate his surroundings, and failed to recognize the friends who accompanied him. His speech, which was thick and confused, consisted of an unintelligible jargon. His gait was reeling and incoördinate. In the ward he strongly resisted attempts to undress him. Resistance was accompanied by vague gestures of physical violence, which soon gave way to an air of fatuous resignation.

On physical examination the face was markedly flushed, the mouth dry, and the tongue coated with a heavy brown fur. The breath was not offensive. The temperature was 98.4° F. (36.9° C.). The pulse rate was 122, and its rhythm and tension were within normal limits. The blood pressure was 150/90. Examination of the heart, chest, and abdomen was negative. On admission the respiratory rate was 20. The bladder was distended, being felt 3 in. (7.5 cm.) above the symphysis pubis. The pupils were circular, equal, and widely dilated, with only a thin surrounding rim of iris. They reacted sluggishly to direct and consensual light. There was no nystagmus, and eye movements were full. The fundi were normal. There was a generalized muscular hypertonus, amounting almost to spasticity. The tendon reflexes were exaggerated. The abdominal reflexes were elicited with difficulty, and the plantar responses were flexor. Some ill-sustained ankle clonus was observed, but no patellar clonus. Sensory examination was unsatisfactory owing to the mental state.

Attempts to pass a gum-elastic catheter failed owing to an obstruction in the region of the membranous urethra. However, some 30 minutes later he passed a large quantity of urine, a specimen of which contained no chemical abnormality. In view of the widely dilated pupils, flushed face, dry mouth and tongue, mental state, tachycardia, and distended bladder, a tentative diagnosis of belladonna poisoning was made. As the patient soon became more rational and co-operative, no active measures were indicated. He slept well, and no further confusional symptoms occurred.

On awaking the following morning he was somewhat bewildered, and was amnesic for the events of the previous evening, the last episode he remembered being the administration of some "black medicine." Physical examination was now entirely negative apart from the pupils, which were still somewhat dilated and reacted sluggishly to light. He was mentally alert. Information was received that the "black medicine" was not, as intended, 10 min. (0.59 ml.) of tincture of belladonna, but 10 min. of the liquid extract of belladonna. On Nov. 6 he was mentally and physically normal, and was returned to his unit. Five months later he was in good health. He stated that 10 to 15 minutes after taking the medicine he noticed difficulty in focusing near objects, presumably due to failure of accommodation. A dose of 1 min. (0.059 ml.) of liquid extract of belladonna by mouth produced no ill-effects, except slight dryness of the mouth occurring after one hour and persisting for about 45 minutes. There was no change in pulse, respiration rate, or size of the pupils. It is therefore concluded that there was no element of idiosyncrasy.

### Discussion

In this case acute symptoms of belladonna poisoning, followed by rapid recovery, resulted from the administration of a dose which was small compared with that in previously recorded cases. The dose was 20 times that intended: 10 minims of the extract being equivalent to 1/15 gr. (4.3 mg.) of alkaloids, while 10 minims of the tincture is equivalent to 1/300 gr. (0.22 mg.) of alkaloids, calculated as hyoscyamine. Clinically the case conformed fairly well to standard descriptions, but the disordered behaviour, the hypertonus, and the transitory urinary retention (due, presumably, to spasm of the external sphincter) were noteworthy.

Most of the cases described in the literature have followed the external applications of belladonna preparations. Moorhead (1919) described two cases following the absorption of belladonna liniment through the unbroken skin after

massage. Métivier (1935), Duggan (1937), and Hopkins and Robyns-Jones (1937) recorded cases due to the instillation of atropine eye solutions. The last mentioned occurred with washing out the eye with 1% atropine solution after an iridectomy operation. Carter (1940) described the case of a man who swallowed 5 drachms (19.4 g.) of the liniment (equivalent to  $1\frac{1}{2}$  gr. (90 mg.) of alkaloid) in mistake for a cough mixture. The onset of symptoms was delayed 10 hours, and complete recovery followed treatment by spinal drainage, morphine, and physostigmine.

Glaister comments on the variations in dosage found to cause symptoms: 2 gr. (0.13 g.) of atropine have proved fatal, while recovery has followed a dose of  $5\frac{1}{2}$  gr. (0.35 g.). Although in our case the amount was ten times the pharmacopoeial dose of the liquid extract (1 min.), the dosages in previously recorded cases have generally been much higher. It appears, therefore, that symptoms of poisoning accompanied by a gross mental disturbance can result from only a moderately excessive dosage.

### Summary

A case of accidental belladonna poisoning is described, presenting as an acute confusional state.

The onset of visual symptoms occurred within half an hour of taking 10 minims of the liquid extract, while the onset of general symptoms was delayed for three hours.

Recovery occurred within twelve hours without active treatment.

Subsequent testing for idiosyncrasy proved negative.

We wish to thank Group Captain C. G. J. Nicolls for permission to publish this paper and Prof. J. Glaister for his helpful advice.

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## SUPPRESSION OF SYPHILIS AND PRECOCIOUS TERTIARISM

BY

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In cases of early syphilis treated with penicillin in standard doses (2,400,000 units or more) relapse or failure of treatment may be manifested in the following ways (Marshall, 1945): (a) Surface relapse. The relapse lesions may be "primary" or "secondary" in type and have occurred, in patients treated personally, between 59 and 200 days after treatment (average 83 days). (b) Serological relapse, which may occur with or without signs of surface relapse. (c) Sero-resistance. (d) Less common types of treatment failure include neuro-recurrence, ocular and osseous relapse, and persistence of *Treponema pallidum* in surface lesions in spite of treatment.

Precocious tertiarism has not, until now, occurred as a manifestation of relapse in any of the patients I have treated with penicillin alone. This phenomenon has usually been seen in the past in patients who had been inadequately treated for syphilis by a few injections of a trivalent arsenical unsupported by bismuth. It is presumed that the rapid destruction of the spirochaetes by arsenicals deprives the body of its one primordial and essential stimulus to fight

the infection on its own account—namely, the presence over a long period of the pathogenic agent (Stokes *et al.*, 1944).

There is good presumptive evidence that the administration of an inadequate dosage of penicillin in the following case of early syphilis has upset the normal response of the body tissues to infection with *T. pallidum*.

### Case Report

A man aged 30 was first seen in June, 1947, and attended for examination because his wife had been found, at routine antenatal test, to have latent syphilis. (He had been married for one year, and, as a pre-marital serum test for syphilis is obligatory for women marrying serving American soldiers, it can be presumed that his wife was then healthy.) He had not previously shown any manifestations of any venereal disease and gave the following history.

In November, 1945, while on active service in Italy with the U.S. Army, he developed a very itchy rash on the sides of the neck, anterior borders of axillae, trunk, and genitals. The limbs, apart from the upper thighs, were unaffected. The rash did not begin on the genitals and he could not recall any genital ulceration before this time. His last exposure to infection was, he thinks, some six to nine months previously. A diagnosis of scabies was made and he was treated intensively with benzyl benzoate on several occasions over three weeks without relief. At the end of this time he was given 15 or 16 injections of penicillin over two or three days. Individual doses were of 40,000 units, presumably in aqueous solution. The effect was the disappearance of the rash and of the itching in a few days.

It was a routine procedure in his unit for all men to have a serum test for syphilis every six months. He had had tests with negative results in July, 1945 (before the rash), and again a month or two after penicillin treatment.

From November, 1945, he remained in apparently good health, without any skin lesions, until about five weeks before he first attended my clinic. He then developed a rash on his forehead. A few days afterwards a similar rash appeared on his chin, followed a little later by lesions on the penis. Two weeks after the first signs there appeared a spreading lesion of a different type on his left thigh. In the earliest days he had had a sore throat. He had had a serum test for syphilis at a U.S. Army dispensary about a week before he attended, and this was reported as positive.

On examination there were surface lesions of the face, penis, left thigh, and buccal mucosa. The facial lesions consisted of a band of dusky erythema, an inch (2.5 cm.) wide, extending all along the hair margin of the forehead, sealing at the edges and closely studded with pinhead pustules; there was a similar circular patch, one inch in diameter, on the centre of the chin. The mouth showed superficial ulceration of the mucous membrane of the left tonsil and of both commissures of the cheeks. On the shaft of the penis were numerous small purplish oval or circular papules, some eroded, of the type commonly associated with relapsing early syphilis.

On the anterior surface of the middle of the left thigh was a lesion of a different type. This was a roughly circular brown sealing patch, about two inches (5 cm.) in diameter, with a serpiginous edge. The edge showed signs of active spread and had scattered reddish-brown or bluish nodules with superficial scaling. The whole lesion was, clinically, a typical superficial nodular cutaneous gumma. There was moderate enlargement of the lymph glands of the posterior triangle of the neck, of the epitrochlear glands, and of the inguinal glands on both sides.

Dark-ground examination of serum from a penile lesion showed no *T. pallidum*, but in view of the positive serum test, confirmed locally, treatment was not delayed. It was not possible to arrange for lumbar puncture before beginning treatment.

The treatment given on the first day consisted of 0.09 g. "neohalarsine" and 0.2 g. bismuth oxychloride. Three days later the pustular lesions of the face had disappeared, leaving areas of erythema dotted with brownish pigmented spots. The penile lesions had disappeared and the lesion of the thigh was

apparently unaltered. Penicillin treatment was purposely delayed so that non-specific effects could be excluded. Ten days after beginning treatment, penicillin in oil-wax suspension having been superimposed on the arsenic-bismuth therapy, only scattered pigmentation remained on the face and the gummatous lesion was obviously healing rapidly.

### Conclusions

It seems probable that in November, 1945, this man had secondary syphilis, possibly masked by scabies, and that the small amount of penicillin (about 600,000 units) given at that time was sufficient temporarily to suppress the disease. The relapse lesions, appearing 18 months later, were of a secundo-tertiary type.

This case suggests that penicillin in inadequate dosage over a short period can, like the arsphenamines, produce the phenomenon of precocious tertiarism. It illustrates the importance of making an accurate diagnosis in any dermatological condition before using penicillin by injection.

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## NICOTINAMIDE AND BLOOD SUGAR

BY

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The effect of nicotinamide (N.A.A.) on blood-sugar levels in normal controls and in diabetic patients has been discussed by Neuwahl (1943), Gordon (1946), and Wade (1947). In view of the different results obtained it would appear worth while to record the following observations, which were made at a time when investigations regarding co-enzyme were taking place.

Three fasting normal subjects were given 0.5 g. of N.A.A. by mouth, and all experienced slight effects such as flushing of the face. Blood-sugar estimations were made by Folin and Wu's method, and co-enzyme was estimated by that of Hoagland *et al.* (1942). The results obtained were all identical in type, and the following table shows one curve that was obtained.

Time	Blood Sugar	Blood Co-enzyme
Fasting	0.105 g. %	4.3 mg./100 ml.
1 hr. after 0.5 g. N.A.A.	0.093 "	4.0 "
1 1/2 hrs. "	0.098 "	4.3 "
2 hrs. "	0.103 "	4.0 "
2 1/2 hrs. "	0.089 "	4.4 "

Two other normal subjects were each given 0.5 g. of nicotinamide and nicotinic acid, and neither showed any variations in blood co-enzyme up to six hours. Another normal subject showed no variation in blood co-enzyme content during the two hours of a blood-sugar curve following 50 g. of glucose by mouth. The blood sugar ranged from a fasting level of 0.099 g. % to a maximum height of 0.186 g. %.

Neuwahl showed two types of response to nicotinamide in normal subjects. One figure demonstrated a marked fall in blood sugar after 0.4 g. N.A.A. intramuscularly and also after 0.25 g. intravenously, whereas in another figure there was a considerable rise in blood sugar after 0.45 g. intravenously. He also showed that 0.06 g. N.A.A. and 2 units of insulin produced a greater fall in blood sugar than did 2 units of insulin alone. Burke and McIntyre (1939), however, had demonstrated earlier that the effect of insulin given to rabbits is not so great—i.e., the blood

sugar is depressed less—in those receiving nicotinamide acid.

Wade has recently shown that nicotinamide produced no alteration in the blood-sugar curves of diabetics following 50 g. glucose, even though his patients had received 1.8 g. of nicotinamide daily for 14 days prior to the second blood-sugar curve.

From these results it would appear that, in general, nicotinamide is without effect on the blood-sugar levels in normal subjects or in diabetic patients. The absence of any effect on the blood co-enzyme content is possibly a further proof of this fact.

This work was undertaken while holding an expenses grant from the National Hospital Research Fund, for which my thanks are due.

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## Medical Memoranda

### Transient Hemiplegia following Injection of Sodium Morrhuate

The following case seems to be sufficiently unusual and disturbing to merit publication.

#### CASE REPORT

A married woman aged 32 complained of a small area of varicose vein situated between the knee and the ankle of her right leg. This was not causing any inconvenience, but the appearance was aesthetically objectionable. The injection of 0.25 ml. of sodium morrhuate 5% into the vein as initial treatment caused no general disturbance. One week later 0.75 ml. of the same solution was injected. On this occasion the patient complained of giddiness after approximately two minutes. She then fainted; but she recovered rapidly, and the incident was considered to be due to excitement common to any injection.

The following week 0.75 ml. of the solution was injected into the section of the vein which remained unsclored. Once more nothing occurred for two or three minutes, when the patient fainted again. On this occasion, however, she did not recover consciousness as before, but sank into a state of deep coma. This rapidly merged into a generalized tonic spasm plus slight clonus of the facial muscles. At this stage the patient was pulseless and cyanosed. The tonic spasm persisted for about five minutes and then gradually changed into a state of semicoma. Vomiting now became severe and persistent, but the pulse was more satisfactory. The more anxious moments of the incident appeared to be passing.

The state of semicoma, however, persisted, and further improvement was barely appreciable for about half an hour. At that time it was observed that a complete hemiplegia had developed, involving the right arm, the right leg, and the left side of the face. The patient was then removed to hospital, still in a state of semicoma.

Two hours later the paralysis of the arm and leg had passed off, a limited degree of paresis of the left face still remaining. The patient was able to speak, but articulation was indistinct. In a further four hours the hemiplegia had completely cleared, tendon and surface reflexes were normal, and all movements were complete. Her speech had recovered and the mental state was excellent. Twenty-four hours after admission to hospital she was discharged, recovery being complete.

#### COMMENT

Alarming incidents following the use of sodium morrhuate have been reported occasionally in the medical press, but it is doubtful if the dangers of unusual sensibility to this common preparation are fully appreciated. A case of transient hemiplegia following its use must be exceedingly rare. The satisfactory outcome could not have been foreseen during the severe phase of the coma, and the clinical findings at that stage suggest that recovery was fortunate rather than inevitable. It would appear that the pharmacognosics of sodium morrhuate should be reassessed before its continued use as a sclerosing agent in the treatment of varicose veins be recommended.

W. S. GARDNER, M.B., Ch.B., F.R.F.P.S.

## Reviews

### THE NEW BIOCHEMISTRY

*Dynamic Aspects of Biochemistry.* By Ernest Baldwin, B.A., Ph.D. (Pp. 457. 21s.) Cambridge: At the University Press. 1947.

This is an excellent book and it is to be hoped that its publication will substantially foster the development of the new attitude to biochemistry which is now making itself apparent in many different ways. Traditionally the author of a textbook of biochemistry (or of so-called physiological chemistry or chemical physiology) devotes a large part of its space to an account of the chemistry of the ingredients of living matter, giving proportionately little attention to discussion of the mechanisms involved in building up and maintaining the activity of the living system and to the all-important biological catalysts involved therein—the enzymes. It is true that until the last ten to fifteen years there was little other than conjecture that could be included in the latter category, but within the past two decades much information has become available on the nature of enzyme systems, their mechanism of action, and, most important, their modes of interaction. With this fundamentally new matter to be digested it was clear that a book would have to be written in which all the traditional ideas of the textbook treatment of the subject were abandoned and the whole story was built around the fundamental unit of biochemical function—the enzyme system.

The writing of such a book Dr. Baldwin has achieved in a masterly fashion; his treatment of a complex subject is excellent and the book is extremely readable. In a book with such a new attitude much of the background information on the chemical nature of the *Bausteine* of living systems has perforce been omitted, and the beginner should use this volume to supplement a textbook of the type usual at present. It cannot be emphasized too strongly, however, that Dr. Baldwin's book provides a survey of the dynamic core of biochemistry such as is to be found nowhere else, and it will be of the greatest importance to all those interested in the subject. The diagrammatic representations of many of the cyclic processes in biological systems are particularly clear. The exposition is not limited to man and the higher animals, but includes much important and relevant information about biochemical mechanisms in bacteria and other lower forms of life.

According to Dr. Baldwin's preface elementary biochemistry is taught at Cambridge in two courses. The first and older of these, chemical physiology, forms part of the course in mammalian physiology and caters primarily for the needs of medical and veterinary students. For these, according to Dr. Baldwin, there already exists a wealth of textbooks, which he neither hopes nor desires to supplant by the present volume. While agreeing that his volume should not supplant the older books, particularly for medical students, the reviewer is convinced that the newly developing dynamic spirit of biochemistry will ultimately but inevitably fashion all the textbooks of the future, so that the distinction between them and the later editions of Dr. Baldwin's book will become much less formidable. The present growing understanding of the biochemistry of the normal naturally leads to the elucidation of the biochemical basis of deranged function, and the logical development of therapeutic measures thus becomes possible. For the medical man Dr. Baldwin's book provides a masterly and unique treatment of this most important and rapidly developing background of medical art and science; this is a book he may read with profit and with pleasure.

F. G. YOUNG.

### RECENT SURGERY

*The 1946 Year Book of General Surgery.* Edited by Evarts A. Graham, M.D. (Pp. 679; illustrated. 21s.) Chicago: The Year Book Publishers, Inc. London: H. K. Lewis and Co.

The 1946 issue of this well-known book is, like the previous volumes, edited by Evarts Graham, and we have nothing but praise for his choice of material for inclusion. The cover sheet contains the customary "Quiz": we must confess to being quite unable to answer the majority of the questions without referring to the contents of the book.

It is difficult to appraise adequately a book which is itself a digest of the year's surgical literature. Its emphasis is naturally upon American writings. Among the hundreds of articles summarized we were particularly interested in those concerned with the successful use of vitallium tubes for establishing portocaval anastomoses, new methods of dealing with troublesome verrucae pedis, the creation of an artificial ductus arteriosus in pulmonary stenosis, and the intraperitoneal use of skin grafts to reinforce intestinal anastomoses. There is a disproportionately large number of articles on the treatment of pilonidal sinuses, which suggests that a reliable method of curing this refractory condition has yet to be discovered. The illustrations, usually reduced from the original, are nevertheless clear and helpful.

NORMAN C. LAKE.

### TEXTBOOK OF NEURO-ANATOMY

*The Anatomy of the Nervous System.* By Stephen Walter Ranson, M.D., Ph.D. 8th ed. Revised by Sam Lillard Clark, M.D., Ph.D. (Pp. 532. 417 illustrations, 14 in colour. 32s. 6d.) Philadelphia and London: W. B. Saunders Company. 1947.

This useful and well-known textbook continues to be popular. The Professor of Anatomy in the Vanderbilt University School of Medicine at Nashville has prepared this edition. The most substantial change from the previous one, and a great improvement, is the rearrangement of the text. Dr. Clark has collected the descriptions of gross anatomy into a single chapter near the beginning of the book, and brought forward the chapter on the meninges and blood vessels so that it lies next in sequence. There is some lack of balance here, for the accounts of arterial distribution within the brain are so brief as to appear almost perfunctory in comparison with some other parts of the book.

The removal of "clinical illustrations" from an inconspicuous position in a chapter formerly entitled "A Laboratory Outline" to a special chapter emphasizes their value in the presentation of neurological anatomy. In a future edition we should like to see a more detailed account of the spinal reflexes and the related structural pattern, discussed in a manner similar to that used for the brain-stem reflexes, and also a fuller and more up-to-date discussion of neurobiotaxis.

Prof. Clark has included the results of some new work, but we notice some important omissions—for example, the work of J. Z. Young on peripheral nerves. There is no reference to recent work on the nervus terminalis or to Boyd's work on the innervation of the carotid sinus. The author represents the arachnoid mater as enclosing both buccal and neural portions of the hypophysis, without referring to Wislocki's views. We also looked in vain for reference to recent work on the vascular relations of the neural hypophysis and the hypothalamus. On the other hand there is a relatively full account of the nuclei of the thalamus and hypothalamus, incorporating recent work by Ingram and Le Gros Clark. The book is attractively printed, and it should retain its reputation as an elementary work of reference and a textbook for students of neuro-anatomy.

A. B. APPLETON.

### BROWN-SÉQUARD

*Charles-Édouard Brown-Séquard. A Nineteenth Century Neurologist and Endocrinologist.* By J. M. D. Olmsted, M.A., Ph.D., D.Sc. (Pp. 253. \$3.00 or 16s.) Baltimore: Johns Hopkins Press. London: Geoffrey Cumberlege (Oxford University Press). 1946.

The author can congratulate himself upon his inspiration, for the personality of Brown-Séquard holds special attractions for a biographer. It is surprising indeed that no other medical historian, except the Mauritian Rouget, has attempted to record the vicissitudes and peregrinations of this 19th century neuro-physiologist. The background is unusual. Born a British subject, of a French mother and an American father, in the isle of Mauritius, with Irish blood somewhere in the offing, Brown-Séquard spent his days in restless unsettlement, surrying between the Indian Ocean, Paris, North America, Dublin, and London. He is reported to have crossed the Atlantic sixty times. In the U.S.A. he held chairs in Richmond, Philadelphia, New York, and Boston. During his sojourn in London he acquired a fashionable practice in Wimpole Street, but holds a more lasting claim upon our respect for his founding, with Dr. Jabez S. Ramskill, the National Hospital for the Paralyzed and

Epileptic in Queen Square. This was in 1859. Three years later this pioneering couple of neurologists had taken on three junior colleagues—Sir William Ferguson, J. Z. Laurence, and J. Hughlings Jackson. But Brown-Séquard was off again by 1863. Possessed of a demon which drove him to work at physiological experimentation, at a great pace and at high pressure, he abandoned clinical practice. His earlier researches were concerned with the sensorial effects of partial section of the spinal cord, and they form an important chapter in the physiology of the nervous system. Later investigations, though ingenious and stimulating, were less successful, for he possessed grave defects as a detached observer; only too often were speculation and enthusiasm to lead him astray. It seems probable that an important cause of his being a rolling stone was that he was repeatedly forestalled in his career by his senior colleague Claude Bernard. North American colleges and universities were to him an inadequate substitute for a professorial appointment in his beloved Paris, and it was not until the age of 61, on the death of his rival, that he was appointed to the Chair of Medicine at the Collège de France. His three marriages—and he outlived all three wives—his cult of rejuvenation with testicular autografts, his pursuit of lost causes in physiology, are aspects of a vivid picture of a striking neurologist—brilliant but a little mad.

Such is an outline of the material which Prof. J. M. D. Olmsted, the author of this short biography, has had at his disposal. The product is a delightful trio of addresses, the Noguchi lectures of Johns Hopkins University. They form a scholarly and stimulating contribution to 19th century medical history.

MACDONALD CRITCHLEY.

## OBSTETRICS AND GYNAECOLOGY

*The 1946 Year Book of Obstetrics and Gynaecology.* Edited by J. P. Greenhill, B.S., M.D., F.A.C.S. (Pp. 655; illustrated. \$3.75 or 21s.) Chicago: The Year Book Publishers. London: H. K. Lewis and Co. 1947.

This book will be welcomed in academic obstetrical and gynaecological circles. The volume, compact and handy, contains an accurate review of the previous year's publications, original work receiving due emphasis, with an excellent index of subject matter and authors' names. The abstracts are well chosen, and sufficient attention has been paid to the papers published in Great Britain. Among others the studies of Theobald, Dick Read, Stanley Way, McAfee, Browne and his co-workers, Vatan, and R. C. Thomas are adequately considered. The paper of Edward Davis and Greedy might have been presented more fully, for their study of maternal mortality at the Chicago Lying-in Hospital is one of the most instructive publications of recent years. Gunnar Teilmann's valuable papers are perhaps not sufficiently emphasized, and the abstract is not very clear. It must be admitted, however, that the original papers are not easy to understand. We should mention particularly the work of Varangot and his co-workers on the use of sparteine sulphate and that of Edward Davis and Edith Potter on intrauterine respiration, as well as papers on the transmission of penicillin to the foetus *in utero*, and on the excretion of penicillin in human milk. There is the usual annual review of the treatment of trichomonad infections and of dysfunctional uterine bleeding.

Greenhill's comments have matured with time and are admirable in the present volume. His plea for conservatism in midwifery is sustained and his observations on Miller's extraordinary paper are well worth reading. Editorial comments demand shrewd judgment and they do not always withstand the passage of time. One remembers McClintock's comments in his edition of Smellie. This book is worthy of its predecessors, and indeed in many ways is an improvement on them.

WILFRED SHAW.

*Pye's Surgical Handicraft* has reached its 15th edition and is again edited by Mr. Hamilton Bailey. There are nearly 800 illustrations and in every section an attempt has been made "to present technical procedures pictorially." A few of the illustrations are in colour and the colour is not very good. Apart from this the production is excellent and Mr. Bailey and his team of contributors will obviously be called upon to prepare a 16th edition within the next two or three years. The publishers are John Wright and Sons, Ltd., and the price is 25s.

## BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

*Loose-Leaf Specialties in Medical Practice.* Renewal Pages Edited by Edgar Van Nuys Allen, M.D. Vols. I and II. New York and Edinburgh: Thomas Nelson. 1947.

Includes new material on antihistamine compounds, antibiotics, the vitamins, and carcinoma of the prostate.

*Bone Dysraphies.* By F. Y. Khoo. (Pp. 169. No price.) Chengtu, China: The Canadian Mission Press. 1945.

A review of bone dysraphies, with extensive references to the literature.

*Chiropractic: Theory and Practice.* By Franklin Charlesworth, F.Ch.S. 3rd. ed. (Pp. 406. £2 2s.) London: Charlesworth and Wiles. 1947.

A textbook of chiropractic, with an introductory account of anatomy and physiology, and many illustrations.

*Modern Development of Chemotherapy.* By E. Havinga, H. W. Julius, H. Veldstra, and K. C. Winkler. (Pp. 175. 15s.) London: Cleaver-Hume Press, Ltd. 1946.

Research into the sulphonamides carried out in Holland during and since the war.

*Contribution à la Connaissance de l'Avitaminose C chez l'Homme.* By J. V. Espin. (Pp. 46. No price.) Paris: Librairie Maloine. 1946.

A monograph on vitamin C deficiency in man, with case histories.

*Tratado Práctico de Hemoterapia.* By Dr. E. S. Sammartino et al. (Pp. 831. No price.) Buenos Aires: Vazquez. 1947.

Discusses blood transfusion, the sources and storage of blood, blood groups, and transfusion reactions.

*Tuberkulöse Reinfektion beim Rinde und ihr Einfluss auf die Resistenz.* By E. Gräub, P.D. (Pp. 93. 12 Swiss francs.) New York and Basle: S. Karger. 1947.

A monograph on tuberculosis in cattle, with an appendix on tubercle bacilli in milk.

*Psychologie du Suicide.* By Gabriel Deshaies. (Pp. 375. 360 francs.) Paris: Presses Universitaires de France. 1947.

The hereditary, social, and psychological factors determining suicide are discussed, as well as methods adopted and the "death instinct."

*On the Problem of Poliomyelitis.* By Bertel S. Son Bertenius. (Pp. 212. No price.) Lund, Sweden: Carl Bloms Boktryckeri. 1947.

A monograph on the incidence and characteristics of outbreaks of acute anterior poliomyelitis.

*Estudio de las Contralateralizaciones, Especialmente Precoces, en los Procesos Pulmonares Tuberculosos de Apariencia Radiológica Unilateral.* By Dr. F. Tello-Valdivieso. (Pp. 77. No price.) Madrid: Publicaciones del Patronato Nacional Antituberculoso. 1946.

An account of tuberculous lesions occurring in both lungs in cases where x rays reveal them on only one side

*La Tuberculosis Pulmonar Inadvertida y los Reconocimientos Radiológicos Seriados.* By Dr. Jose Zapatéro. (Pp. 119. No price.) Madrid: Publicaciones del Patronato Nacional Antituberculoso. 1946.

A monograph on unsuspected tuberculosis discovered by mass radiography.

*The Essex County Health Handbook.* By William A. Builough, M.B., M.Sc., D.P.H. (Pp. 72. No price.) Cheltenham and London: Ed. J. Burrow and Co., Ltd. 1947.

An illustrated pamphlet intended to inform the lay public about the health facilities provided by the Essex County Council.

*Recent Advances in Medicine.* By G. E. Beaumont, M.A., D.M.(Oxon.), F.R.C.P., D.P.H., and E. C. Dodds, M.V.O., D.Sc., Ph.D., M.D., F.R.C.P., F.R.I.C., F.R.S.Ed., F.R.S. 12th ed. (Pp. 422. 21s.) London: J. and A. Churchill. 1947.

Includes new material on synthetic antimalarial drugs, antibiotics, vitamins, thiouracil, primary atypical pneumonia, homologous serum jaundice, and thiocyanates for high blood pressure.



## BRITISH MEDICAL JOURNAL

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## GENETICS AND SCIENCE IN THE U.S.S.R.

After the Russian revolution the philosophy of dialectical materialism, as elaborated by Marx and his followers, became official in Russia. In theory this might have been expected to affect the development of the natural sciences. In practice, at least for some time, nothing of the kind seemed to happen. The collection of factual information, and its interpretation still seemed to be independent of the religious or philosophical views of the investigator; a Catholic, a Protestant, an agnostic, or a Communist confronted with the same problem still approached it in the same way, within the limits of human error obtained the same results, and then proceeded to draw the same conclusions. Doubtless this was because all these people, in their scientific work, tacitly accepted some form of realist or materialist philosophy. The present generation does not perhaps recall sufficiently often that this attitude of detachment is, in its modern phase, of comparatively recent growth; it is, after all, not very long since the controversies on the theory of evolution. The emergence of a new and militant religion, for it is no less, might well be expected to disturb the philosophic calm, and it would perhaps naturally be expected that the first effect would be seen in the biological field, in the consideration of the evolution and development of the living organism and of its relation to its environment.

It was in biology, and especially in genetics, that the new attitude first seems to have become apparent. The non-Russian scientific world during the last twelve or fifteen years has been startled and confused by the echoes of controversy within the U.S.S.R., a controversy conducted with a vigour that has apparently culminated on occasion in violence. The secrecy that surrounds many Russian activities, the language obstacle, the difficulty of obtaining Russian publications, their unfamiliar form, ignorance of the background, attempts to interpret the Russian writings on Western lines, have all been responsible for much bewilderment. A useful service has, therefore, been performed by the Imperial Bureau of Plant Breeding and Genetics, which has published *The New Genetics of the Soviet Union*, a thorough and fully documented account,<sup>1</sup> by Dr. P. S. Hudson and Mr. R. H. Richens, of the Russian controversy. The authors, in tracing the history of this new development, in expounding the views of the opposing schools, and in bringing forward certain tentative objections to what appears to be the dominant view, have made every effort to be clear, temperate, and impartial. The result is

a masterly and remarkably concise monograph which every biologist should read—and not only every biologist, for it will help all those who wish to understand modern Russian thought in relation to biology and so to medicine.

The leader of the new Soviet genetics is the botanist Lysenko, his principal lieutenant being Prezent. Following some earlier work of distinction, Lysenko (with Prezent) published in 1935 a book which challenged many of the generally accepted fundamentals of genetics as held outside, and also largely inside, the Soviet Union. The attack has gathered force through the years, and there have been bitter arguments at successive genetic conferences. The chromosomes and the genes have been thrown overboard altogether as of no more than trivial significance; it is held that the "pure line" does not exist; that self-fertilization necessarily leads to deterioration; that the cross-bred individual possesses all the potentialities of both parents (i.e., that cross-breeding is an additive process); while any segregation in the F<sub>2</sub> generation is simply a loss by subtraction. The distinction between phenotype and genotype is denied. Inherited characters can be transmitted via the sap from stock to scion in grafts. Lysenko has elaborated a theory of nutrients (this word being used in a very wide sense), organic structures being regarded as having arisen by the conversion of individual "elements" of the environment into the living substance of the plant, which is credited with the capacity for selecting those elements which will confer advantage on the progeny. As a special case of this theory it is supposed that, when offered the choice of mixed pollen grains, the ovum of the plant tends to select one which will confer selective advantage upon the progeny, and certain experimental results have been adduced in support.

The organism, for Lysenko, does not endure as an immutable entity. It is regarded as a stream of stages, each but a momentary reality and engendering from its assimilative union with the environmental nutrients the following stage. The whole flux of stages is the concrete reality, not a hypothetical static entity, the genotype. Moreover, the flux proceeds cyclically, each cycle representing one generation, the similarity between consecutive cycles depending on the assimilation of appropriate nutrients.

The fact that parents tend to produce offspring like themselves is attributed to a principle of "conservatism," which may, however, be "shattered" by adverse environmental conditions, hybridization, or grafting. The authors of the monograph, advancing temperate criticisms of these and other views, repeatedly point out that the theories are often elastic—i.e., that appeal to unknown factors is used to explain away any apparent discrepancy. Thus it is held that earliness—i.e., maturity early in the season—is biologically valuable, and as it is also held that in a cross the potentialities of both parents are fully present, and that the most valuable will be "dominant" and expressed, it follows that the F<sub>1</sub> plant cannot be later than the earlier parent. Further, as segregation on inter-crossing the F<sub>1</sub> plants is held to be due to a subtractive process, it also follows that no F<sub>2</sub> plant can be later or earlier than the parental type. Confronted with exceptions to these rules, Lysenko and his school explain that they would have held only that some (unspecified) biological conditions were wanting.

<sup>1</sup> School of Agriculture, Cambridge, England. May, 1946. Price 6s.

The biologist of traditional outlook confronted with such revolutionary ideas would first want to review the evidence, attempt to repeat the experiments, and to devise critical tests which might be expected to decide between alternative explanations. He would be somewhat deterred by the slightness of the evidence at some points, this being complicated by the fact that the Lysenko school forbids the use of statistical methods; by the elastic nature of some of the theories to which reference has already been made; and by the failure to take into account the immense advances in knowledge in genetics and cytology of the past thirty years—for it is the genetics of 1910 that is under attack. Nevertheless, he would probably feel that certain points brought forward and certain experimental results were worth further investigation. For example, there is the possibility that, after all, mutation may not be a process devoid of direction, a possibility also raised by recent work outside Russia. But simply to adopt such an attitude would be naïve, and the authors of the monograph cannot be acquitted on this score. They conclude:

An attempt has been made to present all the evidence as it appears in the published writings of Lysenko and his school, and to analyse both the merits and defects of his arguments. It is earnestly hoped that by so doing much misunderstanding will have been removed and geneticists of each school will be encouraged to examine their own and each others' data in an unprejudiced light. This should lead ultimately to a synthesis of what is best in both schools, thereby achieving that comprehensive understanding of genetical questions which is the aim of both bodies of investigators.

But is not this to ignore the difficulty of finding a common ground? As the authors themselves make clear, much of the argument of the Lysenko school lies outside the field of accepted Western scientific thought, being alogical—not, that is, illogical, but deriving from beliefs not shared by those who do not accept dialectical materialism. There is the appeal to authority, to Marx, to Darwin, and to the other writers of the accepted books. There is the analysis of the presumed motives and state of mind of opponents and reference to their material circumstances. It is held to be a strong point against hitherto accepted genetics that Mendel was a monk, and Mendelism is charged with being the attempt of clerical reactionary elements to replace the materialistic biological system of Darwin by a veiled form of idealism. Lysenko accuses his principal Russian opponent of to-day of writing as he does through anger at the contempt shown to genetics by the Lysenko school, and through indignation that people of humble origin should presume to criticize the dicta of a closed society of self-regarding geneticists. In condemning Vavilov's Law of Homologous Variation and his theory of Centres of Origin, Prezent in 1939 pointed out that Vavilov was a disciple of Bateson, the notorious anti-Darwinian heresiarch. Timiojavez (an accepted authority) was said to have dubbed Bateson an "irresponsible ignoramus, an unbridled scholastic realist, and a cleric of science." Hence Vavilov's theories too must stand condemned. Accusations of fraud seem not infrequent. The Lysenko school has many opponents, but of course they too preface their arguments by statements of faith in dialectical materialism and are concerned to show that Mendelism

and formal genetics when properly interpreted are not inconsistent with that philosophy nor with the accepted writings. Argument on factual grounds comes second. Whether the biologists of other countries can usefully plunge into these spirited exchanges, and whether they will be thanked if they do, seems doubtful. It would no doubt be useful to send observers, though perhaps these should be philosophers and professors of comparative religion rather than men of science in the Western sense.

It remains to add that the teachings of the Lysenko school are not yet part of the canon of the faith; and, of course, may never be. Official encouragement, however, has not been lacking. At the genetical congress of 1939 the Commissar of Agriculture is reported to have said that "the People's Commissariat of Agriculture of the U.S.S.R. supports Lysenko in his practical work and in his theoretical views and recommends the breeding-stations to apply his methods in seed production and breeding work." Lysenko became President of the Lenin Academy of Agricultural Sciences in 1938, replaced Vavilov about 1940 as Director of the Institute of Genetics of the Academy of Sciences, and has twice been awarded the First Stalin Prize and also the Order of Lenin. He is Vice-Chairman of the Supreme Soviet. Some at least of his opponents, however, have not ceased to criticize his views, though apparently avoiding controversial issues to a certain extent. Zhebrak has published letters in the foreign scientific press stressing this opposition and stating that a belief in many at least of Lysenko's theories is not obligatory. But Zhebrak, according to the *Manchester Guardian*,<sup>2</sup> is now being subjected to a heresy hunt. Three Communist poets have accused him of being in "complete solidarity with the most reactionary American professors." The *Guardian* gives the following quotation from an article in *Pravda*.

Zhebrak as a Soviet scientist should have unmasked the class meaning of the struggle which is taking place around questions of genetics. But, blinded by bourgeois prejudices, by detestable fawning on bourgeois science, he has adopted the attitude of the enemy's camp. . . . It turns out there is a so-called pure science for Zhebrak. . . . It appears that there is no progressive Soviet biological science; there is no reactionary biology in the world. . . . How unsightly is the role of Zhebrak!

In a review in *Nature*<sup>3</sup> about a year ago Prof. Eric Ashby, who has visited the U.S.S.R. and conversed with Lysenko, wrote: "As to the present state of the new genetics in the Soviet Union, it is safe to assume that Lysenko's school is well past its zenith." But the *Pravda* attack on Zhebrak suggests that genetics is once again becoming an acute political issue in the U.S.S.R. Indeed, according to an article in *The Times*<sup>4</sup> the cultural curtain between the East and the West is once more to become so opaque—as to justify the description "iron." The Praesidium of the Soviet Trade Union Central Council has issued a decree condemning "adulation and servility towards things foreign and towards the putrefying reactionary culture of the bourgeois West." Russian press articles condemn by name Soviet men of science and inventors "thirsting for praise from foreign scientists and pseudo-scientists." What has happened to geneticists when Russia

<sup>2</sup> Sept. 26, 1947.<sup>3</sup> 1946, 153, 286.<sup>4</sup> Oct. 4, 1947.

is seized with a paranoid psychosis is revealed—we believe for the first time—by Dr. C. D. Darlington, F.R.S., the well-known Cambridge geneticist, now Director of the John Innes Horticultural Institution. In an article published last week he tells a story that can "be told and interpreted on sufficient documentary authority." N. I. Vavilov, subsequently opposed by Lysenko, was appointed by Lenin President of the Lenin Academy of Agricultural Sciences in 1921. During the following twelve years, Darlington writes, "Vavilov's work was one of the most impressive signs of the scientific prosperity of the Soviet Union." Vavilov's work was an inspiration to many Dutch, American, and British scientists. After 1928, under the Stalin regime, Marxist orthodoxy began its ideological incursions into the domain of science. "A Government," Darlington writes, "which relied on the absence of inborn class and race differences in man as the basis of its political theory was naturally unhappy about a science of genetics which relies on the presence of such differences amongst plants and animals as the basis of evolution and of crop and stock improvement." In 1928 a new genetic prophet was found in the person of Lysenko. Vavilov (who had been nominated President of the International Genetics Congress of 1939 in Edinburgh) was arrested in 1940 and later condemned to death—allegedly because of espionage for Britain. When the Moscow prisons were evacuated in 1941 Vavilov was sent to a concentration camp, where he died. Before this the cytologist G. A. Levitzky and his pupil N. P. Avdoulov were sent to labour camps in 1932, and at the same time B. S. Chetverikov, "pioneer of population genetics," and W. P. Efroimson were sent to Siberia. In 1935 the two geneticists I. J. Agol and L. P. Ferry were put to death. In 1937 the head of the Institute of Medical Genetic Research in Moscow, S. G. Levit, was also put to death. Other biologists and geneticists were sacrificed on the altar of the new Russian religion. "In a word," Darlington writes, "after thirteen years of persecution, the great fellowship of Russian biological research, formed in the revolution, had been crushed and broken." And Darlington adds later: "Never before has science offered so many martyrs to its cause, men, too, honoured and beloved throughout the world." Darlington has done a great service to truth in putting these facts on record, facts which many have been uneasily aware of and which some have almost hoped would lie buried in history. For persecution of a similar nature we have to go back to the days of the Inquisition, and such persecution must be interpreted as religious and not political. And we may believe that many men of science and medical men in the U.S.S.R. secretly condemn these acts as strongly as we do openly in this country, where we have the precious liberty to condemn such acts publicly.

It is still difficult to discover just what progress is being made in Russian science and medicine, and the position is obscured by the fact that Soviet propaganda distorts the truth in a way that can only be described as naïve. For example, Prof. Ashby, who was attached as a scientist to the Australian Legation in Moscow in 1944, records in his interesting book *Scientist in Russia*<sup>1</sup> how Prof. Z. V.

Ermolyeva was acclaimed in 1945 as "the discoverer of the new drug penicillin," and Pravda referred to her "greatest discovery . . . Soviet penicillin," adding that it had also been discovered by Fleming. Fleming's penicillin, no doubt, had the demerit of being bourgeois and capitalist. Ashby nevertheless has nothing but praise for "the good Soviet scientist," whom he found to be very well informed on foreign work. Soviet scientists, he said, were eager for contact with workers in other countries—but the Kremlin imposes its veto. Until there can be free interchange of ideas by personal contact between Russian scientists and medical men and their colleagues in other countries ignorance and misunderstanding will prevail. And if the value of a man's scientific work is to be judged in terms of his political faith, as in the strange and tragic story of Lysenkoism, then mutual understanding will indeed be hard to come by.

## ROAD ACCIDENTS

It is many years since public opinion demanded that a man on foot holding a red flag should walk in front of motor vehicles. We laugh now at that precaution, but the alarm felt in those days has been more than justified by the subsequent slaughter on the roads which we complacently accept as a normal part of social life. Just before the recent war there were about a quarter of a million road accidents a year, 6,500 of them fatal. During the war, deaths on the road numbered more than 40,000, or about two-thirds of the total caused by bombing. In 1946, 5,062 were killed. The prevailing indifference to this avoidable loss of life is worth investigation, if only for the reason that measures taken to prevent it require, if they are to succeed, something more than public approval—namely, the active co-operation of all road users. In addition, if there are reasons for people not wishing to pay attention to the problem, a knowledge of them is essential if education and propaganda are to uproot them. Outbreaks of food-poisoning are front-page news; so at the moment is the poliomyelitis epidemic, though its effects will no doubt be numerically far less tragic than those of the year's road accidents. Railway accidents, aeroplane crashes, ships lost at sea, mining disasters, all cause alarm and are investigated by courts of inquiry, yet the lives lost are comparatively very few.

There are two obvious reasons for this disparity of interest: first, the public sees the external cause of the catastrophe—a defective water supply, a faulty signal, a pilot's error. The public itself, or the individual newspaper reader, feels no responsibility for it. Secondly, the impact of these events is enhanced by their suddenly occurring at a particular place and time. On the other hand road accidents concern all road users; responsibility for them cannot readily be attached to a particular person or organization; and, more insidious, they are happening everywhere and every day: they are commonplace. To these two causes of apathy we might add a third, suggested by Dr. Soddy in the lecture printed at p. 623 of this issue.

Many people find driving fast an outlet for their aggression. Directing a powerful machine brings deep satisfaction to minds that cannot control their own powerful and immature instincts. Many people unconsciously share the desire for this form of self-expression, and, though they unconsciously realize its dangers, whether car owners or not they condone it. It is important to investigate motives such as these, for with the modern techniques of propaganda available, by which the unconscious levels of people's minds may be systematically appealed to—for once in a thoroughly good cause—it should not be difficult to arouse enthusiasm for reducing road accidents. It may not be too fanciful to suggest that when a potential suicide crosses a road along which a potential homicide is driving the chance of survival is slight.

The Committee on Road Safety, which was appointed in 1943, has recently issued its Final Report.<sup>1</sup> It believes that the propaganda carried out since the war "has had a good effect," and it advocates the continuance of such measures as well as of education for road safety in schools. It proposes a number of new regulations to control the activities of pedestrians, bicyclists, and motor drivers, and recommends the collection of facts for statistical analysis. It also advises that motor-cars should be subjected to periodic testing at special inspection stations.

The fact that a small proportion of road users are to blame for a large proportion of accidents has been recognized for some years. Psychological tests have been successfully used by private and public concerns to detect "accident-prone" employees, but the Committee sees certain difficulties in using them to eliminate accident-prone drivers. Such tests could not, of course, detect all drivers prone to accidents for psychological reasons, for the man who has a grudge against authority may be as dangerous on the road as a man whose ability to judge distance is faulty; yet he is unlikely to be detected by any psychological test used at present. It would be administratively impracticable to apply intricate tests to all new drivers. If applied to drivers who had been involved in one or more accidents it would be necessary to apportion blame accurately—an exceedingly difficult task. The Committee therefore recommends that further research into the possibility of determining accident proneness by test is desirable.

We have no precise knowledge of the part played by alcohol in road accidents. In 1938 the ratio of motor drivers convicted of being under the influence of drink to other road users convicted of drunkenness in public places was 1 to 19. It is possible that alcohol would more often be found in the victim than in the slayer, if it were looked for. However, according to Sidney Smith,<sup>2</sup> fewer accidents are the result of intoxication than is commonly believed. The Committee advises displaying propaganda on licensed premises, but makes no definite recommendation on the introduction of blood tests. Other points of medical interest are the Committee's proposal—in which they refer to Sir Hugh Cairns's work, an account of which appeared in this *Journal*<sup>3</sup>—that a crash helmet for civilian motor-

cyclists should be developed; and that it is desirable, but not enforceable, that first-aid equipment should be carried on all vehicles. Medical men particularly might bear the latter suggestion in mind.

No single measure will eliminate road accidents, and if their numbers are to be diminished at all we must submit to more restrictions of our personal liberty, whether drivers or pedestrians. A few may ask, Is it worth it? The nation must make the decision, and it can do so only if it is presented with the facts: on the one side the loss of more life, on the other the loss of more freedom. As medical men we must be deeply perturbed by such a cause of death, and also by the amount of work involved in treating such injuries.

### CHOLERA

The cholera epidemic in Egypt is now in its fourth week and in one day recently was responsible for 112 deaths, 7 of them in Cairo. Cases have appeared in Suez and a single notification from Kena suggests that the epidemic, which had been restricted to Lower Egypt, may spread to Upper Egypt. Outbreaks of cholera involving some thousands of cases have also been reported from the East Punjab and Delhi and from other areas where a mass migration of refugees is now taking place. In India cholera takes a heavy toll of human life every year, especially in the Ganges valley. Fairs, religious festivals, and political gatherings are only too often the scene of great outbreaks of cholera in a land in which flies abound and where drinking of the heavily polluted water of sacred rivers and ponds is a necessary religious rite. In the Punjab the recent floods have further contaminated existing water supplies, and sanitary arrangements and, indeed, habits are almost non-existent.

Clinically cholera varies in intensity from a mild diarrhoea to the fulminating form with early collapse and death from intense toxæmia. Untreated cases have a mortality rate of from 80% to 5%, the latter figure being found towards the end of an epidemic. In evaluating new methods of treatment it is therefore necessary to treat large numbers of patients of approximately the same age and social status at the same stage of the same epidemic, giving the treatment under trial to alternate cases only. In the early part of this century Sir Leonard Rogers introduced his well-known fluid-and-salt-replacement treatment in Calcutta. This still remains the basis of treatment to-day. Even in mild cases there is marked depletion of the blood and tissue fluid volume and loss of the essential salts. Marriott's recent Croonian lectures<sup>1</sup> demonstrated clearly the urgent need for a general understanding of the principles involved. Cholera is an outstanding example of rapid water and salt depletion, with the addition of a severe toxæmia produced by the vibrio.

The recognition by Rogers so long ago of the importance of water and salt replacement in cholera has saved countless lives, but the need for a minimum amount of apparatus and for skilled attendants has led to the treatment being carried out imperfectly in small towns and often not at all in rural areas. Many a devoted missionary in India and China has performed wonders with a teapot, a piece of rubber tubing, a hollow needle, and water drawn originally from a village well. To obtain the best results, however, hospital conditions are desirable, with adequate facilities for sterilizing large quantities of pyrogen-free water, for keeping constant watch on the blood pressure and the specific gravity of the blood, for measuring the output of urine, and for disposing safely of excreta. The use of a

<sup>1</sup> Final Report of the Committee on Road Safety, H.M.S.O., 1947.

<sup>2</sup> Practitioner, 1945, 154, 205.

<sup>3</sup> British Medical Journal, 1946, 2, 322.

<sup>1</sup> British Medical Journal, 1947, 1, 245, 285, and 328.

## THE HARVEIAN ORATIONS, 1656-1947

## A STUDY IN TRADITION

BY

W. J. BISHOP, F.L.A.

AND

F. N. L. POYNTER, B.A., F.L.A.

(From the Wellcome Historical Medical Museum)

The first Harveian Oration was given by Dr. Edward Emily in June or July, 1656, and the 233rd will be delivered by Dr. C. E. Lakin on St. Luke's Day, Oct. 18, 1947.

The Harveian is one of the oldest and probably the most widely known of all the many eponymous orations and lectures connected with the medical institutions of Great Britain.

William Harvey gave to the College of Physicians during his lifetime his patrimonial estate of Burmarsh, in Essex, then valued at £56 a year. In the deed of trust dated June 26, 1656, he directed that "once every year there shall be given . . . an oration in Latin publicly in the said College, wherein shall be a commemoration of all the Benefactors of the said College by name . . . with an exhortation to the Fellows and Members to search and study out the secrets of Nature by way of experiment." An honorarium of £5 was to be paid to the Orator, and only in 1939 was this raised to ten guineas. For many years it was apparently the custom to nominate as Orator the most senior of the Fellows who had not held the office, but latterly the appointment has been made on other grounds than that of mere seniority. The actual appointment, which was originally vested in the President, the two senior Censors, and the two senior Elects (an order which died out in 1860), is now made by the President alone.

There are gaps in the yearly sequence of Orations, for in the first fifty years of its existence only twenty were delivered and only seven published. The last fifty years, on the other hand, presents an unbroken continuity, in spite of the two most disastrous wars in the world's history; but the second of these did force the College to make one great departure from tradition when Sir Edmund Spriggs delivered his Oration at the Royal Infirmary, Manchester, on St. Luke's Day, 1944.

## A Few Interesting Facts

In earlier times Fellows were not infrequently called upon to deliver the Oration more than once. Two Harveian Orations were given by each of the following: Samuel Collins (1665, 1682), Charles Goodall (1694, 1709), Anthony Askew (1758, 1762), William Cadogan (1764, 1792), Sir Henry Halford (1800, 1835), and Sir James Alderson (1854, 1867). Walter Charleton was Orator three times, in 1680, 1701, and 1705, but the record is held by Walter Harris, with four Orations, delivered in 1699, 1707, 1713, and 1726. Charleton thought it a fact sufficiently remarkable to mention on the title-page of his second and third Orations that his age was 81 and 85 respectively at the time of their delivery. As contrast to this is the extreme youth of others, such as Charlton Wollaston, who was Harveian Orator (1763) at the age of 30 and died a year later.

Some very interesting sidelights on medicine as a hcredit profession emerge from a study of the list of Orators. Willi Heberden the elder was Orator in 1750 and his son William 1809; John Latham in 1794 and his son Peter Mere in 18; Richard Warren in 1768 and his son Pelham in 1826; Geo Rolleston in 1873 and his son Sir Humphry in 1928. Sir Russell Reynolds (H.O. 1884) was the grandson of H. Reynolds (H.O. 1776), but the most extraordinary instance provided by the Monros, four generations of whom gave Oration: James (1737), John (1757), Donald (1775), and Edw Thomas (1834); moreover, all four were noted alienists and held the office of Physician to Bethlem Hospital.

Of the 232 Orations known to have been given since 1656, have been printed, either separately or in a medical journal. The more recent are common enough, but some of the old Orations are very rare. They were divided by Osler into three groups: (1) Those which simply fulfil Harvey's injunction (2) real contributions to the literature of the physiology of

circulation; and (3) those which the Orator, after a preliminary words of praise discourses upon the work which he is most interested in. Not all of them fall naturally into one of these groups. At various times, especially in the period 1750-1850, the Harveian Oration fulfilled many of the functions of the Presidential Addresses, which were given regularly until about 1870. In addition to the praise of benefactors many Orators comment on current trends in medical politics and education and include obituary notices of tributes to Fellows recently deceased. Several Orators have made valuable contributions to the biography of Harvey or the history of the discovery of the circulation. Among the best Orations in this respect are those of Sir H. Acland (1865), Sir G. Paget (1866), Owen Rees (1869), T. K. Chambers (1871), G. Rolleston (1873), Sir E. Sieveking (1877), J. Ogle (1880), Sir H. John (1882), Sir J. R. Reynolds (1884), J. F. Payne (1896), R. Crawford (1919), H. Spencer (1921), Arnold Chap

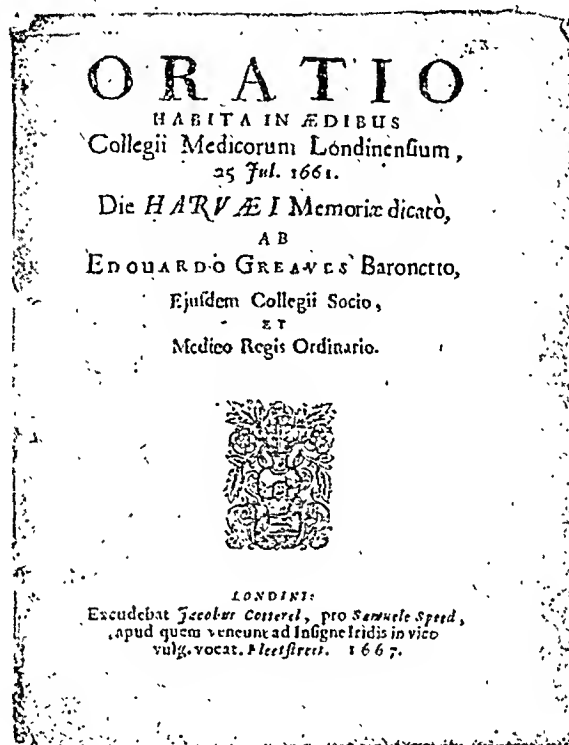
(1922), Sir W. Hale-White (1927), Sir H. Rolleston (1928), and Sir W. Herringham (1929).

The Oration has been delivered by some "so obscure as to make their appointment to that post their only claim to fame and by men of such reputation as to make it their smallest task to distinction." The names of Akenside, Arbuthnot, Galen Mead, Heberden, and Baillie are known to all; but who has heard of John Hawys, Charles Bale, Robert Hopwood, and Charles Feake?

## Some Early Orators

The first Oration, that of Edward Emily (1617-57), was delivered some time between June 21 and July 28, 1656. The text has not survived, but Emily is said to have expressed himself a little too freely on the subject of the Army and the Commonwealth, a dangerous topic in 1656, and a vote of censure was passed and duly recorded in the Annals. Indiscretion led to the ruling that all future Orators submit their papers to the President for his approval, but this has long been ignored.

The second was given by Edmund Wilson (c. 1615-57) in June, 1657, a few days after the death of Harvey. It was published, but it is known that Wilson took the opportunity to deny the spreading rumour that Harvey, to lessen his suffering, had hastened his death by taking opiates. It is a curious



Title-page of the first printed Harveian Oration



coincidence that the first two Harveian Orators died within a few months of fulfilling their office.

Daniel Whistler (1619-84), the third Orator (1659), is remembered for the first clinical description of rickets. He held in succession the offices of Registrar, Treasurer, and President of the College, not entirely to the advantage of the College funds, and his conduct was censured in the Orations of Walter Harris (1707) and John Hawys (1721); but his friend Evelyn thought him "good company and a very ingenious man." Thomas Cox (1615-85), Orator in 1660, is warmly referred to by Thomas Sydenham as "the patron and promoter of my first endeavours."

The fifth Oration, that of Sir Edward Greaves (1608-80), delivered on July 25, 1661, was the first to be printed. It appeared as a slim quarto of 32 pages in 1667. According to Sir Norman Moore, it "contains a few facts and many conceits, but some of these are happy. He says that before Harvey the source of the circulation was as unknown as that of the Nile, and compares England to a heart, whence the knowledge of the circulation was driven forth to other lands." The original manuscript is in the British Museum (Sloane 302).

The sixth Orator, Nathan Paget (1615-78), was the familiar friend of Milton, and among the guests at his Oration was John Evelyn, who records the fact in his Diary. Let it be recorded to the honour of Samuel Collins (1617-85), Orator in the Plague Year of 1665, that he was one of the physicians who remained in London throughout the epidemic. Happily, he survived to deliver the Oration a second time, in 1682.

#### Notable Orations

There are many remarkable features about Richard Mead's Oration of 1723. Not only was it the first to appear in an English translation (1763) but a French version appeared as late as 1774. The Oration proper, a brief argument in defence of the status of the physician in Greece and Rome, has been confused by eminent medical historians with the *Dissertatio de nummis* with which it was first published. This illustrated essay on ancient medical coins was not even Mead's own work, but that of Edmund Chishull, divine and antiquary (1671-1733). Mead's remarks on the high prestige of the ancient physicians led to a "pamphlet war" with Conyers Middleton, the Cambridge antiquary. In 1761 the elder Heberden found among the Harleian MSS. a final unpublished "Defensio" of Middleton's in which Mead was referred to in the most generous terms. He had a "few copies printed to be given away," and so publicly vindicated the honour of the medical profession and of one of its staunchest champions. The Oration (1751) of the eccentric Sir William Browne (1692-1774) is one of the finest from the typographical point of view. It has a handsome engraved title-page and the first page of the text bears a head-piece representing the Sheldonian Theatre at Oxford, the Senate House at Cambridge, and a view of the old College of Physicians in Warwick Lane. The Oration of Robert Taylor (1755), one of the most polished and elaborate of any, was the medium for disseminating the favourable opinion of the College with respect to inoculation for smallpox.

#### Contemporary Comment

With the rise of the medical journals in the early part of the nineteenth century we are provided with a wealth of contemporary comment on the Orators and their Orations. These are always interesting and sometimes startling. Thus, the *Lancet* of June 29, 1833, records that "the Harveian Oration was delivered at the College of Physicians, Pall Mall East, by Dr. Paris, on Tuesday afternoon last. It consisted of the usual twaddle uttered on such occasions. The meeting ended in a jollification, and the proceedings have been duly recorded in the theatrical portion of the columns of the daily journals."

Perusal of John Elliotson's Oration of 1846, which is a veritable apologia for mesmerism and for his own conduct with regard to it, recalls one of the bitterest episodes in British medical history. The Oration was delivered in Latin, but in order to give his views wider publicity Elliotson had it published in both Latin and English versions simultaneously. Apart from topical references to the cholera epidemic of 1849 (Wilson, 1850), the Crystal Palace (Spurgin, 1851), medical politics

(Alderson, 1854), and the Indian Mutiny (Wood, 1858), there is little of note in the few remaining Latin Orations. The last of these to be printed was that of A. J. Sutherland in 1863, and in the following year Robert Lee delivered the last Oration in Latin. This was not printed, but the original manuscript is preserved in the College Library.

Sir Henry Acland in 1865 made the final break with tradition by delivering and printing his Oration in English, and since that date no Orator has ventured to use the Latin tongue. The effect of this has been to instil reality into what had become a rather stultified performance, and the fine series of English Orations since that date contain many valuable observations on the advances made in physiology and clinical medicine, for of recent years Orators have taken the rational course of departing boldly from the somewhat narrow bounds laid down by Harvey in 1656, a course of which the great experimenter would surely have approved.

We are indebted to Dr. E. Ashworth Underwood, Director of the Wellcome Historical Medical Museum, for permission to reproduce the title-page of the very rare Harveian Oration of Sir Edward Greaves from the copy in his care.

## PSYCHOLOGICAL ASPECTS OF ACCIDENTS AND ACCIDENT PREVENTION\*

BY

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Up to now there have been few organized attempts to understand either the emotions and instinctive impulses underlying road accidents or the social forces involved. Perhaps we have not sufficiently regarded accidents as an integral part of our community life. There is a temptation to regard them almost as interlopers, and it may be for this reason that they have not been studied systematically in their natural setting in the community.

Laboratory experience has demonstrated some relationship between accidents and fatigue, lack of experience, and poor general health. Road accidents, in particular, tend to occur more commonly among drivers who are not in good health or who are unskilful, among older people and the inexperienced young drivers, and among those with delinquent records. It is noticeable that nearly all these classes include complex combinations of human attributes or influences. Then there is so-called "accident proneness" to be considered. Scientific studies of drivers showed in one case that 10% of a group of drivers was responsible for 60% of all its accidents; and in another that 20% of the drivers had an accident rate 3½ times as high as the remainder. Certain laboratory tests of quickness of reaction and of muscular co-ordination have shown that poor performance in the tests was four times as common among the accident-prone group as among the remainder. Less decisive correlations were obtained with tests of intelligence and of temperament.

Accident proneness is related to lack of quickness, slow reaction time, poor muscular co-ordination, poor intelligence, instability of temperament, and distractibility. Once again, every one of these factors is complex and by no means constant in each individual all the time. For example, what is meant by instability of temperament and distractibility? During the recent war, when the Army had to select many thousands of men to become drivers, it was found that a combination of laboratory tests with careful assessment of past history and of present temperament achieved an encouraging success in reducing both the period of training and the occurrence of accidents during training. On the whole, men and women of under 40, with good civil records, a healthy attitude towards military service, with average intelligence, enjoying good health, and who did well in the tests, were the most successful. However, this type of person is wanted for every other responsible job, and

\*Abridged from a paper read to a joint session of the Safety Education and the Home Safety Sections of the Royal Society for the Prevention of Accidents' Silver Jubilee Congress at Brighton on Oct. 8.

perhaps common sense would have got us as far. But much has been learnt in establishing even this piece of exact knowledge.

One large-scale inquiry into the causes of military road accidents over a period of six months failed to reveal any accident-prone drivers, but it may be that the period of time was insufficient. It did reveal certain accident-prone military units, and this observation opens up a whole new field for speculation: Why is it that certain groups of men are more liable to accident than others working under identical conditions?

### The Sociological Approach

Accidents need to be studied as social events. They occur as integral parts of our daily life in the community; we expect them and make provision for them, and they are as much social events as any other happening in the group. Practical difficulties arise out of the need to study large numbers of people in order to provide enough accidents from which to draw conclusions, to keep them under notice for a long time, to study relatives and friends of the principals, and to study the onlookers. Moreover, the public dislikes being studied; which means that any project will need to be introduced with great wisdom and care.

The tests of temperament and emotional stability used up to now have mostly been of a static, question-and-answer type and have not given decisive results. The method of study needs altering to include a systematic study of the emotional life of participants and their past history up to the critical moment when they all converged for the final drama. The onlookers (the people in the street) must not be left out, for they were present and may be an influence to be reckoned with. Lastly, and most important, our study should include facts and ideas not only as they appear to a dispassionate outside observer but as they appear to the people involved in the accident themselves. Fantasy plays a large part in the lives of most of us; and fantasy distorts objective reality all the time and in ways that few of us clearly appreciate.

The differences in attitude shown by pedestrians, motorists, and cyclists owe much to distortion by fantasy. Therefore it is vitally important to learn more about what being on the road does to the individual who is walking, driving, riding, or merely standing and looking on, and to find out how road users influence each other. Much can be learnt by studying children, whose component forces are apt to appear with less concealment than those of adults. It is easy to see how the natural properties of childhood lead to danger. This subject was dealt with by Dr. Susan Isaacs in a paper read to the Royal Society for the Prevention of Accidents in 1938, and I cannot do better than paraphrase her main conclusions.

### Child Psychology and the Road

Isaacs drew attention to the adventurousness of young children, their impulsive curiosity and need to gain mastery of things. They possess a relative lack of prudence and forethought, a span of attention too narrow to take in all the details of a crowded street, and a rudimentary perception of space and time—i.e., they cannot estimate the speed of an oncoming car.

Other observers have noted the child's lack of understanding of mechanical cause and effect and of impersonal events: to a young child the wind is a person or is blown by a person; he endows all outside happenings with a personal and often human significance.

Dr. Isaacs observed that toy cars and trains are used by young children to symbolize their parents and friends and often their own feelings. The boy who crashes his toy car noisily into his sister's doll's-house symbolizes a wealth of feeling. From this it is only a short step to the child's endowment of real vehicles on the road with his own feelings or with the attributes of his parents. For him traffic may represent formidable objects of great power—like Daddy when he is angry, or his own internal feelings of anger which are so terrifying to him.

Dr. Isaacs pointed out that children make a positive contribution to their own danger. The child's normal sense of helplessness contributes to bravado: he must test himself and the traffic (which may symbolize his fantasied fears). The child who is unsettled or insecure or basically not happy in his

relationships at home is particularly prone to bravado, to suspicion, or to test out whether the oncoming car (which may represent a parent) will respect him or not. He may wish to defy, attack, or annoy the motorist, who in the child's mind may not be clearly distinguished from the policeman or a fussy mother. Even more than this: there may well be a real and deep desire to be hurt. Just as some children attract bullying, others invite punishment. In human nature, the not uncommon impulse of a child to displace his parent is followed by a great sense of anxiety and guilt—traditionally in mythology, usurpation of the father's position is punishable by death.

What happens if a young child by the side of the road has a sudden impulse to defy a car because in fantasy it represents his own father? The situation is potentially dangerous, and it becomes more so if the impulse is as quickly followed by remorse, by a desire to throw himself at the mercy of the car or even to invite punishment. It may be argued that this line of thought is leading us into deep waters, but such mechanisms and symbolical actions are not uncommonly encountered in disturbed and maladjusted children. Dr. Isaacs sums up the situation with moderation by remarking that some children have deep impulses stronger than their powers of intelligent control.

The importance of admitting the possibility of these childish mechanisms lies in the way such attitudes tend to linger on and influence adults in strangely uneven and unexpected ways. Most grown-ups are aware of little islands of childishness within themselves; many will pride themselves on retaining some of the magic of childhood. This state of incomplete maturity or lack of perfect balance makes it doubly important to recognize that reason and conscious knowledge do not govern everything; and that accidents should be understood, if possible, not only in their total social setting, but also in terms of what they really meant to the participants and what the parties meant to each other in fantasy as well as in fact.

### Type of Inquiry Required

A few weeks ago, in a quiet side-street in St. Marylebone, an elderly lady began to cross the road in a slow, rheumatically manner about midway between two pedestrian crossings set 100 yards apart. Just at that moment the traffic lights across Baker Street, 50 yards away, flashed green, and an open, cigar-shaped sports car with no mudguards roared into our street, driven by a youth of about 18. As a fellow pedestrian my personal sympathies were with the old lady, though the stickler might assert that she should have dragged her rheumatically self 50 yards to use the pedestrian crossing. The youth had ample time to apply his brakes partially and slide gently behind the old lady, but he delayed action until the last moment, stamped on his brake and pulled up violently with brakes and tyres screaming, exactly behind her. He put out his head and said something unkind, audibly rammed in his gear lever, and went off in a roar of indignation. The old lady looked round vaguely and went on her way without comment.

There are many questions urgently requiring answers—e.g., did having control of a car make any difference to that young man? Was this a sample of his normal behaviour? What was his relationship to his mother? What did the old lady mean to him, if anything? Did she symbolize for him at that moment his own mother, or perhaps authority in general? Was he inflicting on the head of an innocent substitute all the hostility stored up against another person to whom he dared not appear as he felt? Was his behaviour merely due to irritation at the interruption of a dream of power and speed which he was deriving from his car? Again, is a sports car in the hands of a young man more dangerous than a saloon car of equal power? Thirdly, were the onlookers being asked to witness the prowess and cleverness of this young man? Would it have happened had they been alone in the street? Fourthly, was the old lady really as ignorant of wise behaviour on the road as she appeared to be? Did the young man perhaps symbolize anything to her—her own son, or something unpleasant? Had she any personal reasons for courting danger or death?

It would be foolhardy to dismiss this incident merely as boorishness on the driver's part meeting stupidity of the old lady. To do so would prevent any possibility of ever coming to understand causes. But there is one other unanswered

question which seriously reflects on the present state of our knowledge: Does this kind of happening bear any relation to accidents proper? One feels that both parties are of the stuff of which accidents are made, but there is no proof of this.

### More General Aspects of Behaviour on the Road

There are more general inquiries besides intimate studies: what effect has driving a car on the ordinary man and woman? and what effect has facing an oncoming car? We know that cars symbolize power without effort, speed, adventure, exploration, and independence—all characteristics more in line with male psychology than with female. Is there, after all, a genuine difference between men and women drivers, as misogynists maintain? It needs exact investigation. If a car ministers to a young man's sense of power and his more animal characteristics, is our friend in the sports car the modern equivalent of the classical centaur, with the head of a man and the body of a horse and behaviour compounded of both (but without the centaur's intellectual propensities!)? Some women feel this instinctively and sense that driving a car is in some way a threat to their femininity. Such women are apt to treat their cars as dangerous animals needing strict control.

The implication of all this may be that people react to driving in a similar way to their reaction to their own instinctive and emotional impulses—a principle that applies equally well to pedestrians and cyclists. The mature, well-balanced person faces the road without a qualm; he estimates the danger accurately and is confident of his powers to cope with it. He also faces his social responsibilities squarely. The immature, unstable person reacts not only to the traffic but at the same time to his own fantasies of violence, aggression, fear, and power as symbolized by the traffic. Consequently, the likelihood of the unstable person doing foolish and inappropriate things is greatly increased. It is probably fair to conclude that road accident prevention is intimately bound up with the broad principles of mental health to a degree far greater than is generally realized in both its personal and its social aspects.

### Practical Applications

One practical result of demonstrating the deeper emotional significance of accidents may be to show that a high proportion of so-called accidents not only are deeply motivated but also fit into the life pattern of one or more members of the group. The next task is the more accurate prediction of dangerous emotional forces, and I believe that at last psychologists possess techniques of investigation to enable them to undertake the task profitably. The chief deficiencies are money and a clear mandate from the public to go ahead.

It is time for a series of large-scale investigations on carefully chosen sections of the community into the psychological forces behind every accident in their individual and group significance, both real and arising from fantasy. This would involve studying a great number of people and could scarcely be completed on a voluntary basis. Whether it would be possible to get the same statutory powers to investigate as for rail and air accidents is very doubtful, but it may be necessary to seek these. This investigation would be very unpopular with the public unless presented to them with great care, and to do it well would involve expenditure of much time and labour. We must weigh these depressing considerations against the continued and appalling loss of life and destruction at present. The public conscience is dulled by the very fact that road accidents are so commonplace.

### Safety Education

This suggested investigation would quite possibly lead to the prevention of accidents at their source so far as the "human elements" are concerned; but this is a long-term aim which would not easily be reached. A more immediate effect would be on the propaganda and public education campaigns. It is difficult confidently to direct educational work without exact knowledge of the dynamic forces involved.

Nowadays much stress is laid on "training children to obey," the modern feeling being that though children will no longer obey at once for authoritarian reasons (if they ever did), they can at least be trained to obey (if the educator is cunning enough) as a kind of conditioned reflex. It is often hoped that

obedience and road sense can be so instilled by maxims as to become part of the child's second nature. For instance, by harping on danger it is hoped that automatic avoidance of danger will result. Quite apart from the fact that, psychologically speaking, this is a very doubtful proposition indeed, avoidance of danger is not the real aim, which is more fundamental—namely, to strengthen the positive factors on the side of safety and to remove morbid motives leading to the active seeking of danger.

Much of safety education still relies on authoritarian and horrific methods, both of which are effective in reasonable doses with well-balanced children but positively dangerous with mal-adjusted and unhappy children. The former method challenges children to defy authority; the latter challenges them to dare to test out the fear aroused. Not only children but many adults react unhealthily, and no one can estimate the potential damage of these methods. Similarly, repetition can be overdone. A report issued some time ago by the L.C.C. said that safety education required "damnable iteration." If the iteration really were damnable it is a safe bet that the results would be equally damnable.

### Road-safety Films

A recent inquiry into the effect of three road-safety films raises certain points of importance to the whole field of safety education. This inquiry was made by the Tavistock Institute of Human Relations at the request of the Petroleum Film Bureau, to whom I am indebted for permission to quote the results. The investigators aimed at spontaneous expression of attitude by children divided into groups of ten and engaged on chalk drawings, completion of stories, making up games and plays, and discussion, before and after seeing the film.

It appears to be very relevant to the success of the film—or, indeed, possibly to the success of any other educational technique—whether the children are able to enjoy it freely, express criticism openly, and join in discussing its story and problems afterwards; all of which will affect the amount of assimilation and change of attitude. It may be risky to generalize, but those children from stricter schools reacted less unfavourably to the didactic or direct teaching sequences of the films than those from freer schools. I have deliberately used the expression "less unfavourably" because it is not sufficiently recognized that normal children not dragooned by rigid discipline react in a hostile way to being talked down to, which may go far to explain many difficulties experienced by some teachers in schools.

It is striking that the children's own ratings of the three films were in reverse order from those of an experienced adult reviewer, who failed to recognize the strongly negative or hostile reactions which parts of the films evoked in the children. The latter responded by mistrust to being talked down to and by resentment to seeing a child depicted who was obviously foolhardy. Their hostility was shown by open criticism, by rejection, and by omission from play and story-making. They also appeared to try to get even with the adults by being very critical of all the small technical mistakes which they noticed.

The films revealed the possibilities of an effective indirect approach by stimulating thought about social problems arising out of the film—e.g., playing on bomb sites, the lack of playing space, co-operation with motorists in quiet roads, and so on. Such thinking and discussion may be more fruitful than even a direct teaching technique.

The report of the Tavistock Institute of Human Relations recommends that films be used as preludes to discussion, games, and other spontaneous play activities in which children can work out their own ideas about road safety. In particular, direct teaching sequences and pointing the moral should, if wanted, be left to the teacher and not incorporated in the film.

*An Indirect Approach.*—The observation that the films indirectly stimulated interest in such topics as playing-fields for crowded areas leads to the speculation whether good results could not be obtained by showing story or narrative films of everyday life in which the road-safety theme appears as an incidental sequence; then, by the discussion-play technique, to work on the ideas stimulated in the children—a possibly difficult but theoretically sound and promising technique.

### Some Psychological Ideas on Educational Methods

Can some of the findings of the film inquiry be applied in principle to other methods of safety education? The primary aim is to harness, as it were, the child's sense of responsibility; to make him whole-heartedly on the side of responsible behaviour, not merely as a sense of duty imparted by parents and teachers, with the jungle half of him in rebellion, but heart and soul. Our greatest natural ally is the child's own desire to grow up. Methods which place responsibility on the shoulders of children in a way which they can bear are the safest means of conveying ideas that are charged with emotion; finding out for themselves by play is one example of such a method. Didactic, dogmatic, or direct teaching methods are the least satisfactory for conveying emotionally powerful ideas such as discipline, danger, and death.

The negative aim of avoiding provoking hostility is at least as important as the more positive aims. Hostility may be aroused by the ideas themselves, by the method of conveyance, and by the person conveying them, and when aroused tends to irradiate the whole subject, thus leading to an increase in danger to the unstable child.

The ordinary straightforward classroom teaching method is probably best kept mainly for factual education and for invoking the child's reason and sense of responsibility. This method is less effective for dealing with the dangerousness of roads or for presenting the antithesis between safety and danger, if only lest we succeed too well and persuade the children that the aim of man is to be safe and to avoid danger. The facts and statistics of danger, presented reasonably, can be handled by direct instruction. There is also an ample field for classroom methods in combating the often surprising ignorance of why traffic exists and of the part it plays in everyday life. Few children realize how dependent they personally are on the free and safe circulation of vehicles on the roads and of the roles of traffic regulations and policemen. We also need greater widespread knowledge of how vehicles work, of what they can and cannot do, of the limitations of the driver, and of what the road looks like to the driver compared with the pedestrian. There is nothing new in this; many authorities have been using these methods for years.

Such teaching must take care to avoid moral judgments suggesting that it is "good" to obey traffic rules and "bad" to dart into the road. In teaching, to link road behaviour with morals is to risk a negative overstress, especially from the unstable child, and may, like over stressing the horrific, actually increase the danger to that child.

Ideas of emotional importance such as danger, damage, injury, death, and bereavement lend themselves to a more indirect technique by films, plays, discussion, and the spontaneous production of ideas by groups of children. Just as accidents often come in the social group, so it is reasonable to seek their prevention by group as well as by individual methods. In particular the moral ideas associated with road behaviour—and all behaviour has inescapable moral implications—are best left to spontaneous evolution by the children themselves.

### Conclusion

Good safety education achieves much, and in principle what has been said here will apply also to adults, and in the home and factory. When education has harnessed to it all the knowledge which could be acquired from an investigation into the inner emotional implications of accidents and their significance to the social group, who knows how much more could be achieved? That is why so much emphasis has been laid throughout this paper on the need for a new approach before the full contribution of psychology to the prevention of accidents can be realized.

The shortage of doctors in Berlin has caused the Allied *Kommandatura* to authorize the city *Magistrat*, according to a report in *The Times* of July 26, "to set up a committee to deal with the applications of medical men who have been convicted of criminal offences to be re-registered to the register." The applicants must first have served their terms of imprisonment.

### FOOD AND DRINK INFECTIONS

#### Conference of Representatives of Local Authorities

A conference of representatives of local authorities of England and Wales and Northern Ireland, including the chairmen of members of health committees, medical officers of health, and sanitary officers, was summoned in London on Oct. 9 by the Central Council for Health Education to discuss food and drink infections.

Lord Woolton, the chairman, said that there were between 1,500 and 2,000 deaths annually in England and Wales due to bovine tuberculosis conveyed by infected milk. When he was Food Minister he had spent many anxious weeks investigating this problem, and had come to the firm conclusion, from the evidence available to a Government department, that there ought to be compulsory pasteurization in this country. Was it too much for local authorities to accept the same standard of responsibility for the milk consumed in their areas as they already accepted for water? The large number of deaths of young children from diarrhoea and enteritis was also lamentable. Most of these deaths were due directly or indirectly to food or drink infections. A message was then read from the Minister of Health in which he stated that the information obtained by his department made it ever more clear that a great part of infection could be avoided by scrupulous attention to cleanliness in equipment, clothing, and person at all stages of manufacture and handling of food and drink.

#### The Problem Stated

Sir William Savage said that in some cases, as with staphylococcal infections, the reservoir of infection was from human sources; in others, as in the *Salmonella* group, it was derived from animal sources, particularly pigs, ducks, and small rodents, while in the case of botulism the organism was in the soil. The greater the manhandling of food the greater the likelihood of infection. Outbreaks of food-poisoning arose rarely from pork, but much more often from ham, which was handled more. He had frequently come across cases in which a food as originally prepared was perfectly harmless, but had become poisonous after a lapse of time because it was left at a temperature which encouraged the rapid multiplication of organisms. Food-poisoning the source of which was a diseased animal was not very common; he recalled that the first outbreak he ever investigated, forty years ago, was due to brawn from a pig which was so ill that it had to be carried to the place of slaughter in a milk float. Much had been done under Lord Woolton's administration to concentrate slaughtering in a selected number of slaughter-houses, some 500 instead of the former thousands; but it was now time that these selected slaughter-houses, which were often cramped and difficult to supervise, were all made really satisfactory premises.

The growing popularity of communal feeding-places, Sir William Savage continued, while advantageous from many points of view, had its disadvantages. Washing-up arrangements were often far from satisfactory. There were too few tanks, and the tanks were not kept to their assigned purposes—one for washing and another for rinsing. Utensils were in short supply, and often went back into circulation after perfunctory cleansing. The choice and strength of detergents were important, and the temperature of washing-water was a point too often disregarded. Food when prepared must be kept cool in refrigerators working at the proper temperature. Medical examination of all food handlers he considered to be impracticable, for if it was superficial it would be of no use, and if elaborate, involving bacteriological examination of stools and so forth, it would be prohibitive in cost. But it should be a condition of licence of any premises where food was consumed or sold that all cases of illness among the staff were reported to the medical officer of health.

#### Varieties of Infections

Dr. G. S. Wilson, director of the Public Health Laboratory Service, said that the number of food-poisoning outbreaks reported annually was now some 500, about a sevenfold increase since before the war. Bread was a very uncommon

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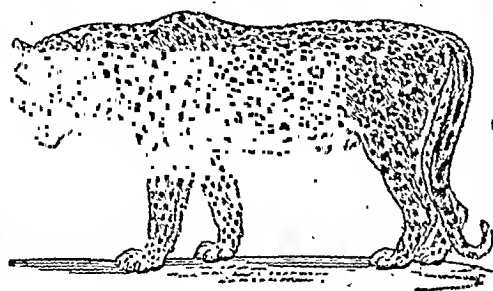
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"Rapid Chemical Disinfection of Clean Unwashed Skin," LANCET, May 11, 1946, pp. 683-686.

This is one of the classic papers relating to the antiseptic value of iodine. All the research literature is collated and made readily available to members of the medical profession by the Iodine Educational Bureau. Many of the newer iodine uses and research findings are not widely known. Medical practitioners are invited to consult the Bureau about them.



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urce of infection, because most bacteria would not grow on a crust of the loaf. Fresh meat, freshly cooked vegetables, and cereals were seldom implicated. The dangerous foods were milk and milk products, cream, synthetic milk, ice-cream, custards, jellies, and trifle, all of which contained nutrient substances for bacteria. Another group of dangerous foods included brawn, pressed beef, stewes, and sausages. Gravy, soups, sauces, and shellfish were occasionally responsible. The danger lay in the preparation of foods beforehand, and in serving them under conditions suitable for bacterial growth, often in a warm kitchen.

Mr. L. H. Lampitt, director and chief chemist of the laboratories of J. Lyons and Co., Ltd., gave an account of the methods of control employed in a great catering firm and the efforts made from every side to ensure cleanliness and wholesomeness. He mentioned that during more than twenty years of war and peace Lyons had never been involved in any major food epidemic, although they employed approximately 20,000 people directly in the manufacture, preparation, and serving of food, and served nearly half a million meals a day. At present food catering encountered many difficulties, and he pointed out the danger of accepting things to-day as normal and basing policy on them.

### American Practice

Some account of food and drink hygiene in the United States was given by Dr. Robert Cruickshank. He said that since 1942 the United States Public Health Service had inaugurated courses of instruction for food handlers in many different industries. They had also set up a code with a useful series of regulations, going very much further than anything available in this country at present. The code established certain standards for the handling of food, medical supervision of food handlers, and refrigeration. In this country under the Food and Drugs Act, 1938, there were certain regulations, but these were concerned only with actual buildings and there was very little applying to the food handler himself. Dr. Cruickshank also drew attention to the need for a better system of food storage, and even under present conditions he pleaded for a great extension of refrigeration, particularly for the communal kitchen. The United States in this respect was very much ahead of us, in that refrigeration, both communal and domestic, had been established there for many years, and refrigeration of every kind of food in communal kitchens was a routine.

Dr. Robert Sutherland, medical adviser and secretary of the Central Council, said that there were three major problems: bovine tuberculosis due to infected milk; diseases like typhoid and paratyphoid, and notifiable food-poisoning; and, finally, diarrhoea and enteritis, which caused between 3,000 and 4,000 infant deaths a year. The problem of milk was an administrative one, but it had its educational side in bringing home to people the need for heat-treatment of milk. Public health authorities, pending compulsory pasteurization, should insist upon the boiling of all milk consumed by children in their area, except possibly the milk which came from T.T. herds. With regard to food infections which were the result of some fault in production and distribution, legislation should be reviewed with the object of setting up a code of requirements similar to that established by the U.S. Public Health Service. The Board of Trade should help to meet the requirements of the food-handling industry for equipment and materials to ensure cleanliness and safety. The problem of infantile diarrhoea and enteritis was more complicated because the sequence of events was less obvious, but it was important to make an approach to the housewife concerning the possible conveyance of infection, particularly in homes where there were young infants.

### A Comprehensive Programme

Dr. Sutherland went on to say that standards of food-handling, with many commendable exceptions, were low. Many popular restaurants would lose their patronage if only a glass partition separated their dining-halls from their kitchens. The key people were the local authorities and their officers. Committees should be set up in every area to investigate the local position and to take action. Conferences should be

arranged, with representatives of the medical and nursing professions, the food-handling industry, educationists, leaders of industry and the workers, women's institutes, and youth organizations.

The Central Council for Health Education was prepared to assist in any effort along these lines. Experts were available to give courses of lectures. A two-tier attack was necessary: the first directed to the supervisors and workers in the industry, and the second to the housewife. It was important that food and drink infections should not be dealt with as an isolated health education problem, but be linked up with all the other aspects of healthy living.

In some general discussion Dr. W. R. Martine (Birmingham) said that in his city 97% of the milk was pasteurized or otherwise heat-treated. Unfortunately, the remaining 3% was never entirely free from risk, and an outbreak of undulant fever had been attributed to this cause. Dr. J. B. W. Rowe (Harrow) said that the British Medical Association for the past four or five years had been hammering very hard at the Government to take up this question of pasteurization, but so far it had succeeded only to the extent that the Ministry of Food had appointed a departmental committee to look into the transport question.

Dr. Leonard Williams spoke of the state of the street markets in London and other towns. These markets were a means of bringing green vegetables to the public at a reasonable price, but he hoped that the distribution of vegetables might be so arranged that street markets could be abolished. It had been said that the medical inspection of food handlers in the United States had been dropped because it was impracticable, but he thought that only a very limited experiment had been made; it was tried out almost entirely on coloured people.

A Guildford councillor, Mrs. Croke, chairman of the Health Committee, described a recent effort made in her town, beginning with an exhibition visited by 7,000 people, following which an approach was made to the various food traders and organizations, resulting in the formation of a guild. Admission to the guild was obtained only by a promise to conform to a code of practice, which went rather further than the law required and insisted on the installation of washing facilities near sanitary conveniences and on the immediate notification to the medical officer of health of all cases of illness amongst the staff. The response had been encouraging.

An effort in Scotland was described whereby food handlers serving large holiday camps had been persuaded, with only a minimum of refusals, to submit to medical examination, including bacteriological examination of excreta, and a number of carriers had been found.

The proceedings closed with some remarks by Mr. H. Lesser, chairman of the Central Council, on the results which might follow so successful a national conference.

An early instance of the beneficial action of shock on mental disease, observed more than a century ago, is quoted by Dr. Claude Lillingston in *Blackwood's Magazine* for October in a biographical sketch of Philippe Pinel, the man who broke the chains of lunatics at the time of the French Revolution. Pinel was born on April 20, 1745, and in 1793 was put in charge of the Bicêtre, a cross between a prison and a hospital, where thieves and assassins lived with lunatics in chains. One of Pinel's patients, not an inmate of the Bicêtre, was a man of letters who imagined himself tired of life. Weighing with an alarming impartiality the various means of committing suicide the one against the other, he had not made his choice when he came to London. Late one night, having at last decided to drown himself, he went to a bridge over the Thames. About to jump into the river, he was attacked by footpads. Though practically destitute, he was furious at being robbed. He was also terribly frightened, and in sheer desperation he put up a gallant fight and escaped. His melancholy was so effectively dispersed by this incident that he forgot all about his intended plunge into the river, and he returned to Paris, where he lived happily enough. Pinel's notes on this case were found among his papers by one of his biographers, Dr. René Semelaigne, but, though Pinel would seem to have been aware of the occasional benefits of shock, he was in principle more in favour of soothing than stimulating his patients—witness his advocacy of tepid baths in preference to the total immersion in ice-cold water inflicted in his time till lunatics were almost frozen to death.

## REPORTS OF SOCIETIES

## Reports of Societies

## SOCIAL MEDICINE AND HOSPITAL PRACTICE

An address on "Social Medicine and Hospital Practice" was given by Prof. J. A. RYLE at a meeting of the Medical Society of the L.C.C. Service, held at County Hall on Oct. 2. Dr. J. R. M. WHIGHAM was in the chair.

Prof. Ryle began with a remark on the neglect of the social background and foreground in hospital medicine. Patients were studied in isolation, remote from their natural surroundings. No complete picture was formed of the patient as a person, or of his illness as distinct from the label attached to it, or of its essential causes, economic or occupational. Pathological diagnosis might be precise, but personal and social diagnosis was defective. Despite the excellence of diagnostic techniques and specialized skills, hospitals were at a disadvantage compared with the experienced family doctor who had known his patient for a long time, had been inside his house, and was aware of his domestic situation, economic status, and the character of his work. A colleague in suburban practice had told him that instead of sending clinical letters with patients to hospital he now sent social letters, describing the patients' circumstances as he knew them.

Hospital medicine had become more and more exercised with clinico-pathological inquiry. Personal and social investigation had lagged a long way behind. The advent of the psychiatrist and psychiatric social worker had remedied the situation to some extent, but not entirely. The study of cases had suffered from an over-concern with pathology to the detriment of the total aetiology and prognosis—by total aetiology he meant much more than an assessment of specific factors, and included consideration of domestic, economic, occupational, educational, and psychological factors, all of which might buttress the specific cause or produce illness in the absence of specific cause.

An idea was current that what could be elicited from the patient himself was good enough. It was not good enough, partly because the patient was not always a good witness, and partly because the clinician was not always patient and skilful enough in interrogating him. Any case history should include not only heredity and occupation, and perhaps geographical and seasonal influences, but also the result of an inquiry into the immediate material environment both at home and at work. The occupation should be described in an intimate way, not merely named, and former occupations should be given if relevant. He was told by the medical officer of one factory that that factory alone there were six or seven varieties of welding, so that it was not sufficient to put a man down as a "welder." A colleague once wrote a paper on a case of "boiler-maker's g," only to discover that the patient had been a miner before he was a boiler-maker, and the South Wales mine had probably more to do with his disease than the boiler. Nutritional standards and habits were of obvious importance in assessment. The total social history might not always advance the diagnosis or improve the treatment, but it would rarely fail to contribute something to a better appreciation of the patient as a person, and sometimes it told them almost all they wanted to know, even when the laboratories and x-ray departments had failed them.

## The Patient as a Person

The information about the immediate material environment of the patient given at hospital often consisted of little more than his address; yet in some conditions, including almost any type of chronic disability, something ought to be known about the situation and type of his house, the room space in relation to the number of occupants, and, in the case of the housewife, the adequacy of her equipment and amenities and her hours of labour and freedom. A great deal might be learned from the personal relationships of patients, from such matters as wages, rent, cost of living, and number of dependants, and the effect upon the illness of a falling income, the fall being due to the illness itself. The proportion of income spent on food, and

the calorific value of the food, were also matters of importance. Educational standards should not be neglected, for they affected the patient's understanding of his own illness.

Hospital work, Prof. Ryle continued, was always biased by a concentration on objective methods and also by the fact that only the more serious forms and stages of disease were generally seen. Representative samples of disease were never seen in hospital, but only the worst samples. Hospital material was selected by gravity, by severity, or by interest or some other factor. Therefore judgments founded on hospital cases tended to be distorted. Clinical and social follow-up studies in most hospitals were inadequate. Hospital studies also were detached from healthy population.

The lecturer then proceeded to speak of the work of his own Department of Social Medicine at Oxford. There they were largely concerned with surveys of various types of population. It was a great corrective to clinical predispositions to be working among ostensibly healthy people. While hospitals would always be invaluable units within the total framework of medical and social services, they had disadvantages from their isolation. They were detached from the work of the general practitioner and from the personal and environmental services of the local authority, and also from the less serious aspects and varieties of disease and from healthy groups. Some hospitals had made efforts to compensate for these disadvantages. A good ward sister would fill in gaps in the information about patients as a result of her talks with the patients and their relatives, and now the extra help of the almoner and in some instances of the psychiatric social worker was available. The importance of occupational therapy and rehabilitation was recognized more and more. We were becoming more interested in the total patient, which included his social background. The follow-up departments in diabetes, pernicious anaemia, and cancer cases were further evidence that it was felt to be unsatisfactory to observe patients only for a limited time in a hospital bed. Follow-back methods should also be undertaken to get a better picture of how the illness arose.

## Importance of the Almoner

Under the new National Health Service he hoped that the almoner would be relieved of a great deal of her clerical work and would be concerned more and more with case work, organization of after-care, and follow-up studies. Her function would be social diagnosis and therapeutics in parallel with clinical diagnosis and therapeutics. In connexion with teaching hospitals and research she would have still other functions. What he had sometimes referred to as our modern endemic diseases—gastric and duodenal ulcer, chronic rheumatism, hypertension, psychoneurosis—often gave a sense of frustration in the hospital case because of their chronicity and their tendency to recur. The study of their total aetiology had as yet hardly begun. They were clearly due to continuing or recurring causes.

With the help of social pathology and rational human studies and socio-medical disciplines we should begin to balance anew the physical sciences and technologies which had ruled the roost in medicine during the last quarter of a century. The dividing walls between departments had to be breached. The almoner must more frequently be present at the ward round. The physician and house-physician must more frequently visit the almoner's department. The almoner's department and the registration department ought to be next door to each other. In numerous other ways associations of common interest could be brought about. Prof. Ryle confined himself to a single suggestion, that in every large hospital in the country, perhaps once a quarter or even once a month, there should be a conference, sometimes on a case, sometimes on a problem connected with the treatment of patients, and it should be attended by representatives of the clinical staff, the pathological and radiological staff, the almoner's department, the nursing staff, the dietitian, and the record officer. These were, after all, members of a large team. They lived side by side. They were, in fact, a social unit, and should be interested in one another's work, and none of them should feel a Cinderella.

Prof. Ryle's address was followed by papers by an almoner and a psychiatric social worker, and there was some general discussion.

## ANEURYSM AND LEUKAEMIA

A meeting of the Medical Society of the L.C.C. Service was held at St. Mary Islington Hospital on Sept. 3. Mr. I. I. PRICE demonstrated a case of popliteal aneurysm in a man of 42 who had had treatment by extraperitoneal lumbar sympathectomy, followed a week later by excision of the aneurysm. In discussing the treatment of this case, Mr. Price remarked on the value of preliminary sympathectomy in increasing collateral circulation. He had, after excising the aneurysm, cooled the limb by the use of an electric fan, but after a few hours found that the cooling was being overdone and that the foot was becoming cyanosed. The fan was therefore discarded, with a speedy improvement of the circulation in the leg.

Dr. A. L. JACOBS considered that there was little to gain from comparing the results of popliteal ligation after gunshot wounds with an operation of election such as Mr. Price had done. He said that he could not understand how cooling the limb could have any desired effect, for while undoubtedly metabolism was reduced by cooling so also was the circulation in the smaller vessels on which the collateral circulation depended. Mr. G. C. DORLING referred to a case of aneurysm of the femoral artery in which, after operation, the affected limb was not cooled but the other limbs were warmed up. The result had been good.

Mr. PRICE discussed a case of embolism in the brachial artery of a woman of 75 upon whom he had operated under brachial-plexus block analgesia. To remove the clot the artery had had to be opened in two places, but was repaired. There was never any danger of gangrene, but the radial pulse did not return for four weeks. He asked whether other members had had experience of brachial embolism, and what happened in cases where no operation was done. He considered that the ideal treatment was embolectomy and sympathectomy. Dr. A. L. JACOBS said that he had seen six cases of embolism in the brachial artery treated without surgery and without gangrene resulting, but he thought it probably best to give a dose of papaverine and observe the result. Arteriectomy was often the best operation in that it abolished the reflex spasm in the other arteries of the limb. Mr. G. C. DORLING pointed out that there was a danger of pneumothorax in the administration of the analgesic.

Mr. J. GARE said that he had always found the collateral circulation in the upper limb ample, and referred to a case in which he had tied the innominate, subclavian, and common carotid arteries without any gangrene resulting.

## Urethane for Leukaemia

Dr. T. ST. M. NORRIS demonstrated two cases of leukaemia treated with urethane. He had had them under observation for about 10 months, and, while pointing out that it was much too early to draw definite conclusions from the use of urethane, said that the results seemed to be as good as those obtained by deep x-ray therapy. The danger of agranulocytosis was always present, and it was very difficult to know when the maximum benefit had been received from urethane and to stop the use of the drug before agranulocytosis appeared.

Dr. B. GOTTLIEB said that urethane appeared to be quite useless in acute leukaemia; there might be a temporary improvement in subacute cases, but in chronic cases he had had an excellent response followed by relapse after the end of the treatment. A second course of treatment resulted in less marked improvement, and eventually the cases became resistant. However, urethane was at least as beneficial as deep x-ray treatment. He referred to a case of Hodgkin's disease in a girl of 16 who as a result of treatment with urethane now appeared perfectly well, and he suggested that it was well worth trying urethane in such cases.

Dr. G. STOR thought the risk of agranulocytosis was very real, one of the great difficulties being that it might start at any moment without warning. With regard to the use of deep x-ray treatment for myelocytic leukaemia, he had investigated the results in a series of cases, and on comparing them with a similar series untreated found that there was no lengthening of life.

## Correspondence

## International Society of Surgery

TRÈS HONORÉ CONFRÈRE,

Le Comité Organisateur du XII<sup>e</sup> Congrès de la Société Internationale de Chirurgie qui s'est tenu à Londres du 14 au 20 septembre dernier comprenait les noms de la plupart des dirigeants des grands hôpitaux d'Angleterre, d'Ecosse, et d'Irlande. Ces confrères non seulement ont comblé les chirurgiens étrangers très nombreux à Londres de prévenances, mais leur ont encore ouvert largement leurs services hospitaliers pour leur permettre de se rendre compte des progrès considérables réalisés depuis la guerre dans l'installation de vos hôpitaux et dans les techniques chirurgicales.

Au nom des quelques 700 congressistes, nous vous prions de transmettre à tous les chirurgiens britanniques l'expression de toute notre reconnaissance.

Veuillez agréer, très Honoré Confrère, l'assurance de nos sentiments les plus distingués.

L. MAYER,  
Président.  
L. DEJARDIN,  
Secrétaire-Général.

## Acute Porphyrria

SIR,—We have read with particular interest the letter on this subject by Dr. Leo Rau (Sept. 13, p. 433), since many of his observations are of the greatest significance to our conceptions of the disease. The isolation of uroporphyrin from cases of any of the diseases cited by Dr. Rau—viz., meningitis, encephalitis, meningo-encephalitis, generalized herpes zoster, disseminated sclerosis, poliomyelitis, and subacute combined degeneration—is of such fundamental importance that we hope that Dr. Rau will publish his findings in greater detail as soon as possible. That coproporphyrinuria—i.e., an increase above the normal in the quantity of coproporphyrin isomers I and III excreted daily in the urine—may occur in a variety of pathological conditions including lead poisoning and hepatic diseases is well known. The appearance of uroporphyrin, however, is much rarer. In fact, indisputable evidence for the presence of uroporphyrin in the urine has only been forthcoming in the conditions of congenital porphyria (mainly isomer I, some isomer III) and acute porphyria (mainly isomer III). If Dr. Rau's claim can be substantiated, clearly our present viewpoint must be reconsidered. We very much hope that when Dr. Rau presents his findings in detail he will indicate whether the observed excretions were of type I or type III porphyrins.

We cannot, however, agree that porphyrin must be neurotoxic, since Klüber<sup>1</sup> has claimed that the normal central nervous system contains numerous microscopical granules which exhibit a red fluorescence in ultra-violet light and which possess some of the properties of porphyrins. The excretion of porphyrins in degenerative diseases of the central nervous system might equally well be the result of the degeneration rather than that the degeneration should be a result of the formation of porphyrins.

Lastly, we are surprised that Dr. Rau finds an excretion of uroporphyrin or an excessive excretion of coproporphyrin in the faeces in haemorrhage from the gut, as we should have expected any such excess of porphyrin to be limited to protoporphyrin and its near derivatives, mesoporphyrin and deuteroporphyrin.—We are, etc.,

C. RIMINGTON,  
CHARLES H. GRAY.

London.

REFERENCE  
Klüber, H. (1944). *Science*, 89, 482.

## Sudden Death after Intravenous Injection

SIR,—I was interested by Dr. A. G. Oentlé's article (Oct. 4, p. 530), as I had a sudden death from this cause some years ago. The patient was a man of 83 who had auricular fibrillation and congestive heart failure. He was fully digitalized, and I gave him one dose of "salyrgan" intramuscularly, but it acted very slowly and the diuresis kept him awake all night. So two

days later I gave him a dose intravenously. Shortly after the needle had been withdrawn his breathing became stertorous, and he died very quickly.

Another patient to whom I gave a great many intravenous injections of salyrgan died suddenly on hearing an air raid warning. I mention this to show that there is an element of chance in these cases, and possibly the minute shock of the injection may be the real cause. At one time I thought that venipuncture might cause more shock than one ordinarily credits, and to test it I became a blood donor; but I never noticed the slightest effect myself.

Sudden death can occur from injections of a more simple kind. In 1942 I was called to see a man of 40 who had severe substernal pain of a few hours' duration, which I diagnosed as coronary thrombosis. I decided to give morphine and had to wait several minutes for some water to be boiled, during which I talked to the patient. I then gave him 1/3 gr. (22 mg.) of morphine subcutaneously, but "as I plucked my cursed steel away" his breathing became stertorous, and he died in a few minutes. There was not time for the drug to have acted, even if it had been given intravenously. Was it the slight shock of the injection added to the already desperate condition of the heart, or was death at that moment pure chance? It did not seem so to his wife, who was present all the time.—I am, etc.,

Norwich.

FREWEN MOOR.

### Poliomyelitis

SIR.—Mr. Chapman Pincher (Sept. 6, p. 396) states: "There is, however, one persistent source of fresh human stools, open to visitation by flies, embracing every town. I refer to our vast network of railway lines. Because of the primitive sanitation on our trains and the large number of apparently healthy people who may be poliomyelitis carriers, railway tracks may be an important source of the virus." One aspect of our investigation into the spread of poliomyelitis at the Hospital for Sick Children, Toronto, Canada, has been a study of the conditions that exist in the homes; and especially in homes remote from large centres. At the beginning of our field work this year we were getting cases from small isolated rural centres. In the field studies in these places our most isolated cases were in close proximity to railway tracks, often a very short distance, a matter of yards, from the railway tracks.

In a spot map the bulk of cases in the first group reported from the Province of Ontario were distributed along railway lines or along main routes of travel. One very suggestive study was in a farmhouse where there were seven people in the family. Two children developed poliomyelitis; one died with the bulbar type. None of the others in the family had been ill or had differed in their eating or visiting habits over the preceding month from the two children with poliomyelitis, except that within the incubation period of the disease the two children had eaten wild strawberries along the railway track, which easily could have been directly contaminated from the train or by flies.

This observation of the proximity to railways in our early rural series certainly makes us believe that such possible source of virus should be seriously considered and attempts made to confirm or disprove the possibility that this may be a very real source of dissemination of the poliomyelitis virus. Our observation may be possibly interpreted on the basis of chance, but in view of our experiences it would be interesting to know whether other medical men have made similar observations respecting the localization of cases in the vicinity of railway communications. We are fully appreciative of the limitations of the observations we have made, and our investigations are still in course of progress. But in view of Mr. Pincher's letter we thought it might be of interest to record these observations.—I am, etc.,

Toronto, Canada

NELLES SILVERTHORNE.

SIR.—Dr. John Mills's letter (Sept. 27, p. 507) on the use of "prostigmin" in cases of poliomyelitis suffering from paralytic ileus is a reminder that disturbances of the autonomic nervous system occur not infrequently in that disease.

It is well known that a high proportion of adult patients suffer from retention of urine, but the fact that the bladder can be made to empty by an intramuscular injection of 0.25 mg. of

carbachol seems to have been ignored. I have records of the cases in which catheterization was avoided by this means though in one it was necessary to administer the drug twice daily for four days before normal function returned. In fourth case with intercostal paralysis carbachol was tried, I doubtless owing to the simultaneous administration of atropin in an attempt to keep the respiratory tract dry, it failed.

I note that the only patient whose age Dr. Mills gives was a woman of 50. It would be interesting to know whether, as retention of urine, paralytic ileus is commoner in the higher groups.—I am, etc.,

Bristol.

D. S. SHORT

### Spasm in Poliomyelitis

SIR.—Is it possible that controversy on the existence of spasm in poliomyelitis may arise from differing conceptions of the meaning of the word? I have been able to follow a number of cases of the disease during the present epidemic from its early stages well into convalescence. I have not observed a true spasm in the sense that affected muscles have developed a pull without voluntary action on the part of the patient. I have, however, seen many muscles which had lost their extensibility from the earliest days of the disease, and these were tender and painful, particularly on attempted passive stretching.

Apart from the erector spinae those most often affected have been the biceps, hamstrings, and calf muscles, which are noticeably prone to develop contractions. They have usually been only partly paralysed from the outset, and have regained power well, though extensibility has only been recovered by the most careful physiotherapy. In one case in which this was hampered by seven weeks in a respirator shortening of the biceps remains after 4½ months, though their power is sufficient to flex the elbows against gravity and some resistance.—I am, etc.,

Luon, Beds.

H. B. LEE.

### Treatment of Varicose Veins

SIR.—My friend Mr. W. D. Park's reference to me (Oct. p. 547) is my excuse for attempting rather late to enter the discussion. He has perhaps too sparingly reported me and missed my point, which is that varicose veins, thrombosed apparently solidly and hard by sclerosants seldom fail to recanalized completely even after many months. I have removed by biopsy a short length of varicose vein, to sight and touch hard cord, ten months after sclerosant injection, and found only partly occluded by thrombus and with blood flow through it. The thrombus firmly adherent to one side of the vein would, presumably, have been digested in due time, and the varicosity become plainly "recurrent." If "injected" case with or without concurrent or subsequent ligation, had been followed up for periods over ten months, "injections," however little harmful, would long ago have been abandoned as useless. I submit that attention has been wrongly fixed on "thrombosis"—an incidental concomitant of the phlebitis and periphlebitis. In a series of biopsies I observed that recanalization always occurred unless the vein wall became necrosed, and with necrosis the injected vein was soft, not hard. The vein cannot be permanently occluded by firm hard clot undergoing a complete fibrosis, converting the vein into some sort of solid cord to be slowly absorbed. "Sclerosing" injection fails to obliterate the vein. These biopsies revealed that phlebitis and periphlebitis must be severe and extensive enough to destroy the vein's nutrient vessels. "Necrosing" injection will obliterate the vein, in the end without trace, by causing its death *in situ*. This necrosis in severity, extent, and possible harmfulness is not within the injector's control (while a scalpel is).

Many patients have varicose veins on both legs. This opportunity to try a different method (there have been more than one of fair surgical repute) on each leg in the same man, a perfect control, was seized. My cases at this hospital have been nearly all seamen, who were medically examined before signing on for each voyage, recurrences of varicose veins being sent back to hospital. My follow-up has therefore been adequate. Several years' observation made it clear that the least unsatisfactory method (none in my hands was 100% satisfactory) and the one with fewest recurrences, and of which the men made no complaints on score of pain, discomfort, loss of voyage and wages, was the rather slowly arrived-at method of multiple resections.



divisions-extractions, by which the whole varicose vein could be extirpated through incisions—rarely more than  $1/4$  to  $1/3$  in. (0.63–0.85 cm.) in length—at intervals along the vein, the sites for incision carefully selected in the standing patient and indelibly marked before operation. The incisions, made parallel to the lines of tension of the skin, gape but little and do not require suturing. Only very few ligations of severed veins are ever necessary, and perforating veins and tributaries can be divided and ligated or, if small, torn off flush with the deep fascia without the use of a vein enucleator.

In some cases new varicose veins have appeared so soon after extirpation of the old as to raise inescapably the question of overloading in the deep veins and a new compensatory reflux through deep communicating veins, and the wisdom of severing all deep communications, if that were feasible.

Here I take opportunity to record my indebtedness to Mr. Park's painstaking anatomical studies (*Lond. Hosp. Gaz.*, 1945, 48, 221). He has demonstrated the number, complexity, and variability of the communications, deep and superficial, of the veins of the leg, and thus provided illuminating and irrefutable anatomical warning—a timely reinforcement of the conclusions many of us had come to from clinical studies—that it is not feasible on any occasion to deal with more than a very few of the deep communications.—I am, etc.,

London, E.16.

H. M. HANSHELL.

SIR.—The article by Prof. A. M. Boyd and Mr. D. J. Robertson (Sept. 20, p. 452) with instructive phlebograms will I fear lead some to be less radical in their attacks upon varicose veins. It has always been accepted that solutions injected into varicose veins *must* inevitably enter the deep veins—and that very promptly, the patient noticing the taste of the solution within a few seconds of the injection. It has always been thought that the deep veins escaped damage because of the large volume of swift-flowing blood they contained diminishing internal damage, but most of all they were unaffected by sclerosing solutions because they were healthy normal veins.

I have encountered quite a number of Army pensioners with femoral thrombosis following ligatures and injections, but I have ascribed this complication to the long rest in bed (2–3 weeks) allowed after the operation of ligature or the occurrence of superficial thrombosis. Conditions in the Army apparently made it difficult to follow the ambulatory routine of civil life following ligatures and superficial thrombosis. I do not recall a single femoral thrombosis in a very large series of my own treated strictly on ambulatory lines. Others of the Army cases I have seen were due to operating on cases with bad thrombophilic histories, cases usually avoided for fear of stirring the hornets' nest.

Varicose veins are as hard to eradicate as rabbits, and if the article of Sept. 20 induces some to pull their punches I fear the pest of varicose veins will start to gain upon us again. For my part I will continue to inject downwards from the top ligature (if there is no valvular obstruction), upwards and downwards from the lower thigh ligature, downwards from the external saphenous ligature, and upwards from the excellent Dodds's ligature of the internal saphenous at the ankle. Up to a total of 100 ml. of 30% brine is used if the patient is anaesthetized, and less painful solutions if not. Following this all thrombosed veins are injected at weekly intervals. The foundation stone of success is to achieve a firm solid saphenous vein from groin to knee following the ligature.—I am, etc.,

London, W.1.

A. DICKSON WRIGHT.

### Leprosy and its Problems

SIR.—In the leading article (June 7, p. 813) and in Dr. Bernard Moiser's letter (Aug. 30, p. 347) mention has been made of cockroaches as possible carriers of lepra bacilli. The idea that insect vectors play a role in transmission of the disease is evidently sound. But if an insect is to blame it could not be the cockroach, at least not exclusively. In this country we have had leprosy for centuries, but the disease is now practically extinct. It could not have been transmitted by cockroaches, because they did not exist in this country until a decade or two ago and are still practically unknown in the countryside, where leprosy has had its origin.

If an insect is a vector of this disease, lice or fleas are more likely to be instruments of transmission than any others. Leprosy is a disease of filth and disappears with cleanliness. It flourished in the Dark Ages, when the human body was neglected and when the old maxim of St. Jerome was still valid, that "*poenitens eo foetidior, eo pulcherrior*." The common belief that leprosy is transmitted by sexual intercourse might find its explanation in a transfer of phthirus inguinalis. In this connexion it may be mentioned that McCoy and Clegg found acid-fast bacilli which seemed to belong to the leprosy family in lice. The fact that savages are exempt might be explained by their nakedness and consequent inability to breed the body louse. When the savage begins to wear clothes and live in houses he will contract the disease, if the opportunity for infection is there. All this could fit in with the louse as vector.—I am, etc.,

Reykjavik.

NIELS DUNGAL.

### Foetal Cries

SIR.—The prenatal cries of the Trowbridge foetus reported by Dr. E. Curphey (Sept. 27, p. 508) were anticipated by one at Strasbourg in 1821. A detailed account of the occurrence is given in a letter by Dr. William Lister to the *Edinburgh Medical and Surgical Journal* of October, 1822. There are remarkable points of similarity in the two cases.

The mother of the Strasbourg foetus had suffered repeated losses of liquor amnii up to the last month of her pregnancy. A sudden stumble, followed by considerable loss of liquor, occasioned unusually violent foetal movements and, to quote the author, "all at once the company present were alarmed by the cry of a child." The crying was repeated and "distinctly came from the womb of the patient. After a time it desisted." Two days later, in the eighth month of pregnancy, the mother went into labour and was delivered by cephalic presentation of a foetus of a premature infant. "The new born child," says the doctor, "gave a few weak tones" and died half an hour after birth. The author's comments on the aetiology of the event are worth repeating: "To judge from the evacuation of water, about the middle of the pregnancy, it may be well supposed that there had been some rent in the membranes by means of which the air was probably introduced. From the foregoing, it may then be well comprehended how the child cried; but how it could live 48 hours in the confined womb, surrounded with water in an amphibious manner is incomprehensible."

There may well have been other occasions between 1821 and 1947 when premature loss of amniotic fluid, air round the foetal face, and contraction of the uterus on the foetal chest have combined to produce cries loud enough to astonish the neighbours.—I am, etc.,

London, S.W.1.

W. HARTSTON.

### The Extent of Neurosis

SIR.—I cannot let Dr. D. Yellowlees's letter (Sept. 20, p. 468) pass without comment. After reading the leading article on "Neurosis in Industry" (Aug. 16, p. 257) I had originally considered the results of my small survey in the form of a short article, but I did not think it worth the space and condensed the material into a letter (Sept. 6, p. 396). I agree that "more emotionally ill than actually so" is not altogether a very apt phrase, but it is not easy to define shortly the difference between an illness due to the invasion of external elements, or failure of internal mechanism, and regarded with no undue alarm by the patient, and the exaggeration of discomfort energized principally by an increase in already present strong basic anxiety, probably acting through endocrine channels and along pathways of outlet grooved from early childhood. By "actual" I meant "in terms of physical pathology," rather than and as different from a state of psychical activity.

I am in complete agreement with the fifteenth paragraph of Dr. John Rickman's very apposite article (Sept. 6, p. 363), which formulates the situation of the bromide-receiving woman perfectly, and Dr. Yellowlees will notice that I rate her as 100% ill. By "normal ailment" I meant one which is understandable and treatable in physical terms of microbic invasion and chemotherapy, and which is the normal sphere of the physician. To

the psychoneurotic the physician can only be a "wet shoulder" and a generous giver of palliative sedatives, for the conduct of a psychotherapeutic analysis, involving many hours of a specialized relationship over many months and interacting problems, is beyond both the time and the scope of the general practitioner, even if the patient were willing to undergo it. I need hardly remind Dr. Yellowlegs of the degree of resistance of these anxiety-ridden people.

Whatever may be the genesis of "sufferings which lead to trivial or pointless complaints," to quote Dr. Rickman, they are kept in being by a dynamic vicious circling of anxiety which is rooted in disharmony of human relationships, both between the patient and his idealized image of himself and between him and his outer circle of relationships. The disharmony is in latent hostility and dependence and can grow like a weed as readily in a country cottage as in a town house. My own impression is that the disorders and evacuations of war, by adding what the German psychologists call *Angst der Kultur* to the inner anxiety, will produce a considerably increased crop of character disorders, if not actual neuroses, in the next 25 years. Society is already aware of it, in the widening provision of child guidance clinics.

If one has the time one will find disharmony and misery behind the demands for a nerve tonic, but nothing out of a bottle will help it to change. I would suggest to both Dr. H. G. St. M. Rees and Dr. Charles Shearer (Sept. 20, pp. 468 and 469) that the answer lies in the psychic walls built round an originally defenceless and unloved personality, which, while protective, prevent him from human community and participation; and let me add that they can be as strong as ferro-concrete and as crippling as osteo-arthritis.—I am, etc.,

Stockton-on-Tees.

L. F. DONNAN.

### Homosexual Offences and Psychotherapy

SIR,—Everyone must be grateful to Dr. F. H. Taylor for his most interesting paper on "Homosexual Offences and their relation to Psychotherapy" (Oct. 4, p. 525). There is a great shortage of facts regarding sexual abnormalities, and in the past on medical officers, who have valuable opportunities of studying severe and chronic cases, have published little. This, of course, not intended to minimize the very valuable contributions of Sir Norwood East.

One would naturally expect Dr. Taylor's views to be pessimistic, since in prison psychiatry the hopeless cases and failures are most likely to be met, while the successfully treated ones live normal lives. If I might be permitted to show the brighter side of psychotherapy I would cite a case of a Jewish woman aged 33 who was married, with two children. She suddenly found that she was falling in love with a pretty Irish maid and could not tear herself away from this girl. She wished to give her presents, dress her in different clothes, touch her, but not make any actual overt sexual approach. A few years previously she had fallen in love with another married woman. This patient was treated once weekly for three months. She lost her abnormal attachment, discovered she was able to feel real affection for her husband (whom she had liked but not really loved previously), and for the first time in her life had an orgasm. No doubt Dr. Taylor would say that this was not a genuine case of homosexuality, but one can always use this argument when insisting that "genuine" cases are not curable. I could produce other similar cases which have recovered under psychotherapy.

Dr. Taylor brings forward no evidence to dispute my contention that the so-called bisexuals are really partly developed homosexuals. Moreover, it is difficult to know where there is "a perversion in the psychiatric sense" and where there is "sheer depravity." Surely this depends on the outlook of the observer? I doubt whether the prostitute group is not composed of partly or wholly developed homosexuals also. Can anyone imagine that shortage of money would lead a normal man into homosexual prostitution? I can imagine many crimes from burglary down that most normal men would prefer. I would agree most whole-heartedly with Dr. Taylor's finding that the dreams accompanying nocturnal emissions are homosexual in inverts. In my experience they are almost entirely so, and why Hubert and East found otherwise is a mystery. I have always used the dream content to show the progress of a patient

under treatment, since it invariably changes as the patient recovers, and it is a bad sign if it does not do so.

It is obvious from Dr. Taylor's own statistics that punishment has no satisfactory effect, since so many cases have previous convictions. My own solution to this problem is that there should be a definite clinic for psychosexual conditions to which the courts send these cases for psychotherapy. The psychiatrists working on this one type of case would be certain to become more skilled than otherwise, and the patients more likely to be cured. Cases which did not respond and who were a menace to the community should be segregated under the best possible conditions, which surely could "differ appreciably from a prison sentence."—I am, etc.,

London, W.1.

CLIFFORD ALLEN.

### Treatment of Homosexuals

SIR,—Dr. F. H. Taylor's article (Oct. 4, p. 525) on homosexual offences makes me wonder once again why one never sees any mention of gonadal treatment in these cases; surely it must have some effect on at least a proportion.

A few years ago on transferring to a new area I came across a health visitor, aged about 35, who had a very deep voice and a distinct moustache. She had had a major operation, presumably a hysterectomy, about a year previously for dysmenorrhoea. About a year after I met her she was forced to leave the district as there had been several complaints from the mothers of girl guides in a company which she ran. I do not know exactly what these complaints were, but it was common local gossip that the girl was a homosexual. I feel sure that if this girl had been given appropriate hormone treatment at the time of and subsequently to her operation she would not have become a Lesbian.

I should be interested to know if others have any experience of these cases being prevented or alleviated by hormone therapy.—I am, etc.,

Rushden, near Buntingford, Herts.

L. M. M. BEADNELL.

### New Treatment of Rheumatoid Arthritis

SIR,—If, as Dr. G. L. Kerr Pringle (Oct. 4, p. 547) suggests, Dr. Imre Barsi's hypothetical anti-rheumatic substance (Aug. 16, p. 252) is a known hormone, it may be chorionic gonadotrophin or some other. If it is not chorionic gonadotrophin—and the remission of rheumatoid arthritis often begins so early in pregnancy as to suggest that it is not—then the anti-rheumatic substance, or more properly the balance of definite blood values of a number of hormones which has an anti-rheumatic effect, is likely to be present in the blood during the progestational phase of menstruation.

Although, as far as I am aware, no regular amelioration of symptoms between the 14th and 28th days of the menstrual cycle has been reported in rheumatoid arthritis, it seems reasonable to start the investigation of haemotherapy in this disease with trials of progestational blood, which is so much more easily obtainable than pregnancy blood. Dr. Barsi apparently did not make his injections at any particular phase of menstruation, nor does he mention any side-effects on the periods and the breasts, which one might expect. It would be interesting to know if there are any.—I am, etc.,

London, S.W.3.

JOHN EBBETTS.

### Supplementary Petrol

SIR,—Honesty is no longer the best policy. The medical profession have recently filled in their application forms for supplementary petrol and given an honest estimate of the total quantity of "motor fuel" required per month in their practices, but they have found in return that the Ministry of Fuel and Power has reduced all their allowances by 10%.

Surely, Sir, this is a case of class warfare at its worst. The bacilli, cocci, vibrios, and spirochaetes have not been asked to make a similar 10% reduction in their attacks on the community, and they will therefore gain an unfair advantage over the profession.—I am, etc.,

London, W.8.

H. STEPHEN PASMORE.

## POINTS FROM LETTERS

## Mind and Matter

Dr. E. V. PIERCY FOX (Keston, Kent) writes: In connexion with correspondence on the above subject may I quote Prof. A. N. Whitehead: "It seems that in bodies that are obviously living a coordination has been achieved that raises into prominence some functionings. . . . For lifeless matter these functionings thwart each other and average out so as to produce a negligible total effect." In this view the difference between the living and the lifeless is one of organization and not of ultimate nature. The mind-matter problem arose with the domination in thought of Cartesian dualism, mind and matter becoming irreconcilable substances.

## Medical Certificates

Dr. C. SPENCER WHITEHOUSE (Birmingham) writes: There is a practice which has become established during the last few years and which recently has expanded to such an extent as to constitute a major annoyance to all of us in general practice. I refer to the pernicious practice of requiring a medical certificate for practically any article that is in short supply. There is some reason in requiring a certificate from a doctor for some article which could reasonably be associated with the health of the patient and which a doctor might reasonably be expected to order—e.g., a vacuum flask. But when patients come and request a "note" for electric light, gas fires, edsteads, and above all an electric immersion heater, I think it is stretching the point too far. The latest request has been for a note to enable a patient (a young expectant mother) to purchase a baby's bath. It was not enough for her to produce her baby's ration book. . . .

## Milk Ration

Dr. C. J. PENNY (Winchester) writes: I venture to suggest that as time has now arrived when reconsideration should be given to the arrangements of the milk ration. In these last few weeks the general scarcity of milk has resulted in considerable hardship to many non-priority members of the public, and it is a matter of some difficulty for doctors to decide whether in borderline cases the priority certificate should be given when it is known that the general public's supply is thereby prejudiced. Since the commencement of the scheme the unit of priority has been one pint (568 ml.) of milk. I suggest that if the unit were reduced to half a pint the scheme could then be made far more flexible and fairer to all members of the community. If the half-pint unit were adopted, it would be possible under Group I to certify one to four units; under Group II, one to two units. Such an alteration would not greatly increase the doctor's work in respect of the individual certificate, though no doubt a greater total number of certificates would be issued. . . .

## Mortuaries for Dissection

Dr. O. P. CLARK (Worthing, Sussex) writes: May I suggest the simplest method of dealing with these cases is by communicating with the professor of anatomy at the university or college most likely to be interested. In my own case only a year or so ago I contacted King's College of London University, of which I am an ex-student, and was treated with the utmost courtesy and consideration. Now the necessary papers, including the appropriate form issued by the Home Office, are duly filed with my will, and whether my wishes could or might be flouted by any executor or other interested party I doubt very much, but this seems most unlikely. Incidentally, it is clearly stipulated that ordinary expenses are to be paid by the anatomy department and provision is made for religious observance and eventual burial in ground that has been suitably consecrated. . . .

## Control of Tuberculosis

Dr. SYDNEY GORDON TIPPETT (Horsham, Sussex) writes: The recent International Conference of Physicians has given the profession no fresh light on the real problem, which is how best to control tuberculosis. In the discussion on tuberculosis most of the speakers seemed with faint praise to damn the use of B.C.G., yet in the *Sunday Times* of Sept. 21 Lord Moran pleaded for the use of B.C.G. to protect those persons who were especially liable to become infected. From the report in the *Journal* (Sept. 20, p. 462) it seems that no mention was made of the problem—how to protect the recently infected person (child or adult) from developing tuberculosis at some later date. This was a tragic omission.

Let every effort be made to thoroughly try out any treatment that may be claimed will protect a human being from becoming infected, yet when that treatment has been found the way must still be found how to control tuberculosis. Koch nearly 50 years ago pleaded for the immediate treatment as soon as tuberculin showed the presence of tuberculosis. He was confident that such early cases, if treated, could have the disease arrested and in most cases would be cured. . . .

## Obituary

## W. ERNEST MILES, F.R.C.S.

A memorial service to Mr. Ernest Miles was held on Oct. 8 at Holy Trinity Church, Marylebone. The address at this service was given by Sir Gordon Gordon-Taylor, in the course of which he said:

. . . The name of Ernest Miles had been known to me by reason of his reputation as an operator and through his early writings from almost the beginning of the century, for he had already attained to the senior honorary staff of the Cancer Hospital, as that great institution was then designated, in the year when I first secured a medical qualification. About 1911 I became personally acquainted with him, when along with myself he was invited to become a member of the Surgical Club, one of the first, if not the very first, of those small coteries of men, meeting together for the promotion of surgical knowledge by informal conference and by travel. I still remember the thrill of belonging to a group which included surgeons like Wilfred Trotter, Percy Sargent, Sherren, Handley, and Ernest Miles himself.

On his maternal side Irish blood flowed in his veins, and some of his ancestors had served with Wellington in the Peninsular Wars. It was therefore not surprising that with this family military tradition, with so many personal attributes that make for leadership, with his passion for the horse and horsemanship, and his love of the copses and thickets and the greensward, he should have been a Territorial Officer in the years before the first Armageddon. I had the privilege of working alongside him for several months during the autumn of 1917 at an advanced abdominal centre just outside the walls of Ypres, where was collected together much of the "abdominal talent" of the British Expeditionary Force. It was an international group in very truth, for there were surgeons from the U.S.A., Canada, Australia, and New Zealand, as well as English, Scots, and Irish, and Miles was largely responsible for the wonderful friendship, the good fellowship and camaraderie that prevailed amidst that group, working "at the back of the front," on 16-hour "shifts" for months on end, in unpleasant, noisy, and sleepless surroundings, and he made of us a "brotherhood-in-arms."

He had a genius for friendship, and the deft fingers from which skill and pity flowed added adoring patients to the circle of his friends. He never said an unkind word of anyone, and if he could say nothing laudatory he kept his own counsel. In the words which Gibbon, the historian, used of Fox, it might be said of Ernest Miles: "Perhaps no man was ever more perfectly exempted from the taint of vanity, malevolence or falsehood." His philosophy of life might be briefly, yet imperfectly, expressed in the following lines:

From quiet home and first beginning  
Out to the undiscovered end  
There's nothing worth the wear of winning  
But laughter and the love of friends.

But for Miles there was something else worth winning—the conquest of disease and the relief of pain and suffering. It was the character and personality as well as the surgical achievement of men like himself and his colleague Charles Ryall that raised the prestige of the Royal Cancer Hospital and bequeathed to it a tradition to be maintained by their younger associates—by men like Jocelyn Swan, Percy Cole, Cecil Rowntree, and Cecil Joll. He was possessed of courage in abundance and a self-assurance and confidence which he could impart to others. . . .

Those who have been reckoned great in surgery must have been supremely skilled in the craftsmanship of our profession; they must by reason of the initiation of some novel and successful system of treatment have conferred untold blessing on mankind; their work must have illumined the dark, mysterious chasms in our knowledge of disease. It is necessary that they should have inspired their pupils and their surgical brethren with their own ideals, and should have inaugurated or sponsored some policy which has advanced the science and art of surgery. Ernest Miles fulfilled these criteria right well. . . .

This is not the time or place to discuss the details of his contributions to operative surgery; others more skilled than myself have already paid tribute to these in the medical press. In the words of Oliver Cromwell, "To be a Seeker is to be of the best Sect next to a Finder, and such a one will every faithful humble Seeker be at the end"; and Miles was happily spared to see the day when the methods which he had so long championed and employed during the dangerous pioneer period with unswerving conviction and dauntless courage became the recognized practice, now rendered safe by modern discoveries even in bands less deft and sure than his. . . . Academic honours came to him from many lands: from America, France, Greece. He was an international figure, and his work

influenced not only those of his own Britain but of lands beyond the seas.

Up there within the shrine on the old Castle Rock which looks out over the Scottish capital there is a corner dedicated to those of the Royal Scottish Fusiliers who perished in the first great war, and on the walls you may see inscribed those words which Thucydides, that consummate master of prose, puts in the mouth of the great Athenian, Pericles: "The whole earth is the tomb of great men. Nor is their name graven only in stone which covers their clay, but abideth everywhere without visible symbol, wrought in the stuff of other men's lives."

The tradition of Ernest Miles will live on not only in British surgery, but in the surgery of the world in the years that lie ahead. Let us thank God for the gift of Ernest Miles.

#### ERIK LYSHOLM

Prof. Erik Lysholm, the eminent Swedish radiologist, died in Stockholm on Sept. 26, aged 55. He had contributed much to diagnostic radiology, particularly on the neurological side. Educated at Uppsala University, he spent nearly all his professional life in Stockholm, the city of his birth.

The first radiological problem to which he applied himself was the accurate and thorough x-ray examination of the skull. Realizing that this could not be achieved with the standard apparatus, he set to work to design a skull table. Aided by his own considerable mechanical ability and by Georg Schonander, the engineer, he produced the first so-called "precision skull apparatus" in the late 'twenties. Since that time a number of improvements have been made, but fundamentally the apparatus has not altered and no other apparatus can compare with it for skull work.

Lysholm's greatest contribution to the physical side of radiology was the so-called fixed or Swedish grid. This simple device is placed in front of the x-ray cassette and greatly reduces scattered radiation, thereby improving the quality of the picture. There must be few x-ray departments in Europe or America without this grid, a certain tribute to its worth.

As a physician Lysholm will be remembered best for his original work on the accurate localization of brain tumours. It is nearly thirty years since air was first used in the ventricles of the brain for the localization of tumours, but it was left to Lysholm's genius to extract the maximum value from this method. In 1937 he published his famous monograph, "The Ventriculogram." It embodied the results of nearly 500 confirmed cases of brain tumour submitted to ventriculography. Lysholm clearly showed the various ventricular deformities produced by tumours growing from all parts of the brain. The method is so accurate that it is difficult to see how it can be improved, except perhaps in very small details. Latterly, his main scientific interests were in cine-radiology and the use of radio-active isotopes in radiology.

With the death of Lysholm the world loses not only one of its greatest radiologists but also a remarkable personality. Modest and shy by nature, all who knew him well deeply valued his warm heart. He had an unusual capacity for getting the very best out of his assistants and co-workers. He felt strongly that a team was necessary in such work as he was doing. This team was directed by his genius, but his modesty would not allow him to take more than a share of the credit.—J. W. D. B.

Dr. ANTHONY JOSEPH BORG died suddenly on July 7. Born in Sliema, Malta, in 1889, he graduated at Malta University in 1913. He joined the P. & O. Navigation Co., and was surgeon on the Egypt-Brindisi and London-Japan routes. In the 1914-18 war he served in the hospital ship *Sicilia* between Southampton and Boulogne and was in the first ship to return the "Old Contemptibles." Then he joined the Colonial Service and was posted to Fiji, serving as medical officer and at times as district commissioner for twenty-six years. After his retirement from the Service in 1942 he came to Auckland, New Zealand, where he practised as a physician. His cheerful personality endeared him to his patients and friends. His death robs the medical profession of a loyal colleague.—F. J. G.

GEORGE CECIL STRATHAIRN died suddenly at Nicosia, Cyprus, on Sept. 19. He was actively engaged in professional and social activities until two days before his death. Dr. Strathairn graduated at Edinburgh in 1901, and he took the certificate of the London School of Tropical Medicine and Hygiene in 1903 and the D.P.H. in 1912. He entered the Colonial Medical Service soon after qualifying, and served in various parts of

the world, including East Africa, Uganda, Fiji, Jamaica, and Cyprus. In 1929 he was appointed Director of Health, Cyprus, a post which he occupied until his retirement in 1933. His period of office was marked by great advances in the public health administration of the island. A sanitary inspectors' school was opened and attempts were made to improve village hygiene and sanitation through the medium of propaganda conducted by lectures, films, and personal contact with the villagers. After his retirement Dr. Strathairn decided to make a permanent home in Cyprus, for which country he had a great affection. In 1940 he rejoined the Service as a temporary district medical officer, and his experience proved of great value. Latterly he had concentrated on the organization of an aerodrome medical reception centre, and this work occupied more and more of his time. Dr. Strathairn, who had been a member of the British Medical Association since 1909, was honorary secretary and treasurer of the Jamaica Branch from 1926 to 1929 and represented the Branch at the Annual Representative Meeting at Manchester in 1929. From 1936 to 1938 and from 1942 to 1946 he was honorary secretary of the Cyprus Branch, and was its president in 1938-9.

H. M. S. writes: Strathairn's social activities were many. He was a very keen freemason, a prominent member of the local club, and for some time secretary of the racing club. His standard of personal conduct was very high, and it can be said with truth that he lived to serve others. His unselfishness, his generosity and kindness, his broad humanity, his wisdom and his humility associated with a charm of manner, stamped Strathairn as a great personality. He will live in our memories as a charming companion and a noble colleague.

Dr. HENRY GEORGE RAMSBOTTOM died at his home in Rochdale on Sept. 20 at the age of 63. His health had been poor for some years and he had had several periods of enforced inactivity. He struggled manfully against his disabilities and was in active practice until three weeks before his untimely death. He studied medicine at Edinburgh, and took the Scottish triple qualification in 1909. After acting as resident at Larbert and Perth Mental Hospitals he went to New Zealand to serve in the Mental Hospital Service at Christchurch. He returned to England in 1914, married, and entered general practice in Rochdale, where he spent the rest of his life, apart from service in the R.A.M.C. in 1916-17, when he was with the Ulster Division in France. Dr. Ramsbottom joined the British Medical Association in 1911. He took a keen interest in medical affairs and was seldom absent from B.M.A. and Panel Committee meetings. He was a member of the local medical war committee from its inception, and he was chairman of the Division in 1939-41. As recently as August the St. John Ambulance Association conferred on him the rank of Commander in recognition of over thirty years' devoted service. In charge of an A.R.P. post during the recent war, he was unsparing in time and trouble to ensure the efficiency of his unit. A Conservative in politics, he took an active part in local affairs. He was a member of the Rochdale Town Council from 1924 to 1930, but resigned when he became debarred under the 1930 Act because of his tenure of the appointments of public vaccinator and district medical officer. Outside his professional activities, "Rammy's" interests were mainly in sport. In his younger days he was a keen cricketer, and later took every opportunity in his leisure time to watch local and county cricket. He was also greatly interested in the Rugby League game and acted for many years as medical officer to the Rochdale Hornets. Until prevented by disability he was an enthusiastic, if only moderately proficient, golfer. He was by nature simple, direct, and kindly, and as a consequence it can truly be said that his friends were many and his enemies few, if any. He is survived by his widow and a married daughter, to whom we offer our sympathy.—L. K.

Dr. HELEN MARY DIXON, who died at a Bath hospital on Sept. 20 at the age of 69, was the only daughter of the late Mr. P. R. Dixon, of Manchester. After nursing experience in the first world war, and training as a midwife at the Rotunda Hospital, Dublin, she began the study of medicine later in life than is usual, and graduated at Bristol in 1925, when she was 46. For many years she did valuable part-time work as medical officer in charge of various infant welfare centres in Bristol and in Bath, and during the recent war she worked also in the school medical department at Bath, where she came to live about fourteen years ago. She was an excellent teacher and gave many courses of lectures for the Red Cross and other organizations. Mothers had great confidence in her judgment because they realized how deep was the personal interest she took in themselves and in their children. She had a forceful and attractive personality, and was much loved by her friends.

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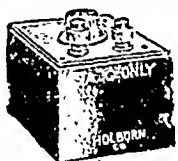
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d patients, who will alike miss her greatly. She held strong views about many social and medical problems, views which she put forward with characteristic good-natured vigour and tact. She was on the council of the National Gardens Club and was an active member of the Bath Soroptimist Club. J. F. B.

Dr. JAMES GEORGE COPLAND died in a Leeds nursing home on Sept. 21 at the age of 65. He was a student of Aberdeen University, graduating in 1906, and proceeding M.D. in 1920. Dr. Copland had been in practice in Huddersfield for thirty years. After a brief period as house-physician and house-surgeon to the ophthalmic department of the Aberdeen Royal Infirmary he went out to West Africa and served in South Africa for two years. In 1911 he went into general practice in partnership with Dr. James Raffan, of Huddersfield. Later he practised independently and succeeded the late Dr. John Wainman as borough police surgeon, a position he held for twenty-three years. During the 1914-18 war he served in the A.M.C. with the rank of captain. Dr. Copland was greatly interested in all types of sport, and particularly golf, curling, and football. He married Dr. Margaret C. Douglas in 1936. He will be greatly missed in Huddersfield, where for many years he had been one of the best known and most popular general practitioners.

Dr. HERBERT SHACKLETON died on Sept. 22 at the age of 84. Dr. Shackleton had been in practice for almost fifty years in Bradford, where he was one of the best known and most popular practitioners. He studied medicine at the University of Glasgow and at Leeds and qualified in 1885. He was in practice in Listerhills Road, Bradford, and had served on the Bradford City Council for nine years. Over the same period he was chairman of the Bradford Health Insurance Committee; he had been a member of the B.M.A. continuously for fifty years, and was chairman of the Bradford Division in 1922-3. For fifty-five years he had been a member of St. Mary Magdalene's Church, where a memorial service was held for him, and he had served for many years as a churchwarden. Advancing age had in no way diminished his grasp of affairs or his judgment. At the age of 80 he was elected chairman of the local insurance committee for the eighth successive year.

Dr. THOMAS FERGUSON died at Crieff on Sept. 23 at the age of 92. Dr. Ferguson graduated M.B., C.M. at Edinburgh in 1877. Three years later he settled in Dumfries, and there he remained in practice until his retirement in 1927.

Dr. WALTER WOODLEY STOCKER died suddenly on Sept. 28 at the age of 82. A student of St. Mary's Hospital, he took the Conjoint Diploma in 1889 and settled in general practice in Willesden after two years in Brondesbury. He was the last doctor in Willesden to possess a horse brougham. Dr. Stocker always took a great interest in local government. He was a member of the first Willesden District Council, and was chairman of the local fever hospital for six years. He was one of the first doctors to be attached to the Willesden General Hospital at its foundation. He had been district medical officer under the old Hendon Board of Guardians and then under the Willesden Board, retiring under the age limit in 1934. He had been a member of the B.M.A. for fifty-five years, and was chairman of the Willesden Division in 1924-5. Two years later he enjoyed reading his own obituary notices. He was said to have been the victim of an avalanche disaster in Switzerland. Dr. Stocker was popular as a general practitioner and as a public figure in Willesden, and he went into retirement in 1936.

Dr. ROBERT JOHN HELSBY, who died on Sept. 30 at the age of 62, was a native of Denbigh, and was educated at Denbigh National School and Denbigh County School. He took the Scottish triple qualification in 1910. He had been president of the Students' Society, and became demonstrator of anatomy for two years. He took over the practice of the late Dr. Richard Jones, of Bangor, whose daughter he married. During the 1914-18 war he served in the R.A.M.C., and was awarded the Military Cross and the French Croix de Guerre. He had been surgeon to the Caernarvonshire and Anglesey Infirmary, medical officer to the Post Office and Board of Education, and Admiralty surgeon. He was elected a member of the Caernarvonshire County Council in March, 1919, and became an alderman in 1940. Always keen on B.M.A. work, he had been president of the North Wales Branch in 1938-9, and had served on the local Insurance Committee from 1927, acting as chairman in 1932. He was elected a member of the Panel Committee in 1936, and had been chairman from 1939 to the time of his death.

Prof. Luigi Carozzi, formerly Chief of the Industrial Health Service of the International Labour Office, and now holding the chair of industrial medicine at Geneva University, writes: I have just learnt the sad news of the passing of my old friend Dr. J. C. BRIDGE, with whom I have been in close correspondence till quite recently. His death is a grievous loss, not only for his friends, but for all those medical men in Great Britain and in other countries who over many years have followed the work accomplished by him in the field of industrial medicine. The ranks of the "old guard" in this field are thinning out, and but too few of the younger men are ready to step into their places, which is a matter of grave concern.

## Universities and Colleges

### UNIVERSITY OF CAMBRIDGE

The Rockefeller Foundation has made a grant, available for one year, of \$2,500 for the University to purchase equipment in the United States of America for use in facilitating research under the direction of Prof. J. S. Mitchell, Ph.D., M.B., B.Chir., of the Department of Radiotherapeutics.

Titles of degrees were conferred by diploma on the following members of Girton and Newnham Colleges during August and September: J. M. Cockrell, M.B., B.Chir., M. Sutcliffe, M.B., J. Crossley, M.B., B.Chir., H. A. Jaques, M.B., B.Chir., Mrs. M. R. Simpson, M.B., B.Chir., S. G. Wills, M.B., B.Chir.

### UNIVERSITY OF DUBLIN

#### MOYNE INSTITUTE OF PREVENTIVE MEDICINE

As a memorial to the late Lord Moyne, who was assassinated in Egypt in 1944, his family have offered to bear the cost of building and equipping an institute, to be called "The Moyne Institute of Preventive Medicine," in Trinity College, Dublin. The Board of the College have gratefully accepted this munificent benefaction. The institute will provide urgently required accommodation for teaching and research in bacteriology and immunology and will also house the new Department of Social Medicine which the College authorities have decided to establish.

### ROYAL COLLEGE OF SURGEONS OF ENGLAND

Lectures in otolaryngology will be delivered at the College (Lincoln's Inn Fields, London, W.C.) on Nov. 3, 4, 5, 6, 7, 10, 11, 14, 17, 18, 19, and 21, at 6.15 p.m. The fee for the whole course is £5 5s.; Fellows and Members of the College and Licentiates in Dental Surgery will be admitted for £3 3s. Applications, accompanied by a cheque, should be sent to the secretary, Postgraduate Education Committee, Royal College of Surgeons of England, Lincoln's Inn Fields, London, W.C.2.

A series of twenty practical demonstrations in anatomy will be given at the College (Lincoln's Inn Fields, London, W.C.) during the six weeks beginning on Nov. 3. The fee for the series is £7 7s., which includes access to the dissection room during the whole period. Applications for admission, together with a cheque for £7 7s., should be sent to the secretary, Postgraduate Education Committee, Royal College of Surgeons of England, Lincoln's Inn Fields, London, W.C.2.

Research Scholarships will shortly be awarded by the College. There are two vacant Leverhulme Research Scholarships of the annual value of £400, with an allowance not exceeding £100 for expenses of research, tenable for one year in the first instance, but renewable at the discretion of the Council. The awards will be made either as scholarships or as grants-in-aid, according to the time available for research work. Scholars may be male or female, and must hold a medical qualification registrable in the United Kingdom or a university degree. Scholars must devote themselves to the investigation of some biological or clinical problem of disease as it occurs in man, with a view to the extension of surgical knowledge. Facilities for research will be available in the Bernhard Baron laboratories of the College in Lincoln's Inn Fields or at the Buckston Browne Farm, Downe, Kent. Applications, stating the nature of the proposed research and accompanied by a recommendation from a member of the staff of the applicant's medical school or university, should be sent to the secretary, Royal College of Surgeons of England, Lincoln's Inn Fields, London, W.C.2, before Oct. 27.

### ROYAL COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS

At a special meeting of Council, held on Oct. 3, with the President, Mr. William Gilliatt, in the chair, the Honorary Fellowship of the College was conferred on Prof. J. M. Munro Kerr, Prof. C. G. Lowry, Sir Ewen J. Maclean, and Sir William Fletcher Shaw. A

report of the ceremony was published in the *Journal* of Oct. 11 (p. 583).

The following were formally admitted by the President to Fellowship:

G. S. Brown, G. A. Davies, G. P. FitzGerald, A. M. Johns, F. G. McGuinness, R. McRobert, R. C. Thomas.

The following were formally admitted to Membership:

H. B. Bagshaw, G. H. Baneroff-Livingston, Isabella R. Bishop, J. T. S. Brown, Gwendoline E. Cockrem, J. McD. Corston, G. A. Craig, K. J. R. Cuthbert, G. L. Daly, R. W. Danziger, B. C. Dastur, Josephine A. Davidson, N. E. C. de la Hunt, W. P. G. Dickson, I. Donald, I. A. Donaldson, Sara M. Field-Richards, T. B. FitzGerald, I. T. Fraser, A. M. Giles, A. McM. Graham, E. F. B. Hamilton, A. J. Hardy, Lois E. Hurter, D. W. James, D. H. Lees, M. Lipsitz, G. I. Louison, W. Love, C. J. MacKinlay, J. T. Mair, P. Malkani, Eileen C. Miller, W. G. Mills, P. R. Mitchell, J. D. Murdoch, Mary L. Neville, E. R. Ormerod, H. G. Page, Nancy Perry, E. E. Philipp, J. G. Pritchard, E. Rawlings, Elizabeth M. Rose, D. A. Fletcher Shaw, D. J. N. Smith, R. A. R. Taylor, J. Walker.

At the close of the ordinary meeting of Council on Oct. 4 Mr. Humphrey G. E. Arthure, M.D., F.R.C.S., assumed the office of honorary secretary.

## Medico-Legal

### ANOTHER CARBACHOL ACCIDENT

[FROM OUR MEDICO-LEGAL CORRESPONDENT]

At a Stourbridge inquest held on July 17 a local practitioner gave evidence that a patient of his had died from an overdose of carbachol. The patient had been suffering from cancer; no bed was available in hospital, and a resident surgical officer advised an injection of carbachol. The doctor purchased three ampoules from the local chemist and, after reading the instructions, dissolved the contents of one ampoule and injected the solution into the patient's arm. The man immediately collapsed and died before an antidote could be given. When the doctor examined the other ampoules he realized that they were not the ones he had expected; each contained 0.1 g. whereas the proper dose was 0.25 mg. He said that when he had received them there had been nothing to indicate that they were not for injection. Evidence was given that the patient must in any event have died soon. The coroner remarked that if the doctor had spent a considerable time reading the instructions down to the last word, it would probably have occurred to him that the dose he was giving was 400 times too strong. The jury returned a verdict of accidental death and exonerated the doctor and the chemist, but considered it desirable that greater care should be taken with the instructions put up in individual packages of such drugs.

This is the fourth fatal accident that has resulted, since the introduction of carbachol into this country in 1941, from confusion between the two forms in which the drug has been marketed. One set of ampoules contains a therapeutic dose, the other contains crystals for use in ionization. In an action against the suppliers arising out of an accident at Oxford,<sup>1</sup> it was shown that the boxes of ampoules containing the crystals of "moryl" were sent out with a pamphlet similar to that put into the boxes of ampoules containing the therapeutic dose, stating that the correct dose was half to one ampoule but giving no warning that the crystals were not suitable for injection. Heavy damages were given against the suppliers, who stated that they had done and were doing everything possible to recall all boxes of crystals. It is to be hoped that the publicity given to this latest unhappy accident, together with the renewed efforts which the suppliers will doubtless make, will result in the recall of the remainder.

<sup>1</sup> *British Medical Journal*, 1946, 1, 1032 (and see also 1942, 2, 28, and 1945, 1, 62).

Though leprosy has for long been rare in Britain, cases among soldiers returning from the Far East have been reported (*Journal*, May 24, p. 731). A pamphlet entitled *The Homes of St. Giles for British Lepers* is therefore timely, and gives a brief account of these Homes from their voluntary foundation in 1914 to the present day. Nearly 60 patients, including 6 women, have been treated in the colony, which can at present accommodate 10 men and 3 women. Recreations of all kinds are arranged for the patients, and those who are able to do so are encouraged to work at gardening and keeping livestock for the colony.

## INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Sept. 27

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included) (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

\* *Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London) (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.*

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1947					1946 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	30	1	18	1	—	32	6	19	1	2
Deaths .. ..	—	1	—	—	—	—	—	—	—	—
Diphtheria .. ..	184	22	37	19	6	285	15	79	26	14
Deaths .. ..	3	—	—	—	—	7	—	1	—	—
Dysentery .. ..	87	7	18	2	—	66	6	40	1	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Encephalitis lethargica, acute .. ..	2	—	—	—	—	2	—	1	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Erysipelas .. ..	—	—	39	7	1	—	—	39	9	1
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Infective enteritis or diarrhoea under 2 years .. ..	—	—	—	83	—	—	—	—	57	—
Deaths .. ..	87	5	26	9	4	47	3	5	6	3
Measles* .. ..	1,139	39	56	117	—	1,461	69	79	29	6
Deaths .. ..	1	—	1	—	—	1	—	—	—	—
Ophthalmia neonatorum .. ..	44	2	16	—	1	67	3	18	1	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Paratyphoid fever .. ..	10	21 (B)	—	—	—	19	17 (B)	—	—	—
Deaths .. ..	—	—	—	—	—	1	—	—	—	—
Pneumonia, influenza .. ..	257	16	1	1	3	373	13	4	3	—
Deaths (from influenza)† .. ..	2	—	2	—	—	5	2	1	—	—
Pneumonia, primary .. ..	—	—	135	6	—	—	—	118	35	8
Deaths .. ..	—	19	7	—	6	—	18	3	—	—
Polio-encephalitis, acute .. ..	32	5	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Polio-myelitis, acute .. ..	441	30	110	4	1	30	3	3	6	1
Deaths .. ..	—	1	—	—	—	—	—	—	—	—
Puerperal fever .. ..	—	1	10	—	1	—	6	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Puerperal pyrexia‡ .. ..	104	9	3	2	—	164	13	17	—	2
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Relapsing fever .. ..	—	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Searle fever .. ..	880	83	181	33	32	1,001	65	168	36	35
Deaths .. ..	1	—	—	—	—	1	—	—	—	—
Smallpox .. ..	—	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Typhoid fever .. ..	22	—	2	1	1	12	1	1	3	1
Deaths .. ..	1	—	—	—	—	1	—	—	—	—
Typhus fever .. ..	—	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Whooping-cough* .. ..	1,105	117	39	44	3	1,451	81	78	39	25
Deaths .. ..	6	—	—	4	1	8	—	—	—	1
Deaths (0-1 year) .. ..	369	31	67	32	15	355	42	56	19	24
Infant mortality rate (per 1,000 live births) .. ..	—	—	—	—	—	—	—	—	—	—
Deaths (excluding stillbirths) .. ..	3,665	569	482	179	102	4,187	615	573	183	121
Annual death rate (per 1,000 persons living) .. ..	—	10.0	11.3	—	—	—	12.6	11.7	—	—
Live births .. ..	8,659	1349	1076	361	247	9,545	1414	1081	505	243
Annual rate per 1,000 persons living .. ..	—	—	21.7	22.8	—	—	21.7	32.4	—	—
Stillbirths .. ..	222	30	26	—	—	275	29	46	—	—
Rate per 1,000 total births (including stillborn) .. ..	—	—	24	—	—	—	41	—	—	—

\* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

## EPIDEMIOLOGICAL NOTES

## Poliomyelitis and Polio-encephalitis

There was a further decline in the notifications of poliomyelitis 02 (441) and of polio-encephalitis 27 (32) in England and Wales in the week ended Oct. 4. As was to be expected, the decline since the peak figure of 662 notifications of poliomyelitis in the week ended Sept. 6 has been much slower than was the case. It seems probable therefore that a fairly high incidence may persist for the rest of this year. If there is a relatively high winter incidence there may be opportunities for comparisons of the epidemiological behaviour of the disease in summer and in winter. The rise and fall of the notifications over the last eight weeks is shown in the table.

Week Ending	Notifications		Percentage Increase or Decrease on the Preceding Week (Poliomyelitis)
	Poliomyelitis	Polio-encephalitis	
Aug. 16 .. ..	646	45	+13.5
" 23 .. ..	626	50	- 3.1
" 30 .. ..	612	45	- 2.2
Sept. 6 .. ..	662	46	+ 8.1
" 13 .. ..	572	42	-13.5
" 20 .. ..	571	23	- 0.2
" 27 .. ..	442	32	-22.6
Oct. 4 .. ..	402	27	- 9.05

There were eight more notifications 38 (30) of poliomyelitis and two fewer cases 3 (5) of polio-encephalitis in London administrative county. The number of deaths ascribed to poliomyelitis and polio-encephalitis in the year 1947 has so far been 36 in London A.C. This compares favourably with the number of deaths due to whooping-cough 68, and to road traffic accidents 247.

Perhaps the most noteworthy decline in the notifications of poliomyelitis was in Yorkshire (West Riding) 18 (34).

Full details of notifications by age groups are not yet available for England and Wales; the cases notified up to the end of August were:

Age	Yorkshire (East and West Riding)	North-east Region	Northern Ireland	Scotland
Under 5	105 (47.5%)	182 (46.6%)	43 (31.5%)	168 (50.0%)
5-14 ..	66 (29.5%)	122 (31.3%)	52 (38.0%)	108 (32.2%)
15-24 ..	24 (10.5%)	50 (13.0%)	12 (8.6%)	26 (8.0%)
25+ ..	28 (12.5%)	36 (9.1%)	30 (21.9%)	33 (9.8%)

Comparison with earlier years shows that there has been an increase in the average age at onset. Mortality figures for England and Wales are not yet available, but the provisional figure for July suggests that the case mortality is about 10%.

## Cholera in Egypt

An official telegraphic report, dated Oct. 8, from the Egyptian Ministry of Health gives the following distribution of 366 confirmed cholera cases between Sept. 22 and Oct. 6:

Cairo .. ..	14	Dakahlia .. ..	11
Sharkia .. ..	135	Gharbia .. ..	3
Kaliubia .. ..	164	Giza .. ..	2
Alexandria (imported) ..	1	Suez .. ..	4
Menoufia .. ..	7	Ismailia .. ..	25

Cases have since been notified from Beheira and Girga and from Damietta and Port Said. The present epidemics in Egypt and in India are discussed in an annotation at p. 619 of this issue.

## Discussion of Table

In England and Wales further increases were reported in the incidence of scarlet fever 75 and measles 73, while a decrease was recorded for whooping-cough 273, acute poliomyelitis 130, dysentery 13, and paratyphoid 13.

The only variations in the local trends of scarlet fever were increases in London 26, Yorkshire West Riding 25, and Durham 25. For the second week a small increase in the notifications of measles has occurred; the only rise of any size during the week was in Lancashire 46.

The largest decreases in the incidence of whooping-cough were Lancashire 54, Warwickshire 39, and Middlesex 36. An increase of 9 in the incidence of diphtheria was notified in London. A further 18 cases of diphtheria were recorded in the outbreak in Birmingham C.B. The largest return of cases of dysentery was Lancashire 14.

In Scotland decreases were recorded in the notifications of acute poliomyelitis 38, diphtheria 13, and dysentery 7, while

an increase was reported for scarlet fever 39. The decrease in cases of poliomyelitis was general, while the fall in the incidence of diphtheria was mainly contributed by Glasgow.

In Eire an increased incidence was recorded for measles 33, scarlet fever 12, and diphtheria 13, with a decrease in the notifications of diarrhoea and enteritis 9. The small rise in the notifications of measles and diphtheria was fairly general, but the increase in cases of scarlet fever was confined to Dublin C.B.

In Northern Ireland only one case of poliomyelitis was notified compared with 10 in the preceding week. The notifications of scarlet fever declined by 12.

## Week Ending October 4

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,086, whooping-cough 1,086, diphtheria, 218, measles 1,256, acute pneumonia 330, cerebrospinal fever 46, acute poliomyelitis 402, acute polio-encephalitis 27, dysentery 97, paratyphoid 16, and typhoid 12.

## Medical News

## B.M.A. Library

The Association's Library is to be transferred from its present accommodation in the main building at B.M.A. House to the first and second floors of the Garden Court wing. To facilitate the removal the Library will be closed from 12.30 p.m. on Saturday, Nov. 1, until 9.30 a.m. on Monday, Nov. 17.

## Beckenham Hospital

At a meeting of the board of governors of Beckenham Hospital on Sept. 23 Dr. Richard Alfred O'Brien, C.B.E., was presented with an illuminated address and a cheque on his resignation of the post of honorary clinical pathologist and blood transfusion officer of the hospital. The address included an appreciation of Dr. O'Brien's "invaluable voluntary services over a period of eight years, during which time he has devoted himself wholeheartedly to the interests of the Hospital." Dr. O'Brien, who was elected a vice-president of the hospital in recognition of his exceptional services, has now left England for Australia. He was director of the Wellcome Physiological Research Laboratories from 1914 to 1939.

## Princess Ashraf Visits Hospitals

Princess Ashraf, twin sister of the Shah of Persia, arrived in London on Oct. 9 for a short visit under the auspices of the British Council. During her stay in this country she will study British nursing and nursing methods and see something of Britain's social services. The plan for her programme includes visits to some of the big London hospitals, a day nursery, a child welfare clinic, one of the Dr. Barnardo's Homes, and a tour arranged by the National Council of Social Services.

## Streptomycin in Scottish Hospitals

The Department of Health for Scotland has arranged for the treatment of selected cases of meningeal and military tuberculosis with streptomycin. Practitioners who have patients suitable for such treatment should apply through the medical officer of health. The following hospitals have been selected:

Aberdeen.—The City Hospital.

West Lothian.—Bangour Hospital.

Glasgow.—The Royal Hospital for Sick Children and the Knightswood Hospital.

Four local committees under the chairmanship of the deans of the university faculties of medicine will select patients suitable for treatment.

## Wills

Sir Almroth Edward Wright, who died on April 30, aged 85, left £47,904. Dr. Louis Cobbett, formerly lecturer in bacteriology at Cambridge University, left £52,687.

## COMING EVENTS

## Heberden Society

The annual general meeting of the Heberden Society will be held at 11, Chandos Street, Cavendish Square, London, W., to-day and to-morrow (Friday and Saturday, Oct. 17 and 18). At 4.30 p.m. on Oct. 17 there will be a business meeting at which officers, etc., will be elected; and at 4.45 p.m. a discussion on "Ankylosing Spondylitis" will be opened by Dr. C. W. Buckley, followed by Mr. N. L. Capener (Orthopaedics) and Dr. I. G. Williams (Radiotherapy). On Oct. 18, at 11 a.m., short communications will be presented. The annual dinner of the Society will be held at Kettner's Restaurant, Romilly Street, W., on Oct. 17, at 7.45 for 8 p.m.

**Kent Paediatric Society**

At the next general meeting of the Kent Paediatric Society, to be held at Maidstone County Hall to-morrow (Saturday, Oct. 18), at 3 p.m., Dr. J. Alison Glover will deliver the presidential address on "The Paediatric Approach to Tonsillectomy." Visitors will be welcome.

**Marie Curie Hospital**

The Duchess of Gloucester, President of the Marie Curie Hospital, will open the new nurses' home of the hospital at Hurdon House, 6, Fitzjohn's Avenue, Hampstead, N.W., on Wednesday, Oct. 22, at 3 p.m.

**Save the Children Fund**

The twenty-eighth annual meeting of the Save the Children Fund (20, Gordon Square, London, W.C.1) will be held at the Waldorf Hotel, Aldwych, London, W.C., on Wednesday, Oct. 22, at 3 p.m., when the speakers will be the Rt. Hon. George Tomlinson, M.P., Minister of Education, the Rt. Rev. Bernard O. F. Heywood, and Dr. Eleanor M. Singer.

**Society of Medical Officers of Health**

On Thursday, Oct. 23, at 6 p.m., at B.M.A. House (Tavistock Square, London, W.C.), Dr. Frederick Hall will be installed as president of the Society of Medical Officers of Health for 1947-8 by the retiring president (Sir Allen Daley) and will deliver his presidential address, entitled "The Economics of Public Health."

**Children's Moral Welfare Committee**

The annual meeting of the Children's Moral Welfare Committee (Rescue and Preventive) for Hampstead and St. Pancras will be held at Hampstead Town Hall on Friday, Oct. 24, with the business meeting at 5 p.m. and the general meeting at 5.15 p.m.

**Nutrition Society**

The Nutrition Society has arranged a whole-day conference on "British Needs and Resources of Calories, Protein and Calcium" to be held at the London School of Hygiene and Tropical Medicine, Keppel Street, Gower Street, W.C., on Saturday, Oct. 25, at 10.30 a.m.

**Veneral Diseases**

The Medical Society for the Study of Venereal Diseases will hold its General Meeting at 2.30 p.m. on Oct. 25 at 11, Chandos Street, Cavendish Square, London, W.1. Dr. C. S. Nicol will read a paper on "Gonorrhoea in the Female." The following lectures will be delivered on the dates shown: "Psychological Aspect of Venereal Disease," by Dr. Wittkower, on Nov. 29; "Neurosyphilis," by Dr. Purdon Martin, on Jan. 31, 1948; "Crime in Relation to Sex," by Dr. Holden, on Feb. 28; "Venereal Disease in Ophthalmology," by Mr. Lindsay Rea, on March 27; "History of Venereal Disease," by Mr. Johnstone-Abrahams, on April 24; Presidential Address on July 31.

**Medical Society of London**

The first half of the 1947-8 session of the Medical Society of London (11, Chandos Street, Cavendish Square, W.) opened on Oct. 13 with a pathological meeting. Other meetings have been arranged as follows: Monday, Oct. 27, 8.30 p.m., discussion on "Treatment of Peptic Ulcer" to be introduced by Dr. A. H. Douthwaite and Mr. Norman Tanner; Monday, Nov. 10, 8.30 p.m., discussion on "Cardiac Pain," to be introduced by Dr. William Evans; Monday, Nov. 24, 8.30 p.m., discussion on "Tumours of the Bladder," to be introduced by Messrs. E. W. Riehes, W. Somerville Mack, and Ronald W. Reid; Monday, Dec. 8, 8.30 p.m., discussion on "Teaching and Research in Social Medicine," to be introduced by Prof. J. A. Ryle. The Lettsomian Lectures on "Clinical Pathology in Relation to Medical Practice" will be delivered by Dr. Cuthbert E. Dukes on Mondays, Feb. 16 and 23 and March 15, 1948, at 9 p.m., and Dr. A. H. Douthwaite will deliver the Annual Oration on Monday, May 10.

**Cambridge Medical Graduates' Club**

It is hoped to revive the activities of the Cambridge Medical Graduates' Club with a sherry party at the Apothecaries' Hall (Black Friars Lane, Queen Victoria Street, London, E.C.) on Thursday, Oct. 30. As the secretaries of the club have been unable to trace a large number of old members, who have not received notices should communicate with Dr. R. A. Hickling, of 99, Harley Street, London, W.1. The subscription to this mainly social club is £1 ls. for life membership. There have been no new members since 1939. All Cambridge medical men are eligible for election, and those who have qualified since 1939 are urged to get in touch with their hospital representative or with Dr. Hickling.

**SOCIETIES AND LECTURES**

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields. W.C.—Wednesday, Oct. 22, 5 p.m. Arris and Gale Lecture. Mr. H. F. Lunn: A Contribution to the Anatomy of Inguinal Hernia; Friday, Oct. 24, 5 p.m., Arnott Demonstration. Mr. H. F. Lunn: The Pelvis and the Erect Posture.

**ROYAL SOCIETY OF MEDICINE**

Special Meeting of Fellows.—Tuesday, Oct. 21, 5.30 p.m., consider addition to By-law VI.1.

General Meeting of Fellows.—Tuesday, Oct. 21, 5.45 p.m. E for election to the Fellowship.

Section of Experimental Medicine.—Tuesday, Oct. 21, 5 p.m. Discussion: Renal Circulation. Openers: Dr. J. Trueta and K. J. Franklin.

Section of Pathology.—Tuesday, Oct. 21, 8.15 p.m. Presidential Address by Dr. A. B. Rosher: Some Observations on *H. influenzae* and its Pathogenicity.

Section of Endocrinology.—Wednesday, Oct. 22, 5 p.m. C meeting.

Section of Urology.—Thursday, Oct. 23, 8 p.m. Presidential Address by Mr. W. W. Galbraith: Modern Trends in Prostate Surgery.

Section of Paediatrics.—Friday, Oct. 24, 5 p.m. (Case 4.15 p.m.)

BRITISH INSTITUTE OF PHILOSOPHY.—At University Hall, 14, Gower Street, London, W.C., Friday, Oct. 24, 5.15 p.m. Dr. I. Popper: Moral and Political Aspects of Science.

EUGENICS SOCIETY.—At Royal Society's rooms, Burlington House, Piccadilly, London, W., Tuesday, Oct. 21, 5.30 p.m. Mr. Bramwell: Galton's "Hereditary Genius" and the Three Following Generations since 1869. All interested in the subject invited to attend the meeting.

LONDON: UNIVERSITY COLLEGE, Gower Street, W.C.—Tuesday, Oct. 21, 5.15 p.m. Dr. Bernard Katz: Some Properties of the Nerve and Muscle Fibres. Wednesday, Oct. 22, 5 p.m. Dr. M. H. Pirenne: Physiological Mechanisms of Vision.

NUTRITION SOCIETY.—At London School of Hygiene and Tropical Medicine, Keppel Street, Gower Street, W.C., Saturday, Oct. 25, 10.30 a.m. Conference on British Needs and Resources: Calories, Protein, and Calcium.

ROYAL INSTITUTE OF PUBLIC HEALTH AND HYGIENE, 28, Portico Place, W.—Wednesday, Oct. 22, 3.30 p.m. Mr. J. Lyle Carr: The Care of the Mother (Illustrated).

ROYAL MEDICAL SOCIETY, 7, Melbourn Place, Edinburgh.—Friday, Oct. 24, 8 p.m. Mr. G. M. Turner: Dissertation.

SOCIETY FOR THE STUDY OF ADDICTION.—At Medical Society of London, 11, Chandos Street, W., Tuesday, Oct. 21, 4 p.m. Dr. A. E. Carver: Alcoholism from the Psychosomatic Point of View.

**POSTGRADUATE DIARY**

EDINBURGH ROYAL INFIRMARY.—Thursday, Oct. 23, 4.30 p.m. Honyman Gillespie Lecture by Prof. John McMichael: Failure of Pulmonary Origin.

LONDON CHEST HOSPITAL, Victoria Park, E.—Friday, Oct. 24, 8 p.m. Dr. Bertram Jones: Some Types of Pneumonia.

LONDON SCHOOL OF DERMATOLOGY, 5, Lisle Street, Leicester Square, W.C.—Tuesday, Oct. 21, 5 p.m. Dr. F. R. Bettley: Eczema.

The Fellowship of Medicine announces the following postgraduate courses: (1) Obstetrics and gynaecology, at Radcliffe Infirmary, Oxford, all day, Oct. 21 to Oct. 31. (2) Week-end course in rheumatism, at St. Stephen's Hospital, Futham Road, S.W., all day, Saturday and Sunday, Oct. 25 and 26. (3) Course in proctology, at St. Mark's Hospital, all day, Oct. 27 to Nov. 1. Full particulars can be obtained from the Fellowship of Medicine, 1, Wimpole Street, London, W.

Under the Oxford University postgraduate scheme a second refresher course for general practitioners will be held at the Royal Victoria and West Hants Hospital, Boscombe, from Oct. 20 to Nov. 1 inclusive. As before, local practitioners may attend some or all of the lectures and where the whole course is to be attended application should be made to the Dean, 41, St. Giles, Oxford. In the case of a few isolated lectures, however, practitioners will be made welcome; a syllabus will be provided upon application to the hospital. The first course, held in May last, was very well received and it is hoped that wherever possible practitioners will avail themselves of the opportunity to attend the new series of lectures.

**BIRTHS, MARRIAGES, AND DEATHS****BIRTHS**

HUTT.—On May 23, 1947, to Jill (née Chappell), B.M., B.Ch. (Oxon), the wife of Charles W. Hutt, M.B., B.Chir. (Comb.), Danedale Lodge, Minster Road, 1 of Sheppey, a daughter—Penelope.

REILLY.—On Oct. 2, 1947, in St. Mary's Hospital, W.2, to Joy (née Patrick), wife of Dr. M. C. T. Reilly, a son—David Tempest.

**DEATHS**

BRADBROOKE.—On Oct. 5, 1947, suddenly, at Horsham, Hugh Nash Bradbrooke, D.M., M.R.C.P., the beloved husband of Sylvia.

HARKER.—On Oct. 4, 1947, at the Southport Infirmary, Thomas Henry, M.I. L.R.C.P., M.R.C.S., of 75, Albert Road, Southport, treasured husband of Ethel Harker, and dear father of Margaret, Rosemary, and Ted.



## Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

### Prolapsed Intervertebral Disk

**Q.**—What is the explanation for the intervals of quiescence in the symptoms due to a prolapsed intervertebral disk? Is there any evidence of a sloughing off of the prolapsed portion which might account for the cessation of symptoms? One author says that "a hole can usually be demonstrated which runs down into the depths of the intervertebral disk." What relation does this hole bear to the annulus? Does surgical removal of the pulp relieve the aching pain as distinct from the root pain?

**A.**—The most probable explanations for the quiescence of symptoms which so often occurs in cases of prolapsed intervertebral disk are: (1) that it is due to the prolapsed material returning within the disk substance; (2) that it results from the subsidence of the oedema which has been shown to be associated with a disk prolapse in the early stages. Probably both these factors play a part. At the present time, however, there are many who believe that the oedema factor may be the major one, and the beneficial effects of resting the spine, either in a plaster jacket or in recumbency, can perhaps best be explained on this basis. The "hole" referred to is through the annulus.

Removal of the prolapsed material, which is occasionally completely extruded and lying "free" outside the dura mater, results in complete cure of the sciatica and the backache in about 60% of all patients who fail to respond to conservative treatment. If there have been recurrences of sciatica over many years there are probably interstitial changes in the root, and complete freedom from discomfort cannot be guaranteed by operation. Furthermore, if the radiographs showed marked narrowing of an intervertebral space, and if there are arthritic changes in the facet articulations, removal of a prolapsed disk cannot be expected to cure the backache. These two factors—frequent attacks of sciatica over several years, and lumbo-sacral osteoarthritis—are mainly responsible for "failures" following removal of the disk alone. It seems highly probable that in these circumstances removal should be followed by lumbo-sacral fusion performed at the same sitting.

### Gold Therapy

**Q.**—(a) A woman aged 40 complains of pain at the base of the left index finger and right thumb. There are definite swelling and some tenderness at these sites. In March, 1946, x-ray examination was negative and her blood normal, but now skiagrams of her hands show multiple chronic arthritis of the rheumatoid type. Otherwise she is healthy. What injection treatment is indicated and in what dosage?

(b) A widow aged 60 complains of a persistent ache in the left cervical region below the ear. She has some limitation of lateral movement of the head, and x rays show osteoarthritic changes generally, and particularly in the atlanto-axial joints on the left side. Is she likely to be helped by any form of gold therapy?

**A.**—(a) There is little doubt that this is a case of early rheumatoid arthritis which should easily be arrested by adequate treatment. It is desirable that the erythrocyte sedimentation rate should be ascertained to confirm this diagnosis, and if it proves to be definitely accelerated gold treatment is indicated. This might be adopted by giving "myocrisin," the first dose to be 0.01 g., repeated in four days, then after a similar interval 0.02 g. for two doses, then 0.05 g., continuing this dose at weekly intervals for three or four months, and afterwards the same dose might be given once a month for a time as a maintenance dose. Careful watch must be kept for any sign of intolerance; the urine should be tested before each dose, a blood count done at least every three or four weeks, and any sign of skin irritation, digestive disturbance, or stomatitis will be an indication

for stopping administration for a time. Its resumption would depend on developments. With this line of treatment vitamin D should be combined, preferably in the form of cod-liver oil, and vitamin C has been regarded as prophylactic against any untoward results from gold.

(b) Gold would be of no service in this case. It appears probable that the pain is due to the osteoarthritic changes in the cervical spine. Radiant heat and gentle massage, or short-wave diathermy, would probably give relief, but the opinion of an orthopaedic surgeon should be sought if this proves ineffective. Manipulation in skilled hands might prove helpful, but should not be attempted otherwise.

### Re-employment of a Disabled Person

**Q.**—A lorry driver aged 57 who had a coronary thrombosis last December has made a good, though slow, recovery. It has been agreed that he should not go back to strenuous work. He has been with his firm for more than ten years, and used to drive long hours, day and night, through the war. They refuse to have him back and give him light work. Are they allowed to do this under the Disabled Persons Act and is he entitled to compensation?

**A.**—In the case quoted the employers are not bound by the Disabled Persons (Employment) Act, 1944, to take the workman back into their service, and he is not entitled to workmen's compensation unless (as seems unlikely on the facts stated) his illness is due to an accident at work. The workman is entitled to register under the Disabled Persons (Employment) Act, 1944, since his heart condition is a substantial handicap to his obtaining or retaining employment. He should go to the local employment exchange and ask to see the D.R.O. (Disablement Resettlement Officer), who will advise him as to his rights as a disabled person and assist him in finding suitable employment.

### Toxicity of Ergotamine and Ergometrine

**Q.**—I suffer from migraine and obtain relief from ergotamine tartrate and ergometrine. I find the latter more effective; 0.25 to 0.5 mg. is sufficient to abort most attacks. Can you give me information about the relative toxicity of ergotamine and ergometrine, their pharmacological action, and the safe limit of dosage?

**A.**—Ergotamine is much more toxic than ergometrine. It is an alkaloid which has produced gangrene of the extremities in a number of reported cases, and is one of the specific alkaloids of ergot responsible for gangrenous ergotism. Ergotamine causes spasm of the arteries and capillaries, as may be shown by the change in colour it produces in the cock's comb. It is impossible to state a safe limit of dosage, as this varies so widely in different persons. Some tolerate large amounts for long periods; others have shown symptoms after only a few milligrammes. Ergometrine, on the other hand, is almost free from toxic effects; it has very little action on the blood vessels, and so far no cases of gangrene have been described. The amounts required to deal with even frequent attacks of migraine should not expose any patient to risk.

### "Menstrual Tension"

**Q.**—A multipara aged 45, and menstruating regularly, suffers from hot flushes and some fluid retention in the tissues. Both symptoms have been controlled apparently by about 7 mg. of stilboestrol daily. She has been taking this only during the first fourteen days of the cycle, but complains of discomfort during the second half. Her general health is good and her periods are normal. Should this high dosage be reduced abruptly, or gradually? Is it true that vitamin E controls hot flushes?

**A.**—Stilboestrol 7 mg. daily is a massive dose for menopausal flushes; it is rarely, if ever, necessary to give more than 0.5 mg. once or twice daily, and less than this is usually enough. Now the patient is accustomed to taking large amounts it may be difficult to wean her from it. This should be done, however, by a process of gradual and systematic reduction of the dose during the course of two to three months. If she is menstruating regularly there is reason to doubt whether the flushes are

menopausal; they, as well as her other discomforts, may be part of a "menstrual tension state," of which retention of fluid in the tissues is always a feature. This condition is typically at its worst before and is least in evidence after a period, and the fact that the patient is better during the first half of the cycle does not necessarily mean that the stilboestrol is responsible. Indeed, it may be making the premenstrual discomfort worse, because oestrogens tend to cause fluid retention.

Probably no treatment at all is needed during the first half of the cycle, but during the second half the patient should keep to a sodium-free diet and restrict the intake of fluid to not more than 1 pint (568 ml.) in twenty-four hours. Ammonium chloride, 10 gr. (0.65 g.), in capsules might also be given to promote the excretion of sodium. This type of treatment often has a dramatic effect, but if the flushes continue it would be worth while trying vitamin E in large doses—say 20 mg. of a synthetic preparation twice daily. It appears to be beneficial in relieving menopausal flushes in some cases, but it is doubtful whether any more firm statement as to its value is justifiable on the evidence so far available.

### Haematospermia

**Q.**—*A man aged 45, otherwise apparently in perfect health, has for three months had a dark-brown coloration of the seminal fluid. What are the probable aetiology, prognosis, and treatment?*

**A.**—In many cases no cause can be found for a haematospermia. It is more likely to occur when there has been a mild vesiculitis, followed by a certain amount of congestion of the vesicle. Provided that any gross disease of the vesicles and prostate has been excluded the prognosis is excellent. No treatment beyond reduced sexual activity is needed.

### Living with a Gastro-jejunostomy

**Q.**—*What are the important rules of life after a gastro-jejunostomy for duodenal ulcer? Except for insomnia after late dinner I have been fit since undergoing the operation twenty years ago. I smoke and drink moderately but have incipient pyorrhoea. I remain consistently under weight. My appetite is not good, and excess food seems to pass through semi-digested.*

**A.**—The questioner is to be congratulated on his good fortune; if he has no more trouble than insomnia after late dinner he has solved the problem of living happily with a gastro-jejunostomy. If rules are to be formulated, they must be similar to those for patients with peptic ulcer: regular frequent bland meals, regular hours and habits, moderation in all things, and the assiduous cultivation of imperturbable and philosophic calm. In many instances gastro-jejunostomy has been done to relieve the patient of the need for observing these rules; but it is seldom wise to relax them until six months have passed without symptoms. Intestinal hurry is a common sequel, and hence he need for frequent small meals; nutrition is also better maintained in this way as absorption is more efficient.

### Sacralization of Lumbar Vertebrae

**Q.**—*Post-traumatic synostosis of vertebral transverse processes is not uncommon, particularly between the fifth lumbar vertebra and the sacrum. In such a case electrical treatment and massage have been advised, but this seems merely palliative. Is there any surgical treatment, or is this inadvisable owing to post-operative recurrence or adhesions?*

**A.**—It is true that the fifth lumbar transverse process is not uncommonly seen in radiographs to be enlarged, and this may be extensive enough to form an articulation with the sacrum or sometimes with the ilium. This abnormality is, however, congenital in origin and is known as sacralization of the fifth lumbar transverse process. It may be unilateral or bilateral. A true post-traumatic synostosis (fusion) between the transverse elements must be a rare occurrence. Trauma, however, may be superimposed upon a congenitally abnormal spine. As sacralization of the fifth transverse process is usually a symptomless

condition, discovered incidentally in the course of a routine examination of the spine, great care must be exercised before attributing a patient's symptoms to the bony abnormality. All other possibilities should first be excluded. Surgical removal of the bony mass is seldom indicated; and even in cases where has been thought that the symptoms were attributable to the abnormality—as, for example, when osteoarthritis is present at the false joint between the transverse process and the sacrum or ilium—operation has frequently been unsuccessful in relieving the disability.

Fractures of transverse processes are of importance only that they indicate extensive tearing of muscles and ligaments; the bony injury is insignificant, whereas the injury to the soft parts is severe. As in any severe injury, rest in bed for several days until the acute symptoms have settled, followed by the wearing of a plaster-of-Paris corset for three or four weeks, the correct initial treatment. Hyperextension exercises are started while the patient is still in plaster. They are continued when the plaster is removed, and mobilization of the injured portion of the back is assisted by physiotherapy. There has been a tendency in the past to regard this type of back injury as trivial. Unless it is treated efficiently, adhesions and chronically painful back are likely to result. From what has been said it should be clear that excision of a transverse process because it has failed to unite is rarely if ever indicated.

### NOTES AND COMMENTS

**Ringworm of Scalp.**—Col. W. H. CRICHTON, C.I.E., I.M.S. (ret.) writes from Faversham, Kent: With reference to the question answered regarding ringworm of the scalp (Sept. 13, p. 440) I have recently had occasion to deal with a widespread outbreak of the condition among school-children in North Devon. I found the treatment with a saturated solution of potassium permanganate followed by depilation by hand and application of Whitfield's ointment for a few days was both effective and practicable. The saturated solution of potassium permanganate is applied daily for fourteen days. In most of the cases, provided these were recognized and dealt with early, the fourteen-day course proved sufficient to effect a cure. In a small proportion of cases it was found necessary to repeat the course once, and in a few odd cases which have been neglected for some time it had to be repeated for a third time to achieve a negative laboratory result. Dr. E. A. J. Byrne was kind enough to make some phenyl mercuric chloride (0.2%) available for me, but the number of cases had by then declined and there was no opportunity for me to test this form of treatment fully. However, in one case in which I tried it the effect was magical. One application for a few hours was enough to effect a cure. There is one feature of this preparation which became apparent but for which I have no conclusive evidence—namely, that it seems apt to deteriorate on keeping. This was the only explanation for the failure of phenyl mercuric chloride in two cases which presented themselves for treatment after a considerable lapse of time following the undoubted successes in the earlier cases.

**"Happy Feet."**—Dr. DEAN A. SMITH (London, W.C.) writes: May I add a word to the answer on this subject (Sept. 20, p. 476). There is at least a probability that pantothenic acid is the B-complex factor whose deficiency is mainly responsible for the "burning-feet" syndrome (Gopalan, C., *Indian med. Gaz.*, 1946, 81, 22). A small number of patients whose symptoms have persisted for long periods since release from Japanese prison camps have been successfully treated with calcium pantothenate. This suggests that irreversible change occurs relatively late in this condition, and that either calcium pantothenate (20–40 mg. daily) or a good preparation of whole B-complex are worth trying in cases such as that of your correspondent.

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Antilepti, Westcent, London.* ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* unless the contrary be stated.

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B.M.A. SCOTTISH OFFICE: 7, Drumsheugh Gardens, Edinburgh.

# SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY OCTOBER 18 1947

## GENERAL PRACTICE COMMITTEE

A meeting of the General Practice Committee of the Association was held on Oct. 1. Dr. S. Wand was unanimously re-elected to the chair. The retirement of Dr. F. Gray from the committee was the occasion for a tribute to him from the chair and a warm vote of thanks for his long and conspicuous services. The subcommittees dealing respectively with colliery and works practice, Post Office medical officers, ship surgeons, and public medical services were reappointed.

### Petrol Restrictions

The question of petrol restrictions, on which a great deal of correspondence has been received at Head Office, was considered. An assurance was desired that doctors should not be subject to the requirement by officers of the Ministry to keep a log, which would be extremely irksome in their case, though they could, of course, not object to its enforcement in individual cases. It was agreed to watch the position and make representations if necessary.

Concerning the use of petrol for social meetings, the point was made that the doctor ought to be free to use his car, say, for a visit to the golf course if, while he was there, he would be on call to attend a patient. On the other hand, a doctor who went away for the week-end, leaving his practice to his partner or assistant, would obviously have no more right to claim the use of his car than an ordinary member of the public. It was agreed to make representations accordingly. During the war petrol was allowed for travel to meetings of war medical committees and other bodies, as well as, later on, meetings arranged in connexion with the proposed National Health Service. It was agreed to make representations to the effect that attendance at professional meetings was part and parcel of the doctor's professional work.

Some difference of opinion arose over the question of the "Doctor" sign on cars. The Representative Meeting wanted the sign discarded, but it was pointed out that with the appearance of new restrictions the value of some distinguishing mark had become more evident. A sign was said also to be of value when parking cars in central London. It was agreed, with two dissentients, that some sign or distinguishing mark was desirable, and by a small majority the word "Doctor" was favoured.

### Scales of Fees

A very large amount of detailed work came before the committee concerning rates of payment, much of it following upon previous negotiations. Questions were considered relating to the remuneration of Admiralty surgeons and agents, members of the Ministry of Pensions medical boards, Post Office medical officers, regional medical officers, ship surgeons, civilian medical practitioners in War Department and Air Ministry employment, and National Fire Service medical officers; and also to the fees for medical examinations for life insurance, for the examination of dependants of airmen, for medical attendance on members of the police forces, for examination of recruits to the Territorial Army, and for medical attendance on trainees at Government training centres.

On this last the Ministry of Labour had stated that it was prepared to introduce a scale of fees for medical attendance (including the supply of ordinary medicines) as follows: attendance at surgery, with medicine, 5s.; visit, with medicine, 7s. 6d.; visit, in urgent or dangerous cases, between 10 p.m. and 7 a.m., 15s., plus mileage in the case of visits. Discussion took place on the offer of 15s. for a night visit, and it was agreed to accept

this on condition that the hours were altered to correspond with those now accepted for night calls—namely, between 8 p.m. and 9 a.m.

### Miners' Contributory Schemes

A dispute which has arisen between the North of England Branch of the Association and officers of the National Union of Mineworkers concerning contributory schemes for medical attendance on dependants of miners came before the committee. The Branch has sought an increase in the payments under the scheme by 1s. 6d. a fortnight for each family for medical attendance, and also has indicated an intention to charge for medical certificates in order simply to discourage requests for multiple certificates, which make heavy demands upon doctors' time. The union representatives have taken exception to the increase in charges, and particularly to a charge for certificates, and there was some suggestion that the latter should be regarded as ground for an industrial dispute on which arbitration would be sought.

The committee agreed, after discussion, that a member of the Association's staff should visit the area and examine the position.

### Other Business

Various motions from the Representative Meeting had been referred to the committee and were dealt with by appropriate action. On the fees for medical certificates under the Lunacy and Mental Deficiency Acts the committee adopted the amendment moved by Derby at the A.R.M. that the fee should be at least 2 guineas whether the certificate was completed or not or whether the certificate was completed and the patient discharged by the justice.

A statement of the evidence for submission to the High Court and County Court Committees on procedure concerning fees for medical witnesses was approved.

## HEARD AT HEADQUARTERS

### Misleading Employment

A footnote to the recent request from the Ministry of National Insurance that practitioners should state on certificates the employment of the patient is afforded by a story told by Prof. J. A. Ryle recently at a meeting of the L.C.C. Medical Society. During the war in the Western Desert an Army officer found himself in a car which was being driven by a man obviously diffident and depressed about his driving. On being questioned he admitted that he did not like driving at all. Asked how he became an Army vehicle driver, he said that when asked what his civil employment was he had replied, "A fitter," whereupon they had instantly said, "Oh, mechanical transport," and sent him off to drive an Army vehicle. He added, "It is true I was a fitter, but in a ladies' costume department." Another example of the pitfalls which may lie in a brief statement of employment came from the same source. Someone at Oxford was interested in a series of five cases of duodenal ulcer, all in publicans, and began to think that there was possibly some connexion between the employment of a publican and the occurrence of this disease, until he learnt that four out of the five were not publicans when the trouble started, but had taken to such work because of their disability.

### Profligate Certification

Yet another certification requirement has been thrust upon the doctor—namely, to endorse applications for tobacco supple-

ments for old people. One member of the General Practice Committee the other day said that he had to vouch for the fact that an old lady of 75 was accustomed to smoke cigarettes. Not long ago the Minister of Health, in reply to a question, gave a portentous list of occasions on which medical certificates may have to be furnished by patients to Government departments. It runs to some 16 items. To begin with, there is the certificate of cause of death; the certificate in connexion with a claim to war pension or allowance; the certificate of mental disease or deficiency; the certificate under the National Insurance and Contributory Pensions Acts; the certificate supporting sickness absence when the Government is the employer; the certificate supporting an application for old age pensions at 50 in the case of blind persons. Then we have the certificates, which will soon become much more numerous, supporting a claim to leave or change employment. Again, under certain Wages Acts, a medical certificate may be necessary for employment at substandard wage rates. Then there are the certificates through which the possessor may obtain additional supplies of fuel or exemption from heating restrictions; the certificates for registration under the Disabled Persons (Employment) Act; certificates for obtaining surgical corsets; perhaps the most numerous class of all, certificates for supplementary rationed food for invalids and expectant mothers; certificates to support the claim for additional petrol allowances on medical grounds; certificates on grounds for exemption from military service; and, finally, certificates under the Cremation Act. Good luck to the Departmental Committee which is to consider the possibility of reducing the number of certificates and the improvement and simplification of their form and of the rules governing their issue.

#### The Robot Telephone

How far the robot telephone will catch on among doctors is still doubtful. A good deal of interest was shown when the device was explained at the Representative Meeting, and so far about 30 practitioners have put down their names as interested. A demonstration of the appliance was given at B.M.A. House the other day. The caller lifts the receiver and hears a stereotyped message to the effect that the telephone is unattended but that any message will be recorded and given to the doctor on his return. Then 45 seconds elapses for the caller to say who he is and what he wants. This time should be enough for any ordinary message, but one has to reckon with the garrulous caller, the ignorant and intimidated caller, and the caller who gives every detail except the name and address. It might be an improvement if, instead of the announcer-like voice of the stereotyped record, the doctor's own recorded voice were to reply to the caller. Apart from the robot telephone there are certain relay services being worked out, not specially for doctors, in which a number of direct lines are manned on a 24-hour basis and messages for subscribing members are taken down and relayed back when required.

## Correspondence

#### Working Hours in the N.H.S.

SIR.—Hitherto paying patients have consulted the doctor when they had reasonable grounds for doing so—often after a preliminary period of self-diagnosis and self-medication. Pauper patients have been less reticent about their illnesses, real or imagined, and have sought the benefit of his advice for minor conditions that once would have been disregarded. When the whole nation is entitled to medical treatment—for which they will have to pay, although they don't yet realize it—it is not difficult to visualize how every adolescent ("manhood: how lost and how regained"), bridegroom-to-be, father, mother, and all the little Willicies, Patricias, and Pamelas ("I haven't seen anything for two months, doctor") will joyfully flock to his surgery in their thousands. Normal work will be enormously increased.

A well-known member of Parliament who has paid very close attention to the Bill and the Act assured me that to operate the National Health Service fully will require a *further hundred thousand doctors*. I could scarcely credit this until I heard a further estimate of a hundred and fifty thousand. I was told

that the plan was to mass-produce these by free medical education and take them straight from the production line and turn them loose on the public. This is not a very cheering outlook for those who expect shorter working hours in the near future with a mere 70,000 on the Register.

Nobody is more conscious than I of Mr. Bevan's tender solicitude for our profession, but many of us feel we would like more information on these matters from those who are in position to give it reliably.—I am, etc.,

Brookwood, Surrey.

H. M. STANLEY TURNER.

#### National Health Service

SIR.—Many of us feel that it is time that the iron curtain hiding the activities of the Negotiating Committee should now be raised. Less than nine months remain before the Act comes into force. Already doctors are being approached in connexion with regional and other boards designed to further the working of the Act, and as yet we have no information on which to base any decision to serve or not to serve. Both hospital staffs and general practitioners are in the dark as to their future. The time is extremely short for the various regional meetings and for the co-ordination of opinion on our attitude towards any new provisions or compromises.

Is it true that the Minister of Health has not yet himself met the various sectional committees, or is the Negotiating Committee still dealing with permanent secretaries? We are in danger of once again sinking into the apathy which has so often prejudiced our interests in the past. It is essential that we should know at once how far the negotiations have succeeded in emphasizing our refusal to work the Act as it stands and whether we must prepare to fight for the traditions for which we stand.—I am, etc.,

Cambridge.

A. E. MOORE.

#### Working Day in the Services

SIR.—May I most heartily support "F.O." (*Supplement* Sept. 13, p. 66) in what he has to say on the subject of medical officers in the R.A.F.? I too have never done a day's work since entering the Service, nor have I met a medical officer who has, although I have been in uniform nearly twice as long as "F.O." I cannot, however, help feeling that on the whole I have been fortunate in having been more occupied than many of us, in spite of his low work record, such is the farcical position obtaining to-day.

Throughout the main part of my time I have been the junior on a station and have found, as did "F.O.," that two hours a day sufficed to finish my work, except when my senior has been on leave; sometimes then I have been occupied all morning. However, for one period of six months I had a station of my own. I took over from a civilian doctor, who told me that he did my work in half an hour a day. How true this was. Over one calendar month the entries in my sick-book averaged 1.2 per day, and this included follow-up visits. Over the whole six months I doubt if I averaged three entries per day. I was simply being used as a caretaker for a few medical stores. Nevertheless, I had to remain there till the station closed down.

This enforced idleness is, in my opinion, resulting in the young doctors' losing, through lack of practice, most of their professional skill and ability and, what is far worse, their inclination to do a hard day's work such as they accepted as the normal life of a house officer before their call-up. Can nothing be done by the B.M.A. or Central Medical War Committee to stop this waste of talent? The Government talk of drones. Right! Give us the chance and we will work. It is not our wish to be a burden on the Exchequer.—I am, etc.,

F./LIT.

#### Suspension of Basic Petrol

SIR.—Since the announcement in the House of Commons on Aug. 6 by the Prime Minister that a reduction in the levels of petrol rations would have to be made, I have felt a sympathetic attitude to the many people who live in the country and who have been using their basic petrol for many necessary obligations easily exceeding the journeys they did for pleasure. In fact not a few who are my patients have spoken to me of their predicament, and invariably each one said, "Of course, you will be all right"; and I glibly imagined so also.

However, the other day I received my allowance for the next x months and noted that they had cut my ration by 20%. My note stated: "As from Oct. 1 all supplementary petrol allowances will be reduced by 10%. In common with all other categories of private car users a reduction will be made in allowances to the medical profession." They add that it is hoped that I will be able to achieve this saving in my petrol consumption, etc., etc., and that if I find it not possible to continue to the end of the period on the reduced allowance they will be prepared to consider such assistance as may be necessary. Since I was fair in my previous application I will be forced to make this application probably after five months have elapsed, as the cut amounts to one month's travelling.

Surely we (75,000 of us) in Great Britain must realize that the time has come when such a body of professional men and women will no longer tolerate being dictated to in such a manner. We are fast losing our freedom, and if no effort is made now, then God help us, our patients, and our country.—am, etc.,

Whitley, Lancs.

CHARLES E. BROWN.

### Telephone Calls

SIR.—Before the war the Post Office consented to accept the service of referring calls for medical men at a nominal charge of £1 per quarter. This was an extremely useful service for us in those days. With the present shortage of staff, etc., this service is doubly more important and essential. Unfortunately, the Post Office refuse to accept any new subscribers, the reason being that they have got no "equipment," whatever that may mean. Whereas I am not able to say whether this equipment is very elaborate and expensive, it strikes me that in view of the necessity for us to secure a continuous and uninterrupted telephone service the Post Office might well be induced to acquire his equipment. At present all the Post Office will do is to put me on the waiting list, on which I am number 20, and I am informed by them that the only chance of getting this service is to wait for the 19 doctors prior to myself on the list to die. Can anything be done in this matter?—I am, etc.,

London, W.1.

ARTHUR MILLER.

## H.M. Forces Appointments

### ROYAL NAVY

Temporary Surgeon Lieutenant W. Stephen, R.N.V.R., has been transferred to the Royal Navy.

Temporary Acting Surgeon Lieutenant R. H. Cowling, R.N.V.R., has been transferred to the Royal Navy in the rank of Surgeon Lieutenant.

Acting Surgeon Lieutenant T. S. Law to be Surgeon Lieutenant.

### ROYAL NAVAL VOLUNTEER RESERVE

Surgeon Captain H. O. Martin, V.R.D., has been placed on the Retired List.

Surgeon Commander St. G. B. D. Gray, V.R.D., has been placed on the Retired List.

Temporary Surgeon Lieutenant-Commander R. H. Roberts has been transferred to List I of the permanent R.N.V.R.

Temporary Surgeon Lieutenant-Commanders J. M. Teasdale and M. G. Low have been transferred to List II of the permanent R.N.V.R.

Temporary Acting Surgeon Lieutenant-Commanders R. C. Ponder and C. H. F. Wood have been transferred to List I of the permanent R.N.V.R., in the rank of Surgeon Lieutenant-Commander.

A. G. W. Hill to be Surgeon Lieutenant-Commander.  
Temporary Acting Surgeon Lieutenant-Commanders W. M. Wilson, E. R. Van Langenberg, L. Willoughby, T. O. Mason, G. E. Loxton, W. M. Scott, L. V. Gimson, A. M. McCall, J. G. Byrne, J. G. Taylor, and H. J. Harris have been transferred to List II of the permanent R.N.V.R., in the rank of Surgeon Lieutenant-Commander.

Temporary Acting Surgeon Lieutenant-Commander J. E. Morton has been transferred to List I of the permanent R.N.V.R., in the rank of Surgeon Lieutenant.

Temporary Acting Surgeon Lieutenant-Commander M. M. Walker has been transferred to List II of the permanent R.N.V.R., in the rank of Surgeon Lieutenant.

Temporary Surgeon Lieutenant D. K. T. Wallace, M.B.E., has been transferred to List I of the permanent R.N.V.R., in the rank of Surgeon Lieutenant-Commander.

Temporary Surgeon Lieutenant J. F. Ramsden has been transferred to List II of the permanent R.N.V.R., in the rank of Surgeon Lieutenant-Commander.

Temporary Surgeon Lieutenants J. J. Ennitt, H. R. Gray, W. P. Small, R. K. Reid, J. W. Maybury, A. C. MacDonald, J. Alexander,

J. E. Russell, J. G. H. James, J. R. K. Preedy, J. R. Briggs, R. B. Slater, W. M. Lancaster, P. G. Arblaster, C. G. Attenborough, C. Fleming, and J. C. E. Preshall have been transferred to List I of the permanent R.N.V.R.

Temporary Surgeon Lieutenants J. MacDonald, J. G. Craddock, G. M. Forsyth, J. K. Black, E. J. King, A. W. Hagger, J. R. Ivey, A. J. Fairrie, G. A. Smith, J. C. Brass, V. O. B. Gartside, P. G. Dalgleish, R. S. Parkin, P. Pattison, A. B. Maclean, A. M. Robertson, F. R. St. C. Assinder, G. J. F. Briggs, D. Kennedy, B. M. Laurance, F. K. Muir, J. D. Stride, D. H. M. Titcombe, G. L. T. M. Patey, M. L. Graeme, and L. M. Rose have been transferred to List II of the permanent R.N.V.R.

### ARMY

Colonel W. K. Morrison, D.S.O., late R.A.M.C., has retired on retired pay and has been granted the honorary rank of Brigadier.

Major T. R. J. P. Kerwick, half pay list, late R.A.M.C., has retired on account of disability.

### ROYAL ARMY MEDICAL CORPS

The notification regarding Major (War Substantive Lieutenant-Colonel) J. P. Douglas, O.B.E., in a *Supplement to the London Gazette* dated Aug. 26, has been cancelled.

Lieutenant-Colonel L. B. Clarke has retired on retired pay.

War Substantive Majors G. W. Reid, R. K. Pilcher, M.C., J. M. Matheson, R. Paul, G. L. Ritchie, J. N. Hamill, and B. W. Hughes to be Majors.

Captains H. Pozner, M.C., H. R. Miller, S. Boan, W. M. Owen, and J. W. Spence to be Majors.

*Short Service Commission, Specialist.*—War Substantive Major E. F. Edson has retired and has been granted the honorary rank of Lieutenant-Colonel.

*Short Service Commissions.*—Captains J. P. Scrivener, M.B.E., and H. D. G. Hetherington have been appointed to permanent commissions. Lieutenants J. Prentice, R. M. Lang, J. M. Adam, R. H. F. James, R. W. Campbell, and D. C. V. Stewart to be Captains.

Captain H. J. Elverson, from Short Service Commission, has been appointed to a permanent commission.

### LAND FORCES: EMERGENCY COMMISSIONS

#### ROYAL ARMY MEDICAL CORPS

War Substantive Major L. C. Allan has relinquished his commission and has been granted the honorary rank of Lieutenant-Colonel.

War Substantive Major G. E. Ord, O.B.E., has relinquished his commission on account of disability and has been granted the honorary rank of Lieutenant-Colonel.

*Short Service Commission, Specialist.*—War Substantive Majors C. R. St. Johnston and R. R. Henderson have relinquished their commissions and have been granted the honorary rank of Lieutenant-Colonel.

War Substantive Captains J. A. Rich, J. L. Penistan, J. Goldstein, M. Goldberg, A. J. Heriot, R. Saffley, and L. J. Wolfson have relinquished their commissions and have been granted the honorary rank of Major.

*Short Service Commission, Specialist.*—War Substantive Captain M. A. Goodwin has relinquished his commission and has been granted the honorary rank of Captain.

War Substantive Captain R. E. Irvine has relinquished his commission on account of disability and has been granted the honorary rank of Captain.

War Substantive Captain L. Tajkef has relinquished his commission and has been granted the honorary rank of Major. (Substituted for the notification in a *Supplement to the London Gazette* dated June 11, 1946.)

To be Lieutenants: R. Armatage, D. F. Barrowcliffe, J. C. Batten, N. H. Birch, A. Blench, D. G. Breeze, J. Butler, W. J. H. Butterfield, H. Caplan, G. M. Colson, J. Cox, P. E. A. De Caestecker, J. J. Duffy, S. Eden, H. B. Farrell, R. H. Freeman, G. Fyfe, D. W. S. Gordon, R. J. Howat, G. Hughes, C. W. L. Jones, J. G. Kendall, J. R. Leslie, H. S. Levy, G. H. Luffingham, J. D. Lunsden, M. C. Macleod, W. C. Macpherson, D. McL. Maxwell, J. R. May, R. J. Mitchell, S. Moller, J. Moss, C. MacL. Ogilvie, W. H. Oldershaw, B. W. Orchard, G. S. Plant, A. G. Pollen, J. G. P. Power, J. P. Pracy, F. L. Rawson, F. W. Richards, J. C. Rogers, C. G. Sim, R. J. H. Smith, T. B. Stirling, G. W. Storey, M. K. Towers, L. Walkden, G. T. Watts, F. E. Webb, N. Weiner, P. R. J. Williams, J. T. H. Wise, P. Wise.

### WOMEN'S FORCES

#### EMPLOYED WITH THE R.A.M.C.

War Substantive Captain L. Cooke has relinquished her commission on account of disability and has been granted the honorary rank of Captain.

To be Lieutenants: Margaret R. Biggs and Margaret J. McNabb.

### ROYAL AIR FORCE

Air Commodores (Acting Air Vice-Marshals) F. J. Murphys, C.B.E., K.H.S., and T. McClurkin, K.H.P., to be Air Vice-Marshals.

Group Captains (Acting Air Commodores) A. Briscoe, C. T. O'Neill, O.B.E., and W. J. G. Walker, C.B.E., to be Air Commodores.

Wing Commanders A. Harvey, J. D'I. Rear, J. Hutchieson, J. Hill, G. E. Church, J. C. Neely, G. W. McAleer, F. E. Lipscomb, C. W. Coffey, O.B.E., and L. Freeman to be Group Captains.



Wing Commander T. J. D. Atteridge has reverted to the Retired List.

Squadron-Leaders E. A. Rice, G. H. Stuart, D. J. Sheehan, A. S. Amsden, H. D. Conway, J. R. R. Jenkins, P. A. Lee, J. R. Cellars, A.F.C., D. F. S. Shaw, D. J. Dawson, J. H. Neal, R. H. Pratt, C. C. Barker, A.F.C., J. C. Taylor, W. T. Buckle, E. S. Sidey, J. C. Bowe, C. E. G. Wickham, and A. Muir to be Wing Commanders.

Flight-Lieutenants J. Park, W. K. Stewart, A.F.C., F. D. Campbell, and D. C. Light to be War Substantive Squadron-Leaders.

To be Flight-Lieutenants: S. M. Rigg, R. J. A. Morris, T. A. Evershed, A. L. Knipe.

To be Flying Officers (Temporary): M. E. Fearnley, J. H. H. Gibbon, G. L. Leathart, J. McE. Neilson, I. R. D. Proctor, W. B. Browne.

#### ROYAL AIR FORCE VOLUNTEER RESERVE

To be Squadron-Leaders (Emergency): D. M. Keir and W. Laurence.

Flight-Lieutenant G. D. Graham, D.S.O., M.B.E., has relinquished his commission on account of medical unfitness for Air Force service, retaining the rank of Squadron-Leader.

Flight-Lieutenants H. O. Williams and R. N. A. Leyton have relinquished their commissions on appointment to the reconstituted A.A.F., retaining their rank.

The notifications in a *Supplement to the London Gazette* dated Aug. 26, p. 4033, column 2, concerning R. A. Sladden and T. S. L. Beswick have been cancelled.

The notification in a *Supplement to the London Gazette* dated Feb. 18, p. 803, column 2, concerning J. Luder, should have read Flight-Lieutenant and not Flying Officer.

Flying Officers H. H. Smith, E. Bindman, A. D. Caird, J. D. C. Campbell, W. A. Crawford, J. S. Creighton, A. Douglas, E. C. K. Douglas, J. M. Fleming, S. Hillman, R. R. Houston, W. M. Layeric, W. A. S. Llewellyn, K. Lowe, A. E. Malone, J. G. Piccaver, G. D. Powell, F. L. Robertshaw, W. E. Robinson, G. E. Schofield, R. E. Sidebotham, A. J. Underwood-Whitney, G. A. Walker, C. G. White, J. R. E. Wilson, and R. E. Woolley to be War Substantive Flight-Lieutenants.

#### AUXILIARY AIR FORCE

To be Flight-Lieutenants: H. O. Williams and R. N. A. Leyton.

#### WOMEN'S FORCES

EMPLOYED WITH THE MEDICAL BRANCH OF THE R.A.F.

Flight-Lieutenant P. P. Pigott has relinquished her commission on account of medical unfitness for Air Force service, retaining the rank of Squadron-Leader.

#### INDIAN MEDICAL SERVICE

Colonel E. Cotter, C.I.E., has retired.

Lieutenant-Colonel N. M. P. Dotivala, M.C., has retired.

Major E. M. Sewell to be Lieutenant-Colonel. (Substituted for the notification in the *London Gazette* dated Aug. 22.)

Majors G. K. Graham and P. L. O'Neill to be Lieutenant-Colonels.

Captains R. Y. Taylor, W. H. A. Thorne, O.B.E., C. C. Harvey, R. J. McGill, W. W. Coppinger, D. M. Black, N. D. Jekyll, E. J. Somerset, L. D. B. Frost, F. C. Griggs, and A. M. Mackenzie, O.B.E., to be Majors.

#### TRADE UNION MEMBERSHIP

The following is a list of local authorities which are understood to require employees to be members of a trade union or other organization:

County Borough Councils.—Barnsley, Barrow-in-Furness, Gateshead.

Metropolitan Borough Councils.—Finsbury, Fulham, Hackney, Poplar.

Non-County Borough Councils.—Dartford, Leyton, Radcliffe (limited to future appointments), Tottenham, Wallsend.

Urban District Councils.—Denton, Droylsden, Houghton-le-Spring, Huyton-with-Roby, Portlaid, Redditch (restricted to new appointments), Stanley (Co. Durham), Tyldesley.

Scottish Burghs.—Motherwell, Wishaw.

## Association Notices

#### RADIOLOGISTS GROUP COMMITTEE

As the result of a ballot held to fill the three vacancies upon the Radiologists Group Committee caused by the retirement from the committee of the three members with the longest period of continuous service, the following have been elected members of the committee for the three sessions 1947-50:

S. Cochrane Shanks (London).

C. G. Teall (Birmingham).

B. W. Windeyer (London).

#### CONSULTANTS AND SPECIALISTS COMMITTEE

As a result of the recently held elections the following have been appointed representatives on the Consultants Specialists Committee for the session 1947-8:

Twenty members elected on a regional basis by consultants specialists who are members of the Association and who are engaged exclusively in consultant and specialist practice:

Region 1: Dr. A. A. McI. Nicol, Sunderland.

Region 2: Dr. E. A. Gerrard, Manchester.

Region 3: Mr. J. T. Morrison, Liverpool.

Region 4: Mr. D. Watson, Bradford.

Region 5: Dr. J. W. Brown, Grimsby.

Region 6: Dr. J. F. Brailsford, Birmingham.

Region 7: Mr. J. M. R. Thomas, Norwich.

Region 8: Mr. D. A. Abernethy, Oxford.

Region 9: Mr. C. E. Kindersley, Bath.

Region 10: Sir Eardley L. Holland, London.

Mr. C. I. Naunton-Morgan, London.

Sir Cecil Wakeley, London.

Mr. A. Dickson Wright, London.

Region 11: Dr. R. K. Price, Hove.

Region 12: Mr. N. Ross Smith, Bournemouth.

Region 13: Dr. T. H. G. Shore, Plymouth.

Region 14: Prof. G. I. Strachan, Cardiff.

Region 15: Miss Gertrude Herzfeld, Edinburgh.

Region 16: Dr. W. R. Snodgrass, Glasgow.

Region 17: Dr. F. M. B. Allen, Belfast.

Five members elected on a national basis by members of Association who are engaged part-time in consultant and specialist practice:

Mr. A. H. Baker, Scarborough.

Dr. J. W. Buchanan, Edinburgh.

Mr. W. J. Payne, Darlington.

Dr. C. B. Prowse, Hove.

Dr. W. Yeoman, Harrogate.

#### Diary of Central Meetings

OCTOBER

29. Wed. Council, 10 a.m.

#### Branch and Division Meetings to be Held

BOURNEMOUTH DIVISION.—An evening reception to the members of the Medical Women's Federation, on the occasion of its annual meeting, will be held at the Savoy Hotel, Westcliff, Bournemouth on Friday, Oct. 24, at 8.30 p.m. It is hoped that a considerable number of members of the Division and their wives will attend this function. Those intending to do so should inform the honorary secretary of the Division not later than Oct. 19.

LEWISHAM DIVISION.—At Lewisham Hospital, Sunday, Oct. 27, 10.30 a.m. Clinical meeting arranged by Mr. H. Nockolds.

SOUTH WALES AND MONMOUTHSHIRE BRANCH.—At Royal Gwent Hospital, Thursday, Oct. 23, 8.30 p.m. B.M.A. Lecture by Dr. A. E. Clark-Kennedy: Psychosomatic Medicine.

SWANSEA DIVISION.—At Swansea Guildhall, Thursday, Oct. 23, at 7 p.m. for 7.30 p.m. Annual dinner. Owing to the limitation of less than 100 guests at public dinners early application for tickets should be made to the treasurer, Dr. T. W. Davies (110, Skew Road, Swansea).

#### Meetings of Branches and Divisions

##### DUDLEY DIVISION

A meeting of the Dudley Division of the B.M.A. was held on Sept. 12 at the Town Hall, Dudley. The following were present: Dr. Barron (Chairman), Drs. R. D. Gifford, Helen Gifford, Elizabeth O. Aston, G. W. Aston, Jeanette R. B. Gibson, B. G. Gretton, J. Macdonald, W. Nasmyth-Miller, D. Little, N. V. Hepple, H. W. Bland, J. Sexton, J. Martin, G. J. Meldon, H. McEvoy, A. C. Parnell, J. Ribchester, L. H. Eynson, W. S. Coutts, J. B. Collins, K. A. Farrell, Lois Davis, S. Walker, A. Rosenbaum, G. Dudley, H. W. Plant. Before the meeting began the members together with a number of health visitors and other medical practitioners, saw the film called "The Early Diagnosis of Acute Anterior Poliomyelitis." Prof. J. Smellie led an interesting discussion. A letter was read from the County M.O.H. of Staffordshire asking for a nominee to a committee which is to meet at Stafford to discuss the new Health Act. The names of Dr. R. D. Gifford and Dr. L. H. Eynson were proposed and seconded. On a vote being taken Dr. R. D. Gifford was nominated. A letter from the Secretary of the B.M.A. was read asking for volunteers to assist the Benham Committee for Poor Litigants. It was agreed that any member who desired to assist in this way should send his name to the Hon. Secretary of the Dudley Division. A further letter from the Hon. Secretary of the B.M.A. was read on the remuneration of district medical officers. It was agreed to call a meeting of all the district medical officers in the Division in the near future to discuss the matter fully.

LONDON SATURDAY OCTOBER 25 1947

## AETIOLOGY OF STEATORRHOEA\*

BY

A. C. FRAZER, M.D., D.Sc., M.R.C.P.

Professor of Pharmacology, University of Birmingham

Steatorrhoea is commonly observed in cases of tropical and non-tropical sprue, coeliac disease, pancreatitis, gastro-colic fistula, and a number of other conditions. The percentage of fat in the faeces is, however, a misleading index, except in gross cases, and the diarrhoea is due to factors not entirely related to the underlying primary defect. In studying the aetiology of steatorrhoea it is therefore better to study the whole group of cases with defective fat absorption rather than to confine the investigation to severe cases of fatty diarrhoea. A balance test, based on the measured intake and output of fat, is the criterion by which the normality or otherwise of fat absorption is judged. A normal human subject on a diet containing 50 g. of fat absorbs 95% or more of the fat ingested. Fat absorption may be regarded as defective in all cases absorbing 90% or less. Repeated tests are advisable in the doubtful zone of 90 to 95%. These figures are based on an assumption that the excretion of fat is not greatly altered in the cases under investigation. The rapid response to changes in dietary fat and the immediate reduction of faecal fat to normal levels on ingestion of a low-fat diet support the view that changes in fat excretion are not a major factor in the cases so far investigated (Cooke *et al.*, 1946).

Fat absorption may be divided into three phases: an intraluminal phase, during which the fat is prepared for absorption; an intracellular phase, in which the fatty material passes through the intestinal cell; and a distributive phase, when the fat is dispersed from the intestine by various pathways into the body. In each of these phases the normal mechanism of absorption, the methods of study in the human subject, the observations made in cases of defective absorption, and the possible significance of these observations in the aetiology of steatorrhoea will be discussed.

### Intraluminal Phase of Fat Absorption

Fat is mainly ingested as triglyceride, and there is no doubt that this fat is finely dispersed to an emulsion of particle size of less than  $0.5 \mu$  diameter in the lumen of the small intestine. In the normal subject the pH in the upper two-thirds of the intestine is acid (about 6.5). Fine dispersion of triglyceride at this pH requires a specialized emulsifying system. If the possible factors are tested in various combinations, only one system can be shown to be effective under these conditions *in vitro*. This is the triple combination fatty-acid-bile-salt-monoglyceride (Frazer, Schulman, and Stewart, 1944). The formation of fatty acid and monoglyceride can be shown to occur during the first five hours of pancreatic lipolysis *in vitro* (Frazer and

Sammons, 1945). This partial lipolysis provides two of the three essential components of the emulsifying system. If material is removed from the lumen of the intestine in either rats or human subjects during fat absorption the presence of these three essential components in adequate quantities can be demonstrated.

The intraluminal changes have been studied in human subjects by passing a Miller-Abbott tube a measured distance down the small intestine. The intestinal lumen was obstructed by inflation of the bag on the end of the tube and a resting sample of intestinal contents was obtained from the region above the point of obstruction. Oil was

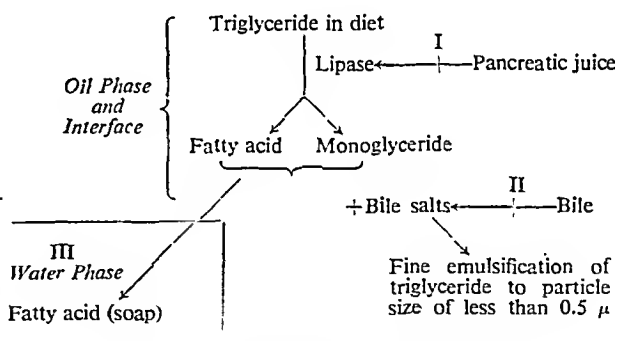


FIG. 1.—Intraluminal phase of fat absorption.

#### Possible Defects:

- I. Defective lipolysis—e.g., atrophic pancreatitis.
- II. Defective bile salts—e.g., biliary obstruction.
- III. Influenced by environment or nature of triglyceride (see Fig. 3).

now administered by mouth and samples of intestinal contents withdrawn at intervals for the next four hours. The various samples were examined for enzyme activity, and the fatty material was analysed chemically and investigated by protein flocculation (Elkes *et al.*, 1945) and other techniques to determine the nature of the interfacial film covering the oil globules. The degree of dispersion of the fat was determined by microscopical examination under dark-ground illumination. The intestinal contents of normal subjects contained lipase, trypsin, and amylase. The fat was finely dispersed to a particle size of less than  $0.5 \mu$ , the particles were negatively charged, and did not contain phospholipid as an essential part of the stabilizing system. Fatty acids, monoglycerides, and bile salts were present. The pH of the intestinal contents was 6.5, or more acid. Of the cases of defective fat absorption studied, only two groups showed abnormal intraluminal changes. Cases of biliary obstruction or hepatic cirrhosis, in which bile salts were not

\*Based on a paper read to the Paediatrics Section of the International Conference of Physicians, London, Sept. 10, 1947.

passed into the lumen, showed poor emulsification of the fat, with large particles of oil which were not finely dispersed by agitation of the samples. After addition of bile salts to this material, emulsification rapidly occurred. In a case of atrophic pancreatitis, subsequently proved at necropsy, emulsification was also grossly deficient; and in this case there was a complete absence of pancreatic enzymes in the upper intestinal contents. The addition of bile salts was not effective in this case, but the addition of lipase caused immediate fine emulsification. The intestinal contents of all other varieties of defective fat absorption so far examined, including tropical and non-tropical sprue and regional ileitis, have shown normal dispersion of fat and apparently normal enzyme activity. The pH of the intestinal contents in some of these cases has been somewhat higher than normal, but the validity and significance of this observation is being further investigated. In a small number of cases of tropical sprue, investigated with Squad-

### Intracellular Phase of Fat Absorption

The passage of fatty material through the intestinal cell presents three main groups of problems:

#### (a) Passage of Fatty Material through the Outer Membrane of the Cell

Many water-soluble materials appear to pass through the outer membrane of the intestinal cell, although the precise mechanism of absorption and the factors responsible for the differences in the rate of transmission of water-soluble substances are still obscure. It can be shown that fatty acid will pass into the intestinal cell, possibly in the form of soap (Schmidt-Nielsen, 1946). It is probable, however, that the hydrolysis of long-chain fats is only partial in the upper part of the small intestine, and consequently a second mechanism must exist for the passage of water-insoluble glycerides through the outer membrane.

	Main Forms of Fatty Material	Dispersion of Particulate Fat	Factors concerned in Passage through Membrane	
Lumen	Triglycerides Monoglycerides Fatty acids	Particle size: $0.5 \mu$ Charge: negative Interfacial film: fatty-acid-bile-salt-monoglycerides Phospholipid not involved	Fatty acid	Finely dispersed triglycerides
Outer Membrane				Normal water and electrolyte metabolism (adrenal cortex) I
Cell	Triglycerides (Monoglycerides) (Fatty acids) Phospholipids	Particles increase in size ? change of interfacial film	?	Phospholipid formation II
Inner Membrane				Choline III
Corium of Villus				
Thoracic Duct	Triglycerides Phospholipids			
Systemic Blood	Triglycerides Phospholipids	Particle size: $0.5 \mu$ Charge: negative Interfacial film: contains phospholipid as essential part of the stabilizing system		

FIG. 2.—Intracellular phase of fat absorption.

#### Possible Defects:

- I. Interference with water and electrolyte metabolism—e.g., adrenalectomy: Addison's disease.
- II. Defective phosphorylation
- III. Defective transport from the cell

Possible defects in "sprue syndrome." (NOTE.—Fatty acid absorption will not be prevented by these lesions.)

Dr. G. A. Smart and R. Daley (1946), we observed a peculiar flocculation of the intestinal contents, the cause of which we were unable to establish. Unfortunately, further cases were not available and we have not seen this phenomenon in any other patients.

It may be concluded from these various observations that long-chain triglycerides are partially hydrolysed in the upper part of the small intestine to fatty acids and lower glycerides, and that these two substances, with bile salts, provide the emulsifying system by which the remaining glycerides are dispersed into fine particles of less than  $0.5 \mu$  diameter. These changes would appear to occur normally in tropical and non-tropical sprue and in regional ileitis, but they do not occur in conditions which interfere with any of the essential components of the emulsifying system. Thus exclusion of pancreatic lipase, or of bile salts, resulted in gross interference with the preparatory changes which triglyceride undergoes in the intestinal lumen.

Long-chain triglycerides are finely dispersed to a particle size of less than  $0.5 \mu$  in the intestinal lumen by the emulsifying system already described; the outer membrane of the intestinal cell has been shown by Baker (1942) to consist of fine canals, which might allow the passage of particles approximately  $0.3 \mu$  in diameter. Paraffin can be absorbed from the intestine, provided that it is previously dispersed with a suitable emulsifying system to a particle size of less than  $0.5 \mu$  (Frazer, Schulman, and Stewart, 1944). Thus the evidence at present available supports the conception that long-chain triglycerides may pass through the outer membrane of the cell in fine particulate form.

The first step in the study of this phase of absorption in the human subject is to determine, if possible, whether the defect is concerned with the passage of fatty acid or of particulate fat through the cell. It seems probable that the post-absorptive systemic lipaemia is normally dependent upon particulate absorption. By the correlation of chyl-

icrographs (Frazer and Stewart, 1939) or serial blood fat timations with a fat-balance test it is possible to determine hether particulate absorption is normal. In cases showing ormal intraluminal changes, in the absence of lymphatic obstruction, the absorption of 60 to 70% of ingested fat, ithout any subsequent systemic lipaemia, strongly suggests terference with particulate absorption. Such a phenonon is observed in tropical and non-tropical sprue and in cases of gastro-colic fistula. In regional ileitis, on the other and, normal systemic lipaemia may be observed although e total amount of fat absorbed is no greater than in many ases of the sprue group. It is possible that interference ith particulate absorption may lead to the absorption of a increased proportion of fatty acid. This possibility is urther discussed in the section on the distributive phase.

Adrenalectomy does not affect the absorption of fatty acids or tributyrin but seems to cause partial interference ith the absorption of long-chain triglyceride. The load- ing of the intestinal cell with fat globules, which is charac- teristic of particulate absorption, is prevented by adrena- lectomy. Adrenalectomy does not cause any change in the rmoval of phospholipid in the intestinal cell. The absorp- tion of long-chain triglycerides returns towards normal ith adequate salt therapy (Bavetta and Deuel, 1942; Frazer, 1947; Stillman *et al.*, 1942). It seems possible, therefore, hat the action of the adrenal cortex on fat absorption is ainly due to its effect on water and electrolyte metabolism, hich may be intimately associated with the mechanism of articulate absorption.

Severe cases of sprue may show a marked disturbance of water and electrolyte metabolism (Black, 1946). Dehydra- tion is a pronounced feature in the terminal stages, and less vere cases may exhibit low blood sodium levels and ypotension. Severe cases of Addison's disease may show moderate degree of defective fat absorption. It has been uggested that adrenal cortical deficiency may be an aetio- logical factor in the sprue syndrome (Verzár and McDougall, 1936). On the other hand, patients with non-tropical sprue an be relieved of any suggestive signs of adrenal insuffi- ciency by appropriate treatment without any change in the quantitative aspect of the fat-absorption defect. It is not possible that the continued low blood cholesterol which s usual in these cases may result in a secondary insufficiency of adrenal cortical hormone. It seems probable from these bservations that adrenal cortical insufficiency is not an aetiological factor in the sprue syndrome, but it is likely that he secondary disturbances of water and electrolyte meta- bolism, whether due to adrenal cortical insufficiency or to other causes, would further embarrass a defective fat- absorption mechanism.

#### (b) Alteration in the Composition and Distribution of Fatty Material within the Intestinal Cell

Under special experimental circumstances re-synthesis of triglyceride can be demonstrated *in vivo*, as indeed it can also be demonstrated *in vitro*. There is little evidence, however, to suggest that it is an important feature in normal fat absorption, especially if a high proportion of the fatty material passes into the cell in the unhydrolysed form.

It has been clearly shown that phospholipid is formed in the cell during fat absorption (Schmidt-Nielsen, 1946; Sinclair, 1936). The function of the phospholipid formed in the intestinal cell is not understood, but certain observa- tions may usefully be considered. The particles of fat in the intestinal lumen are negatively charged, flocculate with plasma protein at pH 7.4 (Elkes *et al.*, 1945), and are resis- tant to the action of *Clostridium welchii* D-lecithinase (Elkes and Frazer, 1943). In the intestinal cell, if fat alone is fed, the particles show a loss of stability, which suggests that

the effective stabilizing film has been modified and that there is interference with the provision of a new stabilizing film under the conditions of this experiment. Triglycerides and phospholipid, but only small amounts of fatty acids or lower glycerides, can be demonstrated in the chyle during fat absorption. In the blood at the height of fat absorption a mass of finely dispersed particles, composed essentially of triglycerides, can be seen, which obviously do not flocculate in the presence of plasma proteins at pH 7.4. Furthermore, these particles rapidly cream when attacked by *Cl. welchii* D-lecithinase. It seems possible, therefore, that one im- portant function of phosphorylation in the intestinal cell is to provide phospholipid for the change in interfacial film structure which must occur if the fat particles are to remain in a dispersed state in the protein environment of the blood stream.

#### (c) Passage of Fatty Material through the Inner Membrane of the Cell

The passage of fat through the inner membrane of the intestinal cell has received little attention. From the study of intra-vitam fixed preparations of the rat's intestine, the distribution and state of dispersion of absorbed fat in the cell and villus can be investigated. If fat and water alone are fed, the fatty material passes freely through the outer border of the cell. As the dose of fat is increased, fat accumulates within the cells. If a loading dose is administered with 5 mg. of choline hydrochloride, dissolved in the water phase, accumulation of fat in the cells is less marked and a large amount of fat can now be seen in the corium of the villus. It would seem, therefore, that the addition of choline to the fat in some way facilitates its passage through the inner membrane of the cell. A striking feature of these preparations, however, is a further loss of stability of the fat particles, so that large pools of fat are formed in the central part of the villus (Frazer, 1947).

It is often assumed that the phospholipid formed in the intestinal cell during fat absorption is lecithin. It is quite possible that other phosphatides may be involved, especially in the change of the interfacial film of the fat particle. Whether the effect of choline is related to the phosphoryla- tion process in the cell is not known. Until further evidence is available it would be wise to consider the action of choline and the formation of phospholipid in the intestinal cell as two possibly unrelated phenomena.

The existence of a defect in phosphorylation has been cited as a possible aetiological factor in the sprue syndrome (Verzár, 1935; Stannus, 1942). Direct evidence in support of such a conception is lacking, although the gradual elimi- nation of other possibilities suggests that an intracellular defect may be important in many of the cases in this group. It is likely that a number of different aetiological factors, each of which may perhaps result in the same fault in the fat-absorption mechanism, may be concerned in the sprue syndrome. For example, phosphorylation in the intestinal cell might be prevented by an intracellular enzyme defect, or by lack of raw materials for phosphorylation, which in turn might be occasioned by dietary deficiency, by defective digestion elsewhere, or by competitive demands in the intestinal lumen. Until more adequate information is available as to the nature of the phospholipid formed, the factors governing its formation in the intestinal cell, and the function which it fulfils, it is difficult to develop effective methods for the detection and differentiation of these defects in the human subject.

Some years ago Mottram, Cramer, and Drew (1922) reported findings somewhat similar to the choline experi- ments described above when they administered "marmite"

with fat. They attributed the effect observed to the actions of vitamins A and B. Consequently the effects of vitamins A, C, and D and the various components of vitamin B on the fat-absorption mechanism were investigated along the same lines as the choline investigation. None of these substances, with the exception of choline, had any apparent effect on the distribution of fat in the intestinal cells and villi during absorption.

Deficiencies of riboflavine or nicotinic acid are frequently associated with fat-absorption defects, especially the sprue syndrome. It is possible, however, to give dramatic relief to deficiency signs and symptoms by administration of the appropriate vitamin fraction without any measurable change in the fat-absorption defect. Cases have also been reported of ariboflavinosis and other vitamin deficiencies in which fat absorption was normal. Gross vitamin deficiency, which is not a feature of the sprue syndrome, may result in structural and metabolic changes with which failure of absorption of fat and other substances may be associated. It would seem, therefore, that in the sprue syndrome deficiency of vitamins is not a constant feature; that the symptoms and signs observed indicate only a relative rather than a gross deficiency, and that a selected group of vitamins are involved, especially riboflavine, nicotinic acid, and possibly other members of the B complex. The diet of these patients is not usually deficient in these vitamins, so that the defect must be due either to adverse circumstances in the intestinal lumen, to defective absorption, or to faulty utilization. It may be coincidental that many of the associated deficiencies observed in cases of the sprue syndrome are concerned with substances which have a nutritional significance both to bacteria and to human subjects, and that bacteria are present in large numbers in the upper part of the small intestinal tract in the cases so far investigated. It does not seem impossible that competition might arise between the nutritional demands of these organisms and the host, somewhat analogous to that observed with other intestinal parasites. Further investigations on a quantitative basis must decide whether these deficiencies are due to some such competitive phenomenon, to malabsorption, or to faulty utilization. It may, however, be concluded that vitamin deficiencies, possibly excluding choline, are probably not concerned with the aetiology of the fat-absorption defect in the sprue syndrome.

#### Distributive Phase of Fat Absorption

It can be shown by experiment that fatty acids mainly pass up the portal vein to the liver, like other water-soluble materials, while triglycerides, absorbed largely in particulate form, take the lymphatic route and pass by the thoracic duct into the systemic circulation (Frazer, 1943a). It is obvious, therefore, that the proportion of fatty material which passes by these two alternative routes might be considerably varied without any great change in the total quantity of fat absorbed. Differences in the extent of the systemic lipaemia, probably due to the change in the proportion of fat absorbed in particulate form, may be induced in animals and human subjects by procedures designed to alter the extent of lipolysis (Frazer, 1943b). It has already been noted that many cases of defective fat absorption, especially in the sprue group, may absorb as much as 70% of ingested fat without any appreciable systemic sequelae. The amount of fat absorbed in these cases would normally give rise to a marked systemic lipaemia. It is of interest, therefore, to consider the factors that might be concerned in a change of distribution of fat from the lymphatic to the portal pathway.

It is clear that an obstruction to the lymphatic pathway might effectively prevent the normal systemic sequelae during fat absorption. It is interesting that in such cases,

and in experimentally induced obstruction, the quantitative decrease in fat absorption is much less than might be expected, suggesting that when the lymphatic pathway

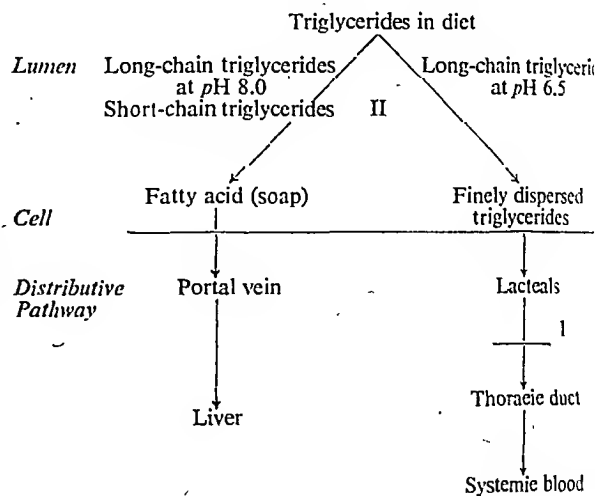


FIG. 3.—Distributive phase of fat absorption.

#### Possible Defects:

- I. Lymphatic obstruction.
- II. (a) Primary change in intraluminal environment or variation in diet.
- (b) Secondary changes in intraluminal environment in cases of defective particulate absorption.

interrupted an increased proportion of fatty material pass by an alternative route. In the large majority of cases defective absorption examined there is no evidence of obstruction to the lymphatic pathway, and alteration of the distribution of the fatty material must be dependent upon changes in the lumen or cells of the intestine.

It is generally agreed that hydrolysis of long-chain triglycerides is restricted to about 30% *in vitro* unless very specialized conditions prevail. It is, however, claimed that in the intestinal lumen the fatty acid formed is absorbed and consequently hydrolysis proceeds rapidly to completion. It can, however, be shown that the restricting factor for hydrolysis of long-chain triglycerides is the accumulation of fatty acid at the interface of the oil globules rather than accumulation in the water phase. This restriction can be overcome only by the removal of the fatty acid into the water phase, which is necessary before its absorption from the lumen of the intestine can occur. This has only been achieved experimentally to any significant degree by conversion of the fatty acid into soap. The formation of soap in this way is largely conditioned by the pH of the environment, being very slow at pH 6.5 but more effective at pH 8.0. It may also be noted that the optimum pH for the action of pancreatic lipase is 8.0 to 8.5, and the activity of the enzyme is considerably diminished at pH 6.5. If the hydrolysis of a short-chain triglyceride, such as tributyrin, is studied, restriction does not occur, since the butyric acid is water-soluble and can be freely removed from the interface, independently of the pH of the environment.

In the lumen of the normal intestine the pH of the contents of the upper two-thirds is 6.5, while a more alkaline reaction, up to pH 8.0, may occur in the lower end of the ileum. The hydrolysis of long-chain triglycerides is therefore likely to be restricted in the upper part of the small intestine, but more extensive breakdown might occur towards the lower end. Since active absorption of fat is known to occur from the mid-duodenum downwards, it must be concluded that long-chain triglycerides are absorbed mainly in particulate form in the upper intestine, but a greater proportion may pass through as fatty acid in the



leum. Tributyrin, on the other hand, will be rapidly hydrolysed and absorbed as fatty acid. In this connexion it may be significant that the absorption of tributyrin is not affected by adrenalectomy (Bavetta and Deuel, 1942), and tributyrin is not found in the chyle (Hughes and Wimmer, 1935) or in the fat depots (Davis, 1930). The behaviour of triglycerides containing fatty acids of chain length intermediate between these two extremes is not yet known. It is of some interest, however, that the tolerance of patients with fat-absorption defects to different dietary fats appears to vary considerably.

If the pH in the upper part of the small intestine can be altered towards the alkaline side, more extensive hydrolysis might occur, with a corresponding decrease of particulate and increase of fatty acid absorption. The effect of such a change on the total efficiency of the fat-absorption mechanism is not known, but it seems unreasonable to suppose that the absorption of fatty acid from the intestine is already maximal under normal circumstances. Thus the sequelae associated with particulate absorption would be suppressed, but the total quantity of fat absorbed might not be greatly altered. Such a change might be a primary factor in the alteration of the fat-absorption pattern, or it might be secondary to a defect in particulate absorption. It is known that changes in the intestinal environment occur in a number of cases of defective fat absorption, but whether these are primary or secondary, or to what extent they are significant, has not yet been established. It may, however, be concluded that fat can be absorbed by at least two distinct mechanisms, each of which uses a different distributive pathway. The proportion of fat which is absorbed in particulate form may be reduced, with a corresponding increase in fatty acid absorption. Such a mechanism would provide the flexibility which is apparent in cases of defective absorption. The main factors which seem to be concerned in changes in the distributive phase, apart from obstruction to the lymphatic pathway, are the pH in the intestinal lumen and the composition of the dietary triglyceride.

The original material contained in this paper is largely due to the efforts of a number of colleagues in Birmingham with whom it has been my privilege to work. I am particularly indebted to Prof. T. L. Hardy and Dr. W. T. Cooke for guidance in the clinical field; to Miss M. D. Thompson for most of the clinical investigations, especially the intubation experiments; to Dr. H. G. Sammons and to Dr. Garfield Thomas for biochemical assistance; to Dr. A. L. Peeney for bacteriological studies; to Dr. J. M. French and Mr. P. E. Sagrott for assistance with the experimental work; and to the Medical Research Council and the Sir Halley Stewart Trust for their financial help.

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SOME PROBLEMS OF TROPICAL  
SPRUE\*

BY

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Before describing some of our observations in early tropical sprue it will be well to make two introductory digressions—the first on current views of fat digestion and absorption, the second on the type of patient with whom we were dealing.

## Fat Digestion and Absorption

The classical view, of which a full statement is given by Bloor (1943), maintains that any absorption of dietary fat is preceded by splitting of the fat into glycerol and fatty acid. The glycerol is absorbed as a simple water-soluble substance and the fatty acid is absorbed as a water-soluble complex with bile salts, as cholesterol ester, or as phospholipid. The importance of phosphorylation in the absorption of fatty substances has been emphasized by Verzar, but not all of his supporting data have been confirmed.

Over the past ten years or so Frazer (1946) and his co-workers have collected a substantial body of evidence in favour of his "partition hypothesis" of fat absorption. In his view some of the fat is absorbed without preliminary splitting, so that there are two virtually independent channels of fat absorption. Neutral fat is absorbed as a very fine emulsion, and Frazer has described an emulsifying system of bile-salt-mono-glyceride-fatty-acid which is adequate to produce an emulsion of the required fineness. Moreover, absorbed neutral fat enters the lacteals, and ultimately the systemic blood stream, where it may be visible as finely divided fatty particles known as chylomicrons; split fat, on the other hand, enters the portal blood stream and may therefore be absorbed without necessarily increasing the chylomicrons in the systemic blood. In support of his view Frazer has shown that liquid paraffin, which cannot be "split," can yet be absorbed if it is emulsified sufficiently. If rats are given a fatty meal with added lipase, so that splitting is practically complete, fatty particles are demonstrable in the portal blood; if, on the other hand, the fatty meal is treated with sodium cetyl sulphate, which inhibits lipolysis, fatty particles are found in the thoracic lymph and not in the portal blood stream.

Our own limited experience in this field has convinced us of the correctness of Frazer's views, with two minor reservations on quantitative grounds. The possibility of neutral fat absorption seems to be proved, but what proportion of the dietary fat is absorbed in this way is still uncertain; secondly, we found the chylomicron count was of very limited value as a measure of fat absorption, in view of the great variation in the size of the particles seen, which meant that identical "counts" might represent very different amounts of "chylomicron-fat."

*Clinical Features of Early Sprue.*—This is not the place for a clinical description of the textbook type, but it may be said that all the patients investigated showed loss of weight, abdominal distension, and fatty stools. Tongue changes were less constant, and anaemia of any severe degree was uncommon, nor was it necessarily macrocytic in those patients who showed it. Tetany and bone changes

\* Based on a lecture given by one of us (D. A. K. B.) at the British Postgraduate Medical School.

were not seen, perhaps because alimentary absorption of vitamin D is not as essential in a tropical as in a temperate climate. About one patient in ten had profuse watery diarrhoea in place of the more usual bulky formed stools; such patients tended to go downhill rapidly, with low blood pressure, asthenia, and dehydration—a type of the disease which may be referred to shortly as “severe sprue.”

**Objects of the Investigation.**—Although much work has been done on the clinical and haematological aspects of sprue, notably by Castle *et al.* (1935) in Porto Rico, there is surprisingly little information on the quantitative aspects of fat absorption. Since the steatorrhoea is one of the outstanding features of sprue, it was decided that our main aim should be to collect data on fat absorption in early cases and see how the absorption might be affected by different forms of treatment. Some data were also obtained on the absorption of non-fatty substances, and an attack was made on the problem of “severe sprue,” already referred to.

### Fat-absorption Studies

Three methods of studying fat absorption were used—chylomicron counts, serum lipid curves (Black and Simpson, 1947), and fat-balance experiments (Black, Bound, and Fourman, 1947). As experience with these various methods grew we found ourselves relying more and more on the fat-balance technique, but the results of the other methods may be briefly described. Chylomicron curves turned out to be fairly normal in most cases of early sprue. In some patients the chylomicron curve was below the rather wide normal range; but this type of curve was constantly present only in those patients who had profuse watery diarrhoea. Serum lipid curves were obtained by giving a standard meal of tinned milk containing 18 g. of fat, and analysing samples of serum taken off fasting, and 2½, 3, 3½, and 4 hours after the meal. The total fatty acid, cholesterol, and lipid phosphorus were directly determined, and from these data values were calculated for cholesterol-ester fatty acid, phospholipid fatty acid, and, by difference, neutral-fat fatty acid.

There was a significant difference between the fasting values in nine normal subjects and 16 patients with sprue; the total fat in the sprue patients was only slightly lower than in the normal subjects, but the cholesterol and phospholipid fatty acid was markedly lower, while the neutral fat was actually higher in the sprue patients. After the meal the increment in total fatty acid in the sprue patients was only about half that in normal subjects; neutral fat increment was much less affected than phospholipid fatty acid increment, while cholesterol fatty acid showed an actual fall in the sprue patients after a fatty meal. Unfortunately the normal range of fat curve was very wide, so that in the individual patient with sprue the curve might well fall within the normal range. This impairs the value of fat curves both in diagnosis and in investigation.

### Fat-balance Experiments

Two diets of known fat content were available to us—one containing 65 g. of fat a day, the other 95 g. We measured the total output of fat in the stools and by subtraction from the dietary fat arrived at the total amount of fat absorbed; this, when expressed as a percentage of the dietary fat, may be termed the percentage fat absorption. Questions of interpretation arose very early in the course of this work.

1. It was found that the variation between successive four-day stool collections was very great, and in order to reduce error from this cause we have considered all our results in terms of twelve-day periods.

2. Any true intestinal excretion of fat will introduce error into this assessment of fat absorption. It was found, however, that sprue patients on a low-fat diet excreted no more fat than

normal people, so true excretion of fat can introduce only small systematic error.

3. As patients originally on a 65-g. fat diet improved under treatment it often became necessary to increase their diet to 95 g. of fat a day. In five patients in whom this was done the percentage fat absorption was found not to change significantly. Apart from its practical bearing on the validity of percentage fat-absorption measurements on different diets, this result has some theoretical significance. It suggests that the impairment in absorption is not a fixed mechanical deficiency, as added fat would in that case be excreted quantitatively and the percentage fat absorption would decrease in the higher diet. On the other hand, an alteration in one of the enzyme systems connected with fat absorption would be expected to give this type of result. It is also possible, of course, that on the higher fat diet the increase in the gastric emptying time is great enough to ensure that the amount of fat actually presented to the intestine for absorption in unit time is not increased. From a more practical point of view it is to be noted that the increase in the fat content of the diet in these patients was a very moderate one, and our results do not conflict with the general experience that it is inadvisable to give large amounts of fat to patients with active sprue. Normal people taking a mixed diet containing 50 to 100 g. of fat a day will absorb over 90% of the dietary fat. In 28 patients with early tropical sprue we found that the fat absorption ranged from 50 to 85%. There was, therefore, with this method of assessment a clear-cut distinction between normal people and sprue patients, a distinction which was conspicuously lacking with the other methods which we tried as measures of fat absorption.

It is to be noted that Cooke *et al.* (1946), using a fat balance method, also found a different range of fat absorption in normal subjects and in patients with idiopathic steatorrhoea. Results of this type commend the fat-balance technique, in spite of its tedium, as a means of assessing the severity of steatorrhoea and following progress under treatment.

In therapeutic trials with nicotinic acid and riboflavin in large doses the patients showed no improvement either in their clinical state or in fat absorption. With large doses of a crude liver extract given parenterally there was rapid clinical improvement, with gain in weight and well-being and improvement in the character of the stools. In spite of this the percentage of fat absorption showed no detectable change in several weeks of liver therapy and thereafter improved only slowly as the patient's general state approached the normal. When yeast extract in a dose of 15–20 g. daily was given to patients while on their liver treatment there was some improvement in fat absorption within the first twelve-day period. We had not the opportunity ourselves to observe the effect of folic acid in tropical sprue, but results reported by Davidson *et al.* (1947) suggest that it has an action rather like that of crude liver extract and inferior to yeast extract, at least as regards fat absorption.

### Absorption of Non-fatty Substances

Apart from glucose, the absorption of non-fatty substances in sprue has been little studied; yet it would seem important in considering the aetiology of the disease to know whether the impairment of absorption is general or whether it is limited to a few substances—such as fat—absorption of which may present some special difficulty, or perhaps even whose failure to be absorbed is more readily apparent from secondary effects on the stools. If unabsorbed carbohydrate were as easily recognized in the stools as unabsorbed fat the demonstration of impaired carbohydrate absorption in sprue might not have to be based on the equivocal evidence of blood-sugar curves, so easily modified by non-absorptive factors. The evidence which we obtained on the question of non-fatty absorption in tropical sprue is mostly indirect. for the balance technique of studying absorption cannot

e applied to substances such as glucose or amino-acids. Some general impairment of absorption was suggested by our finding that in the active stages of sprue the dry weight of the stools was increased to a greater extent than could be accounted for by their increased fat content. Using indirect methods, we confirmed that glucose absorption is often impaired, and we also found some evidence of faulty absorption of iron, sodium, and chloride in certain cases. On the other hand, iodide and amino-acids were abnormally absorbed. Iodine is absorbed from the stomach and so is rather a special case.

The satisfactory absorption of amino-acids does show, however, that the intestinal absorption defect is not universal; the exact process involved in amino-acid absorption is not known, but absorption is more rapid than can be accounted for by simple diffusion (Höber, 1945). Fourman (1947) has found evidence of impaired xylose absorption in sprue: this may imply a more fundamental absorption defect than that shown by flat glucose curves, since xylose absorption, unlike that of glucose, is not inhibited by phloridzin and may therefore be produced by a different and simpler mechanism.

In summary, the evidence suggests that there is in fact a fairly general impaired absorption in sprue, and that fat malabsorption has been first observed only because its effects on the stools are more obvious.

#### Salt Deficiency

In preliminary work on the syndrome described above as "severe sprue" it was found that the serum sodium and chloride were both low. A balance experiment showed that large amounts of sodium and chloride were being lost in the watery stools, and that sodium was practically absent from the urine although chloride was still present in about half the normal amount. This is the biochemical pattern of salt deficiency (Black, 1946) accompanied by some acidosis; the absence of sodium from the urine is very much against suparenal insufficiency being the cause of the hypotension—a suggestion made by Thaysen (1932). The persistence of some chloride in the urine may be misleading if reliance is placed on the urinary chloride alone in detecting salt deficiency in this type of patient.

#### Conclusion

We would emphasize the two findings which seem to us of practical therapeutic significance. The first is that yeast extract in large doses has a favourable effect on fat absorption: we have seen clinical benefit from yeast treatment in patients with chronic sprue in this country, and it is more convenient for the patient than frequent injections of crude liver extract. Secondly, a number of patients with sprue became acutely ill, with salt-deficiency dehydration associated with watery diarrhoea; in such patients the diarrhoea must be controlled with sulphaguanidine and parenteral liver, and their diet should also be supplemented with moderate amounts of salt.

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## SHOCK IN OBSTETRICS

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The essential mechanism of surgical shock is yet to be definitely established. It is understandable, therefore, that the physiologists and experimental surgeons desire to keep surgical shock in a special category until the mechanism of its inception may be discovered. As regards this subject I am neither a physiologist nor an experimental surgeon, and I speak, therefore, simply as a clinician. To the clinician there is a group of cases characterized by circulatory deficiency, with low blood pressure, decreased blood volume, decreased cardiac output, and increased concentration of blood that present a common clinical picture irrespective of the primary cause. These patients present a group of symptoms and not a disease. The prevention and treatment of these are of primary importance, and whether there is a special kind of shock called "obstetric shock" occurring in normal women after normal labour is of little importance. At one time it was customary to attribute a certain number of sudden deaths during or after labour to primary shock; but Sheehan, as well as other observers, has made it quite clear that in the great majority, if not all, of these cases necropsy will reveal some condition sufficient to account for the fatality.

In all urban centres the number of maternal deaths certified as due to "shock" is a great deal less than it was twenty-five years ago. Of 122 maternal deaths during a two-year period from May, 1938, carefully evaluated by the Department of Health and Welfare of the Province of Manitoba, five were originally attributed to "strain and shock." Two of these, on review of the clinical history, were obviously due to internal haemorrhage, and the other three, on review, could not easily be attributed to shock. All five of these patients were delivered at home, remote from hospitals, and necropsies were not done.

Table I is an analysis of the maternal deaths with clinical evidences of shock in the Province of Ontario for 1943, the last year for which complete data were available.

TABLE I.—Maternal Deaths Accompanied by Shock: Province of Ontario, 1943

Total live births	..	81,173
Maternal deaths—exclusive of ectopic gestation (14)	..	189
Maternal deaths with clinical evidence of shock	..	82
Pulmonary embolism	..	33
Haemorrhage	..	31
Failed forceps and version	..	5
Difficult forceps	..	5
Rupture of the uterus	..	5
Acute dilatation of the stomach (necropsy)	..	1
Normal delivery with severe hypertension	..	1
Normal delivery with no apparent haemorrhage (no necropsy)	..	1

It will be seen that at the most only 11 of these did not have definite lesions accounting for the shock, and of the 11 there were 5 versions after failed forceps and 5 difficult forceps cases, in most, if not all, of which there was probably severe injury to the birth canal, with haemorrhage.

It is my opinion that, from the clinical point of view, the great majority of cases of obstetric shock can be evaluated in terms of haemorrhage. That is not to say that other causes of shock do not occur in the parturient patient: it is to say that they are relatively infrequent.

Table II summarizes the cases of shock on the public ward service of the Toronto General Hospital for the period 1931–43.

In the third group, with a blood loss of more than 1,000 ml., it will be noted that there were 6 deaths. Two of these were cases of placenta praevia; both had severe haemorrhages before admission and were bleeding when

admitted. Both cases had immediate transfusion and were treated by version. I would like to point out that this method of treatment is rarely employed in our service, and that there were particular circumstances which seemed to warrant it in these instances; but probably both cases were errors of judgment. One of these patients died following post-partum haemorrhage. The second patient recovered from her shock, had a spontaneous delivery but a post-partum haemorrhage, and died in two hours in spite of further transfusion.

TABLE II.—*Toronto General Hospital*

Total deliveries, 12,749
126 cases with blood loss 500-700 ml. and/or signs of mild shock
Recovered within 15 minutes
2 cases with mild shock and minimum blood loss but difficult deliveries
64 cases with blood loss 700-1,000 ml. and/or signs of moderate shock
Recovered within one hour
4 cases with moderate shock and minimum blood loss but difficult deliveries
9 cases of blood loss more than 1,000 ml. and/or signs of severe shock
6 deaths up to 6½ hours post partum.

The third patient had a large baby with a labour of 44 hours and a difficult forceps delivery; death was sudden and intra partum. There was no external evidence of haemorrhage, and there was no necropsy.

The fourth patient suffered from essential hypertension; labour was induced by rupture of the membranes followed by spontaneous delivery in 12 hours, and manual removal of a retained placenta was followed by progressive shock and death in three hours. No external bleeding occurred and there was no evidence of ruptured uterus; no necropsy was done.

The fifth case was one of normal pregnancy and spontaneous delivery. Post-partum haemorrhage was treated by oxytocics (ergometrine and pituitrin) and eventually the uterus was packed. Progressive shock followed, and the patient died in 6½ hours despite repeated transfusions. There was no necropsy.

The last case was a normal pregnancy with a breech delivery. There was severe post-partum haemorrhage, treated as in the previous case but followed by death in 5 hours. At necropsy the bleeding was found to have been from the placental site and there was no uterine rupture.

*Data of Three Cases of Severe Shock with Recovery.*—The first of these was a spontaneous delivery with a severe post-partum haemorrhage but with recovery in 12 hours after transfusions. The second was a spontaneous delivery followed by inversion of the uterus and severe post-partum haemorrhage. The patient was transfused and the inversion reduced; recovery occurred in 6 hours. The third was a case of toxic accidental haemorrhage with a spontaneous delivery but severe post-partum haemorrhage. The patient was transfused, and when the haemorrhage persisted hysterectomy was carried out two hours post-partum, being followed by recovery.

#### Factors in Development of Shock

During pregnancy there is an increase in the blood volume, which is a favourable circumstance; but with delivery there is an inevitable loss of blood, which may more than overcome the increased volume of pregnancy. The great increase in the size of the uterus, full of large blood sinuses, results in an organ capable of holding a considerable volume of blood when it is relaxed; and its relaxed condition, after being emptied, provides a fertile source of haemorrhage into the uterine cavity.

Disturbance of water balance, which is usually the first indication of toxæmia, is probably evidence of increased permeability of the capillaries, and this, of course, is one of the essential factors in the mechanism of shock. Toxaemic cases with systemic oedema withstand trauma poorly.

The late toxæmias of pregnancy are accompanied by elevation of blood pressure, which may reach high levels. If convulsions supervene, and even in the absence of eclampsia, after delivery there is often a very sudden drop in pressure, which is conducive to the onset of shock. During labour the patient is subjected to various types of trauma. To this are often added sleeplessness and apprehension. There is the final mechanical trauma of delivery, which varies from a slight degree of damage to severe injury.

Immediately after delivery there is a marked lowering of intra-abdominal pressure, which probably results in dilatation of the splanchnic blood vessels. This lowering of the intra-abdominal pressure occasionally results in small bowel distension of such a degree that it may simulate paralytic ileus, and it probably renders the patient more susceptible to shock.

Let us now consider shock in connexion with the various obstetrical accidents.

#### Shock due to Obstetrical Mishaps

*Haemorrhage.*—This, the most important of the obstetrical accidents, may be the result of placenta prævia. haemorrhage may be slow and prolonged or sudden and rapid, but in either case the blood loss may be sufficient to result in shock. From clinical observation it would appear that a patient suffering from a rapid loss of a considerable amount of blood responds to therapeutic measures better than one who has lost a comparable amount over a longer period of time. In accidental haemorrhage blood loss may be equal to that from severe placenta prævia, but in many instances the shock is out of proportion to the observed blood loss. This is especially true in cases of Couvelaire uterus, or toxic utero-placental apoplexy, in which there is an infiltration of the uterine wall with blood separating muscle bundles and producing a ligneous, non-contractile uterus. To this is added the fact that practically all of the patients are suffering from a more or less severe toxæmia. In concealed accidental haemorrhage it is difficult to estimate the loss of circulating blood, especially where conservative methods of treatment are the rule, as in the hospital. It may be that the trauma to the uterine musculature is the important factor, but I believe that blood loss is more important. And, finally, there is post-partum haemorrhage of two types—haemorrhage following trauma with tearing of the birth canal, and bleeding due to failure of an atonic uterus to contract and shut off the blood sinuses. In most instances the haemorrhage is external and therefore apparent, but occasionally when it results from injury to the birth canal it may be entirely within the pelvis as a retroperitoneal haematoma, or occasionally as an intraperitoneal haemorrhage.

*Rupture of the Uterus.*—This mishap is probably the most common than is recognized clinically. It is most common through the scar of a previous section, next after difficult operative deliveries; but it sometimes occurs spontaneously even in unobstructed labours. It would appear that rupture of the uterus *per se* seldom produces clinical evidence of shock, and when the latter develops it is secondary to haemorrhage. In Eastman's series shock was present in less than half the cases of scar rupture, and in one-third of the cases of spontaneous rupture vaginal delivery was carried out without realizing that rupture had occurred. I have seen three cases of complete and one of incomplete rupture with no evidence of shock. It is obvious that if bleeding must have been slight in these instances.

*Inversion of the Uterus.*—Inversion may occur spontaneously or be due to unskillful management of the third stage of labour. A considerable number of these cases

how shock quickly. A large proportion of the remainder will subsequently go into shock either as the result of haemorrhage or from attempts at replacement, which are frequently accompanied by bleeding, often profuse. All cases of puerperal inversion of the uterus should therefore be looked upon as potential cases of shock, and prophylactic measures against this condition should be instituted once, before any attempt at its correction is carried out. Nevertheless, all cases of acute inversion do not show shock. During the past ten years we have seen even cases of acute inversion: one had profuse bleeding with severe shock; two had moderate haemorrhage and moderate shock; the other four cases had no evidence of shock.

**Eclamptic Toxaemia.**—Hailey, Schwartz, and Adair, as well as other observers, have pointed out that marked vasomotor collapse is sometimes the cause of death in eclampsia, and even in pre-eclampsia. Hunt and Adair collected eight cases in which the systolic pressure dropped by 100 to 100 mm. within a few minutes, and all of these cases showed clinical evidence of shock. Rapid delivery or deep anaesthesia may aggravate a potential case. On the other hand, it is known that hypertension cases of both sexes stand operation well. The collapse that follows delivery in cases of hypertension is probably explained by a sudden lowering of the intra-abdominal pressure with a filling of the splanchnic vessels with non-circulating blood. When death does not result quickly from the shock it may occur later from damage to the central nervous system due to cerebral anaemia. MacGillman has pointed out that during caesarean section on non-eclamptic cases there is no marked drop in blood pressure; whereas if the section was done in the case of eclampsia the fall in pressure as the uterus was emptied was frequently great—in one case 90 mm. in a period of 40 minutes.

**Psychic causes during labour** occasionally result in syncope. It is a debatable question whether such causes may produce true shock. Some observers believe that it does, and Miles Phillips thinks that emotional factors are important in the production of shock, and quotes a fatal case of Whitridge Williams's. DeLee also was of the opinion that this was sometimes a factor of importance. In Crile's theory of shock the aetiology was thought to be a combination of fear and anxiety with pain, leading to a state of mental and physical exhaustion, and eventually to shock. In any event, fatigue and starvation after prolonged labour should not be labelled "shock."

#### Management of Obstetric Shock

It is much easier to prevent the onset of shock than it is to treat the condition after it has become established. If the obstetrician has constantly in mind those conditions leading to shock, most particularly haemorrhage, he will make every effort to obviate them and to provide for their treatment before constitutional symptoms have made their appearance. In the case of haemorrhage the blood loss should be replaced as rapidly as possible, but of more importance is to try to prevent any undue bleeding. In cases suffering from hypertension delivery should never be rapid, and after delivery, if there is any marked drop in blood pressure, a tight abdominal binder should be applied, and to this may be added the weight of a sandbag. Mechanical trauma should be kept to a minimum, and when it occurs should be recognized and treated. As I have already pointed out, in all cases of inversion of the uterus anti-shock therapy should be instituted at once, even if shock has not yet developed.

In the active treatment of shock the first requisite is the abolition of pain and apprehension by the administration

of morphine. Means should be taken to retain the body heat. A temperature of 90 to 100° surrounding the body should not cause damage. In our hospital such heat is supplied in the form of warm air, thermostatically controlled by an electric heater, and no heated bottles or pads are placed in the patient's bed. The replacement of the circulating blood volume, however, is the prime essential, and any loss of time in this procedure should be avoided. In the larger hospitals to-day blood banks are usually in operation, and therefore a transfusion of blood or plasma should be available within ten minutes. Blood banks are not feasible in most of the smaller hospitals, and when these are situated at some distance from a blood bank a supply of plasma should always be on hand; to-day this is easily arranged. In cases without severe haemorrhage the plasma is of equal value with whole blood, and even when bleeding is profuse plasma is of great service. When delivery has occurred in a home, and particularly in rural districts, the obstetrician should always have facilities for the intravenous administration of glucose solution and should use it early.

Lastly, where shock has made its appearance, the trauma of any operative procedure should be avoided except where such procedure is necessary to stop active haemorrhage. In placenta praevia measures to stop the haemorrhage should be carried out while the replacement of the lost blood is going on. Indeed, when operative measures for placenta praevia are contemplated, even where there has as yet been no great blood loss, a transfusion prior to or during operation is advisable to forestall possible haemorrhage during operation. In cases of accidental haemorrhage where shock does not exist I believe a conservative method of treatment is most apt to avoid its development. In most cases of Couvelaire uterus, with the patient already in shock, the active haemorrhage has usually ceased, and any blood that appears at the vulva is that which has already poured out into the interior of the uterus. The prime requisite, therefore, is to treat the shock and not to add to it by the trauma of operative delivery. If the patient does not respond to morphine, transfusion, and heat, operation would not have saved her life; if she does respond to such measures one usually finds that the uterus has regained its contractile powers and delivery proceeds normally. Our treatment of accidental haemorrhage is conservative. Where shock does not exist there is no question in my mind that this is emphatically the best attitude. In cases of toxic accidental haemorrhage it is usually the method of choice. There may be a place for caesarean section in the treatment of toxic accidental haemorrhage, but I believe the place is small. Where severe shock does not exist and the baby is still alive and viable section may be indicated in the interest of the child, and in a few cases where fresh haemorrhage continues to occur and labour does not supervene it may be indicated after the shock has been treated.

#### Summary of Conclusions

From the clinical point of view the great majority of cases of obstetric shock are directly proportional to the amount of blood loss. This loss may be apparent or it may be concealed.

When confronted with a case of obstetric shock without obvious cause the history should be meticulously reviewed from the standpoint of possible causes of concealed bleeding, especially rupture of the uterus.

The prevention of haemorrhage is of first importance, but the replacement of lost blood is the *sine qua non* of treatment. Where haemorrhage is anticipated transfusion should be started before operative procedures are carried out.

With the first evidence of shock treatment should be started promptly before the condition has become irreversible.

In obstetric hospitals where blood banks have not yet been established supplies of plasma should be available at all times.



## BREAST-FEEDING IN ERYTHROBLASTOSIS FOETALIS\*

BY

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Rh antibodies are frequently demonstrable in the breast milk of mothers who have borne erythroblastotic babies, and the suggestion has several times been made that the ingestion of such milk might have a deleterious effect upon the recovery of an infant whose blood cells had already been subjected to the action of maternal antibody. More recently Cappell (1946) and Davies (1947) have reported cases in which a lag in recovery in the blood state of babies with erythroblastosis foetalis was apparently overcome by weaning.

If this view is correct it should be possible to show that antibodies are not destroyed by gastric juice and that they are absorbed into the circulation. As the question of weaning or breast-feeding in these cases is of considerable importance the following investigations were undertaken to try to determine which course should be pursued.

### Investigations

The fasting gastric contents were obtained from 20 babies varying in age from 1 week to 1 year; a wide range of gastric acidity was present. Equal volumes of gastric secretion and serum with a high Rh antibody titre were incubated together. At the end of an hour's incubation at 37° C. no fall in titre was found in any case, indicating that Rh antibodies are not readily destroyed by the gastric juice.

To try to demonstrate absorption from the stomach, serum containing antibodies was fed by mouth, and blood samples were taken at intervals thereafter and tested for antibodies. In each case Rh antibody was used which had been shown previously *in vitro* to be able to agglutinate the red cells of the recipient. Absorption was tested for by the ability of the serum to agglutinate red cells of the same Rh type, and at the same time blood counts were done to check the possibility of any *in vivo* agglutination leading to anaemia. The red cells were tested for sensitization by the direct method, and in all cases the power of the serum to sensitize other Rh-positive cells was investigated by the indirect method of Coombs, Mourant, and Race (1945). These are much more sensitive methods than the ordinary tests for agglutinins, the rabbit anti-human globulin serum detecting traces of antibody when direct agglutinating techniques are completely negative.

First, an Rh-positive volunteer drank 15 oz. (426 ml.) of serum with an anti-Rh titre of 256 without any untoward results. There was no fall in the blood count, and blood taken at intervals during the next 48 hours showed no agglutinin. The cells did not become sensitized and the serum failed to sensitize other Rh-positive cells.

Next, 12 Rh-positive babies suffering from such conditions as inoperable spina bifida were fed for a complete day with high-titre serum—again with complete failure to demonstrate any antibody absorption.

Thirdly, the direct Coombs test was done daily on a baby with erythroblastosis. On the day the test became negative traces of antibody undetectable by the most sensitive methods might reasonably be assumed to have been present.

On this day and for the subsequent 24 hours only his titre serum was fed, and again no sensitization of the cells occurred and no antibody could be demonstrated.

Lest there might be some difference between the absorption of antibodies from serum and breast milk the series was completed by repeating the observations on babies with haemolytic disease but using incomplete blocking antibody. Again no evidence of absorption was found.

In these investigations complete antibody was used. The series was completed by repeating the observations on babies with haemolytic disease but using incomplete blocking antibody. Again no evidence of absorption was found.

### Comment

Infants suffering from erythroblastosis, of either icteric or haemolytic preponderance, differ widely in the severity of the disease and in their response to blood transfusion therapy. Whereas in some a single transfusion will produce a satisfactory blood level which is maintained, in others the haemolytic process appears to continue after the transfusion. Cells are no longer sensitized by agglutinin and, indeed, times when all the original cells have been demonstrated to be replaced by group O Rh-negative blood. Yet in the refractory cases there is usually a point when lysis ceases and transfused cells are maintained, and the blood count starts to rise of its own accord. In view of the failure to show any absorption of mouth-fed antibody into the infant's blood it may be that in those cases where weaning appeared to overcome a refractory anaemia the time when weaning has coincided with the time of spontaneous recovery, and that the relationship between the two is more apparent than real.

The same rather dramatic onset of blood regeneration in the more refractory cases may sometimes be observed in infants breast-fed from birth, and also in others which have been only artificially fed. This regeneration characteristically is seen in the second month of life, a time when weaning to avoid breast-milk antibodies has appeared to effect an improvement.

It is possible, as Emery (1947) suggests, that traces of antibody insufficient to be harmful may be absorbed, but if so they are not detectable by present methods. The advantages of natural over artificial foods need no elaboration, and for an erythroblastotic baby with haemolytic anaemia and a depressed marrow the disadvantages of artificial feeding should be avoided so far as is possible. It has been the practice at the Hospital for Sick Children to breast-feed such infants whenever this can be done, irrespective of the breast-milk antibody content, and the clinical progress has not suggested any relationship between milk antibodies and the duration of the haemolytic process.

### Summary and Conclusion

Investigations are described which show that Rh antibodies, although not readily destroyed in the stomach of infants, are not demonstrably absorbed into the blood stream.

It is concluded that the weaning of infants with haemolytic disease because the maternal milk contains antibodies is not justified.

I am indebted to the physicians of the Hospital for Sick Children for access to their cases, and to Mr. G. W. Cecil for technical assistance.

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## RESIDUAL SUBACUTE AND CHRONIC PROSTATITIS AFTER PENICILLIN AND SULPHONAMIDE THERAPY IN ACUTE GONORRHOEA

BY

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he condition I am about to describe has not, so far as I am aware, been given any prominence in the current literature. As a result of careful personal observation in Mauritius, East Africa, and Cyprus (and so presumably throughout the Tropics and sub-tropics), covering a period of 4½ years' continuous V.D. practice in the Army, I can affirm that subacute and chronic residual prostatitis after chemotherapy in acute gonorrhoea is of very widespread occurrence, and gives rise to physical signs as long as it remains untreated. Under chemotherapy I include treatment by the sulphonamides, as I consider that, from a purely therapeutic point of view, penicillin has only one advantage over the sulphonamides in gonorrhoea—that there is no evidence of penicillin resistance or "fastness" so far as the gonococcus is concerned. Hence, when the sulphonamides act favourably, they are therapeutically as effective as penicillin.

If the following are accepted as the criteria of cure in all cases of urethritis—(1) a persistently clear urine, (2) a persistently "dry" urethra, (3) a prostate which feels normal on palpation per rectum, and (4) a prostatic fluid which is macroscopically clear, and which, when fixed and stained, shows microscopically no pus cells, or at most only a few (not more than two or three in any field)—then I have found that after chemotherapy in every case of acute gonococcal urethritis return to normal is disappointingly infrequent. The departure from normality which occurs most often after treatment is the above-mentioned residual prostatitis, which fails to respond to further chemotherapy.

### Clinical Features

The signs (there are no symptoms) of such a prostatitis may be the following:

1. Persistence of slight watery mucoid, or viscous opalescent or milky mucopurulent urethral discharge, which may be manifest only in the morning, or which may occur throughout the day. Microscopical examination of such a discharge will show mucus, either amorphous or inspissated; relatively few pus cells; small squamous epithelial cells from the urethra; and no organisms, or only scanty secondary organisms, such as Gram-positive cocci or bacilli. No gonococci can be detected after penicillin.
2. Persistence of mucus in varying quantities in the urine, with finely granular epithelial debris in suspension, or coarser sinking debris or small "comma" threads.
3. A palpably diseased prostate on rectal examination. It is difficult to describe the palpable features of a normal prostate: it is much easier to describe an abnormal one. The types of abnormality encountered are threefold: abnormality of size, shape, and consistence, depending on the severity and the duration of the prostatitis when first examined. Except in well-advanced cases, however, the physical signs appear to bear little relation to chronicity. In the early stages of prostatic involvement it may be difficult or impossible to assess the condition of the prostate by palpation alone, but by constant practice minor departures from the normal can be accurately assessed.

The physical signs of prostatitis are as follows:

- (a) The whole prostate may be symmetrically enlarged—that is, both lobes are prominent with a well-marked median raphe or furrow between them. It may be boggy in consistence or it may be tense or turgid. Such turgidity, how-

ever, will yield when the prostate is massaged—that is, the lobes are comparatively soft and yield to the palpating finger when pressure is exerted upon them.

- (b) The prostate may be symmetrically enlarged and smooth but of a rubbery consistence. This stage is reached surprisingly quickly in the course of prostatic infection. In this case greater pressure is required to produce any depression in the lobes by the examining finger.

- (c) There may be unilateral enlargement. One lobe (usually the left) is enlarged and turgid or rubbery.

- (d) One or both lobes may be not only enlarged but irregular in shape and consistence—that is, nodular. The nodules are portions of the prostatic lobe which are harder than the rest. There may be only one such nodule in either lobe.

- (e) Finally, the whole prostate may be somewhat shrunken, nodular, and hard, and no amount of pressure exerted upon it by the massaging finger will produce any impression. Such prostates are very difficult to drain. As it is virtually impossible to examine histological sections of such prostates, one can only suppose that the increasing hardness is due to fibrosis.

4. A pathological excess of pus cells (polymorphonuclear leucocytes) in smears of prostatic fluid expressed by massage. It is interesting to correlate the physical signs in the prostate, ascertained by rectal palpation, with the microscopical appearance of stained smears of prostatic fluid. If this is done, a palpably diseased prostate will almost invariably contain an excess of pus cells in the prostatic fluid. The smears show pus cells in either great or moderate numbers. In the former case the macroscopical appearance of the prostatic fluid is worthy of note: it is opaque and distinctly yellow in colour. Normal prostatic secretion is semi-translucent and faintly bluish. Patients should, of course, be made to urinate immediately before prostatic massage. In chronic cases—that is, where the prostate feels hard and rubbery—prostatic smears may show pus cells in either large or small, widely separated clumps. There may also be a great admixture of mononuclear cells, which are almost certainly epithelial cells from the prostatic ducts, although they superficially resemble large lymphocytes or plasma cells. These epithelial plugs admixed with leucocytes constitute the small flocculent debris which can be seen floating in the prostatic fluid in these cases.

In my experience it is rare to find organisms of any kind microscopically in such pathological prostatic smears. Out of hundreds of such smears that I have examined microscopically I have found gonococci in only three, and secondary bacilli in about the same number. I invariably stain my prostatic smears with Loeffler's methylene blue, as not only is it a quick and clean method, but the leucocytes stand out conspicuously. Any organisms present are also easily detected, and a full staining by Gram's method may be performed subsequently if doubtful cocci are encountered.

It occasionally happens that a palpably abnormal prostate usually one of tough, rubbery consistence—will yield negative smears in which pus cells are absent or only scanty. Conversely, where a prostate feels normal a large number of leucocytes may be present in the fluid expressed from it; but by far the most constant and reliable evidence of prostatitis is the microscopical appearance of pus.

Such, then, is the clinical and microscopical picture of this condition. As it might be objected that the prostatitis in question may be the direct result of the methods employed to combat the original urethritis, or may be due to a pre-existing prostatitis, I will quote a few illustrative cases. I can affirm that the condition is discovered in the course of primary acute gonococcal infections, after penicillin therapy alone, in patients who have never had local treatment directed to the prostate or any form of mechanical or adjuvant treatment.

I was fortunate to enlist the help of Dr. R. M. Dowdeswell, a bacteriologist at the Medical Research Laboratory, when I was working at No. 87 (Nairobi) British Military Hospital, between April and June, 1946. Dr. Dowdeswell had approached me for help to enable him to carry out some

independent research of his own on the blood concentration of penicillin over a period of hours after a single subcutaneous injection of the drug, under different atmospheric temperature conditions. The sodium penicillin used in Dr. Dowdeswell's cases was dissolved in sterile doubly distilled "pyrogen-free" water, and admixed with the patient's whole blood in the proportion of 3 : 1 (three parts of penicillin solution to one part of blood). The mixture was shaken in the barrel of the syringe and allowed to stand for six minutes before being injected subcutaneously into the abdominal wall.

It is important that the condition of the prostate be ascertained, so far as possible, before commencing treatment in acute gonorrhoea. The only available method is palpation of the gland per rectum. If this is done in all cases, it will be found that the prostate is palpably abnormal in a fair proportion of them.

### Illustrative Cases

**Case 1.**—Sgt. A., admitted to 87 British Military Hospital on May 24, 1946. Exposure with European woman about twelve days before admission. Used condom, followed by prophylactic packet one hour after exposure. Appearance of urethral discharge about ten days after coitus. First infection. On examination, purulent urethral discharge. Urethral smear showed intracellular gonococci + +. Prostate felt normal per rectum. On the 27th 150,000 units penicillin injected subcutaneously. Dr. Dowdeswell, dissatisfied with the results of the blood penicillin maintenance in this case, reinjected 150,000 units on the 30th. On June 4 his urethra appeared dry. Early-morning two-glass test showed almost clear urine, no debris, in both glasses. Per rectum the left lobe of the prostate felt enlarged and slightly rubbery. On the 7th his prostate was massaged, a smear made, and prostatic fluid was collected and cultured by Dr. Dowdeswell. The prostatic smear showed pus cells + + with clumps of mononuclear cells; the culture yielded two colonies of *Staph. albus* and two of diphtheroids.

**Case 2.**—Gnr. B. History of gonorrhoea treated in India with penicillin alone, 100,000 units, on April 16, 1946. Noticed slight urethral discharge two days before admission to 87 B.M.H. on May 14, 1946. On examination, scanty, mucoid urethral discharge. An early-morning smear was sought for on the 15th, but none was found. Early-morning two-glass test showed clear urine with faint mucous cloud in suspension in both. Per rectum, lobes of prostate prominent and rather rubbery. Prostatic smear showed pus cells + +.

**Case 3.**—Cfn. C., admitted to 87 B.M.H. for penile sore on May 27, 1946. Exposure with half-caste woman ten days before admission. Used condom, followed by prophylactic packet three or four hours after coitus. Past history of syphilis in England ten years ago. He was absolutely certain that he had never had urethritis. On examination, small superficial non-durated cribriform ulcer at muco-cutaneous junction of prece. No buboes. Blood Kahn negative. Dark-ground lumination negative for *Treponema pallidum* on three occasions. On the 29th he reported a purulent urethral discharge. Urethral smear showed intracellular gonococci + +. Per rectum the prostatic lobes felt prominent, smooth, and tense. Left lobe greater than right. On the 31st 150,000 units penicillin injected subcutaneously. On June 7 his urethra appeared dry. Two-glass test showed urine clear in both glasses. On the 12th his prostate was massaged, a smear made, and prostatic fluid was cultured. The prostatic smear showed pus cells + + +; the culture yielded a few diphtheroids.

**Case 4.**—Cfn. D. Exposure on April 28, 1946, with African woman. First noticed urethral discharge on May 2. First infection. Admitted to 87 B.M.H. on May 4. On examination, viscous mucopurulent urethral discharge. Urethral smear showed gonococci + +. Per rectum the prostate felt normal. On the 5th 150,000 units penicillin injected subcutaneously. On the 9th two-glass test showed: 1st, slightly hazy with mucus and a few opaque threads in suspension; 2nd, slightly hazy with mucus. Per rectum the prostate felt normal. On the 10th he had a slight mucoid watery urethral discharge. Two-glass test

showed: 1st, very faintly hazy with mucus and a few small mucous shreds in suspension; 2nd, clear. On the 11th his early-morning two-glass test showed: 1st, clear with small mucous cloud, containing granular debris, in suspension; 2nd, clear, with small mucous cloud in suspension. He still showed a clear watery urethral discharge. On the 12th his urethra appeared dry. Urine was clear. On the 14th, reappearance of scanty mucoid urethral discharge. Two-glass test showed: 1st, almost clear, with small mucous shreds in suspension; 2nd, clear. Per rectum, slight cord-like thickening of left lobe of prostate. Prostate massaged. Prostatic smear showed pus cells + +. Prostatic fluid was cultured by Dr. Dowdeswell; culture yielded *Staph. albus*.

**Case 5.**—Cpl. E. Exposure with Seychelles girl thirteen days before admission to 87 B.M.H. on June 11, 1946. Used condom which broke. Prophylactic packet used half an hour later. Urethral discharge appeared eight days after coitus. History of gonorrhoea in Italy in August, 1945, treated with penicillin at No. 1 R.A.F. General Hospital. On examination, purulent urethral discharge. Urethral smear showed gonococci + +. Per rectum, prostate felt normal. On the 12th 150,000 units penicillin injected subcutaneously. On the 16th his urethra appeared dry. His urine was hazy with mucus and contained dense sinking threads +. Per rectum the prostate felt uniformly enlarged, smooth, and tense. On the 17th the prostate was massaged, and prostatic fluid was collected and cultured by Dr. Dowdeswell. Prostatic smear showed pus cells + + +; the culture was sterile.

**Case 6.**—Sgt. F. Exposure with African woman sixteen days before admission to Military Hospital, E.A.A.M.C., Nairobi, on July 30, 1947. Used condom, but no prophylactic packet. Urethral discharge appeared on July 27. First infection. On examination, purulent urethral discharge. Urethral smear showed intracellular gonococci + +. Per rectum the prostate felt prominent and symmetrical, with well-marked interlobar cleft. Harder than normal. On the 30th penicillin started—three-hourly intramuscular injections of 50,000 Oxford units to a total of 250,000 units. On the 31st slight purulent urethral discharge. Urethral smear showed pus and small epithelial cells and mucus only. Very scanty secondary organisms. He was given pot. cit. 15 gr. (1 g.) three-hourly in water. On Aug 3 there was a viscous opalescent urethral discharge. Two-glass test showed: 1st, opalescent with mucus, with threads and debris + +; 2nd, faintly opalescent with mucus. He was kept on pot. cit. three-hourly. On the 7th he showed slight milky mucopurulent urethral discharge. Early-morning two-glass test: 1st, opalescent with mucus and coarse sinking debris + +; 2nd, opalescent with mucus. Early-morning specimen showed pus cells and mucus only. He was then put on daily posterior irrigations with 1 in 10,000 mercury oxycyanide solution at a temperature of 120° F. (49° C.) in the irrigation can. On the 11th there was a slight viscous mucopurulent urethral discharge. Early-morning two-glass test showed: 1st, opalescent with mucus and coarse sinking debris +; 2nd, opalescent with mucus. Per rectum, prostate prominent and turgid; no induration or nodularity. Prostate was massaged, and prostatic smear showed pus cells + + +. He was kept on daily irrigations. On the 17th his urethra was dry. Early-morning two-glass test showed: 1st, faintly opalescent with mucus and coarse sinking debris +; 2nd, faintly opalescent with mucus. Prostate was again massaged, and he was discharged from hospital with instructions to report weekly for prostatic massage.

### Discussion

Such cases are so common in tropical V.D. practice that it is a wonder they have not been commented on before now. The clinical findings are above suspicion when taken in the aggregate. I have already mentioned the unreliability of digital examination alone in assessing the condition of the prostate in early cases. However, when physical signs are present in the prostate they are as definite and conclusive of disease as any time-honoured physical signs in medicine. However, the microscopical evidence of prostatitis associated with venereally contracted urethritis, past and present, is irrefutable. I have mentioned cases in which palpably pathological prostates yield negative prostatic

nears, although this is the exception rather than the rule. It is observed invariably in those cases in which the prostate is of tough, rubbery consistence. This effect may be connected with the incomplete emptying of the gland, caused by the rigidity of the prostatic stroma, for often in such cases great pressure must be exerted on the prostate before prostatic fluid appears at the meatus. It may also be due to inflammatory exudate in the stroma causing occlusion of part or parts of the prostatic tree.

The fact that the structural changes in the prostate are found, and pus is seen microscopically in the fluid expressed, at the very first massage precludes the possibility of the prostatitis being traumatic in origin. Much more ambiguous and inconclusive are the bacteriological findings, both microscopical and cultural, in this condition. I have already referred to the rarity with which organisms of any kind are detected microscopically in such pathological prostatic smears; and this seems to coincide, so far as can be judged from so small a number of investigations, with the results of culture. In the eight cases in which Dr. Dowdeswell cultured the prostatic fluid no gonococci were grown. The secondary organisms may have been contaminants.

As regards the duration of the condition, I can speak with some authority, as in Mauritius for two whole years (1943 and 1944) I had the opportunity of observing the clinical progress of these cases. Defaulting was rare, and the patients reported weekly with clockwork regularity for prostatic massage; they came with a full bladder and their urine was inspected. The prostate was then massaged with a view to draining it, and prostatic smears were examined week by week. The results of the urine test and prostatic smear were recorded in each case. I use an arbitrary scale of my own to record the number of pus cells (polymorphonuclear leucocytes) in each prostatic smear as a whole (that is, not in any one field alone), ranging from + to + + + +, so that I can record the progress from week to week.

All cases of moderate severity—those in which the prostate is not very hard, shrunken, and nodular—respond to treatment, albeit slowly. The average period required to restore such pathological prostates to normal is between two and four months. The diminution of pus cells in the prostatic fluid is extremely slow, and is not appreciable until after the seventh or eighth week, and occurs *pari passu* with the softening of the gland. The urine, however, becomes clear long before the prostatitis resolves, and all urethral discharge disappears. The condition may be regarded as cured after three consecutive negative prostatic smears.

#### Aetiology

I have no theory to advance in explanation of this condition. Certain facts, however, are known from which certain conclusions can be drawn. The cases that I have quoted demonstrate clearly that it occurs very early in the course of primary acute gonorrhoea. It is only recently that I have adopted the practice of examining the prostate per rectum before starting treatment. In the past I have invariably been presented with a *fait accompli*—a diseased prostate the origin of which was open to conjecture. Furthermore, it may appear clinically either before treatment is begun or shortly after treatment, when the gonococcus is to all intents and purposes destroyed. It is much more common than folliculitis, which occurs characteristically in untreated cases of gonorrhoea of at least three weeks' duration: or in inadequately treated cases, as with small infrequent doses of a sulphonamide. In urethritis due to chronic anterior folliculitis or litritis the urethral discharge is usually teeming with mixed organisms, and

urethral smears show myriads of secondary organisms—usually small Gram-negative bacilli—even though there may be relatively few pus cells. Occasionally also in chronic anterior folliculitis large clumps of gonococci may be seen lying close to or upon squamous epithelial cells. Such a picture never occurs in the urethral discharge associated with the prostatitis under consideration.

This early involvement of the prostate suggests that the prostatitis in question might be a purely secondary effect. The question is, Of what nature? If it be of an allergic nature, one would expect the whole of the genital tract to participate in the phenomenon. Further, if it be allergic, it is selective, not only as regards the prostate as a whole, but actually within the prostate, for it very often happens that one prostatic lobe is enlarged and tense while the other is normal in size and consistence. The same argument applies to a purely "toxic" theory. Again, a prostatitis of this nature responds, both when treated and when untreated, like any other closed infection elsewhere: when regularly drained it resolves; when untreated it leads to fibrosis. Furthermore, the severity of this type of prostatitis is definitely related to the stage at which treatment of the primary infection is begun and to previous infection. It is, indeed, to be expected theoretically, and is found in practice, much more often in cases which give a history of repeated infections, and in delayed or inadequate treatment. Again, epididymitis occurring in association with a urethritis of venereal origin is invariably preceded by a prostatitis, and gives rise to very acute symptoms, whereas the concomitant and antecedent prostatitis does not. If the prostate is palpated per rectum in cases of epididymitis, it is usually found that the prostatic lobe corresponding to the side of the affected testis is more abnormal than its fellow on the unaffected side; and prostatic smears obtained after the acute symptoms and signs of the epididymitis have subsided reveal pus cells in large numbers. Lastly, cases of prostatitis do occur in which gonococci are present in sufficiently large numbers to be detected microscopically in prostatic smears, although the history and physical signs in such cases should lead one to suspect the presence of gonococci in the prostate.

The sum total of clinical evidence, therefore, seems to indicate that the prostatitis under consideration is a true infection, due to invasion of the gland by gonococci or other organisms, or both. If that conclusion be the correct one, the following questions immediately suggest themselves: (1) Why does the posterior urethra become infected simultaneously with the anterior urethra in some cases of acute primary gonorrhoea at its very inception? (2) In those cases in which the prostate becomes infected subsequently to the administration of penicillin, why should a few gonococci survive the general and rapid destruction of the organisms which occurs, and invade the depths of the prostate, leaving the anterior urethra without evidence of infection? (3) Why is the gonococcus so difficult to recover from the prostate in cases of this kind?

#### Summary and Conclusion

The main object of this article is to stress the prevalence of symptomless subacute and chronic prostatitis discovered in the Tropics following routine treatment of acute gonorrhoea with penicillin (or the sulphonamides), in doses generally accepted as adequate, after the acute signs and symptoms of the disease have subsided. It embodies the practical experience of 4½ years' continuous V.D. practice in the Army.

Six cases have been chosen to illustrate the main features of the condition, and to prove that it can and does originate very early in the course of acute primary gonococcal infections, appearing sometimes before, and sometimes very soon after, apparently successful penicillin therapy.

The type of prostatitis encountered is described in detail, and its aetiology is discussed. No theory of its causation is advanced. Further careful and more comprehensive investigations, with the use of controls, will have to be undertaken before the problem is finally solved and a more efficient and rapid form of treatment of the condition is evolved.

I am indebted to Dr. R. M. Dowdeswell for his kind help and voluntary co-operation in what promised to be a very interesting series of investigations (I was posted outside the Command before they had progressed very far); and to Lieut. E. S. Machell, R.A.M.C., for helpful criticism and suggestions. I also wish to thank Brig. G. M. Denning, one-time D.M.S., East Africa Command, for permission to publish this article, which has been abridged from the original written at No. 87 (Nairobi) British Military Hospital in June, 1946.

## THIOPENTONE-NITROUS-OXIDE-OXYGEN ANAESTHESIA WITH CURARE FOR HEAD AND NECK SURGERY

BY

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My purpose here is to describe a way of using thiopentone ("pentothal")-gas-oxygen anaesthesia to cover the whole field of surgery of the head and neck, including ear, nose, and throat, in adult patients. The method employs curare, the passing of endotracheal tubes, and the performance of artificial respiration in patients who may be apnoeic for many minutes. The article is therefore intended only for specialists in anaesthetics who are familiar with these techniques and not for the "occasional anaesthetist," who is recommended to continue to use the better-known methods with ether.

Many anaesthetists now agree in placing thiopentone-gas-oxygen, where their use is applicable, in merit above all other agents for speed of induction, ease and safety in maintaining anaesthesia, and freedom from unpleasant sequelae. Used together, they provide light general anaesthesia suitable for surgery of skin, fascia, muscle, bone, joint, and nerve—suitable, in fact, for all operations on the limbs and the body wall. They would also cover operations in the ear, nose, and throat, on the face, scalp, and neck, and on the skull and its contents, were it not for the difficulties of intubating, packing the pharynx, and deadening the cough reflex when they alone are used.

To overcome these difficulties the common practice has been to deepen the anaesthesia with ether until the jaw and larynx are relaxed for intubating and then to continue anaesthesia with ether at a level where the cough reflex is deadened, aided perhaps by spraying the larynx with cocaine. The objections to this are threefold: (1) It is time-consuming: 15 minutes or more are usually needed to provide conditions for easy atraumatic intubation through the mouth, and attempts to intubate earlier often result in greater delay. (2) An ether anaesthesia of this depth is nearly always followed by nausea and malaise of considerable duration. (3) Under certain conditions there is a risk of explosion.

It was to eliminate these disadvantages and to gain those of the thiopentone-gas-oxygen combination that the method to be described was evolved. In this method curare replaces ether as the relaxing agent. The profound relaxation which it provides is quick and certain. The larynx and trachea can be very thoroughly "cocainized" by spraying, so that the cough reflex remains deadened, and intubating and pharyngeal packing are easy. The time taken is

greatly reduced, the patient is spared the unpleasant after-effects of ether, and no inflammable agent is used.

### Method

In outline the sequence is as follows: (a) Initial injection of thiopentone, injection of curare, injection of maintenance dose of thiopentone. (b) Insufflation of the lungs with oxygen, using the Boyle's machine and mask, for two to three minutes until the full curare effect has developed. (c) Laryngoscopy, "cocainization," intubation. (d) The machine is now connected to the tube and the gas-oxygen flow started. The larynx is packed and gas-oxygen anaesthesia continued with "assisted" respiration until spontaneous respiration has recovered to a normal depth.

Consider these points in detail. The initial dose of thiopentone varies according to the principles well understood by anaesthetists, but should be on the generous side. For a robust young adult it is 12 to 14 ml. of 5% solution. The dose of curare is 20 mg. of pure crystalline *d*-tubocurarine chloride made up in 1% solution and called "tubarine" (Burroughs Wellcome). This is given quickly in one injection immediately after the thiopentone, and as the solutions of thiopentone and curare are incompatible it is better injected through another needle into a different vein.

At first smaller doses of curare were used and found insufficient in some cases where intubating through the mouth was necessary. But if intubating through the nose is required for an operation of short duration—as, for example, dissection of the tonsils by a quick surgeon—the smaller dose of 15 mg. is preferable. Unlike thiopentone, it is difficult to predict the approximate dose of curare that is required for any individual. What is important is that it should be sufficient. With a relative overdose, artificial respiration is, by the very nature of the action of curare, extremely easy to perform. With too small a dose intubation is difficult and the merits of the method are largely lost.

The maintenance dose of thiopentone is for the purpose of providing continual basal narcosis throughout the operation. What remains in the 20-ml. syringe is usually enough. It may be given immediately after the curare or intermittently over the next few minutes according to the reaction of the patient to the initial dose. In robust young patients the whole dose is generally given at once. If the operation is a long one, further small doses of thiopentone may be added from time to time when necessary, the ankle veins being chosen as conveniently remote from the surgical field.

Insufflation of the lungs with oxygen is most simply done by holding the mask firmly on the face, turning on the oxygen bypass, and alternately squeezing the bag to inflate the lungs and lifting the mask a little to allow the expired gases to escape. This is continued for two or three minutes, when the full effect of the curare will have developed. At this stage apnoea is complete, or nearly so, but the concentration and quantity of oxygen in the lungs is high enough to provide full oxygenation of the blood, under the conditions, for many minutes.

During these minutes laryngoscopy, "cocainization," and intubation are performed with care, with ease, and without hurry. There is inevitably some accumulation of carbon dioxide. It is likely that this develops slowly, as not only is the metabolism of the patient depressed by the premedication (omnupon 1/6 gr.=11 mg.; scopolamine 1/150 gr.=0.45 mg.) and by the thiopentone but also muscle tone is abolished by the curare. In any case it is a common practice for the anaesthetist deliberately to raise the concentration of alveolar CO<sub>2</sub> in the early stages of an anaesthetic without apparent detriment to the patient.

"Cocainization" is performed by spraying the larynx, under direct vision, with the usual type of Rogers spray. The exposure is so good that there is no difficulty in directing a cloud of fine spray not only over the larynx but down the trachea. If the operation is a long one, 2% amethocaine is used liberally, but for a short operation, especially one in which blood may accumulate in the pharynx when it is finished, 10% cocaine solution is used, and sparingly.

Oral is preferred to nasal intubation whenever the surgical procedure allows, and the largest tube which will pass com-



fortably through the larynx is chosen. This is encased in a special armouring, described below. It prevents kinking, acts as a mouth-prop, and is firmly tethered by a tape tied round the neck. The wide-bore airway thus assured is desirable in all cases, and is essential to intracranial operations.

Directly the tube is in position it is connected to the machine and the flow of gas and of oxygen started. The flow-rate of gas is standard for all cases at 6 litres per minute. The flow-rate of oxygen is 2 litres per minute (giving a concentration of 25%) until spontaneous respiration has recovered to a normal depth, when it is reduced to 1½ litres per minute (giving a concentration of 20%). In the early stages it is seen from the movements of the bag on the machine that spontaneous respiration is inadequate. This is easily dealt with. The pressure on the expiratory valve is increased until, when the bag is compressed manually, the chest is seen to expand. Rhythmical manual compression of the bag is continued thus so long as it is necessary to assist respiration. This is rarely more than 10 minutes, often less than 5; occasionally compression is not necessary at all.

That the above method of dealing with the respiratory weakness is effective is shown, first, by the complete absence of cyanosis in all patients, and, secondly, by the fact that if it is performed vigorously the CO<sub>2</sub> concentration can be so lowered that temporary apnoea results.

### Apparatus

1. The ordinary Boyle's machine with standard Magill's attachment consisting of bag, tubing, expiratory valve, and face-mask.
2. Magill's endotracheal tubes, connexions, and catheter mount.
3. A flexible metal tube with bell-shaped mouthpiece (Fig. 1). This is made by Medical and Industrial Equipment, Ltd., in two

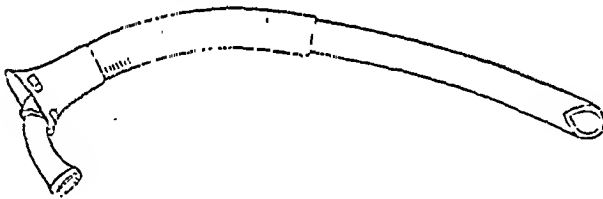


FIG. 1.—A flexible metal tube with bell-shaped mouthpiece, for use with Magill's tubes.

sizes: a No. 10, which is suitable for use with Magill's tubes of size 10, 9, and 8; and a No. 8 for Magill's tubes size 8, 7, and 6. This device effectively prevents the tubes from kinking even when they are softened by repeated boiling, which is the most satisfactory way to sterilize them. It encases the Magill's tube only as far as the base of the tongue, and has four holes near its mouth-end, through which tape is threaded and tied firmly round the neck (Fig. 2). It has been in use for many months and has proved entirely satisfactory.

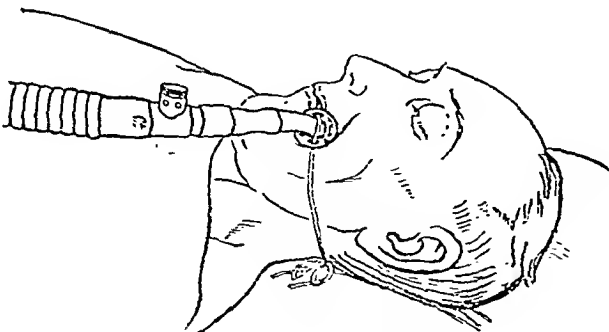


FIG. 2.—The apparatus in position.

4. The Macintosh laryngoscope is preferred to other models. It sometimes happens that the Magill's tube is deflected towards the oesophagus at a tangent to its curved blade. To overcome

this little difficulty various types of simple introducers have been used to direct the tip of the tube into the glottis.

### Discussion

The merits of the method described are its speed, simplicity, and freedom from hurry; the absence of complicated apparatus and of bulky appliances near the operating field; the good relaxation; the absence of risk of explosion; and the rapidity of recovery and freedom from unpleasant symptoms.

It may be thought that there is danger in the immediate post-operative period of aspirating blood or other material owing to residual weakness from the curare and to insensitivity of the upper air-passages from the "cocainization." In practice it is generally found that both the cough reflex and the power to cough have returned by the end of the operation. The patient, however, is turned semi-prone with the head low to lessen this risk when it is present.

The surgeons on whose cases this method has been used have not reported any increased tendency to bleeding. The table is tilted 10 degrees, head up, to diminish bleeding whenever the operation allows.

Other agents are in use for procuring the initial relaxation for intubating. By some, thiopentone is used alone, while others add cyclopropane. But in my opinion there is no agent which is so quick, so certain, and so safe as curare.

## Medical Memoranda

### Bilateral Abductor Laryngeal Palsy in Syringomyelia

The under-noted case is worthy of record because it demonstrates the importance of laryngological examination in cases of nervous disease even when there is no disturbance of voice and involvement of the larynx is unsuspected.

#### RECORD OF CASE

A chaplain, aged 33, had for about seven years been aware of sensory disturbances in the hands and left leg. He noticed that when taking a hot bath the heat was not appreciated by the affected parts although temperature sensation was normal elsewhere. He paid little attention to these symptoms.

About three months previous to his present admission to hospital he had felt ill with headache and general malaise. Thinking that he had influenza, he reported to his doctor, who found that he had a temperature of 101°F. (38.3°C.), but no abnormality in throat or chest. It was then discovered that there was a large area of cellulitis over the posterior aspect of the right elbow. In a normal person this would have caused considerable pain, but, apart from the fever, the patient was unaware of its presence.

Neurological examination showed that the left leg was stiff on walking. There was marked muscular wasting of the left hand, and the grip was weak. The left eye had a small pupil and narrowed palpebral fissure (Horner's syndrome). Sensation for touch was diminished on both sides of the face and over the right side of the trunk. Appreciation of painful stimuli and of heat was lost over the chest, both arms, left side of the abdomen, and left leg. Knee- and ankle-jerks were more pronounced on the right side than on the left. Abdominal reflexes were present on both sides. An extensor plantar response was elicited on the left side. A diagnosis of syringomyelia was made.

The patient attended for rhinological examination on account of nasal obstruction and catarrh. One year previously the septum had been resected with improvement in nasal patency but little effect on the discharge. He had no complaint with regard to his voice, which in the exercise of his calling was of paramount importance to him. During the past month, however, he had noticed a tendency to become breathless on exertion.

Examination revealed a chronic infection of the right maxillary antrum, with pus in the middle meatus. There was pus in the right choana, and the posterior edge of the septum was markedly swollen. Palatal, pharyngeal, and lingual movements were normal. There was some diminution in sensation in the pharynx, but no

actual anaesthesia. Laryngoscopy showed the presence of bilateral abductor palsy. The cords, which were normal in appearance, approximated perfectly on phonation. On inspiration they barely separated, leaving a glottic chink surprisingly small to cause such slight symptoms. Deep inspiration, instead of widening the glottis, seemed rather to narrow it by sucking the cords downwards.

## COMMENT

The occurrence of bilateral abductor palsy in syringomyelia receives but scant attention in the textbooks. The fact that laryngeal palsies are caused by this condition is mentioned, but no details are given. It is evident, however, that the presence of a bilateral abductor palsy affects the prognosis in this particular case to a considerable extent. Not only does it show that the disease has extended to the bulb (syringobulbia) but there is now liability to sudden severe dyspnoea, which might demand tracheotomy.

The chronic nasal sinusitis predisposes to attacks of laryngitis with consequent narrowing of an already dangerously obstructed glottis, and the performance of tracheotomy as a precautionary measure must be seriously considered.

Glasgow.

D. BROWN KELLY, M.D., D.L.O.

## Hypertrophica Musculorum Vera

In view of the rarity of the adult type of paradoxical muscular hypertrophy it was felt that the following case might be worthy of record.

## CASE HISTORY

The patient, a youth of 19, joined a Naval training establishment in February, 1946, for the first stages of ordinary seaman's training. He first reported sick two weeks later, complaining of cramp-like pains and weakness in the muscles of the legs and thighs. These symptoms were brought on by exercise such as physical training and marching "at the double"; cramps occurred very occasionally at rest, but were always of slight severity. At first the symptoms were ascribed to the over-use of unaccustomed muscles—a not infrequent cause of muscular aches and pains in the early weeks of training. The patient persisted with his complaints, however, and was admitted to sick quarters for investigation.

On admission he gave a history of acute nephritis four years previously; there were no other illnesses. Shortly after his recovery from the nephritis he noticed pains and weaknesses in both legs, which limited the distance he could walk with comfort. At school his athletic performance was average and he achieved some notoriety by reason of his physical strength. He had had several jobs, first as a labourer, and stated that more recently he had sought lighter occupations because of his disinclination for heavy or prolonged work. He gave a family history of the death of his father and three paternal uncles before the age of 30, but unfortunately no details whatever of these cases could be obtained.

On examination he was found to be a healthy-looking youth of rather stout build and showed no abnormality of the cardiovascular or respiratory systems. Kidney function was normal. There were no abnormal signs in the nervous system, all reflexes being present, movements well co-ordinated, and all forms of sensation unimpaired. No fibrillary twitching was observed. There was marked bilateral hypertrophy of the muscles of the calves, quadriceps femoris group, glutei, and forearms. The muscles were firmer than normal in the relaxed condition, and hard on voluntary contraction. Power did not appear to be greatly lacking, though it was less than the general development would have led one to expect. Various laboratory investigations were carried out, but the only abnormal finding was creatinuria to the extent of 1.04 g. in a 24-hour specimen.

## COMMENT

This seems to be a case of hypertrophica musculorum vera. It is a very rare condition which occurs mostly in adult males, and shows muscle hypertrophy of a varying distribution, usually without perceptible nerve lesions. It differs from the commoner pseudo-hypertrophic type in having a later age incidence and also in showing an early stage of true hypertrophy with subsequent loss of power as in Spiller's (1913) cases. It was unfortunate that no detailed family history could be obtained. In Barnes's (1932) detailed report of a myopathic family there were many cases of a similar type; he found the age of onset to be mainly in the 35-40-year group, but there was a late juvenile onset in a few instances. The above case appears to be in the early stages of loss of muscle power. The condition is slowly progressive, and finally shows heroic muscular development with paradoxically reduced contractile power and fatigue endurance.

Creatine is excreted normally in the urine of infants and children of both sexes up to the age of puberty. It occurs intermittently in the urine of women, and continuously through pregnancy and the period of involution. It is absent from adult male urine except for occasional traces. Creatinuria may occur in the myopathies and in conditions of unusual breakdown of muscle tissue or increased general metabolism—for example, starvation, diabetes, exophthalmic goitre, and fever.

I am indebted to Surg. Capt. J. G. Boal, R.N., medical officer in charge of a Royal Naval sick quarters, for permission to publish this case, and to Dr. Macdonald Critchley, consultant in neurology to the Royal Navy, for his advice.

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Late Surgeon Lieutenant, R.N.V.R.

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## Invaginated Meckel's Diverticulum containing a Tumour, with Associated Intussusception

New growth arising in a Meckel's diverticulum is a great rarity (Edwards, 1939) and intussusception due to invagination of a Meckel's diverticulum is an infrequent occurrence. Harkins (1933) was able to find 49 recorded cases of tumours of Meckel's diverticulum, and in a survey of 114 cases of intussusception due to invagination of the diverticulum he found a tumour present in 26. Milroy Paul (1939), recording a case, quoted 15 additional cases of invagination with intussusception, but in his case there was no tumour and he did not mention a tumour as being present in the other 15 cases. It therefore seems worth while putting on record the following case of an invaginated diverticulum containing a tumour and causing intussusception.

## CASE REPORT

An apprentice carpenter aged 16 was admitted to Llandough Hospital on March 28, 1945. He gave a history of colicky abdominal pain with attacks of vomiting over a period of about 26 hours. The bowels had been opened the day before admission, but no blood had been passed per rectum. His general condition was good, with the temperature 99.6° F. (37.55° C.) and the pulse rate 96. A small tender mass was palpable in the right iliac fossa and there was tenderness on the right side on rectal examination.

Operation was performed an hour after admission, the abdomen being opened through a McBurney incision. Free clear yellowish fluid was present in the peritoneal cavity. A mass presented in the incision and on delivery proved to be a loop of intussuscepted ileum. The intussusception, which was about 1 ft. (30 cm.) in length, was easily reduced by the usual technique, but it was then found that the apex of the intussusception had been occupied by an inverted Meckel's diverticulum. Reduction of the latter was difficult, but it was eventually accomplished. The diverticulum was found to be about 2 in. (5 cm.) in length, and at its apex was a firm mass about the size of a hazel-nut. Diverticulectomy was performed and was followed by appendectomy and closure of the abdomen. Convalescence was uneventful, and the patient was discharged from hospital 12 days later.

Microscopical examination showed that the mass in the diverticulum had the appearance of a submucous lipoma, some parts of the covering epithelium having desquamated.

I wish to express my thanks to Dr. A. E. Carragher for examining the excised specimen.

D. B. E. FOSTER, M.B., F.R.C.S.Ed.,  
Resident Surgeon, Llandough Hospital, Cardiff.

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The increasing number of women pharmacists was referred to at a dinner given by the National Association of Women Pharmacists in honour of the election of Mrs. J. K. Irvine, M.B.E., as first woman president of the Pharmaceutical Society of Great Britain. Mrs. Irvine said she had met women pharmacists from ten countries, including Turkey, Palestine, and Iran, at the recent meeting of the International Pharmaceutical Federation in Zurich. Mr. H. C. Shaw, the Society's vice-president, added that in the next generation we should probably have more women pharmacists than men. He asked them therefore to take a long-range view so that the next generation of pharmacy would be better than ours.

## Reviews

### NEW ASPECTS OF PSYCHIATRY

*Dimensions of Personality.* By H. J. Eysenck, Ph.D. With foreword by Prof. Aubrey Lewis, M.D., F.R.C.P. (Pp. 308. 25s.) London: Kegan Paul, Trench, Trubner and Co. 1947.

This book contains an account of a great deal of work done by Dr. Eysenck and his collaborators in the Psychological Department at the Maudsley Hospital. Much of it was stimulated by the problems of the neurotic soldier, which predominated in wartime psychiatry. Nevertheless the chief importance of the book does not lie so much in the actual results of the investigations carried out, impressive though they are, as in the fact that we read of the fruitful introduction of new research methods into psychiatry. When two sciences which have long remained mutually isolated at last begin to influence one another, we frequently see a rapid advance owing to the methods evolved in the one field being applied to the material found in the other. This book describes such an event. The methods familiar to psychologists, which were making only slow progress in inquiries directed to normal individuals, were found to be remarkably appropriate when applied to groups of individuals who could be distinguished from one another by the success or failure of their response to actual stressors of life. The results compel us to re-examine our ideas. The basic concepts of psychiatry are largely nosological in character. "Neurosis" and "psychopathic personality," vague though these terms are, have for the psychiatrist been imbued too much with the meaning of illness. The psychological approach has focused attention on the underlying qualities of temperament, which provide the disposition to neurotic breakdown or psychopathic reaction.

The title of the book epitomizes the new viewpoint. The author teaches us to look on human beings as varying in a great number of characteristics between opposite poles of the smooth and continuous "normal curve." Differences between individuals are quantitative only, may be small or large, and are measurable. The old theories of "types," such as the "introvert" and the "extravert," have to be discarded, and the types themselves are seen as merely the extremes of the curve of distribution in respect of some one quality. The results of investigating the character of suggestibility provide an elegant and convincing illustration. Psychiatrists have identified suggestibility with hypnotizability and with the syndrome of hysteria. Patients either are or are not hysterics. Preliminary psychological investigation seemed to reveal that there was a fairly sharp cleavage between the suggestible and the non-suggestible, but further inquiry has shown this to be a statistical and experimental artefact. Most people are moderately suggestible, but they vary evenly towards the two poles. Evidence which confirms and justifies this revolution of old and accepted ideas can be drawn both from psychological experiments and from advances in clinical psychiatry during the war, and even from our knowledge of genetics. One consequence of this work will be that our textbooks of psychiatry will have to be largely rewritten.

ELIOT SLATER.

### COLOUR VISION

*Sensory Mechanisms of the Retina. With an Appendix on Electoretinography.* By Ragnar Granit, M.D. (Pp. 412; illustrated. 35s.) London: Geoffrey Cumberlege (Oxford University Press). 1947.

The study of the sensory mechanisms of vision has in the past largely depended on the interpretation of subjective phenomena. Some investigators have been at pains to attempt objective investigations, but many have been content to record their sensations qualitatively. Prof. Granit saw that more progress was likely if the subject was attacked quantitatively and objectively.

He describes in this book his investigations and relates his results to those of other workers. The first two sections form an introduction, and he discusses the results achieved by electroretinography. In Section III, which is a necessary introduction

to the following section, he considers the properties of the photosensitive substances in the retina, and then in Section IV gives a detailed account of retinal colour receptors and how he was led to discover them. The technique which he has perfected is a great advance on the single-fibre preparation in the optic nerve and enables him to study the responses of single light-sensitive units, or small groups of them, which may transmit impulses through a single nerve fibre. The nature of the experimental technique is such that the reader may wonder what has led Granit to believe that he is dealing, in a particular experiment, say, with a single light-sensitive element, or, again, in what proportion of trials a definite result is obtained. The author answers these and similar questions clearly and in a manner revealing the difficulties involved rather than merely stating the results achieved. The section on technique enables one to form an opinion of his results and instils a feeling of confidence in Granit's dominator-modulator theory and the manner in which this may be used to explain "colour vision."

The book should appeal to a variety of readers. To the worker interested in this rapidly expanding branch of physiology it provides a clear account of the results achieved. The advanced student will be interested in its account of electrophysiological methods for elucidating the mechanism of sensation. The general reader will learn of modern concepts in colour vision from chapters which do not presuppose a deep knowledge of physiology. So far, the observations on colour receptors have been made only on animals, but recent work on man by other investigators using less objective methods of experimentation suggests that modulators may exist in the human retina.

J. L. D'SILVA.

### ADVANCES IN PHYSIOLOGY

*Annual Review of Physiology.* Volume IX. Editor, Victor E. Hall; Associate Editors, Jefferson M. Crimmon and Arthur C. Giese. (Pp. 736. \$6.00 or 36s.) California: Annual Reviews Inc., and American Physiological Society. London: H. K. Lewis and Co. 1947.

The demand for annual reviews of advances in particular subjects is indicated in the preface of this volume by the announcement that a series on microbiology is to be produced. But despite the possible deviation of material and extensive cutting by the editors this volume is appreciably larger than the last, partly because papers which could not be printed during the war owing to difficulties of circulation or secrecy regulations are now available. It is almost inevitable that the articles should be of unequal merit, for authors differ in their ability to take up definite standpoints from which to survey their material, and the quality and scope of the work reviewed vary. However, this volume attains the standard of its predecessors, and for the first time since the series started it has been possible to include a significant number of articles from European authors, who give excellent reviews, as opposed to catalogues, of the subjects entrusted to them.

The book follows its usual lines and in twenty-seven articles (as against twenty-five last year) includes topics which have not been reviewed previously or for a long time—"Growth," "Physiology of Supporting Tissue," "Bioelectric Potentials in the Nervous System and in Muscle," "Defence Mechanisms"—but the majority of the articles cover a one- or two-year period to the middle of 1946. Apart from the physiologist who wishes to be sufficiently acquainted with new work to keep his subject in perspective the clinician will find much to direct him to new approaches to his problems. For instance, in the section entitled "Digestive System" H. Greengard discusses at length the aetiology and treatment of peptic ulcer, and the effects of nerve section are discussed in another article. Current opinion on the estimation of renal activity by the method of clearances is surveyed under "Kidney," and the connexion between the kidney and arterial hypertension is discussed in this and other sections. C. J. Wiggers in a comprehensive review of the peripheral circulation urges cautious appraisal of circulatory measurements made by new techniques such as atrial catheterization and discusses the haemodynamics of shock, the calculation of peripheral resistance, and the mechanism of hypertension, though a misprint occurs in the formula for calculating peripheral resistance.

It is impossible to do more than indicate some of the topics which have attracted the personal interest of the reviewer, such as the further application of electronic methods in the exploration of physiological and clinical problems as indicated by the articles on "Bioelectric Potentials" and "Electrical Activity of the Brain." W. R. Ingram and F. K. Sanders respectively discuss some of the functions of afferent nerves, both visceral and somatic, the latter author recording the latest views on hyperalgesia, causalgia, and phantom limb. D. J. Mulford describes notable advances, arising from researches intensified during the war, in our knowledge of the protein components of the blood plasma and their potential uses. An extensive review, "Muscle," considers the relationship between molecular structure and the contractile process, and mention is made of neuromuscular transmission and the possible nature of the breakdown in myasthenia.

A. HEMINGWAY.

## THE THYROID GLAND

*A Tiróide. Físio-patologia. Diagnóstico e tratamento de suas enfermidades.* By Hiló de Lacerda. Endocrinologia Elementar. Volume I. (Pp. 152; illustrated. No price given.) Brazil: Sao Paulo (Rua Rego Freitas, 490). 1946.

Those wishing to revise their knowledge of the thyroid without reading the late Mr. Cecil Joll's *magnum opus* should find this admirable little monograph useful. The author intends to produce similar volumes on the other endocrine glands. Prof. de Lacerda's conception of the "thyroidon," by analogy with the nephron and the hepaton, assists in the understanding of the normal gland, whose embryology, anatomy, and physiology he discusses in the early chapters. He then considers the pathology of the thyroid and the treatment of its diseases. It is refreshing to see adequate mention of Hashimoto's disease in such a small book, a subject completely ignored by some standard textbooks of pathology.

Perhaps of special interest to British readers will be the chapter summarizing the views of the Soviet worker Kazakov on the treatment of hyperthyroidism with hydrolysates of liver, spleen, muscle, parathyroid, pancreas, etc. Kazakov maintains that the phenomena of hyperthyroidism are those of a generalized acidosis, and that the greater incidence of the condition in the female can be explained by disturbances of the acid-base equilibrium to which that sex is subject in the premenstrual period, in menstruation, in pregnancy, and at the menopause. Kazakov summarizes the aetiology of the "functional" diseases of the thyroid thus: (a) Simple hyperthyroidism without glandular enlargement, due to increased production and reabsorption of colloid without an associated storage of excess. (b) Graves' disease, where there is not only increased reabsorption of colloid, but also its more rapid accumulation in the distended follicles of the gland. (c) In simple goitre the gland increases in size on account of lessened reabsorption of the qualitatively altered colloid and increased reserves due to breakdown of the epithelial function. (d) In myxoedema the colloid coagulates in the follicles and appears to lose the capacity for being reabsorbed via the blood stream. The epithelium therefore degenerates.

One misses any reference to the use of radio-iodine in research into thyroid function, but there is a chapter on thyroid therapy. Each chapter has a good list of references to the literature in five languages. Unfortunately the volume is very lightly bound, and there are many small typographical errors. The illustrations are adequate.

J. C. FORD.

The arrangement and style of the second edition of Wilfred Shaw's *Textbook of Midwifery* (J. and A. Churchill: 21s.) remain unchanged, but the author has added about sixty pages in expanding some sections and included new material on chemotherapy and haemolytic disease of the foetus and newborn. It remains a book difficult to appraise, for it contains a number of doctrines that have been largely disproved, some that have been approved only to a limited extent, as well as individual views of the author which command respect if not acceptance. The author discusses the details of treatment well, and the illustrations are good. Although some parts of the book will interest those who have a knowledge of midwifery, its lack of balance may detract from its suitability as a textbook for undergraduates.

## BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

*The Psychoanalytic Study of the Child.* Vol. II 1946. Edited by Anna Freud, Heinz Hartmann, M.D., et al. (Pp. 424 30s.) London: Imago Publishing Co.

In five sections: Problems of Child Development, Clinical Problems, Guidance Work, Problems of Education and Sociology, History of Child Psychiatry.

*Materia Medica for Nurses.* By A. Muir Crawford, M.D., F.R.F.P.S.G. 6th ed. (Pp. 160. 5s. 6d.) London: H. K. Lewis 1947.

A manual of materia medica intended for nurses; a new chapter on penicillin included.

*Diseases of the Chest.* By E. H. Rubin, M.D., F.A.C.P., F.C.C.P., and M. Rubin, M.D. (Pp. 720. 60s.) Philadelphia and London: W. B. Saunders Company. 1947.

A general account of chest diseases with many illustrations, including a section on the principles of surgical treatment.

*Estudios Sobre el Pulmon Colapsado.* By Dr. Jose Abello Pascual. (Pp. 506. No price.) Madrid: Publicaciones del Patronato Nacional Antituberculoso. 1946.

A monograph on collapse of lung, with clinical and experimental details.

*Penicillin Therapy.* By J. R. Goyal. 2nd ed. revised. (Pp. 177 No price.) Delhi: Dr. J. R. Goyal, the Albion Press. 1947.

An account of penicillin and streptomycin; intended principally for the medical practitioner in India.

*Old People's Welfare on Merseyside.* By Ellinor I. Black and Doris B. Read. (Pp. 110. 2s. 6d.) The University Press of Liverpool. 1947.

An account of the welfare provisions for old people on Merseyside.

*Advanced Industrial First-Aid.* By R. A. Trevethick, M.B., Ch.B. (Pp. 63. No price.) Rotherham: Henry Garnett and Co. 1947.

A pocket manual of first aid in industry intended for the layman.

*Science and Nutrition.* By A. L. Bacharach, M.A., F.R.I.C 3rd ed. (Pp. 142. 6s.) London: Watts and Co. 1947.

Recent knowledge on nutrition and dietetics described for the layman.

*Child Psychology.* By Arthur T. Jersild. Ph.D. 3rd ed. (Pp. 623 30s.) London: Staples Press. 1947.

The author describes the development of the child's mind and its relation to his behaviour.

*A Neuro-Vascular Syndrome Related to Vitamin Deficiency.* By H. Smitskamp. (Pp. 114. No price.) Amsterdam: Scheltema and Holkema's Boekhandel. 1947.

A monograph on the "burning feet" syndrome.

*Smoke: The Problem of Coal and the Atmosphere.* By Arnold Marsh, M.Sc.Tech., M.Inst.F. (Pp. 306. 21s.) London: Faber and Faber. 1947.

An account of smoke from industrial and household chimneys and its relation to health, urban amenities, and fuel wastage.

*Exposés Annuels de Biochimie Medicale.* Edited by Michel Polonovski. (Pp. 285. 560 francs.) Paris: Masson et Cie. 1947.

Includes papers on the alkaloids of ergot, bacterial antigens, synthetic oestrogens, the biochemistry of cobalt, and the initial stage in the biogenesis of organic compounds.

*Diseases of the Joints and Rheumatism.* By Kenneth Stone, D.M., M.R.C.P. (Pp. 362. 30s.) London: William Heinemann. 1947.

An introduction to rheumatic and other joint diseases for medical students and postgraduates.

*Visible Speech.* By R. K. Potter, G. A. Kopp, and H. C. Green (Pp. 441. 25s.) New York: D. Van Nostrand Company. 1947.

An account of speech sounds made visible by photographic recording; profusely illustrated.

## BRITISH MEDICAL JOURNAL

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## CHEMICAL CARCINOGENESIS

Percivall Pott began the story in the eighteenth century when he recognized that soot caused "chimney-sweeps' cancer." Clinical observation disclosed other occupational cancers attributable in the main to mineral oils and tars. In 1915 Yamagiwa and Ichikawa, in Japan, first produced cancer experimentally by painting rabbits' ears with coal tar. Soon afterwards Tsutsui extended the method to the skin of mice, with which most of the subsequent work has been done. Tar-painting yielded much valuable information about the induction of tumours, but most investigators attributed the carcinogenic power of tar to its capacity for producing "chronic irritation" of appropriate duration and intensity; only a few suspected that a specific carcinogenic constituent was present. The next big advance was made in 1932 at the Cancer Hospital in London when Kennaway and his collaborators, Cook, Hieger, and Mayneord, demonstrated the carcinogenic power of a pure substance of known chemical constitution, namely, 1:2:5:6-dibenzanthracene. The consequences were far-reaching. The use of constant pure chemicals in place of complex variable mixtures increased greatly the range and precision of experimental carcinogenesis, and, more important, chemical methods and modes of thought were henceforward increasingly assertive in cancer research. Many more carcinogenic hydrocarbons were identified, including 3:4-benzpyrene, the active constituent of tar, and 20-methylcholanthrene, a highly potent carcinogen closely related to the naturally occurring bile acids. Within the group of carcinogenic hydrocarbons there was close correlation between carcinogenic activity and chemical structure, so that the carcinogenic potency of previously unknown compounds could be predicted with remarkable accuracy. It was then a plausible hypothesis that all cancer was induced by carcinogenic hydrocarbons either introduced into the body as such or formed from normal body constituents in response to other known inciters of cancer, such as the radiations of radium, x rays, and ultra-violet light. The hypothesis in its simple form became untenable as a result of the almost alarming growth of the list of carcinogenic agents, which soon included chemical substances of the most diverse kinds. This list now includes the azo-dyes, of which "butter-yellow" is the most familiar; acetylaminofluorene, whose carcinogenic power was discovered accidentally while it was being examined as an insecticide; stilbene derivatives; and much simpler compounds such as urethane and carbon tetrachloride. The focus of interest is no longer the discovery of new carcinogens but the study of their mode of action.

Several papers in a recent issue of the *British Medical Bulletin* deal with this subject, and Prof. Alexander Haddow discusses the theoretical aspects in a paper which discloses the range and complexity of the investigations now being used in cancer research. Most medical readers may admit, without loss of face, that Prof. Haddow's erudition in chemistry, physics, and biology is beyond their reach. The enormous accumulation of uncoordinated information about cancer must be studied against a background of general biology which has vastly changed in methods and outlook during the past fifteen years. The symposium on chemical carcinogenesis by twenty contributors to the *Bulletin* is a valuable survey of modern knowledge. An introductory editorial, notable for its avoidance of the British vice of understatement, finds reason for a "hope that the daily flood of facts, which we do everything in our power to encourage, will become progressively less a mere burden to the mind and more a source of refreshment to the spirit!" Meanwhile, laymen and many doctors, excusably indifferent to the spiritual welfare of investigators, ask relentlessly: What is the cause of cancer? What are the prospects of finding a cure? The twenty contributors to the *Bulletin* cannot give a plain answer. Nor can anyone else. In truth the questions are not as plain as they seem. It is profitable to distinguish between the cause and cure of cancer in general and the aetiology and treatment of particular kinds of cancer. Most cancer research workers presume that some fundamental cell change is common to all kinds of cancer and is indeed the indispensable basis or "cause" of cancer. They disagree widely in describing this cause in terms of genes, plasmagenes, enzymes, or viruses. Knowledge of this fundamental cause may be a necessary condition for finding a true "cure" for cancer. In his admirable discussion of the chemotherapy of cancer, Prof. Haddow sets out the formidable difficulties: the host apparently exerts no protective action against its own tumour; a differential action on normal cells and their neoplastic variants is extremely difficult to achieve; and the malignant change seems to all intents and purposes permanent and irreversible. He believes that the most hopeful method of attack is the persistent investigation of the mode of action of carcinogens and that the problem of the reversal of the carcinogenic action is "very likely just soluble." This, of course, would constitute a true "cure" of cancer, but Prof. Haddow does not imply that it is within sight.

The problems of aetiology and treatment in particular kinds of cancer require a different approach. It is widely agreed that many and varied factors or inciting agents may contribute to the fundamental change which constitutes the proximate cause of cancer. These factors—"causes" in everyday usage—may be different or may operate in different combinations in the varied types of neoplastic disease. Their elucidation in human cancer may be long and tedious but is essential to rational prophylaxis. The aetiology of only a few kinds of cancer is reasonably clear; these include cancers due to radiations, the occupational cutaneous cancers induced by mineral oils and tars, and the "aniline cancers" of the bladder in dye-workers. The aetiology of most forms of human



He favours a right extraperitoneal approach through a gridiron incision under spinal anaesthesia.

Thebaut and Ward report 36 cases of thrombo-embolism. The inferior vena cava was ligated in 34; and the other 2 died on the table before the vein could be tied. All the operations were undertaken for the prevention of further embolism in cases in which it had already occurred. There was no known recurrence of embolism in any of the patients operated upon. In addition to the two patients who died on the table two others died—one five hours and one twenty minutes after the operation. The follow-up period varied from 36 months to 2 months. No oedema was seen in 19 patients; 6 patients had slight oedema after standing all day, and 2 patients had slight persistent oedema. In none was the oedema incapacitating. The authors state that it is doubtful whether the oedema is any greater than would have been anticipated if the vena caval ligation had not been performed. An interesting observation is that in 6 out of 7 cases in which lumbar sympathectomy was performed at the same time the disease intensified clinically as shown by greater pain and tenderness or increased oedema. Thebaut and Ward favour an extraperitoneal approach unless they wish to tie the ovarian veins as well or to do a bilateral lumbar sympathectomy, in which case they use the transperitoneal route. They prefer a transverse incision for the extraperitoneal operation and favour spinal anaesthesia, or general anaesthesia if hypertension is present. Heparin and dicoumarol were used post-operatively in only one case. The patient is encouraged to get up as soon as his general condition permits.

Ligation of the inferior vena cava sounds a drastic remedy, and it still occasions surprise to many that it is indeed a feasible procedure. It is fatal only if the ligation is performed above the renal veins. Ochsner and De Bakey<sup>4</sup> mention 48 successful cases performed by 27 operators, the majority being performed for septic thrombophlebitis resulting from puerperal infection; there was no evidence of subsequent circulatory disturbance in the lower limbs of these patients. Perusal of these American case reports reveals many in which death was apparently inevitable without venous ligation. If ligation is to be undertaken it seems that a good case has been made for ligation of the inferior vena cava itself. It is certain that our attitude towards thrombophlebitis must change from expectant complacency to alertness and early interference, whether it be by surgery or by the administration of anticoagulants. Moses remarks, with justification, that tense oedema extending above the knee does not occur from a simple phlebothrombosis confined below the inguinal ligament, and "it is worthy of emphasis that this clinical picture represents gross neglect, and its occurrence in a hospitalized patient is indefensible." Several years must elapse before we can accurately judge the evidence produced by surgery and by anticoagulants; in the meantime the recording of further results from individual centres is highly desirable.

### DICOUMAROL

The success of dicoumarol in the treatment of phlebothrombosis and thrombophlebitis has raised the question of its possible value in other thrombotic conditions, especially coronary thrombosis. Recent reports are favourable, and the fear that the drug might endanger life by causing or increasing subintimal coronary haemorrhage has not been substantiated. Results are difficult to judge in any given instance, but may be assessed from statistics. In Wright's<sup>5</sup> series of 76 cases the mortality rate for the treated illness

was 25% in the group of 43 selected because of repeated coronary thromboses or the occurrence of emboli, and 12% in the uncomplicated group of 33 cases. Peters, Guyther, and Brambel<sup>6</sup> found a mortality rate of 4% in 50 cases of acute myocardial infarction treated with dicoumarol, compared with 20% in 60 controls not so treated. Nichol and Page<sup>7</sup> reported similar results. These figures are said to compare favourably with those of published controls which have been quoted by Master *et al.*<sup>8</sup> as 24% to 35% for the first attack and 38% to 53% for all attacks. On the other hand they are little better than those obtained with Master's 800-calorie diet—8% and 16.5% respectively. Thus, although dicoumarol appears to be life-saving, so may be other simpler measures. In stressing the low mortality rate of 12% in the group of 33 dicoumarol-treated uncomplicated cases in their first or second attack, Wright put the anticipated death rate at 20% to 30%. This is too high. Conner,<sup>9 10</sup> for example, found the mortality was 16.2% in his unselected series of 287 cases in the first attack.

Prevention of thrombosis elsewhere and of pulmonary embolism, as noted by Wright,<sup>11</sup> may be assumed. This alone provides adequate grounds for the use of dicoumarol in coronary thrombosis, for Eppinger and Kennedy<sup>12</sup> found that pulmonary embolism was the direct cause of death in 6.5% of 200 fatal cases of coronary thrombosis and was an important contributory factor in another 17.5%. Peters *et al.* observed clinical evidence of embolism in only 2% of their 50 treated cases, compared with an incidence of 16% in 60 controls. Dicoumarol therapy must be controlled by daily estimations of prothrombin time and should continue for at least a month. The prothrombin time is kept at about one and a half times the normal value by means of daily doses of 100 to 300 mg. of dicoumarol. If the prothrombin time exceeds one and a half times the normal the drug should be temporarily discontinued. Haemorrhagic manifestations include haematuria and melaena, and may be treated with 50 to 100 mg. of vitamin K intravenously or with blood transfusion.

### ACUTE INFECTIVE DIARRHOEA AND ENCEPHALITIS

Enteritis, colitis, steatorrhoea, and many other conditions of similar type, though clinically common and as a rule easily diagnosed, are for the most part of unexplained aetiology. Infantile diarrhoea has an important place in this group of diseases which affect the intestines. Leaving aside dysenteric types of infection and those caused by contaminated milk, there still remain a number of cases of varying severity to which the name "acute infective diarrhoea" is usually applied, despite the fact that usually no infective agency is demonstrable. Amid a mass of speculation the only feature which seems to be generally accepted is that at necropsy evidence of enteritis is often surprisingly slight.

A recent paper by E. Christensen and K. Biering-Sorensen<sup>13</sup> may furnish a clue to the underlying pathology in at least some of these cases. They describe a "particularly malignant gastro-enteritis" appearing usually in epidemic form in institutions and affecting some 500 infants under 9 months of age. Clinically there was a cerebral type of vomiting, and there were marked disturbances of the water-salt metabolism. Post-mortem examination

<sup>6</sup> *J. Amer. med. Ass.*, 1946, 130, 398.

<sup>7</sup> *Florida med. Ass. J.*, 1946, 32, 365.

<sup>8</sup> *Amer. Heart J.*, 1936, 12, 549.

<sup>9</sup> *Lancet*, 1930, 2, 83.

<sup>10</sup> *Amer. Heart J.*, 1930, 5, 705.

<sup>11</sup> *N.Y. St. J. Med.*, 1946, 46, 1819.

<sup>12</sup> *Amer. J. med. Sci.*, 1938, 195, 104.

<sup>13</sup> *Acta path. microbiol. scand.*, 1946, 23, 395.

<sup>4</sup> *Lewis's Practice of Surgery*, 12, Chap. 5 B. Hagerstown, 1943.

<sup>5</sup> *Amer. Heart J.*, 1946, 32, 20.

revealed no evidence of intestinal infection, but of 32 fatal cases 8 had meningo-encephalitis, 18 meningitis without brain involvement, and 6 congestion and oedema of the brain and meninges. In two-thirds of these cases the cerebrospinal fluid showed a moderate increase in cells (type unspecified), but all cultures were negative. Duzar and Baló<sup>14</sup> had earlier demonstrated a similar meningo-encephalitis in 7 cases in a similar epidemic, and concluded that the condition was one of encephalitis lethargica. A few other cases of the same kind have been reported, about a dozen in all.

All these Copenhagen cases had a typical histological picture: congested cerebral vessels, pial infiltration with lymphocytes, perivascular round-celled infiltration, and early chromatolysis of the ganglion cells, with in one case early miliary abscess formation. Possible aetiological mechanisms are a primary encephalitis as suggested by Goldzieher,<sup>15</sup> a general virus infection with associated encephalitis, a mixed infection with a neurotropic virus, and toxæmia combined with dehydration. The two authors incline towards the theory of a virus infection with a concomitant encephalitis, though they do not exclude the possibility of a toxic encephalitis. Whatever the explanation, it is clear that we have in these cases an inflammation of the brain as opposed to a condition of simple dehydration or meningism. Further work is necessary, but if these findings can be confirmed "acute infective diarrhoea" in infants must be viewed from a new standpoint. If it can be shown that the symptomatology is wholly or in a large part due to cerebral lesions, the notable absence of post-mortem changes in the gut in this type of case will no longer be a matter for surprise and the therapeutic approach will be altered.

### EXPERIMENTAL TUBERCULOSIS

Dr. René J. Dubos, the discoverer of gramicidin, has recently been engaged on a programme of research on tuberculosis, the results of which he reviews in a recent paper<sup>16</sup> entitled "The Experimental Analysis of Tuberculous Infections." The objects defined at the outset are so fundamental that they involve an almost entirely new approach to the disease. The first aim was to devise a culture medium supporting rapid and diffuse growth and thus providing uniform material containing a high proportion of viable cells for experimental purposes. This aim has been achieved. A liquid medium has been devised in which diffuse submerged growth is obtained in a few days. The essential new constituent is a wetting agent known as "Tween 80," an ester of oleic acid, which is believed to be adsorbed on the surface of the tubercle bacillus and thus to render it dispersible in water. It is probable that this substance also facilitates absorption of nutriment; it may itself contribute to the nutrition of the organism. Such cultures retain a highly viable population for months, and form stable suspensions which can even be used for agglutination tests. The medium can be solidified with agar and used in that form for viable counts.

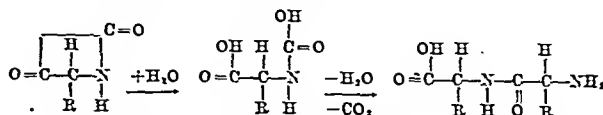
The animal chosen by Dubos for the study of the experimental disease is the mouse. When mice are inoculated with tubercle bacilli grown by ordinary methods a large inoculum is required to cause fatal infection, and even so the results are apt to be irregular. A small inoculum of tubercle bacilli grown in the new medium and injected intraperitoneally along with certain adjuvant substances, of which egg yolk is the most effective, regularly produces widespread infection and death in two to four weeks. This

paper makes only brief reference to other factors affecting the course of the experimental disease which have now been studied: Dubos communicated some of these results to the International Congress for Microbiology held in Copenhagen recently.<sup>17</sup> It has been found that the resistance of different strains varies greatly. Albino mice are the most resistant; C3H are also resistant to intraperitoneal injection, less so to intravenous. C57 black, on the other hand, are highly susceptible to inoculation by both routes. It seems from these findings that different strains of mice afford a fairly wide range of natural resistance within which a choice can be made according to the precise purpose of an experiment. The effect of diet on the disease was also studied; the mortality was lower in mice fed on bread and milk than in those on a diet of corn meal. Finally, the remarkable observation was made that when mice were given a minimal dose of tubercle bacilli, such as to produce only minute lesions in otherwise untreated animals, inoculation with a small dose of influenza virus three weeks later caused extensive tuberculous lesions to develop in the lungs.

Thus a single initial advance in technique has opened a new field of possibilities in the study of tuberculosis. This acute disease in mice, already shown to be capable of exact adjustment to experimental requirements and to be influenced by factors hitherto no more than conjectural, is ideally suited to studies of many kinds. It is safe to predict that the use of guinea-pigs for the assay of chemotherapeutic agents for this infection will be largely superseded. Dubos is at pains to defend this mouse infection as a suitable experimental tool, citing pneumococcal peritonitis in mice as an equally unnatural condition which has nevertheless proved useful in the same way. This defence seems scarcely necessary; the disease is, as he says, "an overwhelming haematogenous invasion of an animal possessing a fair degree of natural resistance, but no acquired immunity or hypersensitiveness." This being so, it is not far removed from the more acute forms of tuberculosis in man.

### PROTEIN ANALOGUES BY SYNTHESIS

Woodward and Schramm have reported a reaction that produces linear high polymers of amino-acids in peptide linkage.<sup>18</sup> The reaction is not new, but its implications were not appreciated by the German workers who first stumbled on it forty years ago. The type of monomer used is an inner anhydride of the N-carboxy derivative of an amino-acid. Polymerization can be initiated by, for example, the trace of water present in reagent benzene used as solvent. The reaction can be pictured as proceeding by the addition of water to yield the labile N-carboxy amino-acid, which then couples with another molecule to form a dipeptide, with loss of CO<sub>2</sub> and H<sub>2</sub>O; the latter catalyses further reaction, leading either to lengthening of the chain or to the start of a new chain.



On standing for several days the solution becomes increasingly viscous; on evaporation it can be made to yield films or threads of "synthetic protein." A product made by co-polymerization of *l*-leucine and *dl*-phenylalanine in this way had a molecular weight of the order of 5 million, corresponding with at least 10,000 amino-acid units. The product is a protein only in the sense that it is composed

<sup>14</sup> *Jb. Kinderheilk.*, 1922, 99, 209.

<sup>15</sup> *Amer. J. Dis. Child.*, 1930, 40, 446, and *Klin. Wschr.*, 1930, 9, 981.

<sup>16</sup> *Experientia*, 1947, 3, 45.

<sup>17</sup> *British Medical Journal*, 1947, 2, 180.

<sup>18</sup> *J. Amer. chem. Soc.*, 1947, 69, 1552.

solely of amino-acids, linked as in proteins. By copolymerization of mixtures of their carboxy anhydrides, amino-acids could doubtless be linked together in any desired number and proportion, but there is no likelihood that the order of linkage could be controlled so as to imitate any particular protein, even if we knew the correct order. Nor could the chain length be accurately fixed, though some control might be exercised by varying the concentrations of starting materials and catalyst.

There thus appears little justification for the sweeping suggestions in the American press that this discovery may provide the means of producing new synthetic antibiotics or of modifying the infectiveness of viruses by altering at will the size and structure of protein molecules. Also any fibres or films produced in this way would need to have outstanding advantages over existing natural and synthetic textiles and plastics to justify the high cost of the raw materials. Of great theoretical interest is the fact that these complex compounds of high molecular weight, similar in many chemical features and physical properties to natural proteins, can be built up from molecules that are not only relatively simple in structure but may even be synthesized themselves from materials of no more "vital" origin than ordinary coal-tar intermediates and other primary reagents of organic chemistry. True, the amino-acids thus made in the laboratory lack one characteristic, indeed unique, feature of the naturally occurring compounds. They are all optically inactive, consisting of equimolecular parts of the natural and unnatural isomers. Consequently any of Woodward's compounds made entirely from synthetic materials—unless these are first "resolved"—will have no action on the plane of polarized light. With this limitation, however, and all that it may involve in more purely biological behaviour, Woodward's researches may still be legitimately regarded as an important extension of the discovery, more than a century ago, that urea, previously regarded as a typical product of the living animal organism and beyond the synthetic power or scope of the chemist, could be made from such inorganic substances as ammonia and carbon dioxide.

That discovery, still generally attributed to Wöhler, marked an epoch in chemistry and biology; it was the essential step that led to the birth of biochemistry. Woodward's work is technically a much more complex achievement and perhaps even a more brilliant one. However unlikely its immediate industrial or medical applications, it is certainly worthy of attention, if only to dispel the suspicions that may have been aroused by some jaunty extrapolations in the American press.

### PROTEIN METABOLISM IN INFANTS

In recent years there has been an increasing use of special digests of protein for the feeding of premature and sick infants, and with this has come a re-examination of various aspects of protein metabolism. Prof. Emmett Holt and his co-workers in Baltimore and later in New York, first in rats and in adults and later in infants, have started some important and fundamental studies in this subject, some details of which are now available.<sup>1</sup> The testing of the nutritional quality of some available milk preparations in the normal infant has been carried out by careful metabolic studies in three normal full-time male babies. Four types of diet were used: an evaporated milk mixture, a mixture based on an enzymatic digest of casein, a similar digest of lactalbumin, and an acid digest of casein supplemented with

tryptophan and cystine. All the four diets were given in five daily feeds on a basis of about 100 calories per kilogram, supplemented with ascorbic acid and "oleum percomorphum." Brewer's yeast was added to supply the vitamins of the B complex. Each batch of the diet mixture was assayed for its nitrogen content and the daily nitrogen intake of the subjects calculated for the seven-day period of the test. Each infant received the four diets for consecutive periods, and from the urine, faeces, and blood elaborate estimations were made of the nitrogen output, haemoglobin, total plasma proteins, albumin, globulin, non-protein nitrogen in the blood and in the urine, amino-acids, urea, and other substances. In summary the nitrogen retention and weight gain of the three infants while on the acid digest of casein mixture were respectively about 30 and 50% lower than those obtained when the same subjects were given synthetic diets based on enzymatic digests of casein or lactalbumin. Fluid, calorie, and nitrogen intake were essentially the same with all the diets. The biological value of these two enzymatic digests was about the same as that of the evaporated milk mixture used as the fourth test material. It is suggested that the acid digest of casein lacks certain peptide-like substances ("strepogenin") occurring in the enzyme digests and that the strepogenin fraction is required for the maximal utilization of amino-acids in the diet.

These broad studies, so to speak, are followed by a detailed investigation of tryptophan requirements in the infant, conducted on three healthy male infants in much the same manner as the previous study. A tryptophan-deficient diet was used—an acid hydrolysate of casein—and as control a similar diet with a tryptophan supplement added step-wise to supply 0.5, 1.0, and 1.5% of the protein content. Cystine was added to all four diets and brewer's yeast again as a source of B-complex vitamins, together with ascorbic acid and oleum percomorphum. The measurements of intake and output were conducted as already described. In all three subjects on the tryptophan-deficient diet there was a marked decrease in the daily weight gain and a drop in nitrogen retention—equivalent to a negative nitrogen balance in the fully grown adult. Within ten days a tryptophan-poor diet caused an appreciable fall in the blood protein level chiefly reflected in the albumin content. In one subject the plasma proteins returned to nearly normal levels on the diet with the 0.5% added tryptophan, whereas it required the 1.0% addition to restore nitrogen retention, weight, and urinary tryptophan to normal, which suggests that blood proteins have a claim on the available nutrients prior to those of other tissues. Urinary studies suggested that the tryptophan level of the urine may serve as a useful criterion for the estimation of the minimum dietary requirements of this amino-acid. Previous studies on adults had suggested that the tryptophan requirement of an adult was about 6 mg. per kg. of body weight. The present work puts the level for infants between 5 and 12 months of age at about 30 mg. per kg. of body weight for normal growth, and this explains in part the high protein needs of the growing infant. Another difference from conditions in adults is that even after 6 weeks' tryptophan-deficient diet there was no change in the level of plasma proteins. An interesting point was a severe anorexia on the tryptophan-deficient diets in the three infants; it was not caused by taste.

The Bradshaw Lecture will be delivered by Dr. Janet Vaughan, F.R.C.P., before the Royal College of Physicians of London (Pall Mall East, S.W.) on Thursday, Nov. 6, at 5 p.m. Her subject is "The Anaemia Associated with Trauma and Sepsis."

<sup>1</sup> Albanese, A. A., Holt, L. E., et al., *Johns Hopk. Hosp. Bull.*, 1947, 80, 149, 158.

## UGANDA JUBILEE

INTERTERRITORIAL MEETING OF THE EAST AFRICAN  
BRANCHES OF THE B.M.A.

This meeting, which was held in honour of the fiftieth anniversary of the arrival in Uganda of Sir Albert Cook, was opened at Kampala on Sept. 3 by H.E. the Governor of Uganda, Sir John Hathorn Hall. Dr. A. J. Boase, president of the Uganda Branch, gave the presidential address, in which he outlined the history of the British Medical Association in East Africa and paid tribute to Sir Albert Cook. He also welcomed to the meeting Mr. J. L. Gilks, who brought the good wishes of the Council of the B.M.A. The meeting was also attended by delegates from Kenya, the Sudan, Tanganyika, and the Belgian Congo. One of the outstanding addresses was that by Sir Albert Cook, himself, on the history of Mengo Hospital, which was the subject of a special article in our issue of Aug. 30 (p. 342). A copy of this issue of the *Journal*, published only four days before the meeting, was sent by air mail to Kampala for the occasion, and was then exhibited with a collection of photographs, books, and records dealing with the early days at Mengo Hospital.

## Health of Africa

Dr. A. R. Patterson spoke on the "Health of Africa," drawing attention to the twin evils of over-population and loss of soil fertility, problems which would demand the closest attention in the near future in East Africa. He suggested that now was the proper time for a Royal Commission to study the whole matter. A paper on syphilis in Africans was read by Dr. Bali in the absence of the author, Dr. J. de Mello, of Nairobi. The author believed that there had been a big increase in the incidence of syphilis in Nairobi, both in the town and in the reserves, since 1939, particularly among domestic servants. After describing the clinical findings in Africans, he called for a greater measure of control of the disease and of supervision of those affected.

Dr. H. M. Woodman, of Juba, speaking on filariasis in the Southern Sudan, pointed out that in this area all forms of filariasis existed and the incidence of the disease was high, but there were many puzzling features. The insect vectors of filariasis found elsewhere to be important were either rarely found or, if found, were not important in the Sudan, and he concluded that the insect vectors responsible in this region were still unknown.

Dr. J. A. Carman, of Nairobi, read a paper on the use of curare in anaesthesia. Then Dr. R. B. Baird described his researches into the causes of tropical pyomyositis. The condition was such a common cause of invalidism that its prevention was a matter of great economic importance. Dr. Sanade then described his experiences with cases of blackwater fever.

On the Friday morning the meeting heard an account by Dr. J. N. P. Davies of a form of heart disease common at Mulago but hitherto undescribed in East Africa. After inspection of the photographs and specimens, delegates agreed that this endocardial necrosis and fibrosis was a novel and obscure condition; it was asserted that it did not occur in Nairobi. A large audience listened to a paper by Dr. Frank Hawking, Joint Secretary of the Colonial Medical Research Council, who dealt with recent advances in the chemotherapy of tropical diseases—penicillin and streptomycin, and the new sulphonamides—and then made a survey of the newer drugs available for many tropical infections. This authoritative review led to a deluge of questions, to which the speaker replied until he had to be rescued by the President, and the Conference was moved on to drink coffee and to subject Dr. Hawking to more intimate questioning.

Later the meeting divided into two sections. The Surgical Section heard a paper by Mr. D. Burkitt on the treatment of hydrocele, while at the Medical Section Dr. P. Hutton and Dr. A. Raper opened a discussion on tuberculosis in the African. It was pointed out that the results of treatment were very poor. Most infections were primary infections and the African had no initial resistance and did not develop any. The infections were acute and the mortality heavy. Few Africans responded to treatment, and so the only hope of avoiding a grave problem as Africa became industrialized was to search for some method of building up African immunity. With the advent of B.C.G.

vaccine and the "vole bacillus" vaccine, a possibility had arisen that immunity could be built up without a great wastage of African lives. Mr. I. W. J. McAdam and Dr. Billington opened a discussion on tropical ulcer. Mr. McAdam showed a number of cases treated by penicillin and skin grafts. Dr. Charters described the effects of different diets upon these ulcers in Somali and other soldiers living under identical conditions in the Army.

Finally a business meeting of the East African Branches was held, and is reported briefly in this week's *Supplement* at p. 98. Afterwards the delegates were entertained at the Sisters' Mess, Mulago. In the evening most of the delegates and their guest, the Hon. C. L. Mortimer, Member for Health and Local Government in Kenya, dined at the Imperial Hotel. Most of the visitors to Uganda left on the Saturday, and so ended this tribute paid by his colleagues to the doyen of the profession in East Africa—Sir Albert Cook.

## THE WORLD HEALTH ORGANIZATION

The foundations of the World Health Organization are being well and rapidly laid. It will be recalled that the organization, which is one of several specialized agencies forming part of United Nations, was established after an international conference in New York in the summer of 1946. Its structure and functions were described in this *Journal* by Dr. Melville Mackenzie (Sept. 21, 1946, p. 428), United Kingdom delegate to the conference and a member of the Interim Commission, a body charged with the preparatory work of the Organization. Towards the end of last year the staff of the Health Section of the League of Nations was taken over by the Interim Commission: at the beginning of the present year the functions of the Epidemiological Intelligence Department of the Office International d'Hygiène Publique were transferred, and also the health activities of Unrra, and negotiations were proceeding for the incorporation of the Pan-American Sanitary Organization.

Liaison has been established with the several other specialized agencies of United Nations concerned with public health. These are the International Labour Organization, originally founded in 1919 by the Treaty of Versailles; Unesco, established in 1945; the Food and Agriculture Organization, set up in the same year for the purpose of raising standards of nutrition in all countries; and, the latest of these agencies, the International Civil Aviation Organization, which will be concerned, among other matters, with the certification of inoculation and vaccination of air passengers and crews. Other organizations of United Nations which have activities related at some point to W.H.O. are five of the principal commissions—namely, those concerned with statistics, changes of population, narcotic drugs (the successor of the old Fifth Committee of the League of Nations), social questions, and transport and communications. Joint committees have been set up with certain of these agencies. Thus a nutrition committee will advise both W.H.O. and F.A.O., and it is proposed to have two joint technical commissions of W.H.O. and I.L.O., one to concern itself with industrial hygiene and the other with the provision of medical care. Certain non-governmental agencies, such as the international unions against tuberculosis, cancer, and venereal disease, have wanted to establish relations with W.H.O., but the Interim Commission has felt that such arrangements should be deferred for the agenda of the first assembly.

A matter which brooks no delay is epidemiology and quarantine. A committee for this purpose has been set up under the chairmanship of Dr. Melville Mackenzie. The problems arising out of the application of existing sanitary conventions and the value of the methods used for collecting and disseminating epidemiological information are being examined. An expert subcommittee on malaria has been set up as well as another on yellow fever, and a small body of experts has been appointed to form the nucleus of a future committee on biological standards. Proposals to consider the setting up of a tropical diseases institute and the formulation of an international programme for combating venereal diseases have been deferred for the time being, and another matter remitted to the agenda of the assembly is a proposal to undertake a comparative study of central public health services in various countries and of the resources at present available in such countries for training

medical and other staff essential for public health services. Another technical committee has been appointed to consider the international list of causes of death and the establishment of a list of causes of morbidity. Finally, a committee of five experts technically qualified in the pharmacological and clinical aspects of drug addiction has been established to advise on technical questions concerning habit-forming drugs.

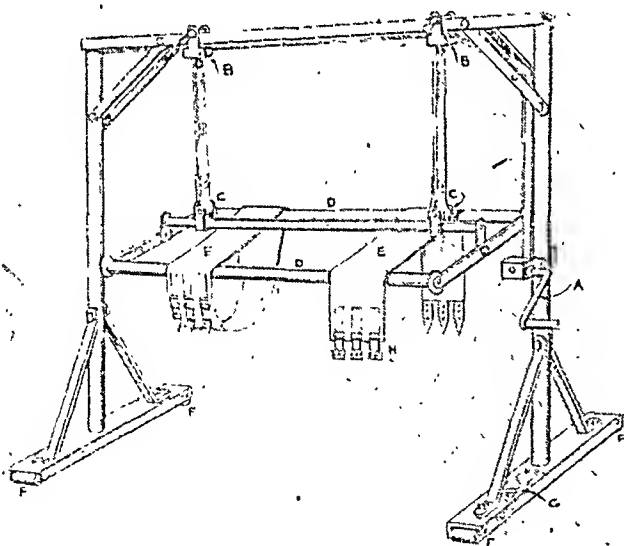
A committee, with representatives of Canada, Egypt, Mexico, India, and Norway, has been considering the question of a permanent headquarters for W.H.O. There are many considerations: the privileges which would be granted by the host State, the internationalization of the site, its accessibility to the world at large, climatic considerations, and the general use by the local population of one of the working languages of United Nations. Various Governments have been asked to state their views. From the point of view of accessibility (14 hours from London by air), language, and position, almost at the junction of three continents, there is something to be said for Cairo. In the western hemisphere some advantages might be claimed for New Orleans. On the other hand, Geneva has the international tradition, for eighty years the centre of the International Red Cross and for twenty years the home of the Health Organization and the I.L.O. But the final selection may be none of these.

## Preparations and Appliances

### APPARATUS FOR LIFTING PATIENTS

Dr. J. GUBBINS, Clonmel, Eire, writes: In these days of shortage of nursing staff a description of the following apparatus for turning and lifting a helpless patient should be of great interest to the medical and nursing professions.

A is a handle to wind up and down by means of belts that pass over rollers at B which are adjustable to move up and down the bed. The belts pass to and are fastened to a bar at C, to which the rollers D are attached. Over D pass two slings of appropriate length and width which after being passed under the patient are buckled at H. The whole may be lifted by



turning handle A. By gently pulling the slings E the patient may be easily turned over. The height and width of the stand are suitable for a standard hospital bed, and by means of the wheels F the apparatus may be moved to any desired position. A brake screw, G, keeps the stand steady.

I can vouch for the efficiency of the apparatus, having originally designed it and used it as a patient for six months. Mr. C. Cullen, engineer, of Langford, Bristol, made the original machine, and greatly improved my own rather crude idea. Two models are now in use at Winford Orthopaedic Hospital, and the staff there tell me they are invaluable. One nurse can lift and turn a patient, whereas before the apparatus was used three nurses at least were required.

## Reports of Societies

### POST-OPERATIVE THROMBOSIS

A discussion on post-operative thrombosis was held in the Section of Obstetrics of the Royal Society of Medicine on Oct. 17, Mr. A. J. McNair presiding.

#### Chemical and Mechanical Factors

Dr. HELEN PAYLING WRIGHT said that pulmonary embolism had been estimated to follow in one out of every hundred major operations, and about one case in six was fatal. The incidence of thrombosis was almost twice as great in females as in males, and most frequent after operations in which the abdominal cavity was opened and the pelvic viscera explored. The main changes during the post-operative period were a rise in the fibrinogen content of plasma and increased activity of prothrombins. Fibrinogen was shown to undergo diminution in concentration immediately after operation, and subsequently to increase by the third or fourth day to nearly double the pre-operative value. Estimation of fibrinogen B, an intermediate substance produced by conversion of fibrinogen to fibrin, if taken in conjunction with the prothrombin time and the temperature, would, it had been suggested, give a reliable prognosis. She was not convinced, however, that a great increase in the fibrinogen B fraction in the post-operative phase was pathognomonic of incipient thrombosis; she had found that following operation or delivery the fibrinogen content of the plasma increased in all patients. Prothrombin estimations also showed increased activity even in the absence of any clinical or demonstrable thrombosis. It seemed likely that these changes occurred invariably in the post-operative period. As for the remaining criterion, the temperature, it was well known that urinary or chest complications, or even lactation, might cause an unexpected rise. The only safe course was to rely on clinical observation of the patient in the post-operative or puerperal period.

The part played by blood-platelets in initiating thrombi in injured blood vessels was well recognized. These elements increased after operation or parturition; usually the increase became apparent on the fifth or sixth day and reached a maximum about the tenth day. The increase in the platelet count was correlated with the severity of the operation. The more extensive the tissue damage the greater the platelet response. She had observed a further change in platelets in this phase, namely, a greater adhesiveness, at a maximum again at about the tenth day. It appeared that the young cells which had entered the circulation in response to the stimulus of the trauma were responsible for this change.

The importance of venous stasis was first stressed almost a century ago. It was now recognized that the thrombotic process usually started in the small plantar and calf veins, not in the femoral vein itself. Formerly anatomists thought that Poupert's ligament played an important part in thrombosis by causing constriction of the vein at the pelvic brim. Dr. Wright here related some experimental work she had carried out which pointed to the likelihood of some constriction at that point, causing the appearance of small emboli. Radio-active sodium<sup>24</sup> was injected into the foot in a subject known to have severe varicose veins. At the end of a minute no radio-active substance was reaching the counter over the groin; at that moment, however, the subject flexed his foot dorsally, and within two seconds a shower of gamma rays was recorded in the femoral vein. Evidently the blood had been held up, and a slight movement was sufficient to move it along at a much increased rate. The importance of supervised exercises and early ambulation must be emphasized in the prevention of thrombus formation in the post-operative and parturient phase.

#### Morbid Anatomy and Some Clinical Indications

Dr. MAGNUS HAINES said that it should be remembered, first, that thrombosis was often symptomless and without physical signs; secondly, that the time of onset was variable; and, thirdly, that most of the patients were over 40 years of age. It was held by some that nearly all fatal emboli occurred in



cases of unsuspected thrombosis. The mechanism by which the thrombus became separated was another problem. In some cases small pieces of the proximal end of the thrombus were detached; in others the embolus was 40 or 50 cm. in length.

Records of cases of post-operative thrombosis were scanty. There was no difficulty in keeping a record of the fatal cases, but the same should be done with patients who recovered. Dr. Haines then reviewed the operations for the period 1927-46 at the Chelsea Hospital for Women. They numbered 30,000, and among them there had been 55 cases of fatal pulmonary embolism. The abdominal operations numbered over 11,000, with 43 fatal cases of pulmonary embolism. The series could be divided into two periods, the beginning of the second period coinciding with the establishment of a regime of post-operative physiotherapy. The mortality from pulmonary embolism fell considerably during the second period, but the fall, roughly speaking, was of the same general order as the fall in the death rate from other causes, so that the physiotherapy did not appear to have made a significant difference. With few exceptions these figures related to a period unaffected by the use of any form of anticoagulant. It would be interesting to report on the next ten-year survey, when a greater reduction in mortality might be expected as a result of the use of these substances.

### Surgical Precautions

Mr. A. DICKSON WRIGHT said that the occurrence of thrombosis and embolism after operation or childbirth was freakish and variable. It varied from country to country, from hospital to hospital, even from ward to ward. In German hospitals they were very "thrombosis-conscious." He remembered seeing posted on the walls of a Charlottenburg hospital, "Breathe deep, spit hard, and wave your hands in the air." Nature, by causing the blood to clot, "has prevented us from dying from haemorrhage, only to enable us to die from thrombosis." Any disease with a 30% mortality demanded the greatest exertions on the part of those looking after the patient. Apart from haematological factors, certain mechanical factors were involved, of which Fowler's position was the chief. It caused venous stagnation of the legs and pelvis, and it had been shown to be of little advantage for peritonitis, for which it was invented; it should be abandoned. It was good for the patient to sit up in bed, but he should lie down flat at night and for the afternoon siesta, and be encouraged to lie on his side. Early ambulation was now expected and enjoyed by the public and by the nurses, except for a few die-hards. In some cases in America, he believed, the patients were walked off the operation table. Early ambulation was not possible, however, with catgut suture of the abdominal wall. Bleeding should be minimized, for with the shedding of blood the risks of thrombosis were greatly increased, as also in miscarriages and in post-partum haemorrhage. It was a bad custom to put the patient to bed for some days before operation. A dangerous case from the point of view of thrombosis was one which had been treated in bed by the clinician for a long time unsuccessfully and then handed over to the surgeon. Such a patient should be got up and walked round a little. If the patient had to be kept in bed long after operation some deep breathing and muscle-twitching must be carried out. The patient with a history of thrombosis, personal or family, required most careful consideration. No intravenous anaesthesia or pyelography should be carried out in such a case. It was worth while tying both femoral veins as part of the operation itself. Figures from a Boston clinic in which in some 400 cases the vein had been tied as a routine and in another 400 had not been tied showed a reduction of all post-operative venous trouble in the first group as compared with the second. There was an idea that after childbirth only the classical "white leg" was seen; this was not so at all, the whole gamut of manifestations of thrombosis had been observed. In a ward in the North-Western Fever Hospital, where twelve women were suffering from puerperal thrombosis, all the different types were seen.

### First Signs of Thrombosis

Very often (Mr. Dickson Wright went on) pulmonary embolism was the first sign that thrombosis was taking place. It was a good thing to regard every case of pleurisy after operation

as due to a pulmonary embolism. Frequently these were regarded as cases of simple pleurisy and attributed to post-operative chills, cold corridors, and so forth. One specimen of blood-stained sputum during the twenty-four hours after operation clinched the diagnosis of embolism. A stitch-like pain in the ribs after operation was another indication. Thrombosis of varicose veins after operation and of the normal superficial veins was a worrying complication; it showed that the patient was "in a mood to thrombose." Careful examination was called for in such cases, and he would ligate the common femoral vein on the affected side. Iliac thrombosis was of special interest to the gynaecological surgeon. The condition was treated by lumbar ganglionic block.

Mr. Dickson Wright pleaded for the prompt use of heparin, big doses of which should be given immediately and continued for two or three days until dicoumarol, started at the same time, could take over the anticoagulant action. He had used a great deal of dicoumarol, and had had no mishaps at all. It was a most valuable drug.

In conclusion, he said the price of freedom from post-operative thrombosis was unrelaxing vigilance. Signs must be looked for in the calves of the legs, under the ribs, and in the temperature chart. All surgeons had experienced the vindictiveness of relatives after a death from embolism. They would not listen to the "bad luck" story at all, and from now on, with anticoagulants available, they were likely to show less mercy, and might even exact retribution for precautions left untaken.

### Gynaecological Considerations

Mr. LESLIE WILLIAMS said that gynaecologists in the past had had a bad reputation for cases of post-operative thrombosis, but he did not think they deserved it any more than the general surgeon. The basis of modern treatment was that these thrombi practically always started peripherally, in the small deep veins of the calf, not in the iliac veins, as they rather tended to think. Active movements were valuable. Sir William Fletcher Shaw had described two wards in different hospitals, under the care of the same gynaecologist, admitting the same type of patient, and in which the same pre-operative and post-operative treatment was carried out except that in the one hospital systematically graduated post-operative exercises were given, and not in the other. In 1,635 consecutive operations followed by graduated exercises the incidence of fatal embolism was 0.06%, and in 3,618 operations not so followed it was 0.30%, or five times as great. Some cases even of sudden and severe pulmonary embolism could be saved if large doses of heparin were given immediately. In this country the quantities given were not large enough. They talked of 5,000 units, but this was only 50 mg. and utterly inadequate. A dose of 125 mg. should be given immediately intravenously, followed by doses of 100 mg. every four or five hours, until such time as dicoumarol, given simultaneously, took effect. The ligation of the femoral vein on both sides following the discovery of venous thrombosis seemed to him a bit of "blood and iron surgery," and he could not bring himself to like that idea at all. Paravertebral sympathetic block, on the other hand, was a treatment to which he gave almost unqualified praise.

Dr. KENNETH BALL described the measures taken in a Middlesex county hospital. A combination of heparin and dicoumarol was used, heparin being given by intravenous drip for from 48 to 72 hours. In puerperal cases a total dose of 60,000 international units of heparin was given in the course of 50 hours. He gave some figures comparing an earlier series of cases treated conservatively, with complete immobilization, with a later series treated with anticoagulants. His inference from the figures was that the present treatment had shortened the stay of these patients in hospital to three weeks and their confinement in bed to one week.

Dr. JOHN HOWKINS considered the Trendelenburg position the prime offender. The position was essential in gynaecological operations, but a generous sorbo rubber pillow should be provided, and some means of support should be given to the ossa innominata by a clamp which held the patient up by the pelvis. A type of clot not mentioned was that which originated at the site of operation; it was particularly liable to occur in operations on a septic site. More thrombosis, in his experience, followed subtotal than total hysterectomy; whether the

stump provided a sort of "locus of clottery" he could not say. In necropsies he had noticed that the clot did not occupy the whole of the lumen; what killed the patient was not the clot but the immense spasm which the clot evoked. Fowler's position was out of the question. The patient should be allowed to lie in the position in which she was most comfortable.

Dr. V. B. GREEN-ARMYTAGE mentioned the absence of embolism following the Fothergill operation. He also drew attention to the earliest and most dramatic description of the condition (Numbers v. 21-2). Mr. McKIM McCULLAGH spoke of the importance of good theatre work in avoiding disaster. In their replies Mr. DICKSON WRIGHT reaffirmed his contention that it did no harm to tie the femoral veins, and Dr. HELEN PAYLING WRIGHT expressed an emphatic view that the fundamental cause of thrombosis was still unknown.

### ACUTE POLIOMYELITIS

At a meeting of the Section of Epidemiology of the Royal Society of Medicine on Oct. 6 Mr. K. I. NISSEN reported on the outbreak of poliomyelitis on St. Helena in 1945-6. It was preceded by an epidemic of influenza of the usual seasonal type. In the population of under 5,000 there were 11 deaths, 66 paralytic cases, and 142 abortive or non-paralytic cases. Most of the latter were so ill for a few days that they had to be admitted to hospital.

Two special clinical features were recorded: the dorsum of the tongue was not furred but was bluish-grey in colour, whereas the margins showed bright red papillae; the odour of the stools was extremely pungent. Only 4% of the cases were children under 5. The small European population, the garrison, and the island recruits appeared to be immune. It was thought that this fact, together with the relative immunity of young children, might have been due to a higher vitamin-C intake, but the evidence on this point was inconclusive.

Dr. L. J. M. LAURENT gave an account of 13 patients admitted to the Park Hospital in the summer of 1946 who all had aseptic lymphocytic meningitis; some had encephalitic symptoms, and one died in coma. All the others had recovered without paralysis or other sequelae. None had been in contact with cases of poliomyelitis. All attempts at isolating a virus from the cerebrospinal fluid, and from the nervous system of the fatal case, by animal inoculations had been unsuccessful. The aetiology was undecided. During the present outbreak of poliomyelitis a number of similar cases had been admitted, and they were all assumed to be due to the virus of that disease.

Dr. DOUGLAS MCALPINE said that the number of cases of poliomyelitis and polio-encephalitis notified this year up to the present time exceeded 6,500; the corrected figure was probably less than two-thirds of this total. It had become increasingly clear that cases occurred all the year round—an important epidemiological point. A preliminary estimate from the Ministry of Health suggested that at least 20% of all notifications had been over the age of 15—a fact which confirmed the upward trend in the age incidence in other countries. The mortality figure had been low—probably below 10%. The symptoms which should suggest an abortive attack in contacts were headache, shivering, malaise, vague body pains, and fever. To all or some of these might be added catarrhal symptoms (sore throat, coryza) or gastro-intestinal symptoms (nausea, vomiting, diarrhoea). Polio-encephalitis had been relatively common earlier in the outbreak. Nystagmus was the commonest sign of polio-encephalitis. An unusual degree of drowsiness and mental confusion was noted in many cases. An extremely rare and unusual type of cerebellar picture had been seen in some cases, consisting of emotional instability, gross ocular tremor, and tremor of the head and limbs. Two unusual findings in the C.S.F. had been noted, together or independently: a relatively normal or normal cell count and a marked increase in the protein content of the fluid. An unusual form of meningo-encephalitis which occurred in 1946, reported by Jennings, and described at this meeting by Laurent, appeared to be identical with polio-encephalitis as seen this year. The virus of poliomyelitis was now the common cause of a meningo-encephalitis and of a benign type of lymphocytic meningitis.

## Correspondence

### Travel Abroad for Health

SIR,—The approach of winter brings to the fore the question of tuberculous patients in Switzerland. The need for the greatest economy in Swiss francs is obvious, but the means taken to serve this end are open to doubt. In order to obtain an allocation of Swiss currency for treatment purposes the patient has to present to his bank a certificate signed by two doctors stating that unless he goes to Switzerland "his life is endangered." As a result of this wording, advanced cases, which cannot be expected to benefit from any form of treatment anywhere, are easily accepted for treatment, and waste of Swiss francs is almost inevitable. With patients likely to benefit from Alpine treatment the position is more difficult. Some doctors presumably satisfy their consciences with the thought that there is danger to life in any case of tuberculosis not firmly arrested; others, in attempting a more literal interpretation of the regulation, regretfully refuse to give the necessary certificate, because they do not consider their patient's life immediately threatened.

I maintain that this state of affairs is highly unsatisfactory and that some means should be found to lay out our limited currency to better advantage. In general I do not think that the average patient recovers either more rapidly or more certainly in Switzerland than in Great Britain. I have seen no reason to alter this pre-war conclusion in spite of the more plentiful and varied food now obtainable in Swiss resorts. The crux of the problem is that sanatorium vacancies can be obtained much more quickly in Switzerland than in this country, and, so long as this is the case, who can say that a patient's life is not endangered by remaining untreated in this country, however early and slight his lesion may be? So long as our sanatorium waiting-lists are so unwieldy it is to be hoped that the authorities will be as lenient as they can be in granting permits for the utilization of the large reservoir of Swiss sanatorium beds immediately available; but, if the currency is not to be largely wasted, careful selection of patients is necessary.

No good can come from sending advanced cases with much reduced vital capacity; a winter in the Alps cannot be expected to close chronic cavities unsuitable for collapse therapy. Nervous, highly strung patients are liable to respond to altitude by insomnia and tachycardia and may have to be sent home. Chronic bronchitis in the young is usually benefited but in the elderly is more likely to be aggravated by the cold dry air of the Alps. The low barometric pressure is alleged to increase the tendency to haemoptysis, but my own observations do not confirm this belief. Altitude stimulates metabolism, and the patient must have sufficient reserve of energy to respond to the stimulus. Febrile, toxic patients and those of markedly asthenic build usually do better at low altitudes.

Numerous as these contraindications are there remain large numbers of patients, mostly of fairly robust physical and mental constitution, whose progress towards recovery can be expected to be at least as rapid in the Alps as in this country; but climate in itself rarely changes the outcome of the disease. One serious drawback to Alpine treatment is the practice of many Swiss physicians of so frightening British patients regarding the supposed danger of wintering in England that the rehabilitation of many of them as useful citizens has been seriously interfered with.

In present circumstances the best policy would appear to be to select, as far as possible, candidates for Alpine treatment from among those who have already had some months of institutional treatment in this country. Advanced or toxic cases and those likely to require major surgery could in this way be excluded. Each patient sent to Switzerland would free a bed for a more recent case on the waiting-list. Selection of cases on these lines has been practised by the Queen Alexandra Sanatorium Fund during the last two years and has been found considerably to reduce the wastage of money on unsuitable cases. If similar criteria were used on a national scale unfairness would be avoided and considerable waste of precious currency on unsuitable cases would be saved.—I am, etc.,

ANDREW MORLAND.  
London, W.1.

### The Extent of Neurosis

SIR,—This vital and important subject has elicited an interesting correspondence. I venture to say that it can be studied only in relation to fear, its nature, its distribution, and its source. Up to the close of the Victorian era life for the ordinary citizen was a matter of competition. The worker had to find a job and keep it, or face suffering for himself and his family (though not actual starvation). This fear was real and well-nigh universal, but the results of this kind of fear produced the finest kind of work in quality and quantity; and there was little neurosis.

There followed the Socialist outlook which has developed all through the present century. Fear—economic and social—has been gradually eliminated till it matters little to the worker whether he is in work or in benefit. Taking a superficial view this should reduce the extent of neurosis, but on the contrary it has increased enormously. In other words, the elimination of the fear motif has also eliminated the response of effort. Thus we get a situation in which individual effort becomes useless or even detrimental, and economic advancement depends upon an identification of the individual with the group. In other words, a higher standard of living is no longer achieved by an effortful reaction to economic fear and anxiety. Now it is to be obtained by identification with the herd and an attitude of passive solidarity with the group. In other words, the effect of economic stringency is to talk of strikes rather than to concentrate on effort. And no one can blame the individual worker for accepting the change, which has come so gradually and come from his political leaders.

But we are entitled to look ahead and to ask ourselves, "What will be the next phase?" For the sake of argument let us accept the Russian claim that in the U.S.S.R. there is no neurosis. That means that economic anxiety is geared to effort, and if rumour is to be believed it means that the worker gives of his best lest he should find himself in Siberia. Certainly any passive attitude to the group solidarity is not encouraged. There are many other aspects of this question which cannot be discussed within the limits of a letter, but the more we study it the more we are brought back to the essential relationship between fear and effort.—I am, etc.,

Harrow, Middlesex.

H. CRICHTON-MILLER.

SIR,—The provocative has its place among the artifices of discussion, but surely it loses its tang when it is employed too bluntly and without nuance. Dr. Arthur Dearlove (Oct. 11, p. 590), describing the inadequacy of the treatment which the neurotics he has referred to psychiatrists have received, declares: "The results are, roughly [sic]: cured, nil: improved, nil."

It is evidently not the intransigence of the neurotics of Dorset he is referring to, as he reflects upon the general impotence of psychiatrists later in his letter. Dr. Dearlove has no doubt acquainted himself with at least some of the numerous follow-up studies which have been published. Is it to be assumed that he meets them not merely with the "retort courtoise" but with the "lie circumstantial and the lie direct"?—I am, etc.,

London, W.1.

FREDERICK DILLON.

### The G.M.C. and Medical Education

SIR,—Mr. A. Wilfrid Adams's letter (Oct. 4, p. 545) was both useful and interesting, but it lands us in a quandary: a student while preparing for his licence to practise must first learn those things that he will want to know when he begins to learn how to conduct general practice; then and only then he has to begin to learn the art of practice. The suggestion of a year with a reputable general practitioner is accompanied by a liability to misuse or indifferent use. The old apprenticeship unfortunately began at the wrong end.

Would it not be more effective to attach a newly passed medico to a health centre, when available? Here he would have the advantage of taking an active part in the general medical practice of his seniors in all the varied services—early diagnosis, observation of conditions not yet labelled, practice in the consulting-room and in the patient's home; here observe the probabilities of treatment being successfully carried out, the need for proper sanitation or prevention; not only these sides of practice, but also work in the hospital to which the centre

is attached. In this way he would learn to associate his previous hospital experience with actual practice among patients under conditions new to him. Here, without prejudice, he could observe the results of treatment, immediate and remote.—I am, etc.,

Midford, nr. Bath.

CHAS. E. S. FLEMMING.

### Mercurial Diuretic

SIR,—I believe "neptal" (mercuric salicyl amino-acetate) is considered the safest and least toxic diuretic of the large group of mercurial diuretics, while it is simple in use since its efficacy does not depend on urinary pH. Since, unfortunately, it seems liable to cause prolonged aching pain, however well spread throughout skeletal tissues, probably many employ it—rightly or wrongly—by the intravenous route.

Dr. A. G. Oettlé (Oct. 4, p. 530) sounds a warning note in this connexion. His article interested me very much, since in 1945 I had an unpleasant experience with this drug, which was very probably an acute poisoning of the conducting tissue of the heart and was at all events a near-fatality. I was continuing a series of injections which a middle-aged cardio-renal female patient had received (2 ml. tri-weekly, bi-weekly, and finally weekly) from another practitioner and from which she had derived much benefit. Two injections were wholly uneventful: my third (her 28th or 29th) was almost disastrous, and would certainly have been so if I had not paused to fill the syringe by reflux after 1 ml. had very slowly entered the vein. She complained of such severe faintness and precordial constriction that I stopped the injection. The attack was much as Dr. Oettlé describes, dyspnoea and syncope being followed after a few minutes by an epileptiform convulsion.

I never doubted it was a Stokes-Adams phenomenon until long afterwards. I knew little of the history beyond that the patient was a cardiac case of long standing who had suffered in adolescence from several mild attacks of rheumatism. Two types of Stokes-Adams syndrome are described—a syncopal and an epileptiform. In this patient both appeared to develop successively. Following the attack a severe degree of heart block was sufficiently obvious from the extremely slow pulse with rapid jugular pulsation. An E.C.G. confirmed this and appeared to clinch the diagnosis of Stokes-Adams attack. I was fortunate in that symptomatic treatment carried out in this firm conviction at least did not prevent recovery, but on reflection I feel sure that it was I who accidentally "did the bundle in" and not a senior and most capable colleague who had treated the patient for some time in ignorance of a pre-existing heart block. Some Stokes-Adams attack—if it were such.

The most surprising feature of the case was the patient's bravery in submitting later to an apparently similar course of treatment, and one greatly favoured in France though not, I think, in England—i.e., intravenous injections of sterile "novocain" (procaine hydrochloride). The recommended dose of 10 ml. of 1% solution can be much exceeded with apparently complete safety, although large doses cause a transient complaint of paraesthesiae in fingers and other extremities. Very bold doses are given by some French physicians, who employ the drug as an antispasmodic agent in treating a diversity of spastic conditions, ranging from migraine through the asthmas and intestinal spasms to passing calculi (renal and biliary). As an antispasmodic agent I do not suppose novocain is ever likely to supplant atropine or pethidine but it has the merit of instantaneous action, and can be most useful alone or as an adjuvant. It is interesting to watch its action on the x-ray screen as regards intestinal spasms, and to employ it to diagnose—e.g., spasmodic dysmenorrhoea from other varieties (it does not, intravenously, appear to act, even briefly, as a general analgesic).

For nephrosis, procaine injections repeated at regular intervals are favoured by French physicians, it seems. The head of a hospital department demonstrated several cases for my benefit. Can anyone with experience of novocain confirm or refute the suggestion that it could replace mercurials? It can only be a palliative, but so are the latter; and, apart from this rare intravenous risk, are they not always dangerous to the old and frail, even intramuscularly? The patient is no doubt very often in a parlous condition before these powerful drugs are resorted to, but these drugs often seem to precipitate renal

failure, and, as the Greeks advised the making of a will before purgation with the hellebore, were it not well to advocate this procedure before diuresis with the mercuri?—I am, etc.,

PETER PARRY.

### Sympathetic Disorders in Poliomyelitis

SIR,—Following the annotation on "Sympathetic Disorders in Poliomyelitis" (Oct. 11, p. 579) might I make a few observations on muscle pain? It is a well-known fact that normal muscle, if exercised to excess, becomes painful and tender—presumably a defence mechanism to prevent a repetition of abuse before recovery has taken place. Everyone knows the "first game of the season" stiffness and tenderness, which may be excruciating and persist for several days. To turn to the abnormal: having slept beneath a ship's blower in the Tropics and awoken with a "stiff neck," one's conclusions are as follows. The reaction to the fall in temperature of the exposed part was that of local shivering or fibrillary twitchings of the muscles in question—in this case the trapezius and sternomastoid of the affected side—summing over a prolonged period to produce the same phenomena as of excessive general contraction—i.e., pain and tenderness.

From the electromyographic findings in poliomyelitis can one postulate an initial pathological stimulation from the diseased anterior horn cells invoking the protective mechanism described above?—I am, etc.,

Twickenham, Middlesex.

D. F. REES.

### BAL in the Treatment of Gold Dermatitis

SIR,—In view of the articles which appeared in the *Journal* of Oct. 4 concerning the therapeutic uses of British anti-lewisite, the following case report may be of interest.

#### CASE REPORT

The patient was a woman of 56 who for six months had complained of increasing pain in both wrists, hands, and fingers. A clinical diagnosis of early rheumatoid arthritis was made and intramuscular injections of "myocrisin" were commenced. The E.S.R. had not been done, but the urine had been carefully examined and was repeatedly checked.

A system of increasing dosage at weekly intervals was employed, and at the end of eight weeks a total of 0.4 g. had been given. The day following the last injection an irritating erythema appeared, which quickly changed to a macular rash, and after a week the typical appearances of an exfoliative dermatitis due to gold were evident. The condition was severe and resisted every method of treatment.

After eight weeks of trial and error injections of BAL were commenced. The preparation used was a 5% solution in 10% benzyl benzoate in peanut oil. Daily injections of 2 ml. were given for five days, with immediate amelioration of the symptoms. The dermatitis, however, did not completely disappear, and after a period of six weeks of comparative comfort for the patient the condition worsened. Further daily injections of BAL 2 ml. were given for seven days, and the dermatitis once more subsided, the improvement this time being maintained. The injections produced two large abscesses in the buttocks which had to be drained. The arthritis, which responded well to the gold therapy, has so far showed no signs of recurrence.

—I am, etc.,

Tenbury Wells, Worcs

J. A. BURNETT.

### The Weil-Felix-Wilson Reaction

SIR,—What is commonly called the Felix-Weil reaction is in reality the Felix-Weil modification (or variation) of the Wilson typhus reaction, for Wilson's (now Prof. W. James Wilson, of the Queen's University, Belfast) discovery of the agglutination of organisms of the *B. coli* and *Proteus* type was made in 1908 and 1909, whereas it was not until the first world war that Felix and Weil carried out their work, publication regarding which was made in 1916. Personally I have every reason to remember the discovery, as I was the first human being on whom it was tried for diagnostic purposes—in March, 1908.

The following is a brief outline of the genesis: From the end of December, 1906, for several years Belfast was visited by a very severe epidemic of cerebrospinal fever, and a considerable amount of work was carried out at Queen's College (now University) on the bacteriology of the meningococcus. While this epidemic was in progress I happened to be R.M.O. in the City Isolation Hospital at Purdysburn, where in my time (about

one year eight months) about 360 cases of the disease were treated (a paper by me describing the outbreak was published in the *Practitioner*, 1915, 94, 831).

Wilson during this period had been making investigations at Queen's regarding the bacteriology of cerebrospinal fever and had been struck by the heterologous agglutination effect of the blood serum of patients suffering from the disease (see *Journal of Hygiene*, 1909, 9, 316). While the epidemic was in progress an outbreak of typhus fever occurred in the city, and almost forty of the cases were admitted to Purdysburn during my residence there, and I suggested to Wilson that if he would care to make investigations about the disease I would try and get him as much material as possible. Wilson then started his investigation, and samples of blood, faeces, urine, etc., were taken by us from patients who, we considered, were suffering from undoubted typhus. Wilson found before long, as in cerebrospinal fever, that there were heterologous agglutinations in this disease also. He found that the serum of typhus agglutinated *B. typhosus* and also bacilli obtained from the faeces and urine of typhus patients. Wilson's first publication on this matter appeared in the *Transactions of the Ulster Medical Society*, session 1908-9, in a joint paper by Wilson and myself (but I must state here clearly that it was Wilson who was entirely responsible for the discovery of the agglutination effect).

Near the end of my residence time in the hospital I developed an acute febrile condition which resembled typhus. There was doubt at first, and my serum was tested. An agglutination reaction was found. This condition began very suddenly, without preliminary catarrhal symptoms, and was accompanied by a rash that was a cross between that of measles and typhus. It ended with a sudden drop of temperature on the twelfth day. Wilson's next paper was published in the *Journal of Hygiene*, 1909, 9, 316. In the *Journal of Hygiene*, 1910, 10, 155, a further paper entitled "The Etiology of Typhus Fever" was published by him. Among his conclusions are the following:

"(4) From the faeces of one case a variant form of *B. coli* *communis* was cultivated on which the blood serum of 17 typhus fever cases was found to have three to ten times the agglutinative effect of normal serum.

"(5) From the urine of two cases a bacillus resembling *B. coli* *communis* but having no action on lactose was cultivated. This bacillus was agglutinated in dilutions of 1:50 and 1:100 by the serum of the cases but not by normal serum."

This bacillus from the urine Wilson regarded later as a urinary variety of *B. proteus* ("The Wilson-Weil-Felix Reaction in Typhus Fever," *Journal of Hygiene*, 1920, 19, 115), and pointed out that it is probably similar to the X2 strain of *B. proteus* first used by Weil and Felix. Weil and Felix in "X19" obtained a more sensitive organism for the typhus reaction than X2; Wilson also, in U2, a bacillus of the colon-paratyphoid group, obtained an organism not only more sensitive than his original one but as sensitive as X19 of Weil and Felix in certain cases of typhus fever. Comparisons are given regarding this in Wilson's paper "A Further Contribution to the Serology of Typhus Fever" (*Journal of Hygiene*, 1927, 26, 213). This bacillus U2 is named so on account of its similarity to the original U discovered by Wilson in 1908, which was found to be agglutinated by the serum of typhus fever patients with three to ten times the effect of normal serum ("Bacteriological and Cytological Investigations of the Blood in Typhus Fever Cases," by W. J. Wilson and E. H. M. Milligan, *Transactions of the Ulster Medical Society*, Session 1908-9).

It should be remembered that in addition to the Felix-Weil modification of Wilson's typhus reaction there are other modifications such as those using *B. pyocyaneus* (Kreuschen, 1918; Neukarsch and Kreuschen, 1919; Sampietro, 1920; Wilson 1922), and the *Coccobacillus byzantinus* (Beguét, 1921).

In view of the above observations I think it will be admitted that it is reasonable and right to suggest that in future the Felix-Weil reaction should be called the Felix-Weil modification of the Wilson typhus reaction, or, more shortly, the Weil-Felix-Wilson reaction (W.-F.-W. reaction). Wilson was undoubtedly its discoverer; Felix and Weil have the credit of developing it, expanding it, and getting it more widely used during the first world war.—I am, etc.,

Glossop, Derbyshire.

E. H. M. MILLIGAN.

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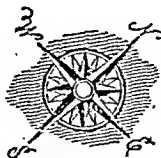
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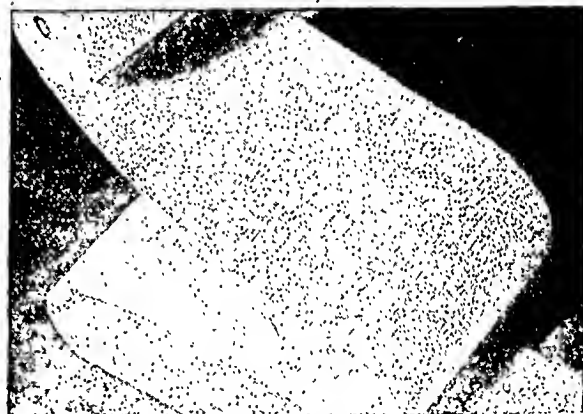


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### Auricular Inflammation

SIR,—I had opportunity to notice during ten years of service in China four cases of a peculiar otochondritis in the cartilage of the external ear, with the signs of acute inflammation, redness, swelling, and localized pain. In such a case the auricula is tender and sometimes shows an oedematous swelling, which subsides on pressure, causing considerable pain. This otochondritis disappears after a few weeks, leaving the auricula enlarged and the cartilage thickened. After some time—weeks or months—the next attack would set in with a very similar course, possibly a bit of fever, and clear up again. After years, as I have seen in one case—a middle-aged woman of Chinese race—the auricula becomes hard as a board, inflexible, and stands at a right angle to the sagittal plane of the body. The skin is dark brown, hyperpigmented, and the patient complained of being unable to lie on the diseased side.

I could not find any cause for this disease. One patient had a positive Kahn test, and antisyphilitic treatment had no influence on the course of the disease. I tried local application of tincture of iodine, cold and hot fomentations, and sulphonamides by mouth, all *sine effectu*. Could somebody enlighten me on this subject or relate similar experiences, especially in tropical countries?—I am, etc.,

London, W.1.

W. WINTERSTEIN.

### Treatment of Varicose Veins

SIR,—The article on the treatment of varicose veins by Prof. A. M. Boyd and Mr. D. J. Robertson (Sept. 20, p. 452) contains points of much practical interest, some of which call for further discussion. The 12 cases of deep thrombosis seen in a space of five months must surprise most of your readers. Many years ago I had one such case in a man of 70 to whom I had given some injections of, I think, quinine below the knee. The following week he reported with his whole saphena vein thrombosed to the groin. He did not turn up again for a few months and then said that in the meantime he had had pneumonia, but my inquiry to his doctor as to whether he thought the "pneumonia" was an embolic condition or whether it was a primary condition which might have caused the deep thrombosis failed to elicit a reply. I have never seen deep thrombosis following groin ligation plus injection. I wish the authors had said more about the technique used in the 12 cases and the amount and nature of solution employed.

The authors repeat the usual statement that it is important to ligate the saphena tributaries in the groin to prevent recurrence and show a photograph to illustrate a recurrence where this has not been done. As it is virtually impossible to get a clear view of the sapheno-femoral junction without dividing these tributaries it is safe to assume in such cases of recurrence that effective ligation has not been done, but the point is academic. The writers refer to temporary oedema of the ankle and lower part of the leg which may follow injections alone. I have had this annoying complication from time to time, but, owing to its transient nature, have wondered whether it might be caused by unduly prolonged reflex spasm spreading to some of the sub-fascial veins. I do not dispute their explanation, however, that it may be due, in part at least, to some degree of thrombosis in the deeper veins.

The authors do not refer to sclerosing agents, but the choice of these is of some importance. Thirteen years ago I started experimenting with carbolic-glycerin mixtures of various strengths, and for the last eight years have used a solution of 2% liquid phenol in 30% glycerin measured by volume. This solution is an adequate sclerosing agent, seldom causes undue reactions, is relatively harmless to the subcutaneous tissues, possibly due to the hygroscopic qualities of the glycerin leading to its dilution with tissue fluids, and is cheap and antiseptic, and can be stored in bulk. Haemoglobinuria has not been reported from its use, though it occurred at times with higher strengths. 15 ml. is the standard amount given at any one sitting, though 20 or 25 ml. has frequently been injected in divided doses. The only disadvantage to report is that vertigo sometimes occurs after injecting 5 ml. at one point, but this passes off in a minute or so, and further injections do not cause a return of the giddiness. A modification of this solution has been reported on by Dodd in this *Journal* (March 15, p. 366).

Another point in treatment I may be allowed to mention here is that the saphena vein may be thrombosed by mechanical damage

to the intima. For this purpose a "scraper" is used. This instrument consists of a metal tube (25 in. (63 cm.) is a convenient length) with a screw joint in the middle for ease of portability; and at the end is fixed a metal cylinder with a rounded end and roughened surface, which is passed down the saphena trunk after its division in the groin. The instrument will not pass a marked tortuosity in the vein, but obstructing valve cusps can be broken down safely with a few judicious jabs, and in most cases the roughened cylinder will reach at least as far as the knee, and in large veins can often be pushed its full length to the middle third of the leg. During this proceeding escape of blood is prevented from the upper end of the vein by a piece of catgut passed twice round the vein, the ends being held by an assistant. In the case of the left leg, when the scraper has been passed to its limit with the right hand, the fingers of the left hand are pressed against the vein, with the little finger opposite its lower end, and the scraper is moved up and down a few times and rotated if desired. This procedure is repeated a hand's breadth at a time in an upward direction till the whole length of vein is dealt with. If it is desired to inject the vein at operation, the tube of the instrument is filled with solution to displace air before it is passed, and when it has been pushed down to its limit 10 ml. of the solution mentioned above is injected and the "scrapping" then proceeded with.

Boyd and Robertson give evidence to suggest that injection below the knee is unlikely to be harmful, and, as mechanical thrombosis of the trunk above the knee cannot affect the intima of the deeper veins, the technique described appears to meet their criteria of safety in treatment. This may account for the lack of anxiety I have had with the method during the past four to five years.

The instrument is made by Messrs. Phillip Harris and Co., 44, Edmund Street, Birmingham, 3.—I am, etc.,

Birmingham.

J. W. RIDDOCH.

### Homosexuals in Prison

SIR,—All workers in this field welcome Dr. F. H. Taylor's article (Oct. 4, p. 525), which puts forward the evidence of facts to take the place of speculation and theory. As he rightly says, it is the true invert whose case is of most interest, and several matters arise from his report of the 13 prisoners of this type who came under his care.

First, the facts refute a popular misconception that the natural homosexual is attracted to small boys, as among 13 true inverts only one was interested in boys. An invert turns towards adults of his own sex as naturally as a normal man is sexually attracted by a woman as a potential mate rather than by a child.<sup>1</sup> Homosexual offences against children are almost exclusively the prerogative of the pseudo-homosexual group, wherein over 50% exhibit mental subnormality, many of them being of the same mental age as the children they seek to seduce.

Secondly, the evidence from the series of true inverts might be used to give support to the theory that seduction in early youth or childhood is a dominant factor in the production of homosexuality, which is the view taken by Sir Norwood East and W. H. Hubert<sup>2</sup> and opposed by E. A. Bennet and others.<sup>3</sup> This point of course is supremely important in connexion with the social as well as the clinical aspects of homosexuality. But the support given by this investigation is considerably weakened by a closer examination of the evidence which Dr. Taylor quite impartially puts forward. Among these 13 men androgynous physique was present in six cases: obviously the physique could not have been caused by the seduction, though the reverse might well have been true. The fallacy of *post hoc ergo propter hoc* can be excluded only by comparable statistics from a control series of non-homosexual prisoners. Some form of homosexual activity which can only be described as seduction is the experience of large numbers of public-school boys during their early teens, the incidence varying widely from school to school, but in some places it is certainly of the order of 50%: a similar figure is probable in other social strata, and it may well be even higher among the sub-intellectual group that contributes so largely to the prison population. The postulated connexion between seduction and later homosexuality can therefore be established only if a similar investigation among a control series of prisoners reveals a difference that is statistically significant. It is to be hoped that this evidence will be forthcoming, for without a knowledge of the facts further discussion is useless.

Thirdly, the evidence from Brixton prison appears to support the alleged connexion between natural homosexuality and sexual perversion, which is the view put forward by Sir Norwood East and W. H. Hubert<sup>2</sup> and Clifford Allen,<sup>3</sup> and opposed by Havelock Ellis and others. J. A. Symonds (in an unpublished essay) admits that, although "a far larger proportion of mental disturbance and nervous hypersensitivity can be proved in Urnings than in normal men; in a vast majority of cases the Urning owing to present laws and social prejudices cannot, like other men, obtain a simple and easy satisfaction of his inborn sexual desires, which for him are as natural as swimming to a fish. It is this forcible suppression of an instinct so deeply rooted in his nature which originates the morbid symptoms that may often be observed in the Urning." The same author attributes to homosexual fears and guilt "at least half of the suicides of young men." Bernard Shaw has stated categorically that "homosexuality implies no general depravity whatever." The validity of evidence to the contrary which might be drawn from the present series of cases is dependent entirely upon the support of a series of controls. An examination of the 198 prisoners (presumably males) charged with heterosexual offences during the same period would probably yield a percentage of degeneracy comparable with that found in the homosexual group, and this again is valuable evidence that should be available before discussion can proceed with profit. But in any case it would be as unreasonable to draw conclusions about clinical and social (as distinct from anti-social) homosexuality from a series of homosexual prisoners as to base arguments concerning normal heterosexuality on the findings in a similar group of heterosexual offenders.

General deductions as to treatment would be open to the same error. It would be as unlikely that patients from this series of cases could respond to psychotherapy by making a good social adaptation (even if their homosexuality were left untouched) as that their heterosexual fellow prisoners could be educated to become happy fathers and husbands. Only the dregs of both classes find their way into the prisons, and unfortunately it is only from this group that statistical evidence about homosexuality can be collected. This evidence is not applicable to the socially adapted natural invert.

Lastly, may the opportunity be taken to correct an error that appeared in the *B.M.J.* last year, and which still stands unchallenged, namely—that "buggery" is a scriptural term? The appellation of *bougre* (Fr: Bulgarian) was given to the ultra-puritanical sect of the Albigenses in the South of France during the eleventh century A.D. on account of their association with the Bogomils, or Bulgarian heretics—heretics only by reason of their steadfast and unyielding opposition to Catholic orthodoxy, for which the sect was exterminated in the Albigensian "Crusade" of 1209.<sup>4</sup> The imputation of unnatural vice (which has been entirely discredited) was the invention of the fertile mind of Pope Innocent III, who was himself a repressed homosexual and a fanatical persecutor of all forms of sexual heterodoxy real or imagined.

Cornwall.

D. STANLEY-JONES.

## REFERENCES

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- <sup>2</sup> Report on the Psychological Treatment of Crime, 1939, H.M.S.O., London.
- <sup>3</sup> Bennet, E. A., *British Medical Journal*, 1946, 1, 289, 450; Rosanoff, A. J., *Manual of Psychiatry*, 7th ed., 1938, p. 556, New York; Quoted by Dillon, F., *British Medical Journal*, 1946, 1, 450; Stanley-Jones, D., *Lancet*, 1947, 1, 366.
- <sup>4</sup> *The Sexual Perversions and Abnormalities*, 1940, London.
- <sup>5</sup> Personal communication, 1947.
- <sup>6</sup> Stanley-Jones, D., *Med. Pr.*, 1946, 215, 391.

## Another Foetus Cries

SIR.—Interest and speculation have been aroused by reading Dr. E. Curphey's letter (Sept. 27, p. 508). During induction of labour on Oct. 8 in a para-2 woman at the 39th week of pregnancy by means of a Drew-Smythe catheter I was astonished to observe the same phenomenon. The head was in the brim of the pelvis. While manipulating the catheter I followed my usual custom of engaging the patient in conversation. On this occasion I was asking her whether she had read in the papers of the baby who cried before being born.

After withdrawing 24 oz. (680 ml.) of liquor I left the catheter *in situ* for another minute in order to remove any further liquor

that could be expressed from the uterus. The baby was particularly active and moved the catheter several times. Immediately after withdrawing the catheter the mother said to me, "My baby is crying too." Needless to say I did not believe her and suggested that I had put the idea into her head. Half a minute later I asked the midwife in attendance to listen to the foetal heart. On placing the foetal stethoscope rather near the foetal head than usual, she replied excitedly, "The baby crying." At this stage, from my position at the foot of the patient, who was still in the lithotomy position, I heard a sound resembling a smothered gurgle. I then used the foetal stethoscope and without a doubt heard the baby cry.

The baby was subsequently extracted with forceps, alive and well, 15 hours later. I too was unfortunate in not getting further medical confirmation in order to convince my sceptical colleagues, and the baby could not be induced to repeat the performance.

George H. Ryder, however, has reviewed<sup>1</sup> some of the 12 authentic cases of vagitus uterinus reported in the literature between the years 1800 and 1941. He found that there was foetal mortality of nearly 1 in 5, and in 85% of cases operative interference was required. One cannot, of course, infer that the mortality or the interference was directly related to impending asphyxia of the foetus. Munro Kerr in his textbook<sup>2</sup> has reported that on two occasions he heard the foetus cry *in utero*, while an internal version was being performed. It is obvious that the introduction of air into the uterus is necessary before the foetus can cry, and possibly somatic stimulation from the introduced instrument or hand also helps to overcome the inhibition of respiratory movement which Barcroft has found to exist during the latter period of foetal life. In this particular case both conditions seem to have been present.—I am, etc.,

Oxford.

JEAN BURTON-BROWN.

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- <sup>1</sup> *Amer. J. Obstet. Gynec.*, 1943, 46, 867.
- <sup>2</sup> *Operative Obstetrics*, 4th ed., 1937, London.
- <sup>3</sup> *Researches on Pre-Natal Life*, 1946, Oxford.

## Vaginal Temperature

SIR.—The case reported by Dr. John Hankinson (Oct. 11 p. 574) of a woman having passed a clinical thermometer into the bladder while endeavouring to take her vaginal temperature should serve to emphasize the undesirability of this extraordinary procedure. That the recording of basal temperature is of great value in the study of cases of infertility will be acknowledged by most of those who have had experience of them and have taken pains to see that their patients record them properly; that the determination of the "safe period" by means of basal temperatures can be a satisfactory contraceptive technique might also be allowed, though doubts might validly be expressed concerning this; but that patients should be subjected to the inconvenience and, to judge from Dr. Hankinson's report, the potential dangers of inserting clinical thermometers into their vaginae in order to estimate their basal temperatures seems utterly ludicrous.

Is the temperature of the vaginal cavity supposed to carry some especially recondite significance from the standpoint of conception, its failure, or its prevention? Or is the placing of a clinical thermometer beneath the tongue, followed by closure of the lips, too simple a procedure sufficiently to impress the patient that the temperature record so obtained is of value? If anyone who has been advising his patients to take their vaginal temperatures does not realize that oral temperatures taken in the same way will yield just as much information, then the best advice that can be given is that he should try the latter technique and see for himself. And the same can be said for rectal temperatures, the taking of which is scarcely less inconvenient or distasteful to the patient than is that of vaginal temperatures.

That the situation as it appears to exist is almost comic can be judged from the suggestion of Dr. Hankinson that a specially designed thermometer should be employed for taking vaginal temperatures, which calls to mind the true instance of a woman, instructed to take her vaginal temperatures, apologizing for not having done so because none of the chemists' shops she had tried had stocked a vaginal thermometer.—I am, etc.,

London, N.W.6.

G. I. M. SWYER.

## POINTS FROM LETTERS

## Pure Anti-E Agglutinin in the Serum of an Rh-negative Woman

Dr. R. H. MALONE (Sheffield) writes: In continuation of my letter . . . (Sept. 13, p. 433), Dr. Mourant has informed me that Mrs. C.'s serum has been re-examined and found quite definitely to contain incomplete anti-D in addition to anti-E. The baby's genotype was R,r (cDE/cde).

## Mind and Matter

Dr. ALEXANDER LEITCH (Westbury-on-Trym, Bristol) writes: Having read with interest Dr. E. R. Banner's speculations on the mind-body relationship (Sept. 13, p. 433), I feel that, while Dr. Banner develops his theory quite logically, the superstructure is based on such a remotely conceivable possibility (or premise)—i.e., "it is not wholly inconceivable that every physical unit (say, every electron and proton) is the body of a very simple mind." It might, in fact, almost be regarded as a *reductio ad absurdum* of the superior theory of Adolf Meyer of "psychobiological integration," which, put very briefly, postulates that, from the simplest beginnings of organic life without any neural structures, through organisms of increasing complexity, first differentiated into oval and caudal parts, on to organisms with rudimentary brains, and so on to man himself with his unique (in the animal world) cerebral development, there appeared at some point in the evolutionary chain a form of consciousness; and as the complexity of the neural structures grew so the attributes of mind increased, so as to adapt and integrate more perfectly the organism with its environment. This process culminates in man, with his uniquely developed cerebral structures on the one hand and his intellectual capacity on the other.

## Sacro-iliac Strain

Dr. C. J. PENNY (Winchester) writes: The provision of belts for patients suffering from sacro-iliac strain is a matter of some difficulty in these days. This condition occurs not infrequently during pregnancy, and recently a patient of mine who was proceeding to India shortly came to me for treatment. There was no time to get an appropriate belt, and it occurred to me that a sheet-rubber bandage might give the necessary support. I accordingly applied such a bandage over the underclothing and was pleased to find that the patient's symptoms were completely relieved. Since then I have used the same apparatus in other cases of pregnancy and the patients have found them to be comfortable, easy to apply, and to give them the support necessary to relieve their symptoms. . . .

## Manic States in the Far East

Dr. H. HARRIS (Lingfield, Surrey) writes: Dr. R. F. Tredgold in his interesting paper on "Manic States in the Far East" (Oct. 4, p. 522) concludes that they may be due to "the sudden release of tension and the consequent change in the tempo of work." It might be of interest and value to analyse statistically the relative incidence of manic reactions in the general community after V J day.

## Polionmyelitis

Dr. R. A. Russell Taylor (Wakefield) writes: On June 1, 1947, Pinderfields Emergency Hospital, with the approval of the Ministry of Health, opened a special department here for the treatment of the after-effects of infantile paralysis. It may be of interest to the medical profession to know that we have to-day admitted for treatment our one-hundredth case. Our youngest case is that of a child of one week old, and we have a patient who is five months' pregnant, also suffering from this condition. . . .

## Convalescent Homes

Dr. BARBARA J. HICK (Broadstairs, Kent) writes: I am very glad to read in the annotation (Oct. 11, p. 580) that the Institute of Almoners has undertaken a survey of convalescent homes. After 15 years in practice among both sexes in various parts of the country my impression is that many patients are glad to get back to their own homes and have a rest. I particularly remember a man with valvular disease of the heart who had been given up by another doctor only a few months before. He was the type of case who should have been taught the value of relaxation with a view to a future of curtailed activity, but he returned tired out owing to the amount he had had to do at the convalescent home. Most places have an iniquitous rule that patients are not allowed in their bedrooms between 8 a.m. and 8 p.m. Some allow a rest in the afternoon if ordered by the patient's own doctor, but surely all patients should be able to go and lie down at any time when they feel the need for rest and quiet. About two years before the war I went round a home newly opened for women. There were only two settees in the whole place and they both looked extremely uncomfortable. . . . There is (literally) a crying need for homes for mothers and babies. A few were started in the years between the wars, but the supply is most inadequate.

## Obituary

## MACGILLIVRAY OF MACGILLIVRAY, M.D., LL.D.

MacGillivray of MacGillivray, twenty-eighth chief of the clan of MacGillivray, died at his home at Crail, Fifeshire, on Oct. 15 at the age of 82. He was for forty-five years surgeon to the Dundee Eye Institution and a former reader in ophthalmology at St. Andrew's University.

Angus MacGillivray was educated at Fordyce Academy and Aberdeen University, where he was an honours graduate in medicine and Struthers' gold medallist in anatomy. After studying at the Birmingham Eye Hospital and later in London, he was appointed assistant ophthalmic surgeon in Aberdeen. He went to Dundee in 1889 and was the first ophthalmic specialist in practice there. He gave many years of devoted service to Dundee Eye Institution, and after his forty-five years as senior surgeon he was appointed honorary consulting surgeon and director of the Institution. He also founded the department of ophthalmology at Dundee Infirmary and was surgeon there for over thirty years before becoming honorary consultant ophthalmic surgeon in 1925. It was not until 1935 that he retired from the post of reader of ophthalmology at the University of St. Andrew, and in 1937 he received the honorary degree of LL.D. He acted as eye specialist to the education authorities of Dundee, Angus, and Fife, and during the 1914-18 war he was consulting ophthalmic surgeon for the Dundee area. Later he became registrar of Dundee Military Hospital, was promoted major, and received the Territorial Decoration. About 1939 he gave up many of his activities and went to reside at Crail.

A keen Celtic student and archaeologist, he was Chief of the Dundee Highland Society in 1912, and was the author of *Our Gaelic Proverbs: A Mirror of the Past*, and also *The Highland Dress*. He published in 1916 a book on the bacteriology and clinical study of the eye and contributed a number of papers to the medical press. He was secretary of the Section of Ophthalmology at the Annual Meeting of the B.M.A. in 1898 and vice-president at the 1902 meeting. He was also president of the Dundee branch in 1924-5. From 1926 to 1939 he was county controller and county director of the Dundee branch of the British Red Cross Society, and he was a Commander of the Grand Priory in the British Realm of the Order of St. John of Jerusalem. He was at other times president of the Forfarshire Medical Association and of the Caledonian Medical Society.

He was twice married, and is survived by Mrs. MacGillivray and two sons, Angus Robertson, the heir, who was born in 1892, and Dr. Allister M. MacGillivray, ophthalmic surgeon in Dundee.

ALEXANDER THOMAS CAMERON, professor of biochemistry in Manitoba University since the close of the 1914-18 war, died in the Winnipeg General Hospital on Sept. 25 after a long illness. He was born in London and was educated at Edinburgh University, where he received his M.A., B.Sc., and D.Sc. He was also awarded the 1851 Exhibition Science Research scholarship while studying at University College under Sir William Ramsay. Later he worked at the Polytechnic Institute, Karlsruhe, Germany. In 1909 he settled in Winnipeg, being appointed lecturer in physiology and biochemistry under the late Prof. Swale Vincent. During the war he served overseas for four years with the R.A.M.C. On his return to Canada in 1919 he became professor of biochemistry and was soon recognized as one of the foremost authorities in that subject. In 1928 he wrote his *Textbook of Biochemistry*; in 1930, in collaboration with Dr. Frank D. White, *Practical Biochemistry*; in 1933, with Dr. C. R. Gilmour, *The Biochemistry of Medicine*; and in the same year *Recent Advances in Endocrinology*, which latter work has gone through six editions. His time was not entirely spent in teaching and writing. He did much research work in marine biology and became chairman of the Fisheries Board of Canada. For his services in this connexion he was recently honoured by the award of the C.M.G. He was an active member of the Scientific Club of Winnipeg; a fellow of the Royal Society of Canada, of the Royal Institute of Chemistry, Great Britain, of the Chemical Institute of Canada; and he was also a member of the Senate of the University of Manitoba. He is survived by his widow, a son and daughter, and one brother living in Montreal.—R.M.

Dr. LEE CHOO NEO, of Singapore, died on Sept. 7. Dr. Lee Choo Neo was for many years honorary treasurer of the Malaya Branch of the B.M.A., and vacated that post less than a year ago to take a vacation in Australia. She was responsible for the preservation of the local B.M.A. records during the war period, and the Association owes her a debt of gratitude. Dr. Lee, it is understood, had only recently returned from Australia to resume her private practice. She was the wife of Mr. Teo Koon Lim, and they had one son and two daughters.

Dr. THOMAS HENRY HARKER, who had been associated with Southport Infirmary for many years, died there on Oct. 4 at the age of 68. A native of Hampshire, Dr. Harker was a student of St. Bartholomew's Hospital. He qualified in 1903, graduated M.B. in the same year, and proceeded M.D. in 1905. Dr. Harker was at one time house-physician at the Brompton Hospital and resident surgical officer to the Children's Hospital, Birmingham, and to the Women's Hospital at Brighton. He served in the R.A.M.C. with the rank of captain in the 1914-18 war. He had settled in Southport in 1912, and he was appointed honorary assistant physician to the Infirmary there in 1920, honorary physician eleven years later, and consultant physician in 1938. He was also consulting physician to the Southport Convalescent Hospital. Not long ago Dr. Harker was appointed a member of the Liverpool Regional Hospitals Board, and he had been for many years a member, and formerly president, of the Southport Medical Society. He was chairman of the Southport Division of the B.M.A. in 1934-5. His chief hobby was gardening, and he was particularly expert in the cultivation of dahlias. At all times, however, his chief interest was in the Southport General Infirmary. He had been chairman of the board of management since 1940, and he attended a board meeting there as recently as Sept. 27. He leaves a widow, a son, and two daughters.

Mr. R. R. M. Porter writes: The sudden death of Dr. T. H. Harker so soon after his retirement from practice came as a shock to his many friends in Southport, and particularly to his colleagues on the staff of the Southport Infirmary. Harker was one of those rather rare members of the profession who combine high professional skill and sound clinical judgment with exceptional administrative ability. He was never obtrusive, but when he spoke on a subject he had considered it from every angle and had every relevant fact available, and his views were always sound, never partisan. He will be greatly missed by his colleagues. His whole life was devoted to his work, and his conduct was an example of the highest professional ethics, of calm competence, and of perfect courtesy at all times.

Dr. JOHN GOFF, who died in London recently, graduated at Glasgow in 1882, and proceeded M.D. two years later after studying in Berlin, Vienna, and Paris. He was house-physician at the Western Infirmary, house-surgeon to the Dispensary Skin Diseases, Glasgow, and later assistant master of the Londa Hospital, Dublin.

J. D. S. writes: The late John Goff was a remarkable man in many ways. My own intimate personal friendship with him began in 1924, when he was in general practice in Windlesham, Surrey, and lasted until he died. He was the very best type of practitioner, and was much loved by his patients, rich and poor. His life was devoted to his work, which was marked by great sympathy and much understanding. He was in the truest sense a good man, and will long be remembered by his patients and his friends. He was one of the oldest members of the British Medical Association, and was a regular attendant at both local and headquarters meetings. He had interests in golf and racing. A yearly visit to St. Andrew's was a regular habit, and he was rarely absent from an Ascot meeting. Up to last year he was walking five or six miles a day, and enthusiastically carried on his beloved church activities. His life was full and satisfying, and he had no regrets.

Dr. HUGH NASH BRADBROOKE died suddenly at his home in Horsham on Oct. 5 at the age of 47. He was educated at the Grammar School, Bletchley, and at Queen's College, Oxford, where he gained first-class honours in natural science. At the London Hospital he won the Anderson Prize in clinical medicine and the Letheby Prize in chemical pathology. He took the B.M., B.Ch. in 1925, the M.R.C.P. in 1927, and proceeded D.M. in 1934, taking the D.P.M. four years later. After holding a series of resident appointments at the London Hospital he went into practice at Abingdon, remaining there for eleven years. He took a keen interest in the affairs of the town, and served as a justice of the peace. He also played an active part in the work of the British Medical Association, and was a

representative at the annual meetings on four occasions. He was appointed assistant medical officer to the Oxford City and County Hospital at Littlemore, and clinical assistant to the department for nervous disorders at the Radcliffe Infirmary in 1938. The following year he went to Cliftonville. In 1940 he moved to Horsham, where he was in practice for two years. In 1942 he joined the R.A.F. as a specialist in neuropsychiatry, being invalided out in 1944. Since leaving the R.A.F. he had been honorary psychiatrist at the Prince of Wales General Hospital at Tottenham, neuropsychiatric specialist at the Ministry of Pensions, and clinical assistant in the department of psychiatric medicine at the Middlesex Hospital. Dr. Bradbrooke was keenly interested in aviation. As a pilot in the R.F.C. he saw service in France and Russia. Later he continued to keep up his interest in flying as a member of a gliding club, doing a considerable amount of experimental work himself. During the early part of the recent war he did invaluable work as the first commandant of the Horsham Air Training Corps. He was particularly successful in managing to inspire the greatest keenness and enthusiasm among the boys he trained. For the past two years he had suffered from increasing ill-health, and only those who knew him well could appreciate and admire the effort he made to carry on. He was loyal, sincere, and a very pleasant colleague. He will be greatly missed by all who had the privilege of knowing him. He leaves a widow and three children.—G. S. M.

## Medico-Legal

### DUODENAL ULCER AS AN INJURY

[FROM OUR MEDICO-LEGAL CORRESPONDENT]

The original Workmen's Compensation Act, introduced at the beginning of the century, provided compensation for workmen who suffered injury by accident. The courts have always taken the view that the workman ought to benefit by these Acts whenever a beneficial interpretation is possible, and quite early in their history the House of Lords decided that anthrax could be an injury by accident.<sup>1</sup> Since then many diseases have ranked as injury by accident, including a number which are not caused by infection, such as heat-stroke and Raynaud's disease. The courts have tended to reject need for proof of the occurrence of the mishap at any particular time, and to agree that an injury by accident may be caused by a continuous and cumulative process. The door to the admission of disease as an injury at work is opened still wider in the police pension cases, in which the concept of accident does not enter, as the applicant is only obliged to prove injury suffered in the execution of his duty.

In the latest of these<sup>2</sup> a Huddersfield officer, who had always showed exceptional devotion to duty, had for some months before the outbreak of the war been exposed to very long hours of duty and exceptional worry, with the result that he had irregular hours for meals and rest and eventually developed a duodenal ulcer; after unsuccessful medical treatment he had a partial gastrectomy. He applied for a special pension under the Police Pensions Act, 1921, on the ground that his state of health was brought about by his police service. The police authority regretfully decided that they had no legal power to grant him a pension, but the recorder allowed his appeal. The question came before the High Court, which confirmed the award. By an earlier decision of the same court, noted in these columns,<sup>3</sup> a constable was awarded a pension on showing that he had contracted tuberculosis attributable to his service.<sup>4</sup>

They considered that they ought to follow that decision, and that it applied to the present case. The fact that duodenal ulcer is not due to an infection they did not consider to be relevant. If, Lord Goddard said, the condition from which the man suffers is directly and causally connected with his service as a police officer, then he has received an injury in the execution of his duty. Whether if the case had been brought under the Workmen's Compensation Acts the ulcer would have been regarded as an injury by accident is a different question.

<sup>1</sup> *Brintons v. Turvey*, 1905, A.C., 230.

<sup>2</sup> *Huddersfield Police Authority v. Watson*, 1947 2 All E.R. 193.

<sup>3</sup> *British Medical Journal*, 1944, 1, 760.

<sup>4</sup> *Garrin v. City of London Police Authority*, 1944, K.B., 358.





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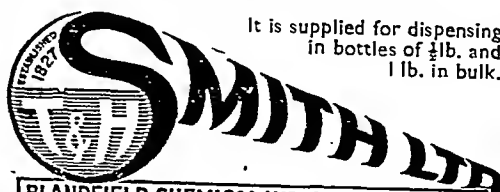
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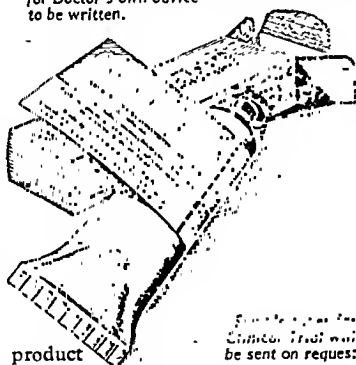
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## Universities and Colleges

### UNIVERSITY OF LONDON

Foundation Day will be celebrated on Thursday, Nov. 27, and the celebrations will take the form of a dinner followed by a ceremony or the conferment of honorary degrees and a reception.

The Royal Dental Hospital of London, School of Dental Surgery, has been continued as a school of the University until the end of the session 1947-8.

The Semon Lecture for 1947, entitled "The Applied Anatomy and Physiology of the Pharynx and Oesophagus," will be delivered in the lecture hall of the Royal Society of Medicine (1, Wimpole Street, N.W.1) by Mr. E. D. D. Davis on Thursday, Nov. 6, at 5 p.m. The lecture is addressed to students of the University and to others interested in the subject. Admission is free, without ticket.

The British Postgraduate Medical School has been continued as a school of the University until the end of the session 1947-8, or until the British Postgraduate Medical Federation is constituted as a school of the University, whichever period is shorter.

Percy Cyril Claude Garnham, M.D., has been appointed to the readership in Medical Parasitology tenable at the London School of Hygiene and Tropical Medicine, from Oct. 1.

The following have been recognized as teachers of the University in the subjects indicated in parentheses: *London Hospital Medical College*: Mr. R. H. Dobbs, M.D., F.R.C.S. (Children's Diseases); Mr. J. W. S. H. Lindahl, M.Ch., F.R.C.S. (Oto-Rhino-Laryngology). *St. Mary's Hospital Medical School*: Dr. C. Hardwick (Medicine). *Middlesex Hospital Medical School*: Mr. A. J. B. Goldsmith, F.R.C.S. (Ophthalmology); Mr. C. J. B. Murray (Surgery). *St. Mary's Hospital Medical School*: Dr. W. H. Hughes (Pathology (Bacteriology and Immunology)). *University College Hospital Medical School*: Mr. D. N. Matthews, M.Ch., F.R.C.S. (Surgery); Miss Winifred J. Wadge, F.R.C.S. (Oto-Rhino-Laryngology). *King's College Hospital Medical School*: Dr. V. F. Hall (Anaesthetics); Dr. H. A. Magnus (Pathology); Mr. N. S. G. Duxton, F.R.C.S., and Mr. H. L. C. Wood, M.S. (Orthopaedics, in addition to Surgery).

John Duncan MacLennan, M.B.E., M.D., has been awarded an C.I. Research Fellowship of the value of £600 per annum and nable in the first instance for three years for research at the British Postgraduate Medical School on 'the toxæmia of gas ingrene.

### UNIVERSITY OF LEEDS

Among the recently appointed members of the staff of the Faculty of Medicine the following have taken up their appointments at the beginning of the present session: I. G. Davies, M.D., M.R.C.P., P.H., as Professor of Public Health; C. W. Dixon, M.D., D.L.O., C.H., D.P.H., as Lecturer and Chief Assistant in Public Health; A. Divine, M.B., Ch.B., as Senior Administrative Officer, School of Medicine; R. P. Harbord, M.D., D.A., as Reader in Anaesthetics; Harold Petty, F.R.C.S., as Research Fellow in the Surgery of Rheumatism; C. J. Polson, M.D., F.R.C.P., as Professor of Preventive Medicine.

R. Orton, M.D., D.P.M., who has been appointed Senior Lecturer in Psychiatry, will take up his duties before the end of the year. Her appointments are announced as follows: W. J. Allen, M.D., Lecturer in Physiology; D. E. Price, M.B., B.S., Lecturer in Preventive Medicine.

### ROYAL COLLEGE OF SURGEONS OF ENGLAND

At a quarterly meeting of the Council of the College held on Oct. 9, with Sir Alfred Webb-Johnson, Bt., President, in the chair, J. M. Wyatt was co-opted to the Council as a representative of gynecology and obstetrics and was also appointed to represent the College on the Central Midwives Board.

The Hallett Prize was presented to Dr. Nanalal Jivan Shah (Guy's Hospital Medical School). Mr. Alexander Livingston (Epsom College) was admitted as a Macloghlin Scholar. The award of the Epsom Medal to Surgeon Commander G. H. G. Southwell-Sander, N., was announced.

The President reported a gift of £105 to the Restoration Fund from Dr. Frank Lahay and gifts of silver from Profs. R. V. Bradlaw and H. Stobie in connexion with the inauguration of the Faculty of Dental Surgery.

The general annual report and the annual scientific report of the College were approved.

The following hospitals were recognized in respect of the resident surgical posts required of candidates for the Final Fellowship Examination: Ashford County Hospital, three resident junior house-officers and three surgical registrars for a period of one year; and on Dunstable Hospital, resident surgical officer and senior house-surgeon for one year; Hope Hospital, Salford, assistant resident surgical officer, assistant medical officer in the department of general surgery, and assistant medical officer of the orthopaedic

department; Worcester Royal Infirmary, resident surgical officer and two house-surgeons; Royal Northern Hospital, Inverness, first and second house-surgeons for a further year.

A Diploma in Laryngology and Otology was granted to B. Cohen and a Diploma in Ophthalmic Medicine and Surgery to J. McClement, both jointly with the Royal College of Physicians of London.

### ROYAL COLLEGE OF SURGEONS IN IRELAND

The following have received the Fellowship: D. Boland, D. M. Brooks, J. Bunting, R. A. E. Magee, E. O'Malley, W. J. O'Regan, A. B. Walsh, F. H. Counihan.

## Medical News

### Invalids' Milk Cut

Invalids' priority allowances have been reduced by two-sevenths, so that those entitled to 14 pints of milk weekly receive only 10. The priority allowance of 7 pints weekly for children aged 1 to 5 is reduced to 6 pints. The Ministry of Food attributes the necessity for this to the severity of last winter and the dry summer that followed it. For the first nine months of this year, as compared with last year, the loss amounted to 30 million gallons, and it has been impossible to build up adequate stocks of milk foods for babies.

### Scientific Films

A congress held in Paris on Oct. 2-9 by the Scientific Film Association and the Institut de Cinématographie Scientifique decided to form forthwith an International Scientific Film Association. The Association will be concerned with all aspects of scientific films and an information bureau will shortly be established in Paris. The congress next year will be held in Britain in October. A provisional constitution for this organization has been agreed by delegates from France, Great Britain, South Africa, New Zealand, Canada, Australia, Malaya, Netherlands, Belgium, Switzerland, Poland, Yugoslavia, Czechoslovakia, Luxemburg, Monaco, Austria, Brazil, Peru, Mexico, China, Denmark, and Ecuador.

### Road Accidents

A War Office inquiry into road accidents involving Servicemen found that 40% occurred on straight roads away from a junction. An investigation into accident proneness, as suggested by the Committee on Road Safety in their Report, referred to in our leading article last week (p. 618), is being carried out by the Department of Scientific and Industrial Research. One-third of all the accidents investigated occurred when one vehicle was overtaking another, moving or stationary, and a stationary vehicle was involved in 20% of the cases.

### Infantile Paralysis

The disease was first described in 1789 by Underwood, a London physician, said Prof. H. J. Seddon, speaking on infantile paralysis at the Royal Institute of Public Health and Hygiene on Oct. 15. The first recorded epidemic occurred in St. Helena early in the 19th century. He compared the present epidemic with road accidents, most of which were preventable, and said that it was almost trivial in the amount of incapacity that it had caused. Some of the handicaps in the investigation of the disease were the expense and difficulty in using monkeys as experimental animals, the unsuitability of rodents generally, and the absence of any diagnostic test for the presence of the virus or the disease itself. This was the time of year when fresh fruit and vegetables were consumed in the greatest quantity, yet it had not been possible to demonstrate any definite connexion between this seasonal change in diet and the incidence of the disease. The relative immunity of adults was due to the fact that, without knowing it, they had already had a mild non-paralytic attack of the disease. There were two important general preventive measures: the avoidance of physical strain and of overcrowding. There was no specific remedy for the established disease; the results of serum treatment had been equivocal, and none of the new chemotherapeutic agents had proved effective.

### Bisset Hawkins Medal

The Bisset Hawkins Medal was presented to Dr. C. H. Andrewes at the Royal College of Physicians on Oct. 18 for his research into typhus and influenza.

### Dr. Kenneth Cowan

For health reasons Dr. Kenneth Cowan is not taking up his appointment as Senior Administrative Medical Officer to the South-west Metropolitan Regional Hospital Board, which was announced in the *Journal* of Oct. 11 (p. 597). He will remain as county medical officer of health for Gloucestershire.

**Medical Benefit Society**

The thirty-ninth Annual Meeting of the Medical Benefit Society for the East and North Ridings of the County of York (including the City of York) was held by courtesy of the York Medical Society in their library at York on Sept. 23, Dr. Ritchie Rodger, J.P., presiding. After approving the minutes of the Annual Meeting of 1946 the Annual Report for the year 1946-7, including that of the Hon. Treasurer, was received and adopted. From the latter it appeared that £107 5s. had been granted in relief. With a current balance of £362 the financial position was considered very satisfactory. The officers elected for the coming year were Mr. R. B. Blair (Hull) as President, Dr. G. F. Longbottom (Middlesbrough) as Vice-President, Dr. M. Jacobs as Hon. Secretary, Dr. N. T. Whitehead as Hon. Treasurer, with Messrs. Harold Locking and Co. as auditors. Nine new members were elected. There were no further applications for relief.

**Highway First Aid**

The July number of the British Red Cross Society's *News Survey* reviews Red Cross activities throughout the world and records a speech by Air Marshal Sir Harold Whittingham, the Society's medical adviser, on first-aid services on the highway. He made the interesting point that first-aid posts should be transportable, because the danger spot of to-day might cease to be one in a year or so, owing to road improvements. The sentry-box was the most suitable type of first-aid post on account of its portability and relatively low cost.

**Wills**

Dr. Arthur Whitfield, formerly professor of dermatology in King's College, London, left £48,576. Dr. Arthur Frederick Bernard Shaw, formerly professor of pathology at the University of Durham, left £12,600. Mr. William Gough, formerly professor of gynaecology at the University of Leeds, left £42,236. Mr. Cecil Banting, M.S., F.R.C.S., of Thanet, Kent, formerly an underwriting member of Lloyd's, left £186,971. Mrs. Ellen Matilda Cooper, of Birehington-on-Sea, who died on April 17, aged 99, widow of Dr. James Cooper, left £109,052, and bequeathed £10,000 to St. Bartholomew's Hospital to found research scholarships. Dr. Samuel Allan Shiaeh, of Elgin, chairman and managing director of Macallan Glenlivet, Ltd., owners of Macallan Distillery, Speyside, left £87,176.

**COMING EVENTS****Discovery of Chloroform Anaesthesia**

The centenary of Sir James Young Simpson's discovery of chloroform anaesthesia will be celebrated at Edinburgh on Nov. 4. Prof. R. R. Macintosh, Dr. D. S. Middleton, and Dr. John Gillies will read papers on the use of chloroform at present, at a meeting to be held at 9.30 a.m. in the Lecture Room of the Surgery Department, University New Buildings, Teviot Place. At 12 noon in the Upper Library, Old College, the honorary degree of Doctor of Laws will be conferred on Dr. H. W. Featherstone, O.B.E., and Dr. T. B. Simpson, K.C. After lunch at 12.45 in the Senate Hall, College, a reception will be held at 3.30 in the Upper Library, at 3.45 Dr. Douglas Guthrie will deliver an address. Tea is o'clock. A display of relics will be on view in the Upper Library from Nov. 3 to Nov. 7.

**Middlesex County Medical Society**

The next general meeting of the Middlesex County Medical Society will be held at West Middlesex County Hospital, Isleworth, on Tuesday, Oct. 28, at 3 p.m., when there will be clinical demonstrations of surgical, medical, obstetrical, etc., cases.

**Society of Chemical Industry**

A meeting of the Nutrition Panel of the Food Group of the Society of Chemical Industry will be held at the Chemical Society's rooms (Burlington House, Piccadilly, London, W.) on Wednesday, Oct. 29, at 6.30 p.m., when a paper on "Food and Cancer" will be presented by Prof. A. Haddow and Dr. L. A. Elson. All members of the Food Group are invited to attend the meeting and members may introduce friends in person.

**Care of Old People**

The Bristol Council of Social Service and the Bristol and District Divisional Hospitals Council have arranged a conference on the Care of Old People to be held on Wednesday, Oct. 29, from 2.30 p.m. to 5.15 p.m. in the Reception Room at the University of Bristol. Drs. E. L. Sturdee and Marjory Warren will speak on "Medical Needs," and Miss D. Ramsey, M.A., Secretary to the National Old People's Welfare Committee of the National Council of Social Service, will speak on the "Social Needs." After a discussion there will be a summing-up by Dr. R. H. Parry.

**Central Council for the Care of Cripples**

A general meeting of the Central Council for the Care of Cripples will be held on Friday, Oct. 31, at 2.30 p.m., in the Lecture Theatre of the London School of Hygiene and Tropical Medicine, Keppel Street, W.C., when Dr. Charles Hill will address the meeting. The Earl of Dudley, M.C., will be in the chair.

**Royal Dental Hospital of London**

The annual clinical "At Home" of the Royal Dental Hospital of London School of Dental Surgery (University of London) will be held at the hospital, 32, Leicester Square, W.C., on Saturday, Nov. 22, from 9.30 a.m. to 5 p.m. The annual dinner will not be held this year.

**Refresher Courses in Tuberculosis**

The Northern Ireland Branch of the National Association for the Prevention of Tuberculosis will hold two refresher courses as follows: (1) "Recent Advances in Tuberculosis," for tuberculosis officers and medical practitioners (fee, 3 gns.; fourth and final year medical students free), to be held at the Midwifery Theatre, Queen's University, Belfast, on Nov. 26-29. (2) "The New Administrative Approach to Tuberculosis," for health visitors, almoners, and social workers (fee, 10s.), to be held at Bryson House, Bedford Street, Belfast, on Nov. 27-29.

**Clinical Biology at Paris**

The French Society of Clinical Biology will hold the first International Congress of Clinical Biology at Paris on Nov. 20-22 under the presidency of Prof. Polonovski. Persons interested in medical biology are invited to participate. The subscription is 300 francs, and those who wish to attend a banquet being held on Nov. 21 are required to pay an additional 900 francs. Particulars may be obtained from the Secretary General, Dr. Durupt, 20, rue de la Pompe, Paris.

**William Blair-Bell Memorial Lectures**

The Royal College of Obstetricians and Gynaecologists (58, Queen Anne Street, London, W.) announces that the William Blair-Bell Memorial Lectures for 1947 will be delivered in the College House on Nov. 14, at 5 p.m., and on Jan. 23, 1948, at 5 p.m. The first lecture will be delivered by Dr. D. J. MacRae, on "Heart Disease in Pregnancy," and the second lecture by Dr. Stanley A. Way on "Primary Carcinoma of the Vagina." All medical practitioners interested in the subjects are invited to attend the lectures, but admission is by ticket only, obtainable from the secretary. Tickets will be allotted in order of application, and applicants are asked to indicate for which lecture tickets are required.

**Harben Lectures**

Prof. Edgar D. Adrian, O.M., F.R.S., M.D., F.R.C.P., professor of physiology, Trinity College, Cambridge, has accepted the invitation of the Royal Institute of Public Health and Hygiene to be the Harben Lecturer for 1947. His subject is "The Organization of the Nervous System" and the lectures will be delivered at the Institute (28, Portland Place, London, W.) on Monday, Tuesday, and Wednesday, Dec. 8, 9, and 10, at 3 p.m. each day. Admission is free, without ticket. Seats may be reserved upon application to the secretary of the Institute.

**SOCIETIES AND LECTURES**

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.—Arnott Demonstrations by Mr. H. F. Lunn, Monday, Oct. 27, 5 p.m. The Applied Anatomy of Testicular Descent; Tuesday, Oct. 28, 5 p.m. The Cerebral Cortex and the Status of Man; Wednesday, Oct. 29, 5 p.m. Moynihan Lecture by Mr. W. R. Douglas: The Surgical Treatment of Metastatic Carcinoma of the Cervical Glands; Thursday, Oct. 30, 5 p.m. Imperial Cancer Research Fund Lecture by Dr. James Craigie: Viruses, Self-reproducing Substances and Tumours.

**ROYAL SOCIETY OF MEDICINE**

Section of Odontology.—Monday, Oct. 27, 5.30 p.m. Presidential Address by Prof. H. Humphreys: Dental Education.

Section of Medicine.—Tuesday, Oct. 28, 8 p.m. Discussion: Chemotherapy in Malignant Diseases. Openers: Prof. A. Haddow, Drs. Edith Paterson, E. Boyland, J. F. Wilkinson, Jean M. Watkinson, O. H. Warwick, and Mr. E. W. Riches.

BIOCHEMICAL SOCIETY.—At St. Thomas's Hospital Medical School, Albert Embankment, Westminster Bridge, London, S.E., Friday, Oct. 31, 2.15 p.m. Communications and Demonstrations.

BRITISH INSTITUTE OF PHILOSOPHY.—At University Hall, 14, Gordon Square, London, W.C., Friday, Oct. 31, 5.15 p.m. Mr. W. J. H. Sprott: Psychology and the Moral Problems of Our Time.

DEWSBURY: STAINCLIFFE COUNTY HOSPITAL.—Thursday, Oct. 30, 8 p.m. Mr. W. R. Henderson: Some Aspects of Neurological Surgery.

LEEDS AND WEST RIDING MEDICO-CHIRURGICAL SOCIETY.—At Leeds General Infirmary, Friday, Oct. 31, 8.30 p.m. Sir Archibald McIndoe: Surgery of the Burnt Hand.

LONDON: UNIVERSITY COLLEGE, Gower Street, W.C.—Tuesday, Oct. 28, 5.15 p.m. Dr. Bernard Katz: Physical and Chemical Signs of Nerve Activity; Wednesday, Oct. 29, 5 p.m. Dr. M. H. Pirrenne: Physiological Mechanisms of Vision.

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, Cavendish Square, W.—Monday, Oct. 27, 8.30 p.m. Discussion: Treatment of Peptic Ulcer. To be introduced by Dr. A. H. Douthwaite and Mr. Norman Tanner.

PADDINGTON MEDICAL SOCIETY.—At St. Mary's Hospital, Paddington, W., Tuesday, Oct. 28, 9 p.m. Film on the treatment of varicose conditions and their complications, to be introduced by Mr. A. Dickson Wright. All medical practitioners are invited to attend the meeting.

ROYAL INSTITUTE OF PUBLIC HEALTH AND HYGIENE, 28, Portland Place, W.—Wednesday, Oct. 29, 3.30 p.m. Dr. W. G. S. Pepper: The Doctor in Industry (illustrated).

ROYAL MEDICAL SOCIETY, 7, Melbourne Place, Edinburgh.—Friday, Oct. 31, 8 p.m. Address by Prof. W. E. Le Gros Clark: The Role of the Anatomist in the Study of Sensory Functions.

SOCIALIST MEDICAL ASSOCIATION.—At Denison House, 296, Vauxhall Bridge Road, S.W., Friday, Oct. 31, 7.30 p.m. Dr. J. E. McCartney: Some Impressions of American Laboratories (illustrated).

## POSTGRADUATE DIARY

EDINBURGH POSTGRADUATE BOARD FOR MEDICINE.—At West Medical Lecture Theatre, Edinburgh Royal Infirmary, Tuesday, Oct. 28, 5 p.m. Mr. J. M. Graham: Obstructive Dyspnoea.

EDINBURGH ROYAL INFIRMARY.—Thursday, Oct. 30, 4.30 p.m. Honyman Gillespie Lecture by Dr. W. Ritchie Russell: Traumatic Amnesia.

INSTITUTE OF DERMATOLOGY, 5, Lisle Street, Leicester Square, W.C.—Tuesday, Oct. 28, 5 p.m. Dr. Muende: Pathological Demonstrations. Thursday, Oct. 30, 5 p.m. Dr. H. MacCormac: Occupational Dermatitis.

INSTITUTE OF LARYNGOLOGY AND OTOTOLOGY, 330-2, Gray's Inn Road, London, W.C.—Tuesday, Oct. 28, 4.30 p.m. Mr. Terence Cawthorne: Surgical Treatment of Deafness.

LONDON CHEST HOSPITAL, Victoria Park, E.—Friday, Oct. 31, 5 p.m. Dr. N. Lloyd Rusby: Recent Advances in the Diagnosis of Pulmonary Tuberculosis.

The Royal College of Obstetricians and Gynaecologists (58, Queen Anne Street, London, W.) has arranged a postgraduate course of advanced lectures for those studying the special practice of obstetrics and gynaecology to be given in the College House from Monday, Nov. 17, to Friday, Nov. 21, at 5 p.m., both dates inclusive. The fee or the course is £2 2s. (10s. 6d. for a single lecture). A small number of tickets will be available free of charge to Fellows and members of the College and will be allotted in order of application. There will be no admission without tickets, which are obtainable from the secretary.

## APPOINTMENTS

As a result of a reallocation of duties, the Secretary of State for Scotland has appointed Mr. N. D. Walker of the Department of Health for Scotland to be a member of the Central Midwives Board for Scotland in place of Mr. T. A. Greig of that department.

Prof. F. E. Tylecote, M.D., F.R.C.P., J.P., has been elected a member of the Central Midwives Board, on the nomination of the Association of Municipal Corporations.

Sir Alexander Macgregor, M.D., LL.D., has accepted the Secretary of State for Scotland's invitation to become chairman of the Western Regional Hospital Board in place of Prof. E. P. Cathcart, M.D., R.S., who asked to be relieved of the appointment on account of health.

Sir Alexander Macgregor was medical officer of health for the City of Glasgow from 1925 until his retirement in 1946. He is at present chairman of the Scientific Advisory Committee.

James Barclay Ewen, M.D., D.P.H., has been appointed Senior Administrative Medical Officer of the East Anglian Regional Hospital Board.

Dr. Ewen is Principal Assistant Medical Officer (Hospitals Section) of the Middlesex County Council.

William Alexander Ramsay, M.D., has been appointed Senior Administrative Medical Officer to the Sheffield Regional Hospital Board.

For the past fourteen years Dr. Ramsay has been medical superintendent of the Imperial Hospital, Manchester.

Charles Lindsay Elder, M.B., Ch.B., D.P.H., has been appointed Medical Officer of Health for Middlesbrough.

BUCKLEY, WILLIAM, M.A., M.B., B.Chir., F.R.C.S., Assistant Thoracic Surgeon, Nottinghamshire County Council and Nottingham City Council.

CANADIAN RED CROSS MEMORIAL HOSPITAL, Taplow, Maidenhead, Berks.—Director of Research Unit (Juvenile Rheumatism): Eric Bywaters, M.B., M.R.C.P. Director of Department of Pathology: L. E. Glynn, M.D., M.R.C.P.

JOHNSON, H. D., M.B., B.Ch., F.R.C.S., Honorary Assistant Surgeon, Royal Free Hospital, Gray's Inn Road, London, W.C.

NEWBOLD, J. C., M.A., M.B., B.Chir., F.R.C.S., M.R.C.O.G., Honorary Assistant Obstetrician and Gynaecologist, Royal Hospital, Wolverhampton.

## BIRTHS, MARRIAGES, AND DEATHS

### BIRTHS

BARTON.—On Oct. 4, 1947, at Musgrave Park, Taunton, to Paddy (née Symmers), wife of Dr. Charles Barton, M.B., a daughter—Jane. A sister for Moyra and Ruth.

COLE.—On Oct. 11, 1947, at Trieste, to Kathleen (née Collins), wife of Major P. L. G. Cole, R.A.M.C., a daughter—Jane Ingrid Peirson.

DICKSON.—On Oct. 17, 1947, at Ardcoape Nursing Home, Nunthorpe, Middlesbrough, to Betty, wife of David C. Dickson, F.R.C.S. (Edn.), Upsall Grange, Nunthorpe, a son.

HAIR.—On Oct. 2, 1947, to Doreen (née Bennett), wife of John A. G. Hair, M.B., B.S., D.M.R.E., White Cottage, Camborne, a son.

HALSTEAD.—On Oct. 16, 1947, at Bradford, to Margaret and John Halstead, a son.

PURCE.—On Oct. 10, 1947, at the Haywood Hospital, Burslem, to Eleanor (née Frankel), wife of Dr. James Purce, of The Lodge, Basford, Stoke-on-Trent, a daughter.

REWELL.—On Oct. 4, 1947, at Nuffield House, Guy's Hospital, to Betty Jean (née Willis) and Dr. R. E. Rewell, a daughter—Susan Jane.

WILLATT.—On Oct. 14, 1947, at Bognor Regis, to Dr. Ruth (née Evershed), wife of Dr. J. D. Willatt, a son.

### DEATHS

AYLEN.—On Oct. 12, 1947, at Angmering-on-Sea, Ernest Vaughan Aylen, D.S.O., M.R.C.S., L.R.C.P. (Lieutenant-Colonel, R.A.M.C., Ret.), aged 70.

BEATTY.—On Oct. 16, 1947, at 49, Stafford Road, Weston-super-Mare, James Beatty, M.D., M.R.C.P.

BROWN.—On Oct. 2, 1947, at Lubwa, Chinsali, N. Rhodesia, Rev. David M. Brown, M.D.

DOBSON.—On Oct. 2, 1947, at 75, Liscard Road, Wallasey, Cheshire, Robert Thornley Dobson, M.B., Ch.B.

DODDS.—On Oct. 15, 1947, at Strathaird, Easter Belmont Road, Edinburgh, Mary Janet Dodds, O.B.E., L.R.C.P. & S.Ed.

HOUGHTON.—On Oct. 11, 1947, at Eastbourne, Murtaugh James Houghton, M.R.C.S., L.R.C.P.

KIRK.—On Oct. 9, 1947, at 167, Coniscliffe Road, Darlington, Charles Joseph Kirk, M.B., Ch.B.

LANO.—On Oct. 11, 1947, John Murgatroyd Lano, M.R.C.S., L.R.C.P., of 29, St. Andrew's Villas, Bradford, aged 59.

MACGILLIVRAY OF MACGILLIVRAY.—On Oct. 15, 1947, at Crail, Fife, Angus, MacGillivray of MacGillivray, T.D., C.M., M.D., D.Sc., LL.D.

PEARSON.—Harry Linden Pearson, M.B., Ch.B., of St. Anne's-on-Sea.

PICKERING-PICK.—On Oct. 14, 1947, at Combe Lodge, Chambercombe Park, Ilfracombe, Lawrence Pickering-Pick, M.R.C.S., L.R.C.P.

QUINE.—On Sept. 22, 1947, Albert Edward Quine, F.R.C.S. of Whitstable.

RAWES.—On Oct. 8, 1947, at his home, Charles Kinsman Rawes, M.B., Ch.B., aged 81.

SHARPLES.—On Oct. 11, 1947, at Buxton Cottage, Buxton Lane, Caterham, Surrey, Moses William Sharples, M.B., Ch.B., aged 78.

SMITH.—On Oct. 13, 1947, at Woking, Surrey, Gilbert Johnstoo Smith, M.B., Ch.B. (I.M.S., Ret.), aged 49.

WARREN.—On Oct. 11, 1947, Herbert Henry Warren, M.B., Ch.B., of 24, Goldsmith Avenue, Southsea.

WESTON.—On Oct. 11, 1947, William Gordon Weston, M.B., Ch.B., of 37, Stanhope Gardens, London, S.W., aged 67.

WHITE.—On Oct. 11, 1947, at the County Hospital, Ashton-under-Lyne, Leonard White, M.R.C.S., L.R.C.P.

## EPIDEMIOLOGICAL NOTES

### Poliomyelitis

The decline in the notifications of poliomyelitis 338 (402) and of polio-encephalitis 26 (27) continued in the week ending Oct. 11. Figures for the previous week are shown in parentheses. In London Administrative County notifications were: poliomyelitis 31 (38), polio-encephalitis 3 (3).

There were substantial declines in the notifications of poliomyelitis in Bedfordshire 3 (10), Durham 5 (14), Essex 7 (24), Lancashire 43 (64), Middlesex 17 (28), and Yorkshire West Riding 11 (18); the most important rise was in Derbyshire 13 (5).

Two large-scale inquiries are known to be in progress: one from the Ministry of Health derives its information from certain general and infectious diseases hospitals throughout the country and aims at securing more accurate estimates of the fatality and severity of the disease in the present epidemic; the other, organized by Dr. A. M. McFarlan and other members of the staff of the Public Health Laboratory Service, will be more comprehensive and is concerned with the epidemiology of the disease in selected areas. Although these two inquiries are



separate and should not be confused it will be found that so far as hospitals are concerned the method of tabulation of cases is almost the same for both.

### Cholera in Egypt

Deaths from cholera in the present epidemic in Egypt now number well over 3,000. For the first three weeks of the epidemic the figures given officially each day listed deaths, positive cases, and suspected cases; an abrupt rise in incidence was noted a fortnight ago, when the figures were:

	Deaths	Positive Cases	Suspected Cases
Oct. 10 .. ..	68	141	170
" 11 .. ..	69	180	132
" 12 .. ..	112	216	150
" 13 .. ..	114	238	114
" 14 .. ..	123	358	

Since Oct. 14 "suspected" cases have not been recorded, and the deaths on the four subsequent days were 175, 308, 247, and 279, with between 600 and 700 positive cases each day. On Oct. 20 there were 561 deaths, and 1,022 new cases were notified.

These figures are probably minimal. Nokrashy Pasha, the Prime Minister, has stated that the authorities are being hampered by the failure to report cases. It appears that Alexandria is still free from infection. Cairo has relatively few cases, and the provinces most affected are Sharkia and Dakahlia.

According to the *Egyptian Mail*, credits allotted to the anti-cholera campaign now total £E.1,000,000. The Royal Egyptian Air Force is continuing D.D.T. spraying of certain overcrowded districts in Cairo, and more than 12,000 houses have been individually sprayed with D.D.T. in kerosene. Movement across the Nile has been restricted; railway travel is curtailed, and arrangements are in hand to increase the number of persons inoculated daily to 500,000.

### Cholera and Dysentery in Punjab

In the week ending Oct. 14, according to recent Press reports, 593 people died from cholera and dysentery in East Punjab, as compared with 663 in the preceding week. This is said to correspond to a fatality rate of some 25%.

### Discussion of Table

In *England and Wales* an increase occurred in the notifications of scarlet fever 206, measles 117, acute pneumonia 73, diphtheria 34, cerebrospinal fever 16, and dysentery 10, while decreases were reported in the incidence of acute poliomyelitis 39, whooping-cough 19, and typhoid fever 10.

A small increase in the incidence of scarlet fever was recorded in most areas; the largest rise was Lancashire 78. The notifications of this disease were two and a half times the number recorded five weeks ago.

There was a slight general rise in the notifications of diphtheria; the largest increase was in Durham, where the number of cases rose from 7 to 20. There were no large changes in the local returns of whooping-cough. A small rise in the notifications of measles was recorded in most areas; the largest rise was in Lincolnshire 45.

Of the 12 cases of typhoid 8 were notified in Middlesex, Harrow U.D., where 6 cases appeared in the preceding week. An outbreak of dysentery involving 14 persons was recorded in Durham, South Shields C.B. The only other large returns of dysentery were Lancashire 17 and Surrey 10.

In *Scotland* an increase in incidence was reported for measles 43, scarlet fever 34, and diphtheria 18; a decrease was recorded for poliomyelitis 15. The increase in cases of diphtheria was contributed by Glasgow with a rise from 15 to 29. A general rise in the incidence of scarlet fever occurred throughout the Western area. There were no notable fluctuations in the trend of poliomyelitis.

In *Eire* the chief feature of the returns was an increase of 23 in the notifications of scarlet fever. Notifications of diarrhoea and enteritis remained at the level of the preceding week, while the incidence of measles increased by 13 and the number of cases of diphtheria fell by 7.

In *Northern Ireland* 14 cases of poliomyelitis were notified, compared with 1 in the preceding week. The notifications of scarlet fever increased by 10.

### Week Ending October 11

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,316, whooping-cough 1,043, diphtheria 201, measles 1,639, acute pneumonia 403, cerebrospinal fever 45, acute poliomyelitis 338, acute poliomyelitis 26, dysentery 67, paratyphoid 12, and typhoid 8.

## INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Oct. 4.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1947					1946 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	46	1	15	5	3	32	2	10	2	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Diphtheria .. ..	218	25	55	12	1	319	22	105	44	10
Deaths .. ..	4	—	1	1	—	5	—	—	2	—
Dysentery .. ..	97	8	20	—	1	63	5	35	1	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Encephalitis, lethargica, acute .. ..	1	—	—	—	—	2	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Erysipelas .. ..	—	—	37	6	7	—	—	39	7	3
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Infective enteritis or diarrhoea under 2 years .. ..	85	7	19	84	2	39	3	8	58	1
Deaths .. ..	—	—	—	9	—	—	—	—	16	—
Measles* .. ..	1,256	32	99	130	5	1,781	91	117	52	8
Deaths .. ..	1	—	—	—	—	—	—	—	—	—
Ophthalmia neonatorum .. ..	46	4	7	—	—	80	8	11	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Paratyphoid fever .. ..	16	2	4 (B)	—	—	20	—	2 (B)	—	1 (B)
Deaths .. ..	—	—	—	—	—	2	—	—	—	—
Pneumonia, influenzal ..	330	13	2	3	2	411	21	2	—	1
Deaths (from influenza)† ..	5	1	—	—	1	7	1	1	—	—
Pneumonia, primary .. ..	—	—	135	7	—	—	—	165	16	—
Deaths .. ..	—	18	—	8	10	—	21	—	5	—
Polio-encephalitis, acute ..	27	3	—	—	—	2	—	—	—	—
Deaths .. ..	1	—	—	—	—	—	—	—	—	—
Poliomyelitis, acute .. ..	402	38	95	9	14	23	—	1	4	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Puerperal fever .. ..	—	2	8	—	—	—	2	18	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Puerperal pyrexia‡ .. ..	134	11	14	—	2	163	9	20	4	—
Deaths .. ..	—	—	—	—	—	1	—	—	—	—
Relapsing fever .. ..	—	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Scarlet fever .. ..	1,086	85	215	56	42	1,079	91	218	36	—
Deaths .. ..	1	—	—	—	—	—	—	—	—	—
Smallpox .. ..	—	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Typhoid fever .. ..	12	—	3	3	2	11	3	2	6	—
Deaths .. ..	3	1	—	—	—	—	—	1	—	—
Typhus fever .. ..	—	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Whooping-cough* .. ..	1,086	116	33	42	4	1,311	90	96	31	2
Deaths .. ..	9	3	1	3	—	12	3	1	—	—
Deaths (0-1 year) .. ..	392	49	57	32	8	385	58	55	32	—
Infant mortality rate (per 1,000 live births) ..	—	—	—	—	—	—	—	—	—	—
Deaths (excluding still-births) .. ..	4,207	597	567	140	96	3,914	604	538	185	10
Annual death rate (per 1,000 persons living) ..	—	—	11.8	8.8	—	—	—	11.8	12.0	—
Live births .. ..	8,995	1329	1044	521	252	9,570	1482	1114	431	29
Annual rate per 1,000 persons living ..	—	—	21.0	32.9	—	—	—	22.4	27.6	—
Stillbirths .. ..	204	30	42	—	—	253	33	33	—	—
Rate per 1,000 total births (including stillborn) ..	—	—	39	—	—	—	—	29	—	—

\* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

## Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

### Expression of Placenta

**Q.**—At the Ronnda Bicentenary Congress it was urged that Credé's manœuvre for expressing the placenta should be abandoned. What procedure is now advocated when the placenta is still in utero thirty minutes after delivery, or when there is bleeding due to partial separation of the placenta? And, further, do obstetricians condemn squeezing the uterus to expel blood-clot where there is a steady loss of blood after expulsion of the placenta and the uterus is well contracted?

**A.**—The abandonment of Credé's manœuvre has long been advocated by some authorities, and statements to this effect, touched on in no uncertain terms, are to be found in standard works on midwifery, such as *Principles and Practice of Obstetrics*, by J. B. DeLee and J. P. Greenhill, 1947. All are agreed that the squeezing of the uterus which is involved is conducive to shock, and some will say that it rarely achieves its object—separation of the placenta from the uterine wall. The obvious alternative to Credé's manœuvre is to remove the placenta manually. Whether in the absence of bleeding it is justifiable to do this at the end of half an hour is open to question, but it should certainly be seriously considered at the end of one hour, and at any time before then if the patient's pulse rate begins to rise or she shows signs of impending shock. An alternative when there is no emergency is possibly to inject the cord with saline, although this appears to be effective in only a few cases. If, when the placenta is still partly adherent, haemorrhage occurs, immediate action must be taken, and the alternatives are either to remove the placenta manually or to give an intravenous injection of ergometrine or an intrauterine injection of oxytocin. This was discussed at some length in a reply to a question which appeared in the *Journal* of Aug. 2 (p. 195) and in a letter from Prof. Chassar Moir (Aug. 23, p. 309). The latter pointed out that the intravenous dose of ergometrine should never exceed 0.25 mg. The writer, however, has worked in a hospital where 0.5 mg., and even 1 mg., of ergometrine has been given intravenously almost as a routine by the medical staff for nearly two years, and no member of the medical or nursing staff has ever seen any reaction or ill effect attributable to the drug. It must be admitted, however, that many patients were partly or wholly under the influence of an anaesthetic at the time and so were incapable of recording their sensations. Whether such a large dose is really necessary is debatable, but in emergency it can certainly be given with safety. There is still some difference of opinion as to whether manual removal is preferable to an oxytocic drug, but if the surroundings are unfavourable there is much to be said for the latter. Gentle and cautious squeezing of blood-clot from the uterus would probably not be condemned by most authorities; the amount of force required is much less than in the case of an adherent placenta. Blood-clots, however, cause bleeding by interfering with retraction and contraction of the uterus, and if the uterus is firmly contracted any clot which is expressed comes from the cervix and vagina—where it is doing no harm. When the uterus is relaxing and blood is collecting within, the administration of an oxytocic drug by the intravenous or intrauterine route should be just as efficient as manual squeezing, and possibly more so.

### Marital Phthisis

**Q.**—Is there any evidence to suggest that there is a higher incidence of pulmonary tuberculosis among the consorts of sputum-positive cases of tuberculosis than in the corresponding age and sex groups of the population at large? What literature on this subject can you recommend?

**A.**—So many conflicting reports have been published on this subject that it is impossible to be dogmatic. Fishberg, after quoting many references from the previous literature together

with some of his own figures, concludes that the incidence of marital phthisis is about 3%—amazingly small when the intimacy of contact is considered. On the other hand, Opie and McPhedran, in a study of 133 married couples, found that 20% of the consorts of sputum-positive individuals developed clinically manifest disease. On the whole the evidence shows that the incidence of pulmonary tuberculosis is higher in the consorts of tuberculous individuals than in those of the non-tuberculous. But it is only slightly higher, and there is much evidence to show that prolonged exposure is necessary to produce infection and that the infection which develops tends to be of a benign type. For further references to the literature on this subject consult Fishberg, M., *Pulmonary Tuberculosis*, Kimpton, London, 1932; Opie, E. L., and McPhedran, F. M., *Arch. intern. Med.*, 1932, 50, 945; and Rich, A. R., *The Pathogenesis of Pulmonary Tuberculosis*, Thomas, Springfield, Illinois, 1946.

### Polyuria

**Q.**—What are the probable causes of polyuria in a male, aged 66, with no glycosuria and no physical signs of enlarged prostate, stone, or nephritis? The patient is fairly healthy, but has symptoms of an apparently over-active vagus, with dizziness after rapid change of posture or on climbing stairs. These symptoms have persisted for some years. Blood pressure 140/92 mm., urine normal (except for the quantity and consequent frequency), and haemoglobin 92%. Is it usual for a vagus disturbance to be repeated in the great splanchnic nerve, and, if so, how is the increased production of urine mechanically brought about? Are there any known causes for an unusual vagus activity?

**A.**—It is essential to obtain precise measurements of the daily urinary volume when patients claim to be passing a greater quantity than normal. In most instances their claims are ill founded, and increased frequency of micturition alone is present. If there is a true increase in urinary volume, the quantity of fluid drunk during the day should be measured; some patients acquire habits of drinking amounts of water in excess of their needs. With the exceptions of diabetes mellitus and diabetes insipidus, all other causes of polyuria depend upon impaired kidneys being unable to elaborate a normally concentrated urine. Diabetes insipidus is improbable in a man of 66, particularly as the condition seems to have been static for several years. If he can pass urine with a specific gravity above 1020, significant renal disease is unlikely. In diabetes insipidus a normal specific gravity can be achieved after injection of "pitressin." Investigation along these lines would be required before the question could be answered more exactly.

The cardiovascular symptoms noted are common in those past middle age with some arterial degeneration; they depend upon the diminished readiness with which arterial pressure adjusts itself to postural changes. It is doubtful whether vagus activity plays much part.

### Swabbing Maternity Ward Attendants

**Q.**—What are the generally accepted rules for the swabbing of throats of the attendants of a maternity ward? How often should it be done, and should both nose and throat be swabbed? In addition to *Str. pyogenes* Group A, are any other of the haemolytic streptococci pathogenic? Are any of the staphylococci regarded as pathogenic, especially with regard to pemphigus of the newborn? In the case of a nurse carrying pathogenic streptococci in her throat, how many negative swabs should be asked for, and over what period, before she can work in a maternity ward?

**A.**—Practice varies considerably, and there has been a tendency to relax such precautions since chemotherapy has so greatly lessened the dangers of puerperal fever. Strict control demands swabbing of all personnel before employment, at regular intervals thereafter (every two or three months), and following any upper respiratory tract infection. Nasal swabs as well as throat swabs are necessary; the nasal carrier is much the more dangerous. Although puerperal fever, and even septicaemia, are occasionally due to streptococci of other Lancefield groups than A, it is usual to disregard carriers of any but Group A, since this causes the great majority of serious cases of puerperal fever and is almost always concerned when

the disease occurs in epidemic form. The significance of a negative finding in a swab from a previous streptococcus carrier varies with the degree of skill with which the swab is taken and examined, and with the nature of the carrier state—whether symptomless or accompanied by catarrh or tonsillar hypertrophy. In the absence of any visible lesion a single competent negative swab should suffice.

*Staphylococcus pyogenes aureus* (recognized as pathogenic by the coagulase test) is the cause of pemphigus in infants, and multiple nasal carriers among maternity home staffs are its usual source. This subject was exhaustively dealt with in the *Journal* recently (see article by V. D. Allison and Betty C. Hobbs, July 5, p. 1).

### Over-possessive Women

**Q.**—Is there any recognized psychosis or neurosis which corresponds to the ancient idea of "possession by evil spirits"? Having lately come across more than one pathologically possessive woman, I am tempted to formulate the following generalization: "A possessive woman is a woman possessed." In extreme forms the condition would seem fraught with potential evil both to the patient and to those about her.

**A.**—Under "possession by evil spirits" the ancients must have understood a number of different syndromes, which certainly included epilepsy and hysteria, and probably others such as schizophrenia, mania, and melancholia. No modern concept exactly corresponds. It is true that the over-possessive woman can wreak havoc with the lives of others, especially husband and children. She is nearly always enabled to do so by meeting inadequate resistance from those who are "possessed." Her victims are commonly persuaded of the justice of her claims, but much may often be done by the trusted medical adviser to induce a healthier and more realistic attitude. He is in a particularly favourable position to do so if, as is often the case, she maintains her claims by representing herself as an invalid. It is rare that the "disease" is one of a single person; more usually it is a disordered relationship between two or several persons. Despite the malignant effects of such disorders, a psychotherapeutic attack is often possible.

### Chronic Prostatic Infection

**Q.**—While in the Forces a male aged 24 years contracted a *Bacterium coli* urinary infection, starting with orchitis. No history of V.D. or risk. He has spent months in hospital, and has now been discharged as incurable on sulphathiazole 0.5 g. thrice daily. He has been told that the infection is in the prostate and surgical removal might be the only cure. Shortly after stopping the drug the urine becomes foul and the patient feels ill. Can he with impunity continue to take the recommended dose of sulphathiazole indefinitely, and what alternative treatment do you suggest?

**A.**—It is a little pessimistic to regard a persistent infection of the prostate as being incurable. There are a few cases only which require surgical treatment in the way of perineal drainage for an abscess cavity in the parenchyma of the prostate. The great majority of such cases finally clear up with prolonged courses of prostatic massage, posterior irrigation, and the use of the sulphonamides. Sulphathiazole should not, of course, be continued indefinitely, but in separate courses of treatment resumed at intervals.

### Vaccination of a Nursing Mother

**Q.**—If a nursing mother is vaccinated, what effects may this have on the child? Recently I vaccinated a mother, and within a week the baby had thirty or forty papules not unlike those of chicken-pox on its body. The mother blamed the vaccination.

**A.**—It is probable that following the development of immunity as a result of vaccination of the mother there will be some passive transfer of antibody to the infant. It would be possible for a vaccinated mother to infect her child with vaccinia as soon as a lesion appeared at the site of vaccination. The diagnosis of vaccinia in the child (or any vaccinated subject) can be readily confirmed in a virus laboratory by inoculation of material on to the chorio-allantoic membrane of the developing chick embryo.

### Sterilization of Syringes and Specula

**Q.**—Is it possible to sterilize a spinal needle satisfactorily without an autoclave? What is the best solution for sterilization by prolonged immersion of syringes and specula for ordinary surgery use? I find that liq. borac. et formaldehyde (N.W.F.) ruins the hands if it touches them; and 5% liq. chloroxylenol in surgical spirit forms a most adherent and obstinate precipitate.

**A.**—The best method is to place in a dry oven at 150°C. for 1 hour. A less satisfactory alternative, but far better than the use of chemicals and subsequent rinsing in water, is boiling. A Record syringe cannot be sterilized chemically (for authority for this statement and general instructions on the subject see "The Sterilization, Use, and Care of Syringes," Medical Research Council War Memorandum No. 15, H.M.S.O., 4d.). A speculum should not be so difficult to sterilize, and could be freed of ordinary bacteria by any efficient disinfectant solution, including either of those mentioned, 2% lysol, or spirit. Disinfectants should not be condemned for such a purpose because they affect the skin; articles should be removed from them with forceps. Needless to say, for the patient's sake they need rinsing before use, and all such methods, properly carried out, are really more troublesome than boiling.

### NOTES AND COMMENTS

**Short-stay Hostel for the Aged and Infirm.**—The old and infirm are often nursed at home by their own relatives. Old people who are becoming "difficult" may be more exacting in their demands on relatives than they would be to strangers or nurses. A recent and helpful development in connexion with this recurrent problem is the provision by the Red Cross of a hostel where elderly men and women, ambulant or bedridden, can stay for a fortnight or more, while their relatives have a rest or a holiday. Their own general practitioners can visit them as often as they wish, and their own callers may come on any afternoon, and on two evenings a week. The house, a gift to the Red Cross, is of moderate size, with a fairly large garden, a lawn, and some fine trees. There are pleasant rooms, airy and sunny, with wards on the ground floor containing six beds apiece, and a comfortably furnished sitting-room with a wireless.

A fully qualified sister is in charge, with four helpers for day duty, and at night there are three on the premises, of whom one is a qualified nurse. In this hostel none of the staff lives in, but this is not a feature which need necessarily be copied elsewhere. At the same time it should be realized that many types of hospital, hostel, and institution are finding that the employment of non-resident staff is the only answer to the problem of recruitment. The running cost of this hostel varies from time to time, but it has usually worked out at rather more than £4 per head a week, a moderate amount compared to the maintenance cost of hospitals. Visitors usually pay £3 10s. a week, and the balance is found by the Red Cross. Schemes of this kind are obviously deserving of support, and it may be that every county should set up some similar scheme.

**Correction.**—Owing to a printer's error the name of Mr. Keit Vartan was unfortunately misspelt in the review of *The 1946 Year Book of Obstetrics and Gynaecology* in the *Journal* of Oct. 1 (p. 615).

### INCOME TAX

All inquiries will receive an authoritative reply but only a selection can be published.

#### Retirement—Subsequent Receipts

**A. D.** asks whether he is liable for income tax on money earned before but collected after retirement.

**\*\* A. D.** has presumably been assessed in past years on the "cash receipt" basis. If, as is usually the case, such receipts have been year by year a fair index of the gross value of the booking—and assuming that this is true of the last year before retirement—no tax is due in respect of post-retirement receipts.

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Anticlerical Westcent*, London. ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* since Authors desiring REPRINTS should communicate with the Publishing Manager, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs. ADVERTISEMENTS should be addressed to the Advertisement Manager, B.M.A. House, Tavistock Square, London; W.C.1 (hours 9 a.m. to 5 p.m.) TELEPHONE: EUSTON 2111. TELEGRAMS: *Brimmedads, Westcent*, London. MEMBERS' SUBSCRIPTIONS should be sent to the SECRETARY of the Association, EUSTON 2111. TELEGRAMS: *Mediseca, Westcent*, London. B.M.A. SCOTTISH OFFICE: 7, Drumshugh Gardens, Edinburgh.

# SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY OCTOBER 25 1947

## PUBLIC HEALTH COMMITTEE

At the last meeting of the Public Health Committee for the new session, held on Oct. 10, Dr. James Fenton was re-elected to the chair. Among the resolutions of the Annual Representative Meeting referred to the committee by the Council was one on safe milk. It was reported that the Ministry of Food had appointed a committee to examine the question of distribution of milk from farm to consumer. The resolution of the A.R.M. was forwarded to the Ministries of Food, Health, and Agriculture. The opinion of the committee was sought by the Secretary of the Association on the recent change whereby, if and when an infant was turned over to artificial feeding, the previous allowance of two pints of milk a week which had been given to the mother was regarded as henceforth belonging to the child, and the mother was left with only the normal adult ration. The view of the committee was that there was a medical case for the continuance of the extra allowance to the mother up to six weeks after confinement in addition to the child's allowance.

It was reported that certain of the associations of local authorities, including the Urban District Councils Association and the Association of Education Committees, had already ratified the agreement arrived at concerning the new revision of the Askwith memorandum, and that other bodies were likely to ratify it shortly.

A question had been raised about the effect of the Education Act on the remuneration of medical officers of health of boroughs and urban districts which as a result of the Act had lost the duties of an education authority, although exercising education functions. In such areas the medical officer whose duties include school medical work continues to have substantially the same responsibility in this respect as he had when the authority was a local education authority before the passing of the Act, yet, strictly speaking, it might be held that his appropriate minimum commencing salary should be on the lower scale set out in the Askwith memorandum. The Advisory Committee concerned with medical officers' salaries, which had been consulted on this point, took the view unanimously that the principle of the usual "non-worsening" or "no detriment" clause should be applied.

### Representation on Local Health Committees

The matter of co-optation of representatives of the medical profession on local health committees arose from a town in the West, where it has been decided to elect a health committee of 30, twenty to be members of the council. Of the ten other members the Division had been requested to nominate one practitioner for co-optation, and the Division felt that one co-opted member would not afford proper representation and that at least three, nominated by a full meeting of the local profession, should serve.

From discussion in the committee it appeared that in this respect the practice of local authorities differed considerably. In one large city the council had refused to have any doctors serving on the health committees unless they were elected members of the council. In a county council the one medical member had not been placed on the health committee.

It was agreed to advise the Division to accept the one seat offered, without prejudice, and to leave it to the Negotiating Committee to raise the general issue with the Minister.

### Other Business

A letter from a divisional secretary drew attention to the fact that in public advertisements advising diphtheria immuni-

zation no mention was made of advice being sought from the patient's own doctor. The advertisements apparently issue from the Central Office of Information, and a possible reason for the absence of any mention of the family doctor is that the posters state that "immunization costs nothing," whereas some local authorities have not yet made arrangements for practitioners to carry out immunization free of charge to their patients. It was agreed to represent to the Ministry of Health that the line hitherto followed by the Central Council for Health Education (whose excellent propaganda work in this field seems to have been taken over by the Central Office, a Government body) is no longer followed.

The committee agreed to support, by a recommendation to Council, the protest of the Medical Women's Federation against the inclusion of an automatic marriage bar in appointments of medical women to public health and hospital posts.

In view of the recent Ministry of Health instruction which ended the power of local authorities to make up civil remuneration of members of their staffs called to the armed Forces, it was agreed to make representations to the Government about the problems which will arise on the calling up for national service of practitioners of older age who are on the staffs of local authorities. An instance was mentioned of a medical officer of health, aged 38, with wife and family, who was shortly being called up.

## HOSPITALS COMMITTEE

A meeting of the Hospitals Committee of the Association was held on Oct. 8. Mr. R. L. Newell was re-elected to the chair for the session; he was also elected to represent the committee on the Public Health Committee. The various matters relating to hospitals which had been the subject of resolutions or references at the Annual Representative Meeting were considered and instructions given for appropriate action. Reports were made of two meetings of the British Hospitals Association and the B.M.A. Liaison Committee, at which the remuneration of visiting staffs of voluntary hospitals had been discussed as well as other matters, such as the Ministry of Health Working Parties.

The committee considered a letter from the Nuffield Provident Guarantee Fund concerning the schedule of surgical operations and special services agreed upon some time ago with the Association. It had been felt on the Association side that the classification required some amendment, and the Fund asked what revision was considered essential and also whether an age limit of 65 would be suitable. It was agreed to set up a joint committee from the Hospitals and the Consultants and Specialists Committee to undertake the detailed examination of the schedules.

### The Elderly Patient

Arising out of the recent report entitled *The Care and Treatment of the Elderly and Infirm*, Dr. W. S. Macdonald suggested that consideration should be given to the importance of liaison between the hospital services and the individual general practitioner concerned with the elderly hospital patient. He said that the whole question of hospital accommodation for the elderly was likely to force itself very quickly upon all sections of the medical profession. Owing to the extreme nursing shortage, it was very desirable to institute some further co-operation between general practitioners on the one hand and hospital staffs on the other in order to get suitable cases into suitable hospitals and also to secure their discharge into proper care when hospital treatment was no longer necessary. This would

be in most cases a less difficult matter to arrange because of the existence of a good district nursing service.

Other members of the committee spoke of the seriousness of the problem of the elderly patient as they experienced it, one member saying that hospitals were "littered" with patients of 65 and over in whose case there was no social or family responsibility to get them out of hospital. Another spoke of a group of 26 elderly female patients, 15 of whom were remaining in hospital simply because there was nowhere else for them to go.

It was considered that this was a matter on which the Regional Hospital Boards and Executive Council must get together. The general practitioner working together with the hospital staff might, as a result of his influence in the homes of the people, help alike the hospitals and the old persons concerned. It was agreed that two members of the committee should write a memorandum formulating positive suggestions which would be considered at the next meeting.

#### Recruitment of Nurses

The committee next considered the report of the Working Party on the recruitment and training of nurses. The chairman said that this was an excellent document and embodied some of the points which the Hospitals Committee had itself recommended. A Scottish member pointed out the unfortunate effect of the migration of young women from Scotland to England or to the Dominions or the U.S.A. In this way about 100,000 had been lost, enhancing the marriageable value of those remaining, and making the position of nursing recruitment in Scotland far more difficult.

A point considered by the committee was the use of male nurses in male wards, but it was realized that if general nursing was thrown open as a profession to men it must offer them a career, and that posts equivalent to those of sister and matron must be attainable. It was the general experience that a number of the men who had come out of the Forces, having had some nursing training, showed great ability in this field. At the same time the view was put forward that the average male patient expected a woman's attendance and that a ward staffed entirely by men might be lacking to some extent in comfort; at all events there was a psychological element in the situation. One member said that his experience was that male patients preferred male orderlies, and another that in an operating theatre staffed entirely by men he had found first-class efficiency. The major difficulty appeared to be residential accommodation.

#### MEDICAL PRACTICE IN NEW ZEALAND

The New Zealand Branch of the British Medical Association is being inundated with letters from medical practitioners in the United Kingdom and India inquiring about the prospects of practising in New Zealand. Indeed, if every practitioner who has inquired this year were to go to New Zealand, writes a correspondent, the number of the profession in general practice would be doubled. Our correspondent points out that the medical profession in New Zealand is already overcrowded. The graduates from the medical school are considerably in excess of annual requirements, salary and income levels are on the whole 40% lower than those of England and India, houses and rooms from which to practise are almost unobtainable, and education for children is not of the type that is generally expected.

A few practices are available for purchase each month, but they are mostly in isolated rural districts, or mining or Maori areas. City or medium town practices cost from £5,000 to £8,000 (including property) and country practices from £2,000 to £6,000; sums as high as £13,000 are being paid. Motor-cars are also expensive and difficult to obtain, waiting lists for new cars imposing a delay of eight to eighteen months. Owing to the small population opportunities for specialist practice are few, and most specialists also engage in general practice. Immigrants who desire to specialize "would encounter extreme difficulty," and it would be unwise for anyone to go to New Zealand anticipating employment in a hospital, for difficulty has already been experienced in placing the country's own ex-Service men.

Our correspondent concludes by saying that those who have £6,000 capital and some private income will be reasonably certain of being able to settle into practice after a period of months but there is little prospect of there being any earnings in the first six months unless arrangements for employment are made before leaving England. Holders of diplomas in public health or psychiatry might obtain posts as tuberculosis officers, district officers of health, school medical officers, or mental hospital officers, at a salary of £700 to £800. A few hospital posts are also available for highly qualified radiologists at a salary of about £1,200. The New Zealand Branch of the B.M.A. is extremely reluctant to advise any practitioner to go to New Zealand at present, and it can do little to assist those who go to the country against advice and then encounter difficulties.

#### HEARD AT HEADQUARTERS

##### Filling up the Ranks

The membership of the Association is steadily approaching 60,000. In September it stood at 57,300, a net gain of 1,700 during the last three months. In those three months the resignations numbered only 43, most of them, of course, due to retirement. Exactly ten years ago, at the time of the Belfast meeting, the membership was bordering upon 37,000, so that in this decade of storm and stress, of war and near-war, of change and criticism, the Association has added 20,000 to its ranks, and this despite the loss of South African members consequent upon the setting up of an affiliated Association for South Africa. The membership is now three times what it was at the beginning of this century. The rate of progress, of course, must slow down as the field of recruitment approaches exhaustion, but we do not now hear people say, as they used to do, "The British Medical Association? But it does not represent the whole profession, does it?"

##### Medical Men on Executive Councils

The Gloucestershire Branch has learned with great pleasure that Dr. J. H. Grove-White, of Cirencester, has been elected to the vice-chairmanship of the county Executive Council. Chairmen of Executive Councils are appointed by the Minister, and in most cases presumably will be laymen, and it was thought in Gloucestershire that it would be to the advantage of the Council itself if the chairman had a member of the medical profession. The medical profession cannot command a majority on Executive Councils, because, of the 24 members appointed by the Local Medical Committee will be doctors. But in view of the work these councils are called upon to do it is obviously desirable that a medical man should fill at any rate the vice-chair, and, apart from personal circumstances which might operate in some localities, the members otherwise appointed might be expected to agree. The usual proviso, of course, remains in force that should negotiations with the Minister break down the appointments will end.

##### Protection of Practices

The London Protection of Practices Scheme came to an end with the end of September. It is one of the last schemes to have closed down. Those concerned are able to look back upon a very honourable and timely piece of work. It is good to know that a comprehensive statement of the work done during the war and after will shortly be published. "Statement," however, suggests a bald record, and this enterprise really deserves to be written up with imagination and sympathy as a first-rate chapter in professional history. It represents a duty well discharged, reflecting particular credit upon those who took part in the work of organization—often a very delicate procedure—and upon the general body of practitioners who accepted the obligations.

##### A Popular Edition

Praise is being given in many quarters to the popular edition of the B.M.A. special committee's report on the care and treatment of the elderly and infirm. Under the title of *When You*



are Old, and illustrated by some most attractive photographs, it tells in popular language the story which the report of the committee had already told in the matter-of-fact language of an official document. Those responsible for its compilation were Dr. E. B. Brooke, medical superintendent of St. Helier Hospital, Carshalton. Dr. Marjory Watren, deputy medical director of West Middlesex Hospital, both of them members of the committee, and Dr. A. Macrae, Assistant Secretary of the Association and the committee's secretary.

### The Marriage Bar

The question of the marriage bar to employment came forward at the last meeting of the Public Health Committee when the Medical Women's Federation asked the Association to join in a protest against the continuance of the marriage bar rule in the Glasgow Corporation and the Northern Ireland Government. The public health authorities in those areas continue to enforce a marriage bar against their medical women employees. Surely the question at issue ought only to be the efficiency of the medical officer. It is true that interruption of service caused by childbirth may arise, but this affects only the earlier years of marriage, and as against any temporary drawback of this kind there is the enrichment which the experience of motherhood ought to give. A recommendation will go from the Public Health Committee to the Council with a view to transmission to the Representative Body that it should reaffirm the view that there should be no automatic marriage bar in the terms of agreement for a medical woman's employment.

### Nurses' Training Schools

The withdrawal by the General Nursing Council of approval from certain nurses' training schools on the ground that the bed capacity or daily bed-occupancy of the hospital falls below an average which the G.N.C. has fixed is causing much difficulty in some quarters. Under the Nurses Registration Act, 1919, any person aggrieved by the refusal of the General Nursing Council may appeal to the Minister of Health, and if the Minister decides in his favour the council is required to comply with the direction given. In the cases so far brought to its attention the Ministry has suggested that action might be taken by the hospitals themselves in the way of amalgamation for training purposes. In the Hospitals Committee the other day it was stated that the Members of Parliament in whose constituency there are hospitals similarly situated are conferring with a view to forming a parliamentary group to approach the Minister and if necessary raise the matter on the adjournment—practically the only opportunity a Member of Parliament now has of bringing forward a matter of public importance.

### Stubborn Geography

The author of *Hudibras* 300 years ago was not forecasting the Regional Hospital Boards when he wrote that "some force whole regions, in despite o' geography, to change their site," but the Regional Boards for Lancashire and for Wales seem likely to have to do a bit of forcing, because administrative arrangements and geographical considerations do not fit. Wales, naturally, desires to retain its administrative integrity in any hospital scheme, but there is the obstinate barrier between North and South Wales, and North Wales has been based on the teaching centre of Liverpool. It is stated that practitioners in North Wales wish to continue the association of that area with Liverpool; on the other hand, specialists resident in North Wales are actively opposed to the continuance of the Liverpool-North Wales alliance. There is, of course, a natural objection to having any such rule as that senior appointments must be made from one particular city, but the circumstances are difficult. The Act states that the Minister shall secure that each regional hospital area is such "that the provision of the said services in the area can conveniently be associated with a university having a school of medicine."

### RELEASE OF MEDICAL OFFICERS FROM THE R.A.F.

The Central Medical War Committee has been informed by the Air Ministry that Royal Air Force Medical Officers in age and service group 64 will be made available for release in December, 1947.

## Correspondence

### Working Hours in the N.H.S.

SIR,—As Dr. W. R. Henderson (*Supplement*, Oct. 4, p. 83) has seen fit to label me as an "elderly fifth-columnist" and a "sanctimonious humbug" for objecting to a State-controlled rota system, may I have a little more of your space to set out my reasons for so doing? If I can help at the same time to lay the boggy of the "24 hours a day, 7 days a week" which seems so to horrify some of your correspondents (I suspect that the more vociferous have never experienced it), so much the better.

I have in my time put in some twelve years in a Government medical service, and for the last fifteen years have run a busy country-town practice, swollen during a good part of the recent war to over 12,000 patients. I hope to continue to do so, provided I am allowed, for a good many years yet. I manage to get a reasonable amount of time off by deputing such work as I cannot or do not wish to do to a brother practitioner without quitting my responsibility to the patient, who recognizes him as my agent.

The crux of the matter lies in calls "out of office hours." These fall into three categories:

(a) *The Trivial*.—My patients recognize that I am a busy man and are usually considerate. If not, they know me well enough to accept a rebuke in good part. If they knew that a doctor were specially detailed to cover the unusual times of day, they would, being only human, try to get their money's worth under the new Act by insisting on being seen at their own convenience, not the doctor's.

(b) *The Borderline Case*.—Knowing as I do the background and history of most of my patients I can often solve or safely defer this type of call over the telephone or by messenger. This could not be done by a rota doctor not equipped with such knowledge.

(c) *The Serious Case (Surgical, Midwifery, etc.)*.—I have a contract, actual or implied, to look after such cases personally or by a deputy I trust, nor would I have it otherwise. From the selfish angle, they include most of what is interesting in my work, and I do not relish sharing them with another not of my choosing.

To put it in a nut-shell, I value the independence of my relations with my patients above whatever inconvenience I may thereby be caused.—I am, etc.,

Beccles, Suffolk.

C. GRANTHAM-HILL.

### Buying and Selling of Practices

SIR,—Dr. S. H. Stewart (Oct. 11, p. 89) wishes to know why the buying and selling of practices takes such a prominent part in the negotiations. His letter is wholly irrelevant to the true point at issue, which is that if the Government is allowed to become the owner of all private practice in England then *ipso facto* the medical service becomes a State service completely, absolutely, and irrevocably. Our independence will have been sacrificed to a soulless machine governed by ex-miners, trade unionists, self-seeking politicians, or even Marxians, according to the political complexion of the Government in power. It is essential that we fight this proposal, however attractive it may appear on the surface, with all the resources at our disposal, if we hope to maintain our traditional status and dignity.—I am, etc.,

Histon, Cambridge.

A. E. MOORE.

### PHARMACY AND POISONS ACT, 1935

Attention is drawn to the Notice published in the *London and Edinburgh Gazettes* dated Oct. 14, 1947, of the Secretary of State's intention to make Rules amending the Poisons Rules, 1935. Any representations in regard to the amending Rules should be made in writing to the Under-Secretary of State, Home Office, St. Stephen's House, Victoria Embankment, London, S.W.1, not later than Nov. 24. A copy of the proposed amending Rules may be obtained from Room 132 at the same address.

## TRADE UNION MEMBERSHIP

The following is a list of local authorities which are understood to require employees to be members of a trade union or other organization:

**County Borough Councils.**—Barnsley, Gateshead. (Barrow-in-Furness have now decided that their trade union membership resolution shall not apply to medical officers.)

**Metropolitan Borough Councils.**—Finsbury, Fulham, Hackney, Poplar.

**Non-County Borough Councils.**—Dartford, Leyton, Radecliffe (limited to future appointments), Tottenham, Walsend.

**Urban District Councils.**—Denton, Droylsden, Houghton-le-Spring, Huyton-with-Roby, Portslade, Redditch (restricted to new appointments), Stanley (Co. Durham), Tyldesley.

**Scottish Burghs.**—Motherwell and Wishaw.

## Association Notices

## B.M.A. LIBRARY

The Association's Library is to be transferred from its present accommodation in the main building at B.M.A. House to the first and second floors of the Garden Court wing. To facilitate the removal the Library will be closed from 12.30 p.m. on Saturday, Nov. 1, until 9.30 a.m. on Monday, Nov. 17.

Diary of Central Meetings  
OCTOBER

29. Wed. Council, 10 a.m.

## Branch and Division Meetings to be Held

**BATH, BRISTOL AND SOMERSET BRANCH.**—At Royal United Hospital, Bath, Wednesday, Oct. 29, 8.30 p.m. Annual General Meeting, Presidential address.

**BIRMINGHAM: CENTRAL DIVISION.**—At 154, Great Charles Street, Birmingham, Tuesday, Oct. 28, 8.15 p.m. Clinical meeting conducted by Dr. Ernest Bulmer.

**BOURNEMOUTH DIVISION.**—At Burlington Hotel, Owls Road, Bournemouth, Friday, Nov. 21, at 7.30 p.m. for 7.45 p.m. Annual dinner. Owing to the limitation to less than 100 persons at public dinners, early application for tickets should be made to the honorary secretary, Dr. N. Ross Smith, 9, Poole Road, Bournemouth.

**CLEVELAND DIVISION.**—At Middlesbrough General Hospital, Thursday, Oct. 30, 2.30 p.m. Address by Mr. Bryan Williams: The Conduct of Pregnancy and Present-day Antenatal Work. To be followed by x-ray and cine-film demonstration.

**MID-ESSEX DIVISION.**—At Chelmsford and Essex Hospital, Sunday, Nov. 2, 10 a.m. Dr. Richard Price: Staphylococcal Skin Affections.

Meetings of Branches and Divisions  
EAST AFRICAN BRANCHES

The business meeting was held on the afternoon of Sept. 5 at Mulago Hospital, with Dr. A. J. Boase, President, Uganda Branch, in the chair. An account of other features of the Interterritorial Meeting appears at p. 665 of this issue of the *Journal*. There being agenda on submitted resolutions, a discussion on conditions

Africa was opened by Dr. J. Scott Brown. He said that from his experience with medical officers in Uganda he knew that many were faced with the conditions of service. Briefly, the so-called "grievances" (though he disliked the word) appeared to be: (1) that the average district medical officer was called upon to do so much administrative and clerical work that his professional interests suffered, to the detriment of his patients and of his own professional advancement; (2) that the available hospital facilities were primitive in equipment and staff; (3) that the understaffing of the Colonial Medical Service resulted in a regrettable lowering of the general standard of efficiency; (4) that the salaries were inadequate, particularly the normal maximum of each scale; (5) that, while the status of other Civil Servants had steadily improved during the past 20 years, that of the medical officer had deteriorated, not only relatively but actually; (6) that the abrogation of medico-legal fees and the curtailment of private practice had deprived the medical officer of a reward to which he was morally entitled for extraordinary services; (7) that not only was promotion slow, but there was an unwarrantable delay in filling vacancies in senior posts already provided for in establishment.

Formerly there was compensation for some of these disadvantages in the right to private practice and medico-legal fees. To-day the newcomer was denied these rights. Something would have to be done about it, because in a few years' time, when the men who were joining the Service now would have the problems of a family and its education to face, they would find their salaries inadequate for the purpose. They were, however, fortunate in having some kind of an organization to which most of them belonged—the

B.M.A. For many years the B.M.A. had apparently taken little interest in the affairs of the Colonial Medical Service—judging from results and from the many bitter criticisms of the Association from serving officers. At home, he believed, the Branch Councils consisted of men with more knowledge than the average of how affairs should be conducted, but in the Crown Colonies he doubted if this was so. The Branch Council was usually recruited from hospital clinicians and laboratory workers, whose interest was predominantly concerned with their work. The important office of secretary tended to be wished on to some junior new arrival. On the whole these officers had a congenial occupation, amenities, and consulting practice, and were reasonably contented with their lot, for which reasons they were not likely to start and sustain any campaign for the relief of "grievances" in the Service generally.

As regards H.Q. in London, he could only give sketchy impressions gained through representing the Uganda Branch on two occasions at the A.R.M., from both of which he came away with the feeling that any mention of grievances or dissatisfaction by a Colonial Servant was liable to be brushed aside as a trifling nuisance. His opinion had been that B.M.A. H.Q. had been defeatist in their attitude to the Colonial Office and that they had not been deeply concerned with anything outside the U.K., certainly not in the Crown Colonies. He did not think that the B.M.A. had no other function than to redress the grievances of its members, but none of its functions could operate properly unless its machinery was in good order. The aims, objects, and ideals of the B.M.A. were sound, but he believed that its machinery as it functioned in relation to Crown Colonies was definitely in need of an overhaul.

So far he had criticized the B.M.A., but some thought must be given to the authorities with which the B.M.A. had to deal. Gathering together these rather disconnected ideas, he was forced to the opinion that doctors in the Colonial Medical Service had need now of protection and that their only hope lay in the B.M.A. Further they would have to help themselves. If the machinery was wrong let them put it right. He proposed that an endeavour be made to develop a close liaison between the different Branches in each group of the Crown Colonies. It should be possible, and it would certainly be helpful, for every Branch in East Africa to send copies of their minutes to every other Branch and in the same way to exchange copies of all correspondence to and from H.Q. in London. If this were done, matters of common interest would soon become apparent, and they could iron out differences and develop their ease. Giving the Crown Colonies a section of their own with appropriate and active representation at the "highest level" a H.Q. was a good move. "Do not let us delay unduly in assessing what grievances we have, if any, and in deciding what to do about them, if anything, remembering that in unity lies strength."

On behalf of the Council of the Uganda Branch, Dr. Davie proposed the following resolutions:

(1, seconded by Dr. McKenzie, Tanganyika) That closer co-ordination between the East African Branches of the Association is essential and that the Branches should take steps in this matter and should seek assistance from the parent body.

(2, seconded by Dr. Scott Brown) That this meeting requests the Council of the parent body to send to East Africa from time to time a secretary to assist the Branches, and particularly to assist the Branches in the discussions which will be needed consequent upon the report of the East African Salaries Commission.

(3, seconded by Dr. Carman) That this meeting fully endorse the view of Council as stated in Minute 134 of the Council's Report to the Annual Representative Meeting 1946-7.

(4, seconded by Dr. Raper, Uganda) That this meeting state that the salaries paid to members of the Colonial Medical Service should be based upon the Spens Report plus an expatriation allowance.

All were carried *nem. con.*

## H.M. Forces Appointments

## COLONIAL MEDICAL SERVICE

The following appointments have been announced: E. G. I Butler, M.B., B.Ch., Medical Officer, Tanganyika; S. C. Ferguson, M.B., B.Ch., Medical Officer, Nigeria; A. B. G. Laing, M.B., L.R.C.P.S.I., Medical Officer, Malaya; T. L. McCullagh, M.B., B.S. Ch.B., Medical Officer, Malaya; J. R. Murley, M.R.C.S., L.R.C.P., Medical Officer, Aden; A. Etmayer, M.B., Ch.B., Medical Officer, British Somaliland; N. A. St. C. Marley, L.M.S.S.A. Officer, Windward Islands; J. P. Murray, M.B., B.Ch., and H. I. Medical Officer, Jamaica; J. P. Murray, M.B., B.Ch., and H. I. Medical Officer, House Doctors, King Edward VII Hospital, Malaya; H. B. Taylor, M.B., Ch.B., District Medical Officer, Bahamas; T. Thornton, F.R.C.S., Surgeon, Specialist, Palestine; J. E. O'N. Gillespie, M.D., Specialist (Physician), Cyprus; A. Howell, M.R.C.S., L.R.C.P., Deputy Director of Medical Service, Northern Rhodesia; J. H. Pottinger, M.B., Ch.B., Senior Medical Officer, Nigeria.

**Correction.**—Referring to a dispute between the North of England Branch of the Association and the officers of the National Union of Mineworkers, we reported in the *Supplement* of Oct. 18 (p. 9) that the Branch had sought an increase in the payments under its scheme by 1s. 6d. a fortnight for each family for medical attendance. This should have read "an increase to 1s. 6d. a fortnight."

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## ALL THE VITAMINS

BY

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**Q.**—Please give a list of vitamins with all their different names and with notes on the signs and symptoms of deficiency.

**A.**—The answer would take more space than can be allowed in "Any Questions?" and at the request of the Editor the following article has been contributed.

The vitamins which so far have been shown to be needed by man, or to be of undoubted clinical significance, are the following: vitamin A; vitamin B<sub>1</sub>, three components of the vitamin B<sub>2</sub> complex—namely, nicotinic acid, riboflavin, and folic acid—vitamins C, D, and K, together with several different forms and modifications of most of them.

The significance of some other vitamins for human nutrition is still somewhat uncertain: these include two additional "B<sub>2</sub> vitamins" (biotin—vitamin H—and choline), and also vitamins E, F, and P.

A third group of vitamins comprises those which have so far been demonstrated only by means of animal experiments. These consist of four vitamins of the B<sub>2</sub> group (vitamin B<sub>6</sub>—pyridoxin—pantothenic acid, inositol, *p*-aminobenzoic acid). The vitamins will be described in three groups in the above order.

### I. Vitamins Needed by Man

#### Vitamin A

These include vitamin A proper (otherwise called vitamin A<sub>1</sub> or xerophthol) and the principal provitamin,  $\beta$ -carotene. There are several other forms of vitamin A—namely, vitamin A<sub>2</sub>, anhydro-vitamin A, subvitamin A—and several other active carotenoids also serve as provitamins in addition to  $\beta$ -carotene—for example,  $\alpha$ - and  $\gamma$ -carotene, kryptoxanthine, leprotene, echinenone, myxoxanthine, aphanene, aphanicene—but none of these have any special medical interest. The signs and symptoms of deficiency of vitamin A may include: diminished powers of dark adaptation (this is the earliest and most delicate diagnostic sign), progressing to night blindness; xerosis and keratinization of various membrane tissues, giving rise to a liability to local infections; a keratinized follicular papular eruption in the skin; xerotic changes in the conjunctiva and cornea (best detected by slit-lamp inspection or examination of corneal scrapings for keratinized cells), leading to "Bitot's spots" and to xerophthalmia and, in advanced cases, keratomalacia. In experimental animals other changes observed in deficiency include renal calculi, degenerative changes in the central nervous system, periodontal hyperplasia, overgrowth of bone, failure in reproduction, and of course impaired growth rate. (Among

the first signs of inadequate intake, of this or any other vitamin, is poor growth.) The best sources of vitamin A include halibut-liver and cod-liver oils, mammalian liver, and milk (or fortified margarine); as carotene it occurs abundantly in green leafy vegetables and in carrots; eggs and butter contain both carotene and vitamin A. The League of Nations standard of requirement is 3,000 i.u. (1 i.u.=0.6 microgram of  $\beta$ -carotene), but carotene is only about one-half or one-third as well utilized by the animal body compared with an equal amount of vitamin A.

#### B Group of Vitamins

This comprises the heat-labile vitamin B<sub>1</sub>, and the heat-stable vitamin B<sub>2</sub> complex of vitamins (see below).

*Vitamin B<sub>1</sub>* (aneurin hydrochloride or thiamin hydrochloride) occurs also in nature as the pyrophosphate ester or co-carboxylase. This is the anti-beriberi or antipolyneuritic vitamin. Beriberi, common in the East among populations subsisting too exclusively on diets of "polished" (white) rice, is characterized by polyneuritis of the peripheral nerves (typical manifestations being the patches of paraesthesia in the lower limbs, diminished knee-jerks, wrist-drop, high-stepping gait), by cardiac irregularities (shortness of breath, dyspnoea, tachycardia, dilatation of the right side of the heart), muscular weakness, anorexia, and sometimes emaciation ("dry beriberi") or oedema ("wet beriberi"). The disease may follow several different forms depending on whether the polyneuritic, cardiac, or oedematous symptoms predominate.

Conditioned deficiency of vitamin B<sub>1</sub> (secondary polyneuritis), as distinct from the endemic deficiency seen in the Orient, occurs from time to time in Western countries—as in polyneuritis arising from gastro-intestinal obstruction (which causes faulty absorption of the vitamin), in alcoholic polyneuritis, and in the polyneuritis of pregnancy. In infants and children suboptimal intake of vitamin B<sub>1</sub> has been thought to lead to inadequate growth and gastro-intestinal hypotonia.

The national wheatmeal loaf (about 80–85% extraction) has been an important source of vitamin B<sub>1</sub> in Great Britain since the beginning of the second world war, white flour (72% extraction) containing negligible amounts. The best foods for vitamin B<sub>1</sub> include: dried brewers' yeast (c. 1,000–2,000 i.u. per 100 g.), wheat germ, rice germ, barley germ (c. 1,000), oatmeal (c. 300), wholemeal wheat flour, peas, haricot beans, egg yolk (c. 100). The League of Nations standard of requirement for vitamin B<sub>1</sub> is 300 i.u. per day (1 i.u.=3  $\mu$ g.=0.000,003 g.).

*Vitamin B<sub>2</sub>* when first recognized was thought to be a single factor, and defined as the "heat-stable, water-soluble fraction present in extracts of yeast which prevents pellagra in man, black-tongue in dogs, and a so-called pellagra-like dermatitis in rats and is needed also for promotion of health and growth in rats." As so defined, vitamin B<sub>2</sub> is in reality a complex of at least nine vitamins (including nicotinamide, riboflavin, pyridoxin, pantothenic acid, p-aminobenzoic acid, inositol, choline, biotin, and folic acid). The term is sometimes used, but less accurately, as synonymous with riboflavin.

### B<sub>2</sub> Vitamins Needed By Man

(a) *Nicotinamide* (otherwise called nicotinic amide, or niacin amide, or "P-P," or pellagra-preventing, vitamin). The parent substance, nicotinic acid (or niacin), is likewise active, being doubtless converted to the amide in the animal body. In the combined form, in living tissues, nicotinamide occurs as a component of certain enzyme systems—namely, as the two "pyridine coenzymes" (1) codehydrogenase I, or "Euler's cozymase," diphosphopyridine nucleotide, and (2) codehydrogenase II, or "Warburg's enzyme," triphosphopyridine nucleotide.

The signs and symptoms of pellagra in man may be summarized under four headings: (1) The characteristic glossitis and stomatitis, including the "beefy tongue." (2) There develops a persistent diarrhoea. (3) Most typical are the skin lesions. These begin as an erythema resembling sunburn, and progress into a deeper dermatitis, followed by a pigmentation and a great thickening of the dermis. The pathognomonic feature of these eruptions is that they are bilaterally symmetrical, possess a well-defined pigmented border, and occur especially on the parts of the body exposed to the sun or to friction, including the back of the hands and wrists, the face, the upper part of the chest, and the perineal region. (4) Mental symptoms develop as the disease progresses, and in the absence of treatment insanity results.

"Secondary pellagra," or "conditioned deficiency" of nicotinamide, with symptoms similar to the above, is caused by faulty absorption or assimilation of the vitamin, as, for example, in the pellagra of chronic alcoholism or in gastro-intestinal obstruction.

The daily requirement of nicotinamide (preventive) is probably about 10–12 mg. The best sources in food include yeast and liver (or yeast and liver extracts), fish (e.g., canned salmon), meat, pulses, whole wheatmeal or bran, but there is practically none in white flour.

(b) *Riboflavin* was formerly called lactoflavin (or oboflavin, or hepatoflavin, etc., according to its origin) and is still sometimes known as B<sub>2</sub>. (More strictly speaking, this term was correctly used when riboflavin was the only known "B<sub>2</sub>" vitamin, before it was found to be a complex.) In living tissues riboflavin occurs in the combined form as a coenzyme—namely, iso-alloxazine-adenine-dinucleotide, a component of the enzyme systems known as flavoproteins.

Riboflavin deficiency in man causes a typical "cheilosis" (lesions of the lips) and an angular stomatitis characterized by cracks, scaliness, and maceration at the corners of the mouth, developing into a deep fissuring. Corneal changes, opacity, and vascularization have also been described; but probably both oral and ocular symptoms lack full specificity. In experimental animals the deficiency is likewise marked by corneal lesions and dermatitis, as well as by growth failure. In addition, in birds, deficiency results in a condition described as "curled toe," and is of much practical importance in poultry husbandry. In dogs a condition described as "yellow liver" has been produced.

The daily requirement (preventive) is probably about 1–2 mg. Foods rich in riboflavin include yeast, liver, kidney, milk, and egg-white.

(c) *Folic acid* is probably identical with or closely related to factors known severally as the grass juice factor (for guinea-pigs), vitamin B<sub>9</sub> (anti-anaemia factor for chicks), vitamin M (for monkeys), and the growth factors for the micro-organism *Lactobacillus casei* and for *Streptococcus lactis* R. In chemical structure it is built from glutamic acid p-aminobenzoic acid, and pterin residues; and certain other pterin derivatives may also be active. Folic acid has been shown to produce a haematopoietic response in Addisonian pernicious anaemia and in some other macrocytic anaemia in man; it is, however, apparently ineffective in controlling cord degeneration in pernicious anaemia. Remarkably success is said to have followed its use in treatment of sprue. A possible anticarcinogenic action is being examined experimentally in animals.

### Vitamin C

Vitamin C, or *L*-ascorbic acid (formerly known also in the U.S.A. as cevitamic acid), is the anti-scurvy (antiscorbutic) vitamin. The closely related, and somewhat unstable reversibly oxidized derivative, dehydroascorbic acid, is also active, and several artificially prepared chemical analogues show some varying degree of activity. Characteristic symptoms of scurvy in the adult are the haemorrhagic manifestations, particularly the spongy gums and the petechiae in the trunk or limbs. Among the early signs may be a follicular hyperkeratosis. In advanced cases there is a pronounced secondary anaemia. Bronchitis and other infections often occur as a complication. The associated symptoms may include sallowness, lassitude and mental depression, pains in the lower limbs, and hardening of the calf muscle due to haemorrhage. In infantile scurvy the diagnostic features include: (1) a tenderness in the lower limb as a result of which the child adopts a characteristic attitude, dreading to be touched; (2) subperiosteal haemorrhage with swelling, e.g., near the lower end of the femur; and (3) the radiological appearance of the long bones, showing a cessation of osteogenesis; the oral lesion may be absent. In scurvy there is an extreme degree of depletion of ascorbic acid from the tissues, as shown by the number of test doses needed before an overflow of the excess into the urine, where it can be estimated by chemical test.

The League of Nations standard requirement is 30 mg per day. The best sources of the vitamin include, among fresh fruits (in decreasing order): blackcurrants, straw berries, oranges, lemons, grapefruit, gooseberries; there is relatively little in pears, plums, grapes, or some varieties of apples. The richest vegetables include (also in decreasing order): Brussels sprouts, cauliflower, cabbage, and new potatoes. During the cooking of vegetables the loss of vitamin C can be minimized by avoidance of such conditions as the use of excessive amounts of cooking water, an undue prolongation of the time of heating, too much shredding of the vegetable before cooking, and overmuch keeping hot or re-cooking before serving.

### Vitamin D

Vitamin D is the antirachitic vitamin. The two most important forms are: (1) vitamin D<sub>2</sub>, or calciferol, prepared artificially by ultra-violet irradiation of ergosterol and present also in certain irradiated plant materials; and (2) vitamin D<sub>3</sub>, or irradiated 7-dehydrocholesterol (cholestadien-3-ol), present naturally in fish-liver oils, including halibut, tunny, and cod. Other D vitamins, of little more than academic interest, are the following: irradiated heated

cholesterol; cholesterilene sulphonic acid; irradiated 22-dihydroergosterol; irradiated 7-dehydrositosterol. Rickets (vitamin D deficiency) is characterized particularly by deficient calcification of the bones, especially in the newly forming bone at the epiphysis, where the zone of provisional calcification is increased in breadth and inadequately mineralized. The consequent irregular growth of soft tissue causes the typical swellings at the epiphyseal junctions ("rachitic metaphysis"). The bending of the adequately calcified bones and the overgrowth of osteoid tissue in turn give rise to the well-recognized deformities—bow-legs, knock-knees, rachitic pelvis, "green-stick" fractures, the enlargement of the ends of the bones, and the bending of the ribs. Active rickets is characterized by a deficiency level of inorganic phosphate in the blood and sometimes of calcium, causing spasmodophilia (tetany), and an increase in blood phosphatase. The fundamental chemical lesion in vitamin D deficiency is excessive loss of phosphate and/or calcium in the faeces, with a concurrent drop in their levels in the blood and consequent inadequate calcification of bony tissues. Severe rickets is of course readily detected by the clinical signs, but mild cases of rickets may need x-ray diagnosis.

Legitimate "pharmacological" uses of vitamin D—i.e., in the absence of rachitic signs—are: (1) to maintain the level of the blood calcium after parathyroidectomy, and (2) in the treatment of lupus vulgaris by massive local injection. Vitamin D occurs in fish-liver oil (halibut, cod, tunny, etc.) and in smaller quantity in egg yolk and in vitaminized margarine and butter. The international unit is 0.02  $\mu$ g. of calciferol, the protective dose in early childhood about 500 to 1,500 i.u. per day, and an effective curative dose 1,500 to 3,000 i.u. per day: larger doses may be toxic. For nursing and expectant mothers 1,000–2,000 i.u. daily may be prescribed in order to improve the assimilation of calcium and phosphate and to make good the losses of these elements by the foetus and in the milk.

#### Vitamin K

Vitamin K includes vitamin K<sub>1</sub> (2-methyl-3-phytyl-1,4-naphthoquinone) and vitamin K<sub>2</sub> (2-methyl-3-difarnesyl-1,4-naphthoquinone). Active homologues include various other methyl-1,4-naphthoquinone derivatives—for example, thiocol (2-methyl-3-hydroxy-1,4-naphthoquinone) and the parent substance itself, 2-methyl-1,4-naphthoquinone. The last-mentioned, because of its solubility and ease of absorption, is the form of vitamin K most favoured in medicine. In experimental chicks and other species, deficiency of vitamin K causes a lowering of the prothrombin value of the blood, and this results in a haemorrhagic syndrome. In clinical practice vitamin K has been of great service in controlling those haemorrhagic conditions that are due specifically to hypoprothrombinaemia—namely, (a) in haemorrhagic disease in the newborn, associated with a transient hypoprothrombinaemia; (b) after surgical treatment of obstructive jaundice; and (c) in the hypoprothrombinaemia associated with steatorrhea, sprue, and intestinal obstruction. It is believed that (a) the transient hypoprothrombinaemia can be attributed to the fact that symbiotic microflora, which normally synthesize vitamin K, have not yet become established in the intestine of the infant through the ingestion of food; (b) and (c) a faulty absorption of vitamin K is considered to be responsible for the deficiency. In treatment, 1 to 4 mg. of 2-methyl-1,4-naphthoquinone daily is commonly used, given either by injection or by mouth. In the prophylaxis of hypoprothrombinaemia in the newborn the vitamin may be administered as a prenatal routine to the mother, or to the child at birth.

## II. Vitamins of Probable or Possible Significance for Humans

**Biotin**, a growth factor for yeast and other micro-organisms, is identical with the so-called vitamin H (= *Haut* [skin] *Faktor*, or anti-eggwhite injury factor for rats and other animals) and with coenzyme R (growth factor for micro-organisms in the nodule of legumes). It protects rats and other experimental animals from seborrhoeic skin lesions and other abnormalities when they are fed on a special diet containing raw egg-white as an ingredient. The latter contains a protein-like substance or antivitamin, "avidin," which inactivates the vitamin and is destroyed by cooking. Clinical relations are still obscure, although biotin deficiency has been produced experimentally in the human subject by means of a diet of raw egg-white, and there is at least one record of a primary deficiency having been described.

**Choline** functions in chemical physiology as a trans-methylating agent, and as such is replaceable by the amino-acid methionine, or by betaine. In experimental animals choline deficiency results in a fault in fat transport and consequently in fatty liver (sometimes accompanied by necrosis), as well as by haemorrhages in the kidney, paralysis, and other ill effects. Possible clinical applications still remain to be defined, although its use has been proposed to control a negative-nitrogen balance in conditions similar to those in which methionine or a high-protein diet has been found effective.

**Vitamin E** includes  $\alpha$ -tocopherol (5,7,8-trimethyl-tocol),  $\beta$ -tocopherol (5,8-dimethyl-tocol),  $\gamma$ -tocopherol (7,8-dimethyl-tocol), and several related synthetic derivatives. In rats or other experimental animals deficiency of vitamin E causes: (1) reproductive failure, due in the female to resorption of the foetuses during gestation, and in the male to degeneration of the germ cell; (2) muscular dystrophy; (3) degeneration of muscle fibres, leading to discoloration of the uterus and other tissues; (4) degeneration of the epithelium of the convoluted tubules of the kidney; (5) an "exudative diathesis"; and (6) dental depigmentation. Many claims have been made for the successful use of vitamin E in treatment of habitual abortion in women, but adequately controlled experiments still seem to be lacking. The supposed effectiveness of vitamin E in treatment of muscular dystrophies lacks confirmation. The richest sources of vitamin E include wheat-germ and rice-germ oils, cotton-seed oil, and green leaves. In contrast with vitamins A and D it is absent from cod-liver oil and other fish-liver oils.

"**Vitamin F**" is a synonym for the nutritionally essential unsaturated fatty acids—namely, linoleic acid, linolenic acid, and arachidonic acid. Symptoms of deficiency in rats include a scaliness of the tail sometimes leading to caudal necrosis, irregularities in reproduction, and kidney lesions. Deficiency of "vitamin F" has not been recognized to occur in the human, but claims have been made for its use in eczematous conditions.

**Vitamin P**, a group of substances including citrin (hesperidin glucoside), is claimed to be concerned in controlling fragility of capillary blood vessels, and to be needed as an adjunct to vitamin C in the cure of some symptoms associated with scurvy: this, however, is disputed.

## III. Vitamins Needed by Experimental Animals: Significance for Humans Uncertain

**Pyridoxin** (adermin, vitamin B<sub>6</sub>) prevents a deficiency disease in rats characterized by a florid symmetrical dermatitis of the extremities. Another sign in rats, as also in pigs, may be the occurrence of fits. Pyridoxin is thought



to be concerned in the synthesis of fats from protein, and perhaps in tryptophan metabolism. Biologically active derivatives also include pyridoxal (concerned in tyrosine decarboxylation and possibly in biochemical transaminations) and pyridoxamine. Another derivative, pyridoxic acid, is described as a dietary factor for chicks. The need of man for pyridoxin has been questioned: symptoms of deficiency are, however, said to include cheilosis resembling that seen in deficiency of riboflavin. Pyridoxin has recently been used in the treatment of agranulocytosis.

**Pantothenic acid** (formerly called "chicken pellagra factor" or "filtrate factor") prevents a characteristic dermatitis in birds. It is needed also by dogs and pigs. Signs of deficiency in rats include growth failure, dermatitis, nose-bleeding, depilation about the nose, occurrence of a sticky exudate in the eyelids, and achromotrichia, together with adrenal lesions. It is also a growth factor for micro-organisms. Pantothenic acid is thought to be probably needed by humans, but its significance is still obscure.

**Inositol** is identical with bios I, needed for growth of yeast and other micro-organisms. An experimental deficiency in rats or mice is said to cause alopecia. Deficiency in man is unknown, but inositol may possibly be a "secondary nutrient"—that is, it may stimulate the intestinal microflora to synthesize other nutrients essential to the host.

**Para-aminobenzoic acid** (or "Paba") is a growth factor for various micro-organisms, and is said to prevent achromotrichia in some experimental species. It may be a "secondary nutrient" (see above) for man. Its special interest is that drugs of the sulphonamide type exert their bacteriostatic action by "blocking" the bacterium's supply of Paba. Conversely, Paba can negate the bacteriostatic action of the sulpha-drugs. Recent work suggests that large doses of Paba itself may exert an anti-infective action in animals in some circumstances.

## "Q" FEVER

### A SEROLOGICAL INVESTIGATION OF A GROUP OF CASES PREVIOUSLY REPORTED AS PRIMARY ATYPICAL PNEUMONIA

BY

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Derrick (1937) first described "Q" fever in Australia, and the causative agent was isolated by injection of the blood and urine into guinea-pigs. Burnet and Freeman (1937) showed that the infective agent was a rickettsia, which was subsequently named *Rickettsia burneti*. In the winter of 1944 an epidemic of so-called primary atypical pneumonia occurred among New Zealand troops in the Cassino area (Adams and Porteous, personal communication).

Later in 1944 Turner (1945) recorded a similar epidemic of 280 cases from the Naples area. During the same year an outbreak of primary atypical pneumonia occurred among German troops in Greece, and was referred to by them as "Balkan grippé." Dr. Caminopetros, at the Pasteur Institute in Greece, was able to establish the infection in guinea-pigs by injection of blood taken from cases in the early stages of the infection. Subsequently, blood taken from these guinea-pigs was investigated at the laboratories of the Commission on Acute Respiratory Diseases at Fort

Bragg, North Carolina (1946), and *R. burneti* was isolated. In the winter of 1945 an epidemic of "atypical pneumonia" occurred among New Zealand and British troops in the Naples and Caserta area. Similar epidemics arose among British and American troops in the Mediterranean theatre of operations. Detailed studies of some of these epidemics have recently been reported by Robbins and Rustig (1946). In a British parachute regiment, probably infected in Athens before being transferred to Italy, serological tests later established the diagnosis of "Q" fever. Four epidemics among U.S. troops in Northern Italy were fully investigated. *R. burneti* was isolated from the blood in some of these cases, and by serological tests it was demonstrated that 75% of the cases of "atypical pneumonia" in the same area were in fact cases of "Q" fever.

In May, 1945, an epidemic of "atypical pneumonia" occurred in mid-Atlantic amongst a group of airmen who had recently been stationed at Grottaglie Air Base, Southern Italy, in the Taranto area. These were fully investigated when the airmen arrived at Camp Patrick Henry, Virginia (Feinstein *et al.*, 1946). Epidemiological and aetiological studies were made, and it was demonstrated that the infective agent was the "Balkan grippé" strain of *R. burneti* (Commission on Acute Respiratory Diseases, 1946).

Clinically the epidemic of so-called primary atypical pneumonia recorded by Adams *et al.* (1946) was very similar to the cases recorded by Robbins and Rustig (1946) and by Feinstein *et al.* (1946), in which the aetiological agent was established as *R. burneti*. On this account it was decided to attempt to establish the infective agent in the New Zealand Hospital cases.

### Clinical Features

For complete clinical details of the cases readers are referred to the original report of Adams *et al.* (1946). The main clinical features may be summarized for the sake of completeness.

The epidemic occurred between February and April 1945, and during this period 511 cases were reported in the Naples-Caserta area, 161 of which were treated at the N.Z. General Hospital. Of these, 50 consecutive cases were studied in detail clinically and by serial pathological and radiological investigations.

In brief, the clinical picture was as follows. In most cases there was a prodromal period of about six days. The actual onset was abrupt in 96%, and severe headache, malaise, lassitude, and anorexia were the most constant symptoms. Pyrexia from the onset averaged 8.6 days, over 103° F. (39.4° C.) in 70% of cases, and defervescence was by lysis in 86%. The pulse followed the temperature though it showed a tendency to a relative bradycardia. The respiratory rate was little affected. Cough was present in 94%, but was not an outstanding feature; it occurred about the fifth day. Sputum was scanty and in 28% contained blood. Chest pains occurred in 46% of the cases, and 26% of these a pleural rub was detected.

**Physical Signs.**—Severe toxæmia was a feature of some cases, and one-third showed generalized rhonchi on admission, but the most characteristic sign was a localized patch of sticky persistent crepitations, which were heard on average on the sixth day from the onset of the acute symptoms. Usually there was enlargement of glands, the spleen was palpable in 36% of cases. Scanty salmon pink macules fading on pressure were observed on the chest back, and flanks in the early stages in 34% of cases.

**Laboratory Investigations.**—The results of serial pathological investigations can be summarized in brief. The white cell count revealed a slight polymorphonuclear

\*A member of the scientific staff of the National Institute for Medical Research, Hamstead, London, at the time of this investigation.

response followed by a slight depression, which was maximal at the end of the first week. Thereafter there was a rise of polymorphs and lymphocytes, reaching a peak at the 5th to 18th day. Differential counts showed a slight relative lymphocytosis after the initial period. The blood sedimentation rate was elevated for two to three weeks. Cephalin-cholesterol flocculation was insignificant early in the disease but increased rapidly after convalescence had been established in the second week, thereafter falling slowly. Using horse cells, a significant positive heterophil antibody reaction was found in 36% of the cases at some stage of the disease. All but three, which were weakly positive, gave negative tests for cold agglutinins at all stages.

**Radiological Investigations.**—Postero-anterior and lateral studies were made in all cases. The characteristic findings were the localization of the lesion to one or more bronchopulmonary segments. The infiltration could be described as hazy mottled densities. These investigations also revealed the importance of the lateral studies for the demonstration of lesions situated beyond the heart shadow or in that portion of the lung situated behind the summit of the dome of the diaphragm. Complete radiological resolution in the majority occurred within six weeks of the onset.

### Epidemiology

The possible route and sources of infection were examined in detail in some of the Northern Italian epidemics, and although no vectors such as ticks or fleas were incriminated it was found that the disease often made its appearance in units occupying farm billets and also where men were living in close proximity to animals such as cattle, cats, and pigeons. Various forms of insects were discovered in several of these billets, but it was thought that cases probably occurred by inhalation infection arising from the dust and droppings. The complete absence of insect-bites in any of the cases and the uniform picture of pulmonary involvement suggested that the route of infection was via the upper respiratory tract, such as probably occurred in the laboratory infection with the same agent (Robbins and Rustigian, 1946) and as is also seen in laboratory infections with other rickettsial diseases such as epidemic, murine, and scrub typhus. It was also found that many of the civilian population in the area where these cases occurred showed a high level of antibody to "Q" fever, which suggests that the infection was endemic in the local inhabitants.

In the New Zealand Hospital cases most of the patients came from a British infantry training depot where men were living in hutments and in which there was a rapid turnover of personnel. The staff of the hospital escaped lightly. A strict isolation technique was carried out in the wards until the temperature had been normal for a week or until productive cough had ceased. The regimental aid-post orderly, who treated men daily from the infantry training depot, and the hospital librarian, who visited the wards, both contracted the disease, but no case to our knowledge occurred among the nurses and orderlies who were attending the patients.

### Serological Investigation

Of the 50 cases recorded by Adams *et al.* (1946), 47 were in United Kingdom troops; the remaining three occurred in New Zealand troops. As a test case, serum was taken from one of the latter and a glycerinated specimen was forwarded by air from New Zealand in 1946 to Dr. Norman Topping, Assistant Director of Health of the Division of Infectious Diseases of the National Institute of Health at Bethesda, Maryland. It was tested for complement fixation against antigen prepared from a strain of *R. burneti*

isolated in Italy. The serum was slightly anticomplementary, but in Dr. Topping's opinion the anticomplementary activity had no real significance when compared with the titres against the antigen (Table I).

TABLE I.—Complement-fixation Titre with Italian "Q" Fever Strain

	1 : 8	1 : 16	1 : 32	1 : 64	1 : 128	1 : 256
N.Z. test serum	4	4	4	4	3	Trace
Control serum	4	1	0	0	0	0

Subsequently one of us, with the assistance of the staff of A.M.D. 7 of the War Office, was able to collect sera from 21 of the 47 British cases. These were forwarded to Dr. Topping. Nineteen of them arrived safely and on test gave a positive complement-fixation reaction to the Italian strain of "Q" fever (Table II). It will be seen that in some the titres are low, but it has to be remembered that the initial infection occurred almost two years before the date of testing the sera.

TABLE II.—Result of Complement-fixation Test for "Q" Fever (Italian Strain)

No. of Serum	Titre	Result	No. of Serum	Titre	Result
1	1 : 64	+	13	1 : 32	+
2	1 : 32	+	14	1 : 32	+
5	1 : 32	+	15	1 : 64	+
6	1 : 16	+	16	1 : 4	+
7	1 : 8	+	17	1 : 32	+
8	1 : 4	+	18	1 : 16	+
9	1 : 64	+	19	1 : 32	+
10	1 : 16	+	20	1 : 32	+
11	1 : 8	+	21	0	-
12	1 : 16	+	22*	1 : 128	+

\* Serum sent from New Zealand.

Professor S. P. Bedson kindly tested these sera for antibody to the virus of psittacosis. They were all uniformly negative.

Hence, out of 20 cases checked, 19 gave a positive complement-fixation reaction to the Italian strain of "Q" fever, and it is reasonable to assume that the infective agent of these cases of "primary atypical pneumonia" was the Italian strain of *R. burneti*.

### Summary

An epidemic of "primary atypical pneumonia," previously recorded in the *British Medical Journal* as having occurred in the Naples-Caserta area in 1945, has been further investigated serologically, and 19 out of 20 sera tested gave a positive complement-fixation reaction to an Italian strain of "Q" fever two years after the initial infection. It is probable that the epidemic of so-called primary atypical pneumonia was in fact "Q" fever caused by an Italian strain of *R. burneti*.

We wish to thank Professor F. M. Burnet, Director of the Walter and Eliza Hall Institute, Melbourne, and Dr. C. H. Andrewes, of the National Institute for Medical Research, London, who gave valuable advice in this investigation. We also wish to thank Dr. R. E. Dyer and Dr. N. H. Topping, of the National Institute of Health, Bethesda, Maryland, U.S.A., for carrying out the serological tests on these patients; also Brigadier J. S. K. Boyd, lately Director of Pathology at the War Office, and Lieutenant-Colonel P. Sayers, R.A.M.C., of the War Office, who arranged to trace these soldiers after demobilization. In addition we wish to thank the many pathologists, too numerous to mention individually, who kindly helped to collect the serum from these cases. Finally, we have to thank Dr. W. E. Henley, with whom one of us has constantly consulted.

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# THE PLASMA VISCOSITY IN RHEUMATIC DISEASES

BY

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In 1942 on a series of 63 tuberculous patients Miller and Whittington (1942) introduced the estimation of the plasma viscosity as a clinical test. They showed that there was a close correlation between the clinical condition and the viscosity value.

In the course of some 650 determinations which included non-tuberculous conditions the usefulness of the viscosity test was confirmed (Houston *et al.*, 1945; Harkness *et al.*, 1946). These experiments also demonstrated the complex "periodic" relationship between the plasma viscosity and the maximum erythrocyte sedimentation rate (Whittington, 1942), showing that if the viscosity is a reliable quantitative index of the clinical state then the E.S.R. is not. The conclusion drawn from that series of experiments was that the viscosity is to be preferred to the E.S.R. as an index.

While the only rheumatic condition in the series was a single case of rheumatic fever, Whittington (1946) suggested the application of the test in rheumatic diseases generally. It has recently been possible for us to apply the test in a series of patients suffering from all types of rheumatic conditions. In doing this we had as our objective the evaluation of the plasma viscosity test as an aid to the clinician in the handling of these rheumatic conditions. At this stage it may be said that the test has proved to be so useful that it is now included in the routine assessment of new patients and in following the progress of others in response to treatment.

The establishment of new treatment centres and research units indicates that rheumatic disease is at present the subject of considerable interest: this preliminary report is presented so that other workers in this field may consider including the plasma viscosity estimation among their laboratory methods.

## Technique and Material

The technique of the method is discussed in the Technical Appendix (see p. 688).

The tests were performed chiefly on patients attending the physiotherapy department of Sunderland Royal Infirmary.

Table Showing Plasma Viscosity Findings in Various Conditions

Condition	No. of Tests	Plasma Viscosity*		Average Packed Cell Volume (%)	Average Wintrobe E.S.R. (mm./1 hr.)	Average Total Plasma Protein (g.%)
		Usual Range	Average of Series			
Normal	43	1.700-1.950	1.853	42.9	—	7.15
Fibrositis; myositis	10	1.725-1.950	1.896	46.3	6.7	7.34
Chronic hypertrophic osteoarthritis	17	1.875-2.075	1.921	44.1	8.5	7.31
Rheumatoid arthritis; Residual deformity only	8	1.740-1.990	1.909	41.8	19.8	7.40
Chronic	154	1.950-2.300	2.121	42.6	25.2	7.80
Subacute	22	2.300-2.550	2.512	40.8	36.1	8.50
Acute	16	2.500-3.400	2.897	38.8	38.8	9.54

\* The plasma viscosity is the kinematic viscosity measured at 20° C. and expressed in terms of the calibration of Viscometer V5 as centipoises per g. per c.cm. or cm.<sup>2</sup> per sec.  $\times 10^{-2}$ .

In the past nine months 320\* tests were carried out on cases of rheumatic disease, 200 being cases of rheumatoid arthritis. In addition there were 43 normal controls. In all cases a thorough general medical examination was made to exclude any other pathological process apart from a rheumatic condition.

The diagnosis is the final evaluation of the findings of a team of investigators consisting of a physician, surgeon, radiologist, clinical pathologist, physiotherapist, a biochemist.

## Results

In the absence of an agreed scheme of classification which would allow of statistical comparison we have grouped the cases into the crude groups of (A) rheumatoid arthritis (i) acute, (ii) subacute, (iii) chronic, (iv) residual deformity only; (B) chronic hypertrophic osteoarthritis; (C) fibrositis and myositis. (Our results for Still's disease, rheumatic fever, etc., have been omitted from the accompanying Table and from the discussion.)

We give a few representative cases in detail with outlining our findings for the series as a whole in following general terms (see also Table):

(a) In the early stages of rheumatoid arthritis the viscosity value may still be within range of normal; normal values may be obtained in cases which have responded to therapy.

(b) Progress of the disease processes is usually accompanied by an increase in viscosity, improvement by decrease; the rate of change in viscosity parallels the rate of change in the clinical condition.

(c) In chronic conditions there may be no change in viscosity for several months, although the E.S.R. shows large variations.

(d) There is good correlation between the plasma viscosity value and the clinical picture in rheumatoid arthritis.

(e) The viscosity values for acute, subacute, and chronic rheumatoid arthritis tend to fall, on an average, into distinct zones of the viscosity range (see Table).

(f) Cases of chronic hypertrophic osteoarthritis show viscosity values in the upper range of normality and lower part of the abnormal range (see Table).

(g) In fibrositis and myositis the viscosity is within normal limits.

(h) Our results appear to confirm that the viscosity is a more reliable index of clinical condition than the E.S.R.

## Case Histories

**Case 1: Chronic Rheumatoid Arthritis.**—Female aged Eight years' history of pain and swelling of both knees and proximal interphalangeal joints of the fingers, and pain and limitation of movement of shoulders. Both knee-joints very active, with effusion and increased heat. There was no limitation of movement of the right shoulder. Medical examination revealed no other pathology. Skiagrams of the involved joints showed an atrophic arthritis and those of the chest sinuses were negative. A catheter specimen of urine was negative on culture. Haemoglobin, 82%; W.B.C., 9,600 per c.m. Wintrobe E.S.R., 2 mm. in first hour; P.C.V., 45.7%; total protein, 7.81 g.%; plasma viscosity, 2.045.

**Case 2: Chronic Rheumatoid Arthritis.**—Female aged In 1944 she had pain and swelling of the right elbow-joint, the proximal interphalangeal joints of fingers which lasted for weeks and subsided after a course of physical therapy. November, 1946, she had another attack of pain and swelling in the interphalangeal joints of the fingers, right elbow, shoulder-joint. Examination revealed typical fusiform swelling.

\* The number of cases has now reached 450 without any alteration of the opinions expressed.

the interphalangeal joints of the fingers, with wasting of the *perossei*. The elbow-joint was swollen, and movement was inflexible but full. There was limitation of external rotation and abduction of the right shoulder-joint. Skiagrams of the involved joints showed a typical atrophic arthritis. No focus of infection is found. Hb., 88%; W.B.C., 7,600 per c.mm.; Wintrobe S.R., 6 mm. in first hour; P.C.V., 44.8%; total plasma protein, 7.85 g.%; plasma viscosity, 2.034.

**Case 3: Chronic Rheumatoid Arthritis.**—Male aged 43. General condition very poor. Pain, swelling, and deformity of small joints of hands; swelling and increased local heat in right knee-joint; progressive loss of weight and secondary anaemia. Radiography of chest and sinuses was negative. No focus of infection or any other pathological condition was discovered on medical examination. Feb. 23, 1947: Hb., 75%; W.B.C., 10,600 per c.mm.; Wintrobe E.S.R., 5 mm. in first hour; P.C.V., 41%; total plasma protein, 8.13 g.%; plasma viscosity, 2.270. March 25, 1947: Hb., 80%; W.B.C., 8,500 per mm.; E.S.R., 12 mm. in first hour; P.C.V., 43%; total plasma protein, 8.0 g.%; plasma viscosity, 2.280.

**Case 4: Chronic Rheumatoid Arthritis.**—Female aged 32. Pain and fusiform swelling of proximal interphalangeal joints of fingers; both wrists ankylosed; pain and limitation of movement of right shoulder. The patient had been losing weight rapidly and said the pain was getting worse. Skiagrams of the involved joints showed a typical atrophic arthritis. No focus of infection was found on routine medical examination. Clinically the disease was active, and this finding was supported by Wintrobe E.S.R. of 35 mm., total plasma protein amounting to 8.1 g.%, and a plasma viscosity of 2.095. Four months later, after a period of complete rest in bed, a course of physical therapy, and 0.12 g. of "myocrisin" in weekly injections of 0.1 g., the patient had put on weight, the pain in the joints had greatly diminished, and there was increased movement in the shoulder. The plasma viscosity had now fallen to 1.935, with total protein of 7.8 g.%. The E.S.R. was still 40 mm.

**Case 5: Chronic Rheumatoid Arthritis.**—Female aged 58. Twelve years' history of pain and stiffness in joints. The patient now had flexion deformities of both knee-joints and was unable to walk. She no longer had pain in the joints. Clinically the disease had died out, leaving residual deformities. E.S.R., 20 mm. in first hour; P.C.V., 44.0%; total plasma protein, 7.6 g.%; plasma viscosity, 1.995.

**Case 6: Subacute Rheumatoid Arthritis.**—Female aged 35, Dec. 9, 1946: General condition very poor; signs of activity in small joints of fingers, in knees, and in shoulders. Skiagrams of joints revealed an atrophic arthritis; no focus of infection could be found on routine medical examination. Hb., 65%; W.B.C., 10,600 per c.mm.; Wintrobe E.S.R., 39 mm. in first hour; P.C.V., 39.0%; total plasma protein, 8.5 g.%; plasma viscosity, 2.199. Jan. 21, 1947: After five weeks of treatment, which included three weeks' rest in bed with physical therapy and five weekly injections of 0.01 g. of myocrisin, the E.S.R. was 40 mm.; the P.C.V. 40.5%; the total plasma protein 8 g.%; and the plasma viscosity 2.210. On April 30 the condition was still active and there was marked pain in knees and shoulders. E.S.R., 49 mm.; total plasma protein, 8.9 g.%; plasma viscosity, 2.259. The myocrisin was stopped after a total of 0.12 g. On May 19 the pain was subsiding and in the joints the condition was less active. E.S.R., 40 mm.; total plasma protein, 8.9 g.%; plasma viscosity, 2.250. Here the plasma viscosity increased gradually just as the clinical condition deteriorated. The E.S.R. showed similar changes, but this finding was exceptional.

**Case 7: Chronic Osteoarthritis (Hypertrophic).**—Male aged 50. Complained of pain in both knees; no effusion; marked crepitus in the joints; full but painful movement. Skiagrams showed the changes typical of chronic hypertrophic osteoarthritis. E.S.R., 8 mm. in first hour; P.C.V., 44.4%; total plasma protein, 7.20 g.%; plasma viscosity, 1.979.

**Case 8: Chronic Osteoarthritis (Hypertrophic).**—Male aged 51. In 1938 he sustained a fracture of the upper third of the right tibia involving the knee-joint. Now complaining of aching pain in the joint. No effusion; marked periarthritic thickening; crepitus present; movement full, but painful on full flexion;

gross wasting of quadriceps muscle. Skiagrams showed chronic hypertrophic arthritis. E.S.R., 6 mm. in first hour; P.C.V., 45.0%; total plasma protein, 7.40 g.%; plasma viscosity, 1.920.

**Case 9: Acute Fibrositis.**—Female aged 32. Trapezius muscle very tender and painful, with tender nodules present. Skiagrams of cervical and thoracic spine negative. Responded to five treatments with infra-red radiation. E.S.R., 10 mm. in first hour; P.C.V., 44.6%; total plasma protein, 7.8 g.%; plasma viscosity, 1.820.

**Case 10: Atrophic Spondylitis.**—Male aged 34. Complained of low back pain for several years. There was tenderness over both sacro-iliac joints and marked rigidity of the lumbar spine. Skiagrams showed an atrophic spondylitis. E.S.R., 15 mm. in first hour; total plasma protein, 8.0 g.%; plasma viscosity, 2.184.

### Discussion

✓ The plasma viscosity test is non-specific. It depends entirely upon the plasma proteins, ultra-filtrate experiments having shown the effect of variations in the non-protein constituents to be negligible.

With regard to solutions of the purified protein fractions, in equal concentrations the large molecules of fibrinogen have a proportionately greater effect on the viscosity than those of globulin, and the globulin in turn has a greater effect than the albumin. On the other hand, the three purified fractions appear to affect the specific gravity equally (Nugent and Towle, 1934). Thus a dual test consisting of plasma viscosity and plasma specific gravity frequently suggests which fraction, if any, is markedly increased. Accurate quantitative results cannot, of course, be inferred, for we are now dealing with the highly complex molecular interrelation of native plasma protein (Harkness and Whittington, 1947a), and at present there is no exact knowledge of the physical effects in these circumstances.

While it is not definitely known, it is believed that the liver is the organ which is chiefly responsible for these changes in the plasma proteins—i.e., the plasma viscosity test is a measure of a change in a liver function. The plasma viscosity is a measure of the change in plasma protein which occurs as part of a general systemic reaction to the disease processes in the body: the changes in the joints and soft tissues in rheumatoid arthritis are roughly paralleled by the plasma viscosity changes, indicating that there is a similar parallel systemic upset. We therefore arrive at the conclusion of earlier workers that rheumatoid arthritis is a disease of the whole organism and not merely an affection of the joints.

In striking contrast are the findings in osteoarthritis, where marked changes may occur in a joint without altering the plasma viscosity. Osteoarthritis would thus appear to be a local affection which produces little or no systemic reaction.

As results accumulated, the manner in which similar types of cases gave comparable viscosity results became striking. An apparent paradox arose with a typical osteoarthritis case whose plasma viscosity was 2.535, which was far higher than the expected value (see Table). Clinical reassessment led to the discovery of an early apical tuberculous focus. The necessity of eliminating other possible known causes of disturbance in this non-specific test is obvious.

The variation of serial results in individual cases has proved very useful in estimating progress, and it has been the means of detecting flare-up in chronic conditions. Particularly in the serial tests, the viscosity test is more reliable than the E.S.R.

The plasma viscosity test, on the basis of these first 320 results, would appear to be a promising method of investigation in rheumatic diseases. When further results are

obtained and when serial testing has been carried out for longer periods a more critical evaluation of the method will be possible.

### Summary

The plasma viscosity has been estimated in 320 tests in cases of rheumatic disease and in 43 tests in normal controls. The results of these have been considered generally and some representative cases have been presented in detail.

The plasma viscosity increases with progressive disease in rheumatoid arthritis and decreases with improvement; the increase is roughly proportional to the severity of the disease process; on the whole, the viscosity values for acute, subacute, and chronic conditions tend to fall into distinct zones of the viscosity range.

In osteoarthritis the plasma viscosity values tend towards high normal and low abnormal zones.

Cases of fibrositis and myositis present normal viscosity values.

The general nature of rheumatoid arthritis as contrasted with the local nature of osteoarthritis is discussed.

We wish to thank Dr. Paige Arnold, Dr. H. A. Cookson, Dr. A. A. McIntosh Nicol, and Mr. W. Grant Waugh for their assistance in the clinical assessment of the cases of rheumatic disease.

### TECHNICAL APPENDIX

In the estimation of the kinematic viscosity of plasma it is essential that the viscometer be accurate (at least to the second place of decimals) and that the viscometer be calibrated for colloidal solutions. The high degree of accuracy is necessary because changes of the order of 0.01–0.02 centipoise are clinically significant in the lower range of viscosity values.

Viscometers which measure viscosity by comparison of the time taken by fluids to flow through a capillary will give identical results for monophasic liquids such as water or benzene: with colloidal solutions such as plasma proteins, however, each instrument will give its own characteristic value, depending upon the "shear" of the capillary. In the range of viscosity usually measured in plasma viscosity tests two similar instruments may give results on the same plasma which differ by 0.3 centipoise.

Thus if the significance of viscosity values is to be general and not localized to individual hospitals some method of correlating instruments is necessary. Such correlation has been made successfully (a) by simultaneous estimation of the viscosity of a few plasmas in several instruments, (b) by the comparison of characteristic points of the individual periodic relationships between the plasma viscosity and the maximum E.S.R., as described in detail previously (Houston *et al.*, 1945), and (c) by comparison of the viscosity/concentration line for a solution of a pure protein with the sucrose viscosity/concentration line (Harkness and Whittington, 1947c). Methods (a) and (b) have proved satisfactory for the small number of instruments at present in use, but method (c) will be necessary if this test is used more widely.

All estimations here were made at 20° C. in a Whittington-type viscometer (V6). The results are expressed in terms of instrument V5, the viscometer to which all our instruments are correlated. This modification of the Ostwald viscometer requires only 0.7 ml. fluid and has an experimental error of about 0.2% only. The details of the construction, calibration, and use of this viscometer have been given previously (Houston *et al.*, 1945).

In our original technique sodium citrate solution was used as the anticoagulant, but in the present series it was more convenient to use the potassium and ammonium oxalate mixture of Heller and Paul (1934). This produces no effect on the ratio of cells to plasma as measured by the

haematocrit. This anticoagulant was later recommended for E.S.R. estimations (Wintrobe and Landsberg, 1935) and for the estimation of the plasma specific gravity (Phillips *et al.*, 1945). With this solid anticoagulant fewer laboratory manipulations are required and twice as many tests can be handled daily as with the original method. Owing to the diluting effect of the anticoagulant solution the plasma viscosities of citrate plasma are all much lower than the corresponding viscosities of oxalate plasmas.

### Method

Quarter-ounce (7-ml.) capped bottles are prepared for 5 ml. of blood by evaporating in an incubator 0.2 ml. of solution containing 2% potassium oxalate and 3% ammonium oxalate. To such a tube is added 5 ml. ( $\pm 0.5$  ml.) of venous blood, drawn without stasis. The contents are mixed by gentle rocking so as to avoid the formation of froth. In the laboratory this blood is centrifuged in a graduated tube for half an hour at 3,000 r.p.m. The viscosity estimation on this plasma can be delayed up to about four hours without error.

(a) *Haematocrit: Packed Cell Volume (P.C.V.)*.—While the packing in the wide tube is not maximal an approximate packed cell volume can be calculated from the levels in the graduated centrifuge tube. In dealing with large numbers of tests it was found that the above standardized conditions allowed satisfactory comparison of serial results in the individual cases.

(b) *Plasma Viscosity*.—About 1 ml. of plasma is pipetted out and the viscosity estimation completed. This plasma can be recovered for further chemical tests.

(c) *Total Plasma Protein*.—This is estimated by the copper sulphate specific gravity method of Phillips *et al.* (1945). For the total blood volume as measured in the centrifuge tube the concentration of the anticoagulant can be calculated and allowed for. The plasma protein results so obtained were considered only in the full realization of the possible gross error of the method, as we have reported elsewhere (Harkness, 1947; Harkness and Whittington, 1947b).

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Reading a paper on "Smoke and the Public Health" at the Annual Conference of the National Smoke Abatement Society held at Edinburgh on Oct. 1–4, Sir Alexander Macgregor said that further progress towards a cleaner atmosphere might be expected as a result of the increasing application of fuel efficiency methods in industry and in housing. In 1936, 232 tons of smoke were precipitated upon Glasgow as compared with 5 tons at Loch Katrine, and the figure for Glasgow was half of what it had been 30 years ago. In England as much as 500 tons and even 1,000 tons in one place had been recorded as falling on towns. People who worked in a smoke-screen suffered in two main ways: (a) the direct ill effect of breathing smoke-laden air, and (b) the effects of being deprived of sunshine. Smoke had been held to account for some part at least of the higher mortality rate of children under 5 years in pneumonia and bronchitis in the Midland industrial area. It drew attention particularly to the screening off of ultra-violet light by smoke particles, and the necessity of offsetting this effect by adding vitamin D to children's food.



## A CASE OF KERATODERMIA PUNCTATA

BY

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Keratoderma punctata is a very rare disease. The following case is a good example of it and fulfils the criteria for diagnosis postulated by Sweitzer (1923), who stated that "the true keratoderma punctatum should not show a generalized hyperkeratosis or any erythema at the edges of the lesions." Cleveland White (1930) had a similar case treated by chiropody for twelve years without improvement. My patient had been treated by a chiropodist for two months without success.

## Case Report

A gunner aged 32 was admitted to a general hospital in B.L.A. with a provisional diagnosis of "? multiple verrucae of hands." After examination and investigation keratoderma punctata was diagnosed. The patient had had no previous

illnesses or skin disease, and had always been healthy. He was a farmer in civil life and had had four years' service as an infantryman before joining the artillery. The family history was completely negative.

Three months before admission he noticed small hard "lumps" developing in the creases of his palms and on the inner borders of his feet. There was slight pain on walking and on pressure, and the lesions were described by the patient as "plugs which remained for about a week, then dropped out, and new plugs developed." There was no history of his having taken arsenic or any other drug. He was of good physique, and nothing abnormal was discovered in

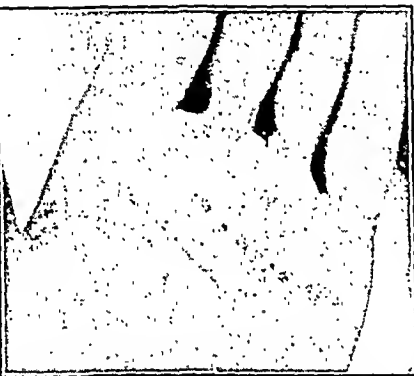


FIG. 1.—Photograph showing crateriform pits, some of which are filled with horny plugs.

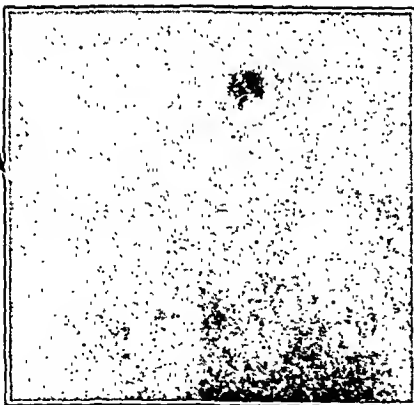


FIG. 2.—Enlarged photograph of actual lesions.

any of the systems. The urine was normal; the Kahn test negative. The general skin condition was normal.

**Hands.**—Multiple small crateriform pits, some empty and some filled with greyish-black horny plugs, were found, entirely limited to the creases of the palms. Generalized hyperkeratosis was not present. Each lesion was surrounded by normal skin and there was no erythema. On the left hand the majority of the lesions were situated in the two distal creases. There were fewer lesions on the right hand, and a number of grouped puncta were situated at the inner end of the distal crease. This group was removed for a biopsy and the report stated: "Hyperkeratosis only. No inflammatory changes present."

**Feet.**—A few grouped lesions were found on the inner borders of the soles of the feet. The skin apart from these lesions was normal. There was no hyperkeratosis, clavus, or other abnormality.



FIG. 3.—Photomicrograph of one of the lesions, showing hyperkeratosis only.

The patient was treated with a keratolytic application—ung. acid. salicyl., 15%, applied thrice daily—with some improvement. He was returned to duty as there was little or no disability.

My thanks are due to Colonel H. J. G. Wells for permission to publish this paper, and to Lieutenant-Colonels F. F. Hellier and G. B. Mitchell-Heggs, O.B.E., for their interest and observations on the case.

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VITAMIN K FOR THE RELIEF OF  
CHILBLAINS

BY

D. P. WHEATLEY, M.B., M.R.C.S.

Chilblains consist of a reaction to cold in susceptible persons. The predisposing factors in such people are assumed to be defective peripheral circulation, with increased permeability of the vessel walls and diminished coagulability of the blood. Such is the description given by MacKenna (1937). It would seem logical, therefore, to treat such a condition with a substance which will correct these abnormalities. In vitamin K we have such a substance, for in avitaminosis K the same abnormalities are present and are corrected by the administration of the vitamin.

Stewart and Rourke (1939) showed that hypoprothrombinaemia results from lack of vitamin K and that the prothrombin level in such cases could be restored to normal by the vitamin. Scarborough and Macfarlane (1942) pointed out that hypoprothrombinaemia gave rise to a delayed coagulation time, and concluded that a capillary defect might also be present in that condition. A somewhat similar state of affairs occurs in the allergic manifestation known as urticaria. Black (1945) studied the prothrombin level in a number of cases of chronic urticaria and found it diminished in 65%. He also found that the condition could be relieved by vitamin K therapy, the most marked improvement, in fact, occurring in those cases with lowered prothrombin level.

On these considerations is based the following small series of cases. Unfortunately, it was not possible to estimate

the prothrombin times in these cases; and the results are based on clinical observations alone. The prolonged spell of severe weather last winter afforded a unique opportunity for assessing the efficacy of the treatment. A commercial preparation of acetomenaphthone, synthetic vitamin K, was used throughout.

### Case Reports

*Case 1.*—A man aged 37 had suffered from chilblains ever since he could remember. He was engaged on outdoor work, which aggravated them. He had tried numerous remedies, including calcium in various forms, a variety of ointments, and a full course of concentrated vitamin D injections, without effect. All his fingers and toes were swollen and dusky red, with signs of ulceration on several of the toes. He was given a single intramuscular injection of 5 mg. of acetomenaphthone. When seen one week later he was ecstatic, saying that for the first time he had obtained relief from his symptoms. His fingers were normal, and the toes showed only a slight residual swelling. A course of 10 mg. orally twice daily was instituted. By the end of a further week all trace of chilblains had disappeared. He was not seen again for two months, when he came up voluntarily to express his admiration of the treatment. During this time he had received no further vitamin K and had continued with his outdoor work. The chilblains had not recurred, and on examination there was no sign of any. The only symptom was a slight tingling in the toes of a few days' duration; this rapidly disappeared with a further course of the drug.

*Case 2.*—A Continental married woman refugee aged 30 had never had chilblains before coming to England. Now she has them all the year through, in a state of continual ulceration. She had tried all the usual treatments—calcium, vitamin D by mouth and injection, and injection of concentrated vitamin D, etc.—with no effect. All her fingers were grossly swollen, reddened, and ulcerated at most of the joints. She was given 5 mg. of synthetic vitamin K by intramuscular injection. Eight hours later the swellings had greatly subsided, although the ulcerations remained unaffected. Unfortunately the injection caused a great deal of pain, and she declined to have more. Instead, a course of 20 mg. orally twice daily was instituted. The patient was seen two weeks later, when there was some duskeness of the fingers and slight ulceration. The swellings, however, had completely subsided and the remaining ulceration was far less than it had been. In addition, there was now no irritation. A month later, however, during which time she had continued treatment, the fingers had again ulcerated and were again irritable; this coincided with the severe weather conditions. Nevertheless, the lesions were not nearly so bad as they had been at first, when the weather had not been particularly cold.

*Case 3.*—A married woman aged 28 had for the last seven years suffered from chilblains on her toes each winter. Last winter they had come on with particular severity and had invaded her heels and even the backs of her legs. They were present most of that season, with acute exacerbations during cold spells. When seen she was undergoing one of these exacerbations, and the back of the lower half of each leg was covered with several large, raised, reddened chilblains. They were not ulcerated, but were giving rise to intense irritation. She was given 20 mg. of acetomenaphthone thrice daily; the first dose was taken in the morning, and by the evening the irritation had ceased. Previously this had been constantly present. She was seen four days later, during which time there had been no irritation, and she was highly delighted with the result. The chilblains on her legs were still present, although there was a definite diminution in redness and swelling. Treatment was continued, and for a week she was free of symptoms. Then, however, the severe cold set in and the irritation started again, although there was no swelling, only dusky bluish patches in the skin. She was advised to continue with the treatment in spite of this setback. Unfortunately, she failed to attend again, and so further results were not known.

*Case 4.*—Personal observations. In this case mild chilblains occur in cold weather only. They never ulcerate, but give rise to intense irritation, most pronounced on going from a cold atmosphere to a warm one. They always clear up with milder weather. The patient, being somewhat averse to intramuscular

injections, had an oral course of 20 mg. of vitamin K daily. After five days of this the chilblains had disappeared. Unfortunately this test coincided with a change in the weather, it was not conclusive. Soon afterwards, however, the weather again became very cold, and this spell lasted for several months and so it was possible to make more conclusive observations. To begin with, 20 mg. were taken twice daily before the chilblains had had time to develop. This did not prevent their appearance, but their onset occurred much more slowly and with much less irritation than before. After five days the doses were increased to thrice daily, and after a further five days irritation had ceased and the swellings had almost subsided. The doses were decreased to twice daily as before, and further trouble was experienced for three weeks. At the end of this time the irritation restarted, so doses were again taken thrice daily and the symptoms cleared in a few days. A maintenance dose of 10 mg. daily proved insufficient to prevent recurrence of symptoms within a few days. Again these were cured by the larger doses, which were continued for the rest of the cold weather—about five weeks, during which time further symptoms were encountered.

*Case 5.*—A married woman aged 21 had some moderate severe chilblains on her toes and heels last winter for the first time. These cleared up after a few days' treatment with vitamin K (20 mg. twice daily) and did not recur on cessation of treatment.

*Case 6.*—A woman aged 21 had had chilblains on her toes and heels every winter for the past four years. They were of moderate severity, but gave rise to such intense irritation that she dared not go very close to a fire for fear of aggravating them. She was sceptical that any treatment could give relief, but, to her surprise, after one week of vitamin K (20 mg. twice daily) her symptoms were greatly relieved and the swellings much reduced. Treatment was continued, but the patient failed to keep any further appointments.

*Case 7.*—A French girl aged 19 had suffered from chilblains since coming to this country several months previously. She had never had them before, and ascribed them to her inadequate diet during the German occupation. Her fingers were affected and were much swollen, but her toes were free. After one week's treatment (20 mg. twice daily) there was little improvement. For the second week bile salts were administered with the vitamin K, and there was now some improvement, the swellings being smaller and bluer. There was, however, no further improvement at the end of a third week, although she considered her symptoms to be somewhat better.

*Case 8.*—A man aged 46 occasionally suffered from chilblains in the winter. When seen he had moderate chilblains, together with infected corns, on his toes only. He was given 20 mg. vitamin K twice daily and his chilblains disappeared in three or four days and did not recur, although he took only one week's course of the treatment.

### Discussion

In this small series of cases the administration of vitamin K would definitely seem to have exerted a favourable influence on the condition known as chilblains. The dosage appears to vary from individual to individual, and is not related to the severity of the condition. On an average a dose of 20 mg. twice daily was found most generally useful. Again, in some cases a short course of treatment was sufficient to give protection for a long period, whereas in others it was necessary to continue the dosage to prevent recurrence of the lesions.

Howell (1941) suggested that prothrombin and fibrinogen might be constantly formed and consumed in the blood, the result being the formation of fibrin, which in some ways might provide nourishment or protection for the cells of the capillary walls. It was on this assumption that the work on urticaria was done.

Might it not be that in chilblains there is a similar impairment of this mechanism, with resultant damage to the capillary walls—the cause in this case being cold rather than allergic stimulus? The individual susceptibility might

explained by a mild hypovitaminosis-K in certain individuals. Kark and Lozner (1939) showed that this hypovitaminosis could in fact occur in adults owing to causes other than liver disease. In any case it would seem worthwhile giving vitamin K a further trial in this widespread and irritating condition.

### Summary

The treatment of eight cases of chilblains, ranging from the mildest manifestation to severe and ulcerated forms, is described. In four there was complete alleviation of symptoms and signs, the response in Case 1 being exceptionally good. In the other four there was an improvement. Two of these patients defaulted before treatment was completed, so the final result as not known. In the remaining two there was improvement, specially of the actual chilblains, although the pernicious condition of the digits remained; and in one there was a recrudescence of symptoms in spite of continued treatment.

As regards the mode of administration it was considered that intramuscular injections were superior to the oral route. They were, however, accompanied by considerable pain, so they had to be abandoned, as the patients were not prepared to put up with this for the possible cure of their relatively minor ailment.

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## CALCIUM DEPOSITS IN THE IRIS IN A CASE OF SECONDARY HYPERPARATHYROIDISM

BY

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The following case is of interest for two reasons: (a) a review of the literature does not reveal any previous reference to such deposits in these cases; (b) renal calculi and metastatic calcification were absent from the kidneys.

Oliver (1939) refers to three cases of hyperparathyroidism, as follows. (i) Dawson and Struthers (1923). A man aged 49 with a long history of multiple fractures, ending in syncope and death; necropsy showed a parathyroid tumour, calcification of vessels (heart, lungs, kidney, liver, spleen). (ii) Lowenburg and Ginsberg (1932) describe the case of a boy aged 5 who received an overdose of parathormone, 100 units daily for 6 days, with resultant vomiting and listlessness after two days, followed by mental depression and high fever. Blood examination on the sixth day showed serum calcium 19.6 and blood phosphorus 4.4 mg. per 100 ml. On withdrawal of the drug the patient became normal. (iii) Hanes (1939) mentions a woman aged 49 who complained of weakness, pains in the legs, and loss of weight. Previous radiography of the kidneys, when in hospital for pyelitis, had shown diffuse fine mottling. Serum calcium was 12 mg. per 100 ml. and renal functions were markedly impaired. Five years later, on final admission to hospital, she had a tumour of the lower pole of the thyroid. Blood calcium was 20 mg., phosphorus 4.7 mg., phosphates 23 mg., and non-protein nitrogen 58 mg. per 100 ml. Skiagrams showed metastatic calcification in the kidneys and decalcification of bones. The patient became weak, depressed, and febrile, and she soon died. Necropsy showed a necrotic partly calcified parathyroid tumour.

Moore (1943) states that calcification had been reported in many organs in hyperparathyroidism, but not in bone-marrow. He mentions calcification in kidney, stomach, heart, liver, and marrow found in experiments on animals. Werner (1942) describes metastatic deposits in the kidney, and says they can occur in other organs and tissues (none mentioned specifically). He also quotes Allbright, Baird, Cope, and Bloomberg for renal calculi; and Dawson and Struthers as finding calcium infiltration in practically every organ of the body. Jaffe (1940) states that secondary parathyroid hyperplasia is found more regularly in connexion with chronic renal insufficiency than in any other condition, and that the hyperfunction becomes severe enough to induce pronounced skeletal and other tissue changes, the chief lesions being skeletal and renal (calculi). Nephrosclerosis is less common. Severe renal insufficiency is followed by calcification in soft parts (subcutaneous tissues and arteries).

### Case History

The patient had a history of having been taken ill in October, 1944, while serving in the East. At that time he complained of loss of weight, loss of appetite, frequency of micturition, and looseness of the teeth. He was admitted to hospital, where the urine was found to be of low specific gravity and to contain albumin and hyaline and granular casts. Skiagrams of the kidneys, after intravenous "uroselectan," failed to reveal the outline of any renal tissue. The blood urea was 140 mg. per 100 ml.

In November, 1944, he became drowsy and the skin dry. At this period he developed a left-sided Bell's palsy; and the ear-drums were found to contain chalky deposits. Soon afterwards vision became blurred, and examination revealed a chalky deposit in the anterior chamber of the right eye and retina—choroidal atrophy. By this time the rough skin showed nodularity, which appeared to be due to chalk-like deposits. Blood examination revealed a serum calcium of 17 mg. and inorganic phosphorus of 4.3 mg. per 100 ml.; the phosphate index was normal. Radiology of the long bones showed widespread osteoporosis.

By February, 1945, the serum phosphate was 22 units (normal 3–13), and a diagnosis of hyperparathyroidism was made. Blood calcium and blood urea could be controlled temporarily by reducing intake of phosphates. The blood calcium fell to 11 mg. and the blood urea to 82 mg. per 100 ml., only to rise again in two weeks. Primary hyperparathyroidism was considered to be the diagnosis.

In June, 1945, the urine volume was 3½ pints (2 litres) daily, S.G. 1012 or less. Urea clearance was 30% of normal, and the blood urea 80 mg. per 100 ml. X-ray investigation showed well-marked calcification of the peripheral vascular tree in places. His general condition had improved, although wasting of the legs was extreme, and the diagnosis of primary hyperparathyroidism was thought to be incorrect because of the normal serum phosphates, absence of urinary calculi, and absence of skeletal weakness (neither fractures nor bowing of long bones).

In February, 1946, the patient was admitted to Childwall Hospital for review. On admission he complained of loss of balance when walking. He was emaciated and there were calcium deposits beneath the nails. Disks and ear-drums were as on previous occasions. In addition the irises showed fine deposits of calcium. Urea concentration was 1.3%, and faeces calcium 60% (normal reading 80% to 90%). Skiagrams of arteries showed slight calcification in the walls of the arteries of both hands, and those of the skull, spine, and long bones revealed generalized slight osteoporosis. Blood calcium amounted to 14 mg., blood urea 52 mg., serum albumin 4.5 mg., serum globulin 1.5 mg., and inorganic phosphate 3.5 mg. per 100 ml. The phosphate index was normal; there was a secondary anaemia with moderate eosinophilia. Examination of the urine showed protein 1%; sodium chloride, 6.5 mg. in 24 hours; calcium oxalate ++, hyaline casts +, and a few granular casts; red cells were occasionally present.

*Progress of the Case.*—Owing to the emaciation present it was considered advisable to put the patient on a fuller diet about

mid-March. His blood urea kept about 60 mg. per 100 ml. and his progress was satisfactory. However, on April 3 he was found to be strange in manner and unresponsive when questioned, and further probing showed that he was suffering from delusions. A diagnosis of uraemia was made and he was given glucose and fruit drinks up to 3 pints (1.7 litres) a day and a diaphoretic mixture; the bowels were attended to, and he also received 1/2 gr. (32 mg.) phenobarbitone s.o.s. He slept well that night and was rational the next day. The blood urea reading was 86 mg. per 100 ml. on April 3, and had fallen to 66 mg. the following day. The blood calcium was 11 mg. per 100 ml. (normal). He usually passed 20 oz. (568 ml.) of urine by day and 26 oz. (740 ml.) at night when receiving normal diet and fluids. This indicated a lack of concentrating power of the kidneys. Shortly afterwards he took his discharge from hospital against advice.

On March 8 the patient had developed auricular fibrillation, which responded to digitalis treatment, the drug being discontinued a month later. His pulse remained regular and the heart steady.

### Comment

The evidence was in favour of a diagnosis of primary chronic renal disease with secondary increase of calcium in the blood. The fact that the blood calcium had become normal was against a primary hyperparathyroidism, as it is usually stated that without operation a primary condition of the parathyroid would not improve. Price mentions that hyperparathyroidism occasionally occurs as a result of chronic nephritis.

Interesting points were (1) the presence of deposits in the irises; (2) the absence of renal calculi; (3) a temporary attack of auricular fibrillation associated with uraemia.

I wish to thank the Director-General of Medical Services, Ministry of Pensions, for permission to publish this article.

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## BABCOCK'S OPERATION FOR THORACIC ANEURYSM

BY

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The operation described by Babcock (1926; 1932) consists of an anastomosis between the common carotid artery and the internal jugular vein of one side. Former operations for these aneurysms had used the principles of reduction of flow of blood through the sac or else the introduction of foreign bodies into the sac. Babcock's operation is based on the principle of speeding up the flow of blood through the sac and thus reducing the pressure of blood inside the aneurysm.

I have had the opportunity of performing this operation in eight cases. The patients were all male Chinese with aneurysms eroding the anterior chest wall; all complained of severe pain and all had a positive Wassermann reaction.

### Method

The operation is performed as follows. Under local anaesthesia a transverse incision is made in the neck (usually right side) about 1½ in. (3.75 cm.) above the clavicle. The sterno-mastoid muscle is cut across and the common carotid artery and internal jugular vein are dissected out and

cleaned. Both vessels are ligated high up, and umbilical tapes are placed around them low down so as to control bleeding. The vessels are divided just below the ligatures and the heart ends are anastomosed. After slowly releasing the tapes and seeing that the anastomosis is watertight the wound is closed.

McCarthy (1930) in an excellent detailed article on the subject discusses the hydromechanics of the operation. Half the circulation to the head is short-circuited back into the heart, and this removes the resistance of all vessels above the anastomosis. Added to the removal of this resistance is the aspiration effect exerted by venous suction. This results in lowered pressure and increased blood velocity inside the sac.

McCarthy uses the analogy of the garden hose with a weak place in its wall. If the water pressure is high and if the spigot of the hose is partially obstructed, the hose will tend to bulge at the weak spot. If, however, the spigot is opened widely, the pressure inside the hose will be reduced, the velocity of the water increased, and the bulge will tend to subside.

### Results

Whatever happens inside the aneurysm, there is one striking immediate result of the operation, and that is relief of pain. This disappearance of pain took place in all but one of my cases and was remarked on by the patient immediately after release of the controlling tapes.

Of the eight patients seven left the hospital improved and relieved of pain. The eighth, who had a swelling as big as a fist on the chest wall, died of external rupture of the aneurysm five days after operation. He had not experienced any relief of pain.

In a personal communication in 1946 Babcock wrote "I have now performed between 26 and 30 of these operations. As some have felt that the relief is due to the division of fibres connected with the carotid plexus, I have had opportunity to note the effect upon pain in four cases of large abdominal aneurysms in which an anastomosis was made between the heart ends of the external iliac artery and vein. In the abdominal cases it was possible to see the effect of the operation upon the aneurysm characterized by a prompt partial collapse of the sac immediately after the systolic wave, showing that prolonged systolic tension was not possible with the large leak back into the veins that had been established. The relief from pain was also striking, particularly in one patient who had required large doses of morphine at frequent intervals before the operation and had complete relief after operation." The operation is an easy one to those familiar with the technique of vessel suture.

At a surgical meeting in Chicago I heard the procedure described by an eminent and thoughtful surgeon as unjustified. It cannot be expected to cure the patient, but surely it is something to be able to relieve his pain, and this is often a distressful feature of these cases.

The only other operation for thoracic aneurysm of which I have had experience is wiring, but I have not observed any relief of pain with this method.

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The Central Office of Information has produced two films on child psychology for parents. The first, "Children Learning by Experience," is a study of children learning in their own way and was designed for teachers in training to provide material for discussion. The second, "Children Growing up with Other People," depicts children's development towards a balance between individualism and co-operativeness.

## Medical Memoranda

### Case of Traumatic Recto-Vesical Fistula

he means and methods of producing impalement of the rectum are various. It has been said that they are more common in country districts owing to accidents with pitchforks and by persons being tossed on the horns of bulls. Perforation by the ivory enema nozzle, formerly said to be common in midwifery cases, provides another type of case, which has now become rare since rubber catheters have replaced the nozzles.

Cases of traumatic recto-vesical fistula are not common. They may be followed by chronic invalidism due to persistent cystitis, pneumaturia, and diarrhoea. The case described was caused by a plant stick, and since then I have heard of no other case produced by a bamboo cane supporting a tomato plant.

#### CASE REPORT

A schoolboy aged 7 was playing in the garden when he slipped on some steps and sat down forcibly on a thin stick supporting a hyacinth plant. The stick passed through his trousers and entered the anus. The child's cry brought his mother to the spot and she took him immediately to her doctor. On examination the doctor found no bleeding from the rectum, no abdominal tenderness, and nothing abnormal on rectal examination. The child had by now recovered from his fright and did not complain of pain or discomfort. In view of this the doctor sent him home and told his mother to report should anything abnormal develop.

The boy continued in perfect health for five days. He had no pain and passed both urine and faeces normally. On the fifth and sixth days he had diarrhoea, passing loose liquid yellow motions. He also had some frequency of micturition, but there was no pneumaturia. On the seventh day the patient still had diarrhoea and now had complete retention of urine, and screamed every time he attempted to pass it. The doctor advised removal to hospital.

When first seen at the hospital the child was found to have a greatly distended bladder almost up to the umbilicus, with slight abdominal tenderness confined to the lower abdomen, and rectal examination was too painful to be carried out without an anaesthetic. Rectal examination was therefore carried out under gas-and-oxygen anaesthesia, and immediately there gushed forth a large quantity of foul-smelling yellow fluid which was obviously infected urine. When the rectum was completely emptied the walls were palpated, and anteriorly a small hole slightly larger than a quill was felt. This hole connected with the bladder. A rubber catheter was tied into the bladder and the urine drained continuously.

On the third day after admission the patient's bowels were opened normally and there was no diarrhoea. Motions continued to be normal until the seventh day after admission, when the catheter was removed; he then passed urine normally.

The patient was kept under observation for another week, during which time both urine and faeces were passed normally. There was no recurrence of the diarrhoea and no pneumaturia. The temperature had remained normal throughout, and the pulse, which was raised at first, was now restored to normal. At the end of the week the patient was discharged. Follow-up has shown that the boy continues in good health and has normal micturition and defaecation.

#### COMMENT

In view of the curved course of the rectum it is unlikely that any pointed object will enter it with force and not penetrate its wall. The clinical history and signs will vary with the size of the perforation.

In cases with small perforations, as above, inflammatory oedema may obstruct the hole: Pinnock (1937) describes a case in which the tear was neither seen nor felt. The value of proctoscopic examination, however, should not be overlooked. The only constant features of traumatic recto-vesical fistula are retention of urine and foul-smelling diarrhoea coming on about the seventh or eighth day. In cases of larger perforations these symptoms may be present from the first, but they definitely get worse at the end of the week. This is confirmed by Breyer (1933) and Galbraith (1937). Pain is not a common feature, as the mucous membrane is sensitive only for 1½ in. (3.75 cm.) up from the anus.

This case demonstrates that a small perforation may be cured by the simple means of passing a catheter and keeping the

bowels confined for a few days. The catheter should be left in until the stools have been normal for four or five days. Larger tears will need more active surgical procedure.

I wish to express my thanks to Prof. A. Rendle Short, of Bristol Infirmary, for permission to publish this case.

G. S. ANDREWS, M.B., Ch.B.

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### Traumatic Valvular Pneumothorax

The following case of traumatic valvular pneumothorax came under my care and typically illustrates the real surgical emergency of the condition. I am prompted to hope it may be worthy of record.

#### CASE REPORT

During a landing exercise at sea a rating was accidentally shot through the left chest by a 0.22 bullet at approximately 150 yards range. He walked several hundred yards from the spot, returned half a mile by sampan to the ship, and unaided made his way to the sick bay, where he instantly collapsed. It was two minutes later when I saw him, supported in a chair, mouth open, and violently throwing his limbs about in a vain attempt to breathe. He was extremely cyanosed, with neck, left shoulder, and chest grossly swollen. The entrance wound was just medial to the middle of the left scapula with the exit wound directly superior to the mid-clavicular point. A rapid examination elicited an obvious subcutaneous surgical emphysema, cardiac displacement, hyper-resonance, and absent breath sounds over the greater part of the left lung. Two lumbar-puncture needles, without time for aseptic precautions, were plunged into the left pleural cavity, one high up anteriorly and the other posteriorly, resulting in the immediate escape of air and an initiation of jerky respiration. Rubber dams were fixed over both wounds and multiple small cruciate incisions made in the neck and upper chest to alleviate the surgical emphysema which was helping to push the trachea over to the right and further obstruct the existing embarrassed breathing. The patient was then put to bed, propped up, and given 1/4 gr. (16 mg.) of morphine, which with reassurance and warmth soon counteracted the excitement and shock. Within half an hour he was asleep but considerably restless: breathing was shallow and regular, the cyanosis had largely disappeared, and the pulse had dropped from 140 to 90. Owing to the restlessness the needles had to be removed. Portable x-rays revealed a large pneumothorax and dulling of the costo-phrenic and cardio-phrenic angles.

He gradually improved for several hours, but then his condition again began to deteriorate and it was decided to perform a more elaborate operation. Under local analgesia a trocar (of copper) and cannula (a steel pin), made on the spot by the engineers, was inserted through the second intercostal space 1½ in. (3.75 cm.) from the sternum, and a thin-bore soft rubber catheter threaded through and connected to a water-sealed bottle of weak antiseptic to effect a slow continual drainage of air from the pleural cavity. By now there had developed acute abdominal pain, with tenderness, rigidity, and boarding especially in the left hyperchondrium; this was treated with hot applications. Next morning the patient felt comfortable, both chest and abdominal pain having largely subsided; breathing was easier, and in general his condition was satisfactory.

He was admitted to hospital on return from sea. Both wounds were excised and drainage was stopped after 36 hours, from which time he made an uninterrupted recovery.

#### DISCUSSION

Only the smaller bronchioles could have been involved, and the initial shock must have been well compensated owing to the relatively long active interval before treatment, response to which was most dramatic and noteworthy. The abdominal pain and boarding presumably were the result of the small haemothorax irritating the diaphragm, coupled with the pressure of the pneumothorax. Fortunately no sepsis set in and the patient was discharged, fit for light duty, three weeks later with only a very small and diminishing pneumothorax present. One interesting feature is a resultant weakness of his left arm. All movements are fairly good but incomplete, and he cannot bear weight satisfactorily, although a slow improvement is taking place. There is no evidence of muscle wasting. The complication is undoubtedly the result of direct contusion of the brachial plexus by the actual bullet, in combination perhaps with some pressure involvement from the surgical emphysema.

G. S. WATSON, M.B., Ch.B.,  
Surz. Lieut., R.N.V.R.



## Reviews

### RENAL CIRCULATION

*Studies of the Renal Circulation.* By Joseph Trueta, M.D., A. E. Barclay, D.M., P. M. Daniel, M.B., K. J. Franklin, D.M., and Marjorie M. L. Pritchard, M.A. From the Nuffield Institute for Medical Research, Oxford. (Pp. 187; 83 illustrations. 25s.) Oxford: Blackwell Scientific Publications. 1947.

This is an unusual book, for it is written more in the form of a narrative than in that of a scientific communication. We learn of the researches (one almost said the adventures) of a team of workers who were led on from an angiographic investigation of the reaction of arteries to trauma into an intimate study of the renal circulation. We cannot escape the infectious enthusiasm of the authors as we read how they first suspected that in certain circumstances the renal blood flow might be largely diverted from the cortex to the medulla, and how the mechanism and anatomy of this shunt were investigated and demonstrated by various beautiful techniques. Fascinating pictures, faultlessly reproduced, illustrate the narrative.

This manner of presenting a major piece of research makes for easy and pleasant reading and leaves one in no doubt that the authors consider their work to be of fundamental importance. It is therefore necessary to examine their claims rather closely. In our view they are fully justified. They have demonstrated beyond any reasonable doubt the existence of a circulatory shunt in the mammalian kidney, a fact which must from now onwards be taken into account in any consideration of renal physiology and which may compel us seriously to modify our interpretation of modern clearance tests. They have shown how unlike in structure are the nephrons of the outer cortex from those of the juxta-medullary zone, and how this difference of structure must signify difference of function. They have thrown new light on the peculiar anatomy of the vasa recta and given us a glimpse into the possible purpose of their unique design. They have suggested obvious lines of approach towards the understanding of such conditions as reflex anuria, cortical necrosis, and the action of certain drugs and nervous stimuli on the kidney, the implications of which must be far-reaching.

With respect, we would offer two criticisms. The first is that the narrative style, although it is well suited to those who want instruction, is inadequate to presenting concrete information to the serious worker who would like to confirm the results and initiate new investigations. We should like to see a series of shorter papers giving protocols of experiments and more details of technique, written up in conventional scientific form. Secondly, we think the authors go too far at this stage in their claim that the shunt mechanism may explain the origin of human essential hypertension. The possibility may properly be suggested, but we think with more reserve than the authors seem to show, for much work remains to be done. Even studies of renal function and blood pressure under varying conditions of renal circulation have yet to be made. The greatest merit of this important work is that the authors propound new techniques and new ideas with which they and others will be able to pursue researches for many years to come. To say only that is high praise indeed.

ROBERT PLATT.

### OBSTETRICS

*Textbook of Obstetrics.* By Gilbert I. Strachan, M.D., F.R.C.P., F.R.C.S., F.R.C.O.G. (Pp. 732; 323 illustrations and three coloured plates. 45s.) London: H. K. Lewis and Co.

A new textbook of obstetrics must arouse interest in these days when thought and practice in midwifery are undergoing considerable changes, and one written with the authority and experience of Prof. Strachan is opened with eager anticipation. As might be expected, it is a thoroughly sound piece of workmanship, well produced and liberally supplied with unusually good illustrations. It is more comprehensive than most books designed for undergraduates, but it conforms to the usual pattern. Dr. A. G. Watkins and Dr. R. L. Drummond contribute chapters

on the newborn child and on blood transfusion respectively. The author unhesitatingly expresses his own opinions, formed after long experience, and also gives an account of many other views and methods. Throughout he lays well-merited emphasis on the need for a conservative outlook in obstetrics and on the general efficiency of natural processes. All will agree with this and many will also approve of the orthodoxy which is a keynote of the book. Others, however, may consider that it would have been improved if it had been less traditional in some respect and if some of the older, even standard, views and methods had been subjected to criticism or had been omitted. The factual information is up to date, and so complete an account of midwifery cannot fail to attract a large number of readers, not only among undergraduates but among graduates seeking further information or studying for higher diplomas.

T. N. A. JEFFCOATE.

### CEREBRAL PALSY

*A Way of Life for the Handicapped Child. A New Approach to Cerebral Palsy.* By Eirene Collis. With foreword by Somerville Hastings, M.B., F.R.C.S., M.P., and an introduction by Winthrop M. Phelps, M.D., F.A.C.S. (Pp. 183. 10s. 6d.) London: Faber and Faber. 1947.

Mrs. Collis, who may be regarded as the pioneer in the treatment of cerebral palsy in Britain, has performed a valuable service in writing this book, which is based on her experience over a number of years in this country and the U.S.A. The educating of these children is slow and laborious and often no appreciable results may be seen for years. Mrs. Collis points out that the team workers engaged in educating and re-educating children with cerebral palsy must possess two main qualities—namely, interest and proper humility. The team, which consists of physiotherapists, occupational and speech therapists, school teachers, and others, must approach the problem of the child as a whole, so that both the mental and bodily aspects can be dealt with at the same time. The author also rightly stresses the importance of a favourable environment for the child, since much of the good work can be undone by mishandling on the part of the parents or other guardians.

The author clearly defines the various types of cerebral palsy and she draws attention to the means of recognizing the condition in the early years of life, for obviously the sooner treatment is begun the more benefit does the child obtain from it. She makes no extravagant claims, for, as she points out, the children are taught to "substitute." By this is meant teaching the child to do with the healthy parts what he cannot do with the injured. Faulty movements are corrected and the child is re-educated to use his muscles rightly by means of physiotherapy (which includes aids such as skis and special chairs) and occupational and speech therapy. Mental education is attended to at the same time by school work, hygiene, and removing emotional disabilities by correcting the environment.

The book can be recommended to all who are interested in this difficult problem and especially to those concerned with the education of backward and crippled children.

LOUIS MINSKI.

### DEVELOPMENTS IN BIOCHEMISTRY

*Currents in Biochemical Research.* Edited by David E. Green. (Pp. 486. \$5.00.) New York: Interscience Publishers, Inc. (215, Fourth Avenue).

In 1937 a group of investigators, all of whom had received inspiration from the late Sir Frederick Gowland Hopkins joined together under the leadership of Dr. J. Needham and Dr. D. E. Green to produce a volume of essays of a speculative nature entitled *Perspective in Biochemistry*. This volume was published in honour of Hopkins's seventy-fifth birthday. Ten years later Dr. D. E. Green, now returned to the U.S.A., has gathered together a group of research workers who have provided "thirty-one essays charting the present course of Biochemical Research and considering the intimate relationship of biochemistry to medicine, agriculture, and social problems." In his editorial preface Dr. Green makes no reference to the earlier volume, of which, however, the present book may be regarded as a direct descendant.

The authors are almost entirely from the U.S.A., and the subjects are as follows:

The Gene and Biochemistry, by G. W. Beadle; Viruses, by W. M. Stanley; Photosynthesis and the Production of Organic Matter on Earth, by H. Gaffron; The Bacterial Cell, by René J. Dubos; The Nutrition and Biochemistry of Plants, by D. R. Hoagland; Biological Significance of Vitamins, by C. A. Elvehjem; Some Aspects of Vitamin Research, by Karl Folkers; Quantitative Analysis in Biochemistry, by Donald D. Van Slyke; Enzymic Hydrolysis and Synthesis of Peptide Bonds, by Joseph S. Fruton; Metabolic Process Patterns, by Fritz Lipmann; Biochemistry from the Standpoint of Enzymes, by David E. Green; Enzymic Mechanisms of Carbon Dioxide Assimilation, by Severo Ochoa; Hormones, by B. A. Houssay; Fundamentals of Oxidation and Reduction, by Leonor Michaelis; Mesomeric Concepts in the Biological Sciences, by Herman M. Kalkar; Viscometry in Biochemical Investigations, by Max A. Lauffer; Isotope Technique in the Study of Intermediary Metabolism, by D. Rittenberg and David Shemin; Mucolytic Enzymes, by Karl Meyer; Some Aspects of Intermediary Metabolism, by Konrad Bloch; The Steroid Hormones, by Gregory Pincus; Plant Hormones and the Analysis of Growth, by Kenneth V. Thimann; Chemical Mechanism of Nervous Action, by David Nachmansohn; Some Aspects of Biochemical Antagonism, by D. W. Woolley; Chemotherapy: Applied Cytochemistry, by Rollin D. Hotchkiss; Biochemical Aspects of Pharmacology, by Arnold D. Welch and Ernest Bucding; Some Biochemical Problems Posed by a Disease of Muscle, by Charles L. Hoagland; Physiology and Biochemistry, by Surgeon Captain C. H. Best; X-ray Diffraction and the Study of Fibrous Proteins, by I. Fankuchen and H. Mark; Immunochimistry, by Michael Heidelberger; Social Aspects of Nutrition, by W. H. Sebrell; Organization and Support of Science in the United States, by L. C. Dunn.

As might be expected from such a diverse group of authors the essays are of an uneven standard, but all are stimulating and sometimes provocative. Each is a survey in clear language by an expert research worker of the important developments in his own field, with some speculation on the most likely paths of future progress. It is a pity that, unlike its predecessor, this volume has no index, since the inclusion of at least a subject index would have greatly added to its value. However, the book achieves its author's aim of assisting those interested in the subject to see biochemistry in clearer perspective and in its proper relationship to other fields of inquiry. This volume is highly commended to all those who wish to learn about the present rapid developments in biochemistry.

F. G. YOUNG.

## THE LOUSE

*The Louse. An Account of the Lice which Infest Man, their Medical Importance and Control.* By Patrick A. Buxton, C.M.G., F.R.S. (Pp. 164. 10s. 6d.) London: Edward Arnold and Co. 1947.

This new edition of Prof. Buxton's monograph will be widely welcomed. Though the first edition appeared only in 1939, recent research has necessitated increasing the size of the volume by nearly half as much again. The author presents much new knowledge of the sensory physiology of the louse and of its behaviour, particularly in relation to the host, and recently obtained information about the incidence of the insect. A useful addition is a very full account of the recent work on the insecticides such as D.D.T. which have revolutionized louse control. Prof. Buxton also includes a short account of obsolete or obsolescent methods for the sake of completeness.

It is to be hoped that the present conditions hampering the publication of medical books are only temporary. More than two years elapsed between the completion of this manuscript and the final appearance of the volume in the bookshops. Such delays are a great disadvantage to research workers waiting for new information to be made available and they must often cause a new book to be out of date before it appears. Fortunately Prof. Buxton's book has scarcely suffered in this way, for he was actively concerned with the work he describes and thus was able to include a certain amount of previously unpublished information. However, perhaps one effect of the lapse of time has been to reduce the bibliography, since the author has been unable to include references to some recent British papers on louse control whose publication was delayed by security measures. American references consequently preponderate, since there has been less hesitation in the U.S.A. about publishing information considered to be secret.

KENNETH MELLANBY.

## BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

*Dr. Samuel Gullrie: Discoverer of Chloroform.* By J. R. Pawling, M.D., M.A., F.A.C.P. (Pp. 123. No price.) Watertown, N.Y.: Brewster Press. 1947.

A biography, with many illustrations, of the American chemist and physician.

*The Fever Bark Tree.* By M. L. Duran-Reynals. (Pp. 251. 8s. 6d.) London: W. H. Allen. 1947.

The story of malaria and the search for quinine.

*Skin Manifestations of Internal Disorders.* By Kurt Wiener, M.D. (Pp. 690. 63s.) London: Henry Kimpton. 1947.

The author describes and illustrates with numerous photographs the skin manifestations of many internal disorders.

*Bovine Tuberculosis.* By John Francis, B.Sc., M.R.C.V.S. (Pp. 220. 25s.) London: Staples Press. 1947.

A monograph on bovine tuberculosis with a detailed comparison between the disease in cattle and in man.

*Transactions of the Association of Life Insurance Medical Directors of America.* 55th Annual Meeting. Edited by H. E. Ungerleider, M.D. Vol. XXX (Pp. 378. No price.) New York: Recording and Statistical Corporation Press. 1947.

Includes papers on rheumatic fever, exploratory electro-cardiograms, thrombosis and anticoagulants, and peptic ulcers.

*A Textbook of Gymnastics.* By K. A. Knudsen. Vol. I. 2nd ed. (Pp. 384. 15s.) London: J. and A. Churchill. 1947.

The author describes and discusses the "form-giving" exercises of the Ling system.

*Drugs from Plants.* By T. I. Williams, B.A., B.Sc., D.Phil. (Pp. 119. 6s.) London: Sigma Books, Ltd. 1947.

An account for the general reader of some drugs obtained from plants.

*Progress in Gynecology.* Edited by J. V. Meigs, M.D., and S. H. Sturgis, M.D. (Pp. 552. 35s.) London: William Heinemann. 1947.

A collection of papers on recent advances in gynaecology intended particularly to refresh the minds of those returning to practice after the war.

*Getting Ready to be a Mother.* By Carolyn C. Van Blarcom, R.N. New English edition edited by Gladys B. Carter, B.Sc., S.R.N., S.C.M. (Pp. 311. 8s. 6d.) London: Macmillan and Co. 1947.

How to prepare for and care for the baby; intended for laymen.

*Poisons: Their Isolation and Identification.* By Frank Bamford, B.Sc. 2nd ed. revised by C. P. Stewart, M.Sc., Ph.D. (Pp. 304. 21s.) London: J. and A. Churchill. 1947.

Intended as a laboratory manual for chemists who have to deal with cases of poisoning.

*Mental Health.* By John H. Ewen, F.R.C.P.Ed., D.P.M.; and C. Friedman, M.D. (Vienna), L.R.C.P.&S.Ed (Pp. 270. 12s. 6d.) London: Edward Arnold and Co. 1947.

A brief account of mental disorder intended for the medical student and practitioner, as well as those concerned with social and educational problems.

*Morphologic Hematology.* Special Issue No. 1 of *Blood*. Edited by William Dameshek, M.D., et al. (Pp. 200. \$4.75.) New York: Grune and Stratton. 1947.

Includes papers on the bone marrow, Hodgkin's disease, phagocytosis, and blood platelets.

*A Textbook of Histology for Medical Students.* By Evelyn E. Hewer, D.Sc. 4th ed. (Pp. 407. 21s.) London: William Heinemann. 1947.

A practical textbook for the medical student; this edition includes a new chapter on protective mechanisms.

*Essays on Contemporary Events.* By C. G. Jung. (Pp. 90. 8s. 6d.) London: Kegan Paul. 1947.

Includes three essays on the state of Europe to-day, and a lecture on the problems facing psychotherapists at present.

## BRITISH MEDICAL JOURNAL

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## FOOD CUTS AND VITAMINS

Last week Sir Stafford Cripps announced that the average daily food intake per head will be less and involve a reduction of calories from 2,870 to 2,700. The Government's experts<sup>1</sup> have estimated that 2,700 calories "per head per day are probably too low." Energy requirements obviously differ, and what is enough for a labourer is probably too much for a clerk. Although exact knowledge is still lacking, it is probable that the intake of first-class protein is too small to allow any margin of safety. Cuts in any food items are naturally reflected in a smaller variety of dishes and an added strain on the housewife, and so probably in less efficient utilization of what food there is. The drought has reduced the milk supply, and a severe winter may once more interfere with the supply of spring vegetables. Yet we are clearly not starving, and there is little evidence that the health of the people of the country is suffering as a result of a tightened belt. With a reduced variety of food and the shortage of things like bacon, eggs, milk, and meat, the practitioner will ask himself, and will no doubt be asked by his patients, whether there is any risk during the coming winter of deficiency in vitamins. Does our present diet, in fact, leave only a small margin of safety—a margin that can be kept only by the most intelligent buying on the part of the housewife? If there is a risk of deficiency in this, that, or the other vitamin, it is a risk that can be covered by the manufacturing chemist. So that the practitioner may have available up-to-date information on vitamins, we have invited Dr. L. J. Harris to give an extended answer to a question that came in for the "Any Questions?" Section of the *Journal*. The other question that must arise in many minds is whether there will be any justification for the widespread prophylactic use of vitamins, apart, of course, from the special instances of nursing mothers and young children.

Though our diet has since 1939 been restricted, its general pattern has not been changed. Before the war our diet, on the whole, was fairly well chosen by those who could afford to choose it well, and since 1939 attempts have been made, in spite of the inevitable restrictions, to correct its faults. The main danger, if we consider only measurable quantities, has been that we should not get enough food to provide the calories we need—now at a level "probably low."

The Ministry of Food has published<sup>2</sup> estimates based on the amounts of imported and home-produced foodstuffs of the average amounts of nutrients consumed per head. According to these estimates the amounts of vitamins and of iron and calcium have risen or changed but little. However, the faith of the most credulous in these

statistics must be shaken by the assertion that we were eating more animal protein in 1946 than before the war. The results of surveys of consumption by representative families made each month by the Ministry of Food conform more with our experience—not unnaturally. These results are withheld from public scrutiny. However Drummond in 1946 published the results of survey carried out in the summers of 1943, 1944, and 1945, and from these we may estimate the average level of our diet.

Working-class families were found to be receiving about 2,700 and middle-class families about 3,000 i.u. of vitamin A a head a day. These figures are rather higher than would be expected, for a normal adult gets under 1,000 i.u. of pre-formed vitamin A; and the usual helping of vegetables, other than carrots and kale, supplies under 1,000 i.u. (if, as is now the accepted practice in this country, the vitamin A value of  $\beta$ -carotene is taken as 1 i.u. per 0.6  $\mu$ g). The Accessory Food Factors Committee in 1945 considered that 3,000 i.u. a day is sufficient. Although the average intake was less than this, the rations of butter and milk assured a regular basic intake; very low intakes must have been much less common than they were before the war.

There has been no danger of vitamin B<sub>1</sub> deficiency since white flour and polished rice were eliminated from our diet and the amount of sugar was reduced. The increase in amount of niacin obtained from flour when the rate of extraction was raised has compensated for that lost by the reduced consumption of meat. With the increase in liquid milk available the average intake of riboflavin has risen. In 1943–5 the average intake of these three B vitamins was more than that agreed for the new standards of the National Research Council of the U.S.A. The vitamins of the B group are found together in foodstuffs; if the food contains enough of the three major members of the group it will contain enough of any other members of the group. According to *Food Consumption Levels*<sup>2</sup> the average intake of ascorbic acid has been higher than before the war, but no allowance was made for losses in cooking. Since the war started the proportion of ascorbic acid derived from fruit, which is eaten raw or loses little vitamin C in cooking, has fallen, and a larger proportion is obtained from vegetables, which lose some three-quarters of the vitamin in cooking. These estimates, therefore, do not indicate the changes in the amounts actually consumed. The actual intakes of ascorbic acid were much less than the figures given in Drummond's table, because he also made no allowance for losses in cooking. During the summer and autumn, when potatoes are fairly new and fruit and vegetables plentiful, the average intakes are satisfactory. But during the first four months of the year, when the amount of ascorbic acid in potatoes is small and other vegetables and fruit are scarce, the average intakes fall very low. The amount of calcium ingested rose with the increased consumption of milk. The apparent total, as shown in Drummond's table, was about 0.1 g. above daily requirement though about 0.1 g. of this total calcium was not absorbed because of the large amount of phytic acid in the flour. The total iron available was also more than required.

These average figures look well enough, but distribution is not even; certain groups rightly have first call on

<sup>1</sup> *Food Consumption Levels in the United States, Canada, and the United Kingdom*. H.M.S.O. 1944. 2s.

<sup>2</sup> *Food Consumption Levels in United Kingdom*. H.M.S.O. 1947. Cmd. 7203. 6d.

valuable foodstuffs. "Ordinary" adults get only 2 pints (1.14 l.) of milk a week during a considerable part of the year. They can obtain only 0.25 mg. of riboflavin a day from milk products, now the chief source, and cannot make up their estimated requirements from meat as they could before the war. They cannot get much more than 1.2 mg. a day, the limit below which signs of riboflavin deficiency may be expected. Milk and milk products have always been the chief source of calcium, but 2 pints of milk a week supply only 0.19 mg. a day. The changes in food supply since 1945 have not greatly altered our intake of vitamins. The cheese ration is now 1 oz. (28 g.) a week less, which reduces the vitamin A intake by 50 i.u. and riboflavin by 0.02 mg. a day. The cut in the meat ration reduces riboflavin by a further 0.02 mg. With the usual scarcity of vegetables and an unusual scarcity of potatoes we shall be getting very little vitamin C in the first four months of next year.

We do not know how much health will be affected by this shortage. It is true that in such studies as those of Bransby and his colleagues<sup>3</sup> there was no evidence that such low intakes impaired health in any way; and the effects of complete deprivation of vitamin C have been cured by daily doses of about 10 mg. of ascorbic acid. But we do know that, unless more fruit can be obtained, our average intake will be well below any of the accepted standards of requirement. With such a narrow margin of safety it may be thought advisable to take extra vitamin in the form of concentrates. There is no evidence that reasonable doses of vitamins A, D, or C can do any harm. But the implication of Marion Richards's experiments<sup>4</sup> is that the ingestion of large amounts of one member of the B group, while the intake of other members remains low, may induce signs of deficiency of these other members. It is therefore advisable to take supplements of the B group in the form of yeast or wheat-germ preparations, which contain all the members, rather than preparations of isolated vitamins. There is no sign that our food will become more appetizing, and the danger remains that people may eat too little simply because they do not like the food they get. There is no reason why education should not effect a change in habits, and why people should not be taught to make their food as appetizing as possible. Owners of gardens or allotments should be encouraged to grow vegetables—root vegetables if not greens—especially for the early part of the year. Flour is an important source of the B vitamins, and any attempt to interfere with its quality in order to make it whiter should be resisted.

## GERMAN TROPICAL MEDICINE

During the earlier part of this century many important advances in tropical medicine were due to German research workers. Their wartime handling of various problems in this field is now revealed in a series of reports by the Combined Intelligence Objectives Subcommittee.<sup>5</sup> The German forces were distributed over the globe less widely

than those of the British and Americans, and their main contacts with tropical diseases, notably malaria, typhus, and dysentery, were in the Mediterranean area and in South Russia. All soldiers were immunized against smallpox, typhoid, and paratyphoid A and B. Other inoculations were also given at various times—for example, against cholera on the Eastern Front in the early years of the war, until it was discovered that this infection was not likely to be widespread.

Malaria was controlled chiefly by mepacrine (atebrin). Apparently this drug was preferred as much from lack of quinine supplies as from any realization of its superior effectiveness. The dosage, based on British pre-war experience in Malaya, was fixed at 0.4 g. weekly, divided into daily doses of 0.06 g. This had no toxic effects, but it was believed to prevent only about two-thirds of the clinical malaria which would otherwise have occurred. The Australians achieved more complete suppression of malaria in New Guinea under much more severe exposure. Their greater success may have been due to the higher dosage employed (0.1 g. daily) or, perhaps more likely, to their strictness in ensuring daily administration. The Germans, in spite of their traditionally rigid discipline, could not enforce this daily dose of mepacrine with the same regularity. There was a general feeling among German malariologists that the administration of pamaquin (plasmoquin) at the end of a therapeutic course of mepacrine lowered the subsequent relapse rate. They had little convincing evidence on the subject, however, and it is doubtful whether the amount they gave (0.02 g. daily for three days) could have had much effect. Little attempt was made during the war to introduce new antimalarial drugs. Although sontoquin<sup>6</sup> had been discovered by the I.G. Farbenindustrie workers about 1938 and was given to some 1,000 patients during the war, there was no attempt to bring it into general use, partly because of the manufacturing difficulties, partly because it was not considered to have any great advantage over mepacrine. Sontoquin (SN 6911) is a 4-amino-quinoline compound, one of a series which has been intensively studied and developed in America, the most favoured member of the group being chloroquin (resochin, SN 7618).<sup>7</sup> D.D.T. derivatives were applied in the later years of the war, apparently on a limited scale, to control mosquitoes. Some clumsy attempts were also made at the Dachau concentration camp to produce immunization by semi-controlled attacks of malaria. This work, involving 1,200 prisoners, was under the direction of Dr. Klaus Karl Schilling, the eminent malariologist, who was subsequently hanged.<sup>8</sup>

The most important infection which the Germans had to deal with was typhus. Soon after the occupation of Poland three institutes were set up there for the preparation of typhus vaccine by means of Weigl's louse-culture technique. Smaller amounts were produced later by the mouse-lung and egg techniques (the last of which was most favoured by the British and Americans), but louse-culture provided their main supply throughout the war. "Sterile" hatched lice were maintained under semi-aseptic conditions for fifteen days. They were then inoculated with typhus

<sup>3</sup> Bransby, E. R., et al., *British Medical Journal*, 1946, 1, 193.

<sup>4</sup> Richards, M., *ibid.*, 1945, 1, 434.

<sup>5</sup> *Combined Intelligence Objectives Subcommittee Reports*, 24, 5: 27, 97; 28, 55; 29, 13, 35.

<sup>6</sup> *British Medical Journal*, 1946, 2, 267.

<sup>7</sup> *J. Amer. med. Ass.*, 1946, 130, 1069.

<sup>8</sup> *British Medical Journal*, 1947, 1, 148.

rickettsiae by inserting a fine glass cannula into the anus. The lice were maintained for a further five days, after which the intestines were removed by dissection and used for the preparation of the vaccine. These two operations, inoculation and dissection, require highly skilled technicians. A good worker with his assistant and a dissecting microscope can inoculate nearly 1,000 lice in an hour, and can dissect up to 2,000 a day. At all stages the lice must be fed on human subjects, since non-human blood is poisonous to them. Usually the feeding is done by holding a small cage of lice against the skin. After inoculation with typhus rickettsiae the lice are infective and only immune subjects can be employed. The Institute at Cracow kept 2,000 Polish subjects for this purpose, and, as they received rather better treatment than the ordinary civilian population and obtained some protection against the Gestapo and similar agencies, there was no difficulty in obtaining volunteers. A single person can feed 10,000 lice daily, losing about 10 ml. of blood in half an hour. Material from 30 to 100 lice was required to complete the inoculation for each soldier. It was calculated that the cost of this material was about 1.8 reichsmark or about 3s. at pre-war rates. The original orders to these three institutes were to produce sufficient vaccine to immunize 2 million men in 1940. One million lice were constantly maintained at Cracow, but later there seems to have been a shortage of vaccine, for another report states that typhus immunization was used only on the Eastern Front, and then it was given only to men over 35 or to those exposed to special risks. The effectiveness of the vaccine was investigated by the S.S. on 150 prisoners, who were all infected with typhus. The disease was not completely prevented by the vaccine, but its course was much less severe and resembled a mild attack of influenza. Of these prisoners 35 had been kept as unvaccinated controls, and 33 died; the other two were fortunate in having had a previous attack of typhus. No drug treatment of typhus came into general use during the war, although a nitro-acridine compound called "rutenol" was shown in the laboratory to have a marked curative action in animals infected with *R. mooseri*.

Bacillary dysentery caused much trouble, particularly in Poland in 1939 and in North Africa. Treatment by sulphonamides, especially sulphapyridine, was eventually introduced, although much later than in the Allied forces. Compulsory vaccination was given against this infection from 1942 to 1944 but was abandoned later because the results were entirely negative. Amoebic dysentery occurred to some extent in North Africa. Cases were treated mainly with di-iodoquin ("enterovioform") by mouth and by emema, apparently with satisfactory results. Emetine was not available in quantity. Schistosomiasis was of no importance for the German Army, but post-war interrogations have shown that laboratory work had produced a new chemotherapeutic remedy, "miracil," which seems promising. So far it has been tested only in animals, in which it is remarkably effective against *S. mansoni*. On the whole, these reports about German work on tropical medicine show many interesting details but few real advances in fundamental knowledge.

## NOBEL PRIZE FOR MEDICINE

The Nobel Prize for medicine for 1947 will be shared between Prof. B. A. Houssay, of Buenos Aires, and Prof. Carl F. Cori and Dr. Gerty T. Cori, of St. Louis, U.S.A. The latter are receiving their share for research "on the course of the catalytic transformation of glycogens," and Houssay his share for "his discovery of the importance of the frontal lobe of the hypophysis in sugar metabolism." Professor Houssay was present at the Physiological Congress at Oxford a month ago, and the present award will be especially welcome in view of the treatment he has received in his own country. Just about a year ago Dr. Houssay, who was Professor of Physiology in the Faculty of Medical Sciences, was relieved of his post in the University of Buenos Aires. According to *La Prensa*, which recorded the fact of Dr. Houssay's dismissal, this was followed by a boycott of the physiology classes by Dr. Houssay's pupils, and by the voluntary resignation of a number of his colleagues indignant at the treatment he had received. We understand that Dr. Houssay was dismissed for political reasons. When the dismissal took place Dr. E. Braun Menéndez, Deputy Professor of the Faculty of Medical Sciences, resigned in order "to reaffirm his solidarity with Professor Houssay, recently relieved of his post, an exemplary master, who with his talent, his work in research and his self-denying dedication to his work has brought honour to the chair of Physiology in the Faculty of Medical Science of Buenos Aires and to the country, deserving without any doubt the respect of posterity." This respect has now been sealed by the award of the Nobel Prize. The year, too, Oxford University gave Houssay an honorary D.Sc. and the Royal Society made him a Foreign Member.

## INVESTIGATION INTO POLIOMYELITIS

It was announced in our Epidemiological Notes (Oct 2 p. 677) that two large-scale investigations of this year prevalence of poliomyelitis are in progress. One is a hospital inquiry undertaken by the Ministry of Health in order to secure more accurate estimates of the fatality and severity of the disease in the present epidemic. The number of cases confirmed as poliomyelitis may be smaller than the number of notified cases, for it has been estimated in some places that one-third or even one-half of those notified were not in fact cases of poliomyelitis.

The other investigation is being carried out by medical officers of health in certain areas. It has been organized at the request of the Ministry of Health by the Public Health Laboratory Service, which is directed by the Medical Research Council. It was initiated in the counties of Berkshire, Buckinghamshire, and Oxfordshire, where orthopaedic out-patient clinics are provided by the Wingfield Morris Orthopaedic Hospital, Oxford. The plan in these counties is to undertake an epidemiological investigation of cases of poliomyelitis and poliio-encephalitis during 1947 and the next few years. A questionnaire was drawn up on the basis of the one used in the Mauritius epidemic of 1945 (McFarlan, Dick and Seddon,<sup>1</sup> and the help of the Institute of Social Medicine was enlisted to ensure that the data would be collected in a form suitable for analysis on the Powers machines there. The questionnaire covers some social and environmental factors as well as such details as age, sex, date and place of onset, and possible source of infection. After completion of the field investigation by the medical officer of health the forms are sent to the Public Health Laboratory, Oxford, where they are examined for any suggestion that cases in different districts shared

<sup>1</sup> *Quart. J. Med.*, 1946, 16, 183.



source of infection which was not evident in the individual cases and which deserves further investigation. The forms are then sent to the hospital, where the diagnosis is checked and some clinical details are recorded. Finally the forms are sent to the Institute of Social Medicine for analysis. The same questionnaire is being used by medical officers of health in some other parts of the country for a survey of their cases with such arrangements for the completion and collection of the forms as suit local conditions. It is expected that the pooling of accurate data from several health districts will yield information which cannot be obtained from individual districts, particularly if cases are few. In some areas which are participating in the survey independent inquiries are being made, and it is to be hoped that the results of these and other investigations will be published as early and as fully as possible.

It is encouraging to know that many people are endeavouring to record the epidemiological features of the 1947 prevalence of poliomyelitis in England and Wales and in Scotland. Virus work on selected cases is being done at the Central Virus Laboratory of the Public Health Laboratory Service, and clinical studies may be expected in addition to those published by Kelleher<sup>2</sup> and McAlpine<sup>3</sup>. Accurate observation and documentation provide the data on which sound epidemiological theory and reasonable preventive measures must be based.

### CENTENARY OF CHLOROFORM ANAESTHESIA

The ill luck and indeed tragedy that clouded the lives of many who played a part in the discovery of anaesthesia were misfortunes that James Young Simpson was fortunate enough to avoid. The centenary of his discovery of the anaesthetic properties of chloroform is the subject of an article at p. 701 by Dr. Douglas Guthrie. About a year ago Morton's demonstration of the anaesthetic properties of ether in 1846 was commemorated in different parts of the world and was the subject of articles in this *Journal*.<sup>4</sup> Since then the story of anaesthesia has been told by various authors.<sup>5-7</sup> Henry Hill Hickman, who experimented on inhalational anaesthesia in 1824, was rejected by his contemporaries and died at the age of 30. John Elliotson, who hypnotized his patients—or, as he put it, mesmerized them—into insensibility was forced by the action of the Council of University College Hospital to resign from his post as physician. Crawford Long gave ether as an anaesthetic in 1842, but escaped fame by not publishing what he did. Horace Wells in 1844 showed that with nitrous oxide teeth could be extracted painlessly, and a year later was unsuccessful when he tried to demonstrate the anaesthetic properties of nitrous oxide in the Massachusetts General Hospital. The quarrels over priority between Wells, Morton, and Jackson unhinged Wells's mind, and after being sent to prison for throwing acid on the clothes of some New York street-walkers he committed suicide in 1848. C. T. Jackson, who tried to "jump the claims" of Morton, ended his life in a lunatic asylum. Morton himself, who was the hero of the celebrations last year, finally became mentally unstable and died in hospital a short time after he had plunged into a lake.

James Young Simpson, of tougher fibre, came through the ordeal of discovery with flying colours, though he, too,

had his fair measure of fierce opposition—an opposition which fittingly in Scotland was based on biblical evidence. But Simpson did not discover chloroform, which was first produced in 1831 by Guthrie in America, Soubeiran in France, and Liebig in Germany, each working independently. According to J. R. Pawling,<sup>7</sup> Guthrie was the first of these three to produce chloroform. He thought it might be valuable as a medicine, but seems to have been impressed by its virtue as an intoxicating drink. It became known locally as Guthrie's "sweet whiskey," and in a letter to his daughter in February, 1848, he wrote: "I could have made a fortune if I had gone to New York as I was urged last fall by making sweet whiskey. . . ." Simpson, who had used ether to relieve the pains of childbirth, was constantly on the lookout for a new anaesthetic, and the hint that chloroform might be worth trying was made to him by Dr. David Waldie; with Keith and Matthews Duncan, Simpson sniffed the vapour from tumblers in his room at 52, Queen Street, Edinburgh, on Nov. 4, 1847. Simpson's account of his use of chloroform as an anaesthetic was published at about the same time in the *Lancet*, the *London Medical Gazette*, and in the *Provincial Medical and Surgical Journal* (the precursor of the *British Medical Journal*). But Simpson seems to have been preceded by others.<sup>8</sup> In the summer of 1847, for example, William Lawrence, surgeon to St. Bartholomew's Hospital, was practising with a new anaesthetic agent called "chloric ether," a solution of chloroform in alcohol, but he published no account of his experiments. And still earlier Jacob Bell, in a footnote in the *Pharmaceutical Journal*, noted the use of "chloric ether" as an anaesthetic in February, 1847—apparently it was tried at the Middlesex Hospital. In February, 1847, too, Flourens anaesthetized "an animal forced to breathe the vapour of chloroform." It is, therefore, not accurate to describe Simpson as the discoverer of the anaesthetic properties of chloroform. Nevertheless, his vigorous advocacy of this drug and his energetic campaign for the relief of the pains of childbirth secure him an unassailable place in the history of anaesthesia. And in acclaiming him for this we should not omit to mention the man who introduced the scientific method into anaesthesia and who gave Queen Victoria chloroform at the birth of two of her children—John Snow, whose portrait Barbara Duncum has put as a frontispiece to her valuable book.

### CARCINOMA OF THE PENIS

The subject of cancerous and precancerous lesions of the penis has recently been reviewed by Melicow and Ganem<sup>1</sup> in connexion with a report of 23 cases. The essential features of cancer of the penis are well known. It is not a common disease; it occurs chiefly after middle life, and it is almost unknown among Jews who practise ritual circumcision. The cancerous process may be secondary to some antecedent local disease such as leucoplakia, the erythroplasia of Queyrat, Paget's disease, or Bowen's disease. The exact importance of such antecedent disease is difficult to determine, and in only two of the 23 cases now reported was there histological proof of its existence. An associated phimosis and infection are present in the majority of patients who develop cancer of the penis, and in fact chronic balanitis in middle life should be regarded as a potentially malignant condition. The precise effect of the retained and infected smegma is uncertain, but it may be that on decomposition it produces carcinogenic hydrocarbons or sterols. Bowing, Fricke, and Counseller<sup>2</sup> reported an antecedent recent circumcision in 34.8%

<sup>1</sup> *British Medical Journal*, 1947, 2, 291.

<sup>2</sup> *Ibid.*, 1947, 2, 658.

<sup>3</sup> *Ibid.*, Oct. 12, 1946.

<sup>4</sup> *The Development of Inhalation Anaesthesia*. Barbara M. Duncum. 1947. Published for the Wellcome Historical Medical Museum by Oxford University Press. Price 35s.

<sup>5</sup> *Victory over Pain. A History of Anaesthesia*. Victor Robinson, M.D. Sigma Books, London. Price 16s.

<sup>6</sup> *Dr. Samuel Guthrie, Discoverer of Chloroform*. J. R. Pawling, M.D. 1947. Brewster Press, Watertown, New York.

<sup>7</sup> *J. Urol.*, 1946, 55, 486.

<sup>8</sup> *Radiology*, 1934, 23, 574.

of their series of 195 cases of carcinoma of the penis, but the probability is that the malignant process was actually present at the time of the circumcision. In this connexion an unhealing circumcision scar in an adult should always be viewed with suspicion. The local penile disease usually starts on the glans at the corona, either as an external papillary excrescence or as an indurated ulcer, and it may have been preceded by a precancerous lesion which was not discovered on account of the phimosis. The lymph drainage is into the superficial inguinal glands, the deep inguinal glands, and the external iliac glands, and owing to the free anastomosis of the penile lymphatics there may be deposits in the inguinal glands on the opposite side to the primary lesion. The urethra is involved only in late cases, and abdominal metastases are rare. The disease may also spread by extension via the dorsal vein of the penis.

Diagnostic difficulties may be great on account of the association of phimosis, balanitis, and cancer, and at times it may be impossible to determine clinically whether or not a malignant process is actually present. Biopsy of the primary growth or biopsy of the inguinal glands by puncture may be useful if frozen sections are available and immediate operation can be carried out. There is still considerable difference of opinion on the best method of treatment, but the treatment in the individual case must be determined by the patient's age, the size and nature of the lesion, the involvement or not of the corpora cavernosa, the presence of inguinal metastases, and the importance and site of any superimposed infection. Partial or complete amputation of the penis with bilateral resection of the inguinal glands is the method of choice. The safety of the operation should be greatly increased by modern methods of controlling infection. Local recurrence of the penile growth is unusual. There is still, however, great difference of opinion on the value of irradiation in treatment. Circumcision and personal hygiene are the only two prophylactic methods which are likely to reduce the incidence of carcinoma of the penis, but there will be no general support for the authors' contention that routine circumcision should be carried out in babies in order to prevent the development of penile cancer.

### INDIUM

The high price of indium still limits its application, but the entire world stock, which exceeded 2 tons in 1934 and was chiefly held in America, has been considerably augmented since 1940, and its use in electroplating, as a constituent of alloys for dental prosthesis, in jewellery manufacture, and in the radio and television industry may extend greatly in the coming years. Animal experiments have already shown that given by mouth its toxicity is low. The dosage for man equivalent to that which produces poorly defined subnormal states in animals would be about 123 gr. (8 g.), but the quantity of indium which dissolves in acids makes its use in metal food-containers undesirable.<sup>1</sup> Its irritant property, as tested on human skin by the wearing of indium-treated silver plates, is not sufficient to constitute any industrial hazard.<sup>2</sup>

It is toxic, however, when injected into animals subcutaneously or intravenously. If amounts sufficient to cause death are injected the organ most severely affected is the liver, and there is evidence also of renal damage. In some recent animal experiments,<sup>3</sup> where the dosage given produced "subacute" poisoning allowing survival of the animals for three to six days, the lesions observed were selective, affecting the liver, kidneys, heart, and submaxillary glands, but sparing the pancreas, testes, suprarenals,

brain, and parotid glands. The type of lesion was not less specific—the degeneration was hyaline and parenchymatous in character, never fatty or pigmentary. Thus, in the liver the hyaline degeneration, leading eventually to necrosis, was sometimes vesicular or hydropic. In the kidneys some of the tubules were completely necrosed while others remained unaffected. In the heart the characteristic lesion was hyaline transformation of the striated muscle fibres. Only rarely, as by contact with lacerated tissues, will the effects of indium on man be in any way comparable to those noted in animals receiving subcutaneous injections. Yet because such conditions might occur in industry indium cannot be dismissed as completely harmless, and it is useful to know what lesions might be produced in the remote eventuality of gross overdosage.

### TREATMENT OF UNDULANT FEVER

Undulant fever is one of the diseases the treatment of which has been little, if at all, affected by the introduction of sulphonamides and antibiotics. There have, indeed, been reports of recovery after sulphonamide therapy, but in many other instances it has proved ineffective, and the recoveries were probably coincidental. The experimental administration of sulphonamide drugs to infected guinea-pigs has shown that they can eliminate the infection, but only when given in doses so large as to approach, or pass the toxic level.<sup>1, 2</sup>

Huddleson,<sup>3</sup> however, has recently reported that when non-inhibiting high dilutions of many sulphonamide compounds are added to liquid culture medium containing *Brucella* sensitizing antibody in high dilutions and complement then the organisms are inhibited and killed. This occurs not only *in vitro* but also *in vivo*. Guinea-pigs infected with *Brucella* organisms can be freed of infection by the oral administration of normal doses of sulphonamide drugs combined with the injection of weak antiserum, such as normal rabbit serum. From the serum of animals so treated Huddleson has isolated the sulphonamide drug and the antibody in combination, and he believes that the effect of the drug is to potentiate the bactericidal action of antibody plus complement.

It is a little difficult to understand why an injected weak antiserum, potentiated by a sulphonamide drug, should have a bactericidal effect, while the serum of an infected animal or man, often of a high agglutinating titre, has no effect. Huddleson explains this on the basis of the Neisser-Wechsberg phenomenon—a serum may be bactericidal in high dilution yet not in low dilution. Having successfully treated infected animals, Huddleson applied the method to four patients suffering from undulant fever. They had all been ill for a considerable time and were being given sulphonamide drugs. He advised that the dosage should be reduced and that they should be given blood transfusion. No special care was exercised in the selection of the donor, it being assumed that all normal human blood contains bactericidal *Brucella* antibody. The treatment was carried out and the four patients soon recovered.

Huddleson's observations may prove of fundamental importance and have wide application. Meanwhile it would be of interest if others would repeat, and report on this suggested treatment of undulant fever. The administration of small doses of sulphonamide drugs (sulphadiazine or sulphamerazine is recommended) together with blood transfusion can hardly do harm, and any treatment which holds out a hope of cure of this refractory disease is to be welcomed.

<sup>1</sup> Harrell, C. G., Need, S. F., et al., *J. Industr. Hyg.*, 1943, 25, 233.

<sup>2</sup> McCord, C. P., Meek, S. F., et al., *ibid.*, 1942, 24, 243.

<sup>3</sup> Vignoli, Poursin, et al., *Arch. Med. Profess.*, 1946, 7, 356.

<sup>1</sup> Wilson, G. S., and Maier, I., *British Medical Journal*, 1939, 1, 8.

<sup>2</sup> *Ibid.*, 1940, 1, 47.

<sup>3</sup> Huddleson, I. F., Communication to the Fourth International Congress of Microbiology, Copenhagen, July, 1947.

## CENTENARY OF CHLOROFORM ANAESTHESIA

BY

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A year ago the birthday of ether anaesthesia was duly and fitly celebrated the world over. The discovery in 1846 of ether as an anaesthetic was the climax of an age-long search. That it was so long delayed is truly remarkable. Many a time down the ages it had been so nearly found. There had been the nepenthe of Helen of Troy, which brought forgetfulness of every sorrow; the mandragora of Dioscorides, which remained in use until the Renaissance; the physical methods, such as pressure on nerves or freezing, which have been strangely revived in modern times; and the mesmerism for which John Elliotson fought so hard and which was the favoured line of anaesthetic research at the time when ether appeared on the scene and, in the words of Robert Liston, "beat mesmerism hollow."

In a few days the birthday of chloroform anaesthesia will be celebrated, and some may wonder why we should not simply honour the American pioneers of ether anaesthesia, and leave it at that. Was not chloroform simply another anaesthetic? Yes, but it was more. Just as Lister discovered not carbolic acid but the antiseptic method, so did Simpson, eighteen years earlier, discover not only chloroform anaesthesia but an anaesthetic method. Anaesthesia became a science under Simpson's guidance.

### James Young Simpson

It is advisable to give some account of his life work, familiar as it must be to many readers. Born at Bathgate, Linlithgowshire, in 1811, James Simpson was the son of a baker whose family was large while his resources were small. Jamie seems to have been an unusually bright child, filled with that insatiable curiosity and desire for knowledge which marked the youth of John Hunter and many another genius. The family resolved that Jamie should have a good education, and from early boyhood he was marked for the medical profession. He was still a youth when his parents died, but the paternal care was continued by his elder brother Sandy, while his sister Mary became to him a second mother. When he entered Edinburgh University he was "very poor, very solitary, and almost friendless," but he soon showed his worth, graduating M.D. in 1832. An incident of his student days turned his attention to anaesthesia: it was during his attendance at an operation—and very little imagination is required to enable one to picture the horrors of surgery without anaesthesia and the agony endured by the central figure on the table. James Simpson's whole soul revolted at the sight as he left the Infirmary and sped towards Parliament House, resolved to exchange the profession of medicine for that of law. Success would have followed him there, or indeed anywhere. On second thoughts, however, he determined that he would try to relieve pain instead of running away from it. The opportunity was soon to come. It was John Thomson, the professor of pathology, whom he assisted,

who suggested to Simpson that he might do well to specialize in obstetrics. Thomson himself had tilled many fields—anatomy, military surgery, and then pathology. He had been the first professor of each subject, and it is not surprising that Knox, the tragic anatomist, called him "the old chair-maker." A few years later the chair of midwifery fell vacant. Simpson had set his heart on it, and he was well prepared. Many thought him too young, and on hearing this he determined that he would indeed be young. On an impulse he sat down and signed his application James Young Simpson.

Appointed to the chair by the majority of a single vote, he now entered upon his duties with characteristic energy and enthusiasm. Soon he became recognized as the leading British obstetrician. His classroom attracted many students; his house was filled with those who came for healing and those who came to learn. To all of them he accorded generous hospitality.

### David Waldie

All this time he was pre-occupied with the mystery of pain, for which as yet there was no remedy. When the news of the American discovery reached him, he told his brother that it was "a glorious thought" and that he "could think of naught else." In January, 1847, he was the first to use ether in obstetric practice. But before long it was apparent to Simpson, as to many others, that the ideal anaesthetic had not been found. Ether was slow and uncertain in action, it was often irritating to the air passages, and special apparatus was required for its administration. Something better might be discovered, and Simpson resolved to discover it. His method was the simple one of self-experiment, his assistants also lending their aid as subjects for the trial of various drugs. All Simpson's friends were aware of his quest, and many suggestions were offered. Dr. David Waldie, a Linlithgow lad who had become a chemist in Liverpool, thought that chloroform might be worth trying, and Simpson acknowledged this hint and acted upon it. There is no evidence to prove that Waldie made any experiments on his own account, and certainly he published no results, but he de-



James Young Simpson

serves honour for his suggestion. Another share of the credit is due to Simpson's assistants, Keith and Matthews Duncan. For several months before the discovery the trio used to meet in Simpson's dining-room at 52, Queen Street, after their day's work, in order to inhale, from no apparatus other than simple tumblers, all manner of likely and unlikely vapours. It was a bold venture, and it is not surprising to learn that Simpson's next-door neighbour, Prof. James Miller, would often look in at breakfast-time "just to inquire if everyone was still alive."

### The Experiment

On the evening of Nov. 4, 1847, after several useless efforts, there was produced from a waste-paper basket, so it is said, a little bottle of chloroform which had been prepared by Prof. William Gregory, as Waldie's promised sample had not arrived. It looked heavy and involatile, but Simpson poured a little into his tumbler. He was too well aware of the risks to permit a simultaneous experiment by all three observers. Very soon Keith and Duncan noted the effect on their chief. They too

sniffed the vapour from their tumblers, and soon all were unconscious, Duncan snoring loudly and Keith, having slipped from his chair in the 'stage of excitement, kicking at the table legs. Naturally, Simpson recovered first, fully aware that he had discovered something "far stronger and better than ether." And so indeed it proved. Within a short time chloroform had



"Anaesthesia" at the age of 17. The first child to be born while the mother was under the influence of chloroform administered by Prof. J. Y. Simpson.

displaced ether and had become the anaesthetic of choice all over the world, save perhaps in the northern States of America, the original home of ether.

Of course Simpson never claimed to have discovered chloroform, nor did he claim to be the first to use general anaesthesia. The substance chloroform was first produced about 1831 by Guthrie in America, Soubeiran in France, and Liebig in Germany, each chemist working independently of the others. Since then it had been used as an internal remedy; indeed it is so used to this day.

Simpson was, however, the first to demonstrate the anaesthetic properties of chloroform. Within a week of his discovery, on Nov. 10, he read a paper to the Medico-Chirurgical Society entitled "An Account of a New Anaesthetic Agent as a Substitute for Sulphuric Ether in Surgery and Midwifery." The contribution was printed and published on Nov. 15, by which time Simpson was able to add notes on the employment of chloroform anaesthesia in three cases at the Royal Infirmary. The first patient was a Highland boy who could speak only Gaelic. His name is unfortunately not known to us. From his arm Prof. Miller removed a large sequestrum of the radius, Simpson acting as anaesthetist. It was natural that Simpson should also introduce chloroform into obstetric practice. The first child whose mother enjoyed its beneficent influence was the daughter of a Dr. Carstairs, of Edinburgh, who was duly christened "Anaesthesia." Her career cannot be traced, but a photograph of her at the age of 17 stood on Simpson's desk and he called her his patron saint, "St. Anaesthesia."

### John Snow

It now seemed as though chloroform would fulfil the anaesthetic ideals of efficiency and safety. "Never mind the pulse, but watch the breathing carefully," was the watchword of Simpson and his disciples. Lister wrote a most valuable paper on chloroform anaesthesia, which is still well worth reading, and he stated that Syme had performed five thousand operations under chloroform without a death which might be attributed to the anaesthetic. Lister's paper appeared in 1861. But long before that date a disquieting series of deaths had been reported from various quarters, and the safety of the new anaesthetic had been called in question. Attention was now turned to the need for accurate dosage to replace the somewhat haphazard "rag and bottle" method.

Among those who promoted the safety of chloroform administration by new dosimetric methods was John Snow, who had already won fame by proving that cholera was a water-borne disease. Turning his attention to anaesthetics, and especially to chloroform, he was the first in Britain to limit his practice to anaesthetics, and it was he who administered chloroform to Queen Victoria at the birth of Prince Leopold and subsequently of Princess Beatrice. The name of Snow well deserves to be linked with that of Simpson. Although chloroform lost some of its popularity when its safety was questioned, it retained its place as the principal anaesthetic until the turn of the century. Indeed, the words anaesthesia and chloroform became synonymous, and the verb "to chloroform" was in constant use. As time went on, the use of ether was revived. There was a contest between ether and chloroform; new mixtures, new sequences of other vapours and gases, were used; premedication by various narcotics came into fashion, and anaesthesia gradually became one of the most exact and precise of the medical specialties.

### Simpson the Many-sided

Of the modern position of chloroform in anaesthetic practice I am not qualified to express an expert opinion. No doubt the Centenary Celebration to be held in Edinburgh next week will call forth opinions regarding chloroform as used to-day from expert anaesthetists who can speak with authority. But perhaps one may be allowed to conclude this note by a few further remarks on the discoverer, Sir James Young Simpson, who became the first Scottish medical baronet in 1866, four years before his death. Although chloroform anaesthesia was his greatest achievement, it was by no means his only claim to distinction. He wrote voluminously on homoeopathy, on "hospitalism"—his suggestions have quite a modern flavour—and on many another subject. In his promoter's address at the Edinburgh Graduation Ceremony of



Room at 52, Queen Street, Edinburgh, in which anaesthetic value of chloroform was discovered.

1868, he remarked that "by means of electric lights the human body might one day be rendered transparent. "Thus he prophesied Roentgen's discovery. Simpson's greatest campaign, and one on which he laid much stress, was his advocacy of a means of controlling haemorrhage by means of needles, so as to avoid the silk ligature which promoted and perpetuated sepsis. Acupressure, as he called it, brought him into conflict with surgeons, who resented his encroachment upon their domain. The introduction of the antiseptic method, strangely enough, was opposed by Simpson, who asked Lister to show his "mythical germs." Nevertheless this method led Lister to introduce the catgut ligature. There was then no need for acupressure, and soon it was entirely forgotten. The versatile outlook and abounding energy of Simpson could not be limited by his own specialty of midwifery, although he advanced that science in no small way. Nor did he limit his investigations even to the wider field of medicine and surgery, although he contributed to both.

In some strange fashion, amid the claims of a huge practice and of many medical interests, he found time to establish himself as an authority on archaeology. His essays may still be read with interest—on Scottish charm stones, on medical officers in the Roman Army, on leprosy in Scotland, to mention only three, written with a conviction that reveals his wide and varied store of knowledge.

Simpson believed in living strenuously. But even his happy possession of the ability to fall asleep at any time or in any circumstances did not altogether relieve the heavy strain imposed upon his sturdy frame. He fell a victim to coronary thrombosis, "the doctors' disease," and died in his fifty-ninth year. He earned the gratitude of many a sufferer, and it is fitting that he should be remembered to-day and honoured for all that he did, especially in his great service to the science of anaesthesia one hundred years ago.

## A METHOD OF ABDOMINAL PALPATION

BY

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The conventional method of abdominal palpation, with the patient supine with (or without) the legs drawn up and with (or without) a cushion under the shoulders, though generally sufficient, is sometimes difficult on account of the tonicity of the abdominal muscles, the amount of fatty tissue, or the inability of some patients fully to relax the abdominal wall. This inability may be the result of nervousness or misunderstanding, or even a desire to be helpful. Moreover, the placing of the hand beneath the lumbar region for palpation of the kidney often causes the patient to lift himself in a desire to help, though actually it makes palpation more difficult.

In tropical practice, where patients are more numerous, the time taken in explaining to an uneducated native that he must lie on the couch, on his back, and not keep lifting his head to see what is being done, is another disadvantage; besides which, a chair or table is not always available in itinerant practice, and the native bed is too low for convenience. The alternative—of laying patients on the ground—is tiring if there are many to examine.

Such considerations led to a search for a method which would assure complete relaxation of the abdominal wall, which would dispose of the need for a table or chair, and which would avoid the time spent in placing the patient suitably on a table for examination. The thick fatty abdominal wall common in European practice is relatively uncommon in Africa. The method to be described was suggested first by remarking the ease with which one can examine the spleen of a child if he is made to bend forward and hang the head down. Nicholson's method (of restraining thoracic respiration with one hand) has the disadvantage of maintaining one hand in a state of muscular tension while trying to palpate with the other. Marshall (1933) described a "dangle" method similar to that of the palpation of the spleen referred to, but with the patient seated and the surgeon standing behind.

The following method is recommended because of the complete relaxation afforded, the fact that neither chair nor table is essential, though a chair is useful, and because an uncooperative patient, breathing normally, cannot contract his abdominal muscles in this position and thus frustrate the examination.

## Details of Procedure

The examiner stands on the patient's right, and instructs him to bend forward with his arms and head dangling down. The patient may be standing or sitting. The examining hand (the right) is passed between the hanging right arm of the patient and his abdominal wall, then right across the abdomen until the left anterior superior iliac spine is felt. It is much easier in palpating to pull the hand back than push it forward. The left hand is placed on the patient's back opposite the palpating hand and its position changed with that of the latter. This hand serves to steady the patient and also to act as counter-palpation to the hand on the abdominal wall.

The routine examination is as follows: Starting at the left anterior superior iliac spine, the hand is drawn inwards and upwards along the iliac fossa to palpate the iliac colon and iliac glands. The ureter is sought (and is often palpable in thin patients) at the pelvic brim (Tournoux's point). Returning then to the iliac colon, its course is followed upwards to the subcostal region. The left hand then pushes forward in the left costo-vertebral angle to facilitate palpation of a kidney. One then feels for the spleen. Crossing the upper abdomen, the right lobe of the liver is palpated beneath the costal margin, and often one can flip it across the fingers and so estimate its consistency, size, and surface. This examination is made easier if the fingers are hooked under the costal margin. The region of the gall-bladder is also palpated. The left hand, which has followed the right across to the patient's right, now presses forward with a view to palpation of a kidney, and the right colon is then followed down to the caecum, and the right ureter is also sought. Finally the examining hand is replaced across the lower abdomen and the suprapubic and the inguinal regions palpated. In a lax abdomen with thin walls it is often possible to pass the fingers into the pelvis from above, giving the sensation of putting the hand into a basin covered with a blanket. If necessary, the examination can be completed with a bimanual examination of the prostate.

## Comment

The advantage of this method, apart from those stated above, is that the whole abdominal palpation is bimanual, allowing thus for a more definite impression of the consistency and extent of any palpable structure. The simple downward palpation of the conventional method fails somewhat to assure this, in that the counter-pressure is made by the inert couch.

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## DEAF-MUTISM IN SWITZERLAND

Prof. Ernst Hanhart, of the University of Zurich, who has been working for many years on problems of genetics in certain selected Swiss populations, paid his first visit to England on Oct. 7 to deliver the Galton lecture—the first for eight years—at University College, London. His subject was human genetics, with special reference to deaf-mutism and other abnormalities.

In Switzerland the average number of deaf-mutes has been given as 24 per 10,000 population, as compared with only 8 per 10,000 in Europe as a whole. Prof. Hanhart said that Switzerland was an excellent theatre for genetic study because of the many villages which had been virtually isolated for centuries. He had a number of family histories going back to 1600, and the standard of observation by general practitioners and hospitals was so high that few important cases of variation were missed. Even now, in a time of change, very few movements of population disturbed these quiet valleys, and complete family pedigrees could be collected without much difficulty. In almost every region of Switzerland records of family histories were available, and fortunately there was very little venereal disease to complicate the picture. The frequency of pathological mutations was relatively high among these isolated communities, where the marriage of cousins and incestuous unions were not infrequent. At the same time there were isolated communities which showed almost no pathological mutations.

Prof. Hanhart's lecture was illustrated by some elaborate diagrams showing pedigrees in which cases of deaf-mutism and of diabetes mellitus occurred sporadically. His investigations had extended over twenty-five years, and he had endeavoured to consider not one character or condition alone but all the accompanying constitutional features. In one village with 2,400 inhabitants near the eastern end of the Lake of Geneva there were 49 deaf-mutes. Deaf-mutism might appear in an ancestor and not be repeated for two successive generations, then reappearing. In one instance a man in this region married a woman



from another region, so that no question of consanguinity arose, but the woman had two deaf-mute sisters, and the children of this marriage, nine in number, included three deaf-mutes. A man not a deaf-mute, but with deaf-mutism in his ancestry, married twice and by each marriage had deaf-mute children. Another example of these strange and wayward manifestations was of twins, a deaf-mute boy and girl with normal hearing. The reputed father was a deaf-mute, but on further inquiry, including blood tests, it was eventually shown that the twins were born of an incestuous union between the mother and her own father.

Although it was to be expected that when two deaf-mutes married all their children would be deaf-mutes, this did not always occur. He had one case where the child of such a union, born a deaf-mute, was able later to hear and to speak. He declared himself strongly against the sterilization of deaf-mutes. Deaf-mutism was sometimes seen in association with cretinism, but cretinism was produced by other factors and had now largely disappeared from Switzerland as a result of the much better feeding of the people. He protested against the idea that deaf-mutism necessarily went with feeble-mindedness. The greater number of these deaf-mutes were intelligent and conscientious workers, not to be distinguished, except by their deaf-mutism, from the general group. Prof. Hanhart also showed the family histories of nearly one hundred cases of diabetes mellitus. A number of families, he said, carried two mutations—deaf-mutism and some derangement of metabolism.

### NEW CONTINENTAL HOSPITALS

A delegation from Charing Cross Hospital was sent recently by King Edward's Hospital Fund for London to study methods of hospital design and planning in Europe. It consisted of three members of the medical staff (Mr. Norman Lake, Dr. H. W. Vines, and Dr. Doyné Bell) and one experienced hospital lay administrator (Sir John Stewart-Wallace). Five hospitals were visited, namely, the Bürgerspital at Basle, completed in 1945, which was the subject of an illustrated article in this *Journal* (Oct. 5, 1946, p. 500), where it was described as a landmark in municipal hospital building; the Polyclinic at Zurich, also completed in 1945, together with the special hospital for children in the same city; the Beaujon Hospital at Clichy, Paris, completed in 1935, and the new Southern Hospital at Stockholm, completed in 1944. All these hospitals are owned and controlled by the city, or in Switzerland by the canton, not by the State.

In a long report to the committee of the Fund the delegates begin by pointing out that hitherto the planning of a hospital has been left largely to the architect, but, inasmuch as the hospital is an apparatus to be worked by doctors for the benefit of patients, both doctors and patients ought to be invited to share in the planning from its earliest stages. One of the striking features which impressed them on their tour was the extent to which on the Continent the experimental approach towards reconciliation of conflicting claims and the maintenance of a balance between various interests has replaced tradition in the solution of problems of hospital organization. For example, at Stockholm even the walls have been shifted to try out various patterns of floor spacing, and at Zurich a hut was attached to the old hospital building with all the services laid on, and here patients were admitted over a period of two or three years. The advantages and shortcomings of the different arrangements were discussed at periodical meetings of the planning committee, and the final decisions were made accordingly.

#### Variations in Planning

The Beaujon Hospital, Paris, is a vertical building of fourteen floors—an exaggerated reaction from the pavilion type. Unfortunately, although the hospital is built vertically, the departments are planned laterally in the attempt to make each floor an independent unit. The new Polyclinic at Zurich is part of an extensive rebuilding plan of the Zurich Hospital Centre, and is partly under the control of the cantonal health department as a public hospital and partly under the education department as a university school. The new hospital at Basle contains some 700 beds for general surgery and medicine, with an isolation block for infectious diseases and tuberculosis. The

Stockholm hospital is a massive building with the flat, unrelieved surfaces which are a characteristic of Swedish domestic architecture. When completed it will take 1,200 patients.

The form of these large hospitals seems to be fairly standardized on the principle of two separate blocks, one for in-patients and the other for out-patient services, the two being connected by transverse corridors. The central administration rooms are sited in the main hospital building, not in a separate block. In all except the Paris hospital there are private beds for the use of honorary members of the staff. At Basle there are 3 private beds of the first class for which patients pay full private fees, and 70 of the second class for which reduced fees are paid. At Stockholm there are 93 private beds; an average of five or six for each department head. The methods of internal administration differ. At Basle there is a hospital committee of management appointed jointly by the canton and the town and containing two medical members, with an advisory committee consisting of the heads of the departments. There is a lay director at Zurich and a medical superintendent at Stockholm; at Paris the visitors failed to discover whether the head of the hospital was medical or lay.

All the hospitals are planned on the basis of the clinic as a unit, with a professor or someone of similar standing at its head. The position carries with it at most of the hospitals the right to practise privately. In Sweden and Switzerland the heads of departments are provided with good suites of rooms including rooms for consultation and examination. At Basle they are paid about £45 a month for their hospital work, and also receive private fees and a capitation fee of about 6s. an hour for each student. Swiss professors have a number of official assistants who, at Basle, are paid about £600 a year and below them are house officers whose salary is £420. In Paris there is a special building of flats for married medical and technical staff; the building is said to house 40 families. Shortage of nurses and domestic staff seems to exist everywhere.

#### European Hospitals and Medical Teaching

None of the hospitals mentioned is a full teaching school in the British sense; students attend only for clinical instruction. In Paris the unqualified students seem to be used freely in positions of some responsibility. A department may be staffed by the senior chief of the service, with, under him, a house officer who is often not fully qualified, and with four student externs. If the students wish to do so they can become externs after one year's clinical training, and remain as such for four years. Then they can become interns for four years more. In Sweden the medical course extends for eight years: three years' pre-medical and pre-clinical and five years' clinic work.

The report contains a vast amount of useful detail on such matters as ambulance unloading arrangements, night service, mobile bed equipment, nursing organization, preparation of service of meals, and siting of kitchens. The two-bed room met with fairly frequently—an arrangement which was popular at the new Queen Elizabeth Hospital, Birmingham. The delegates suggest that a 25-bed unit might be most probably arranged by having two rooms each of eight beds, one room of four beds, and five single rooms. At Stockholm the units, each of 16 beds, are looked after by one assistant doctor. Three of these double units, with a few private beds, make a medical clinic, and four a surgical clinic. In the operating units nothing outstandingly new was found. In all cases the unit was planned about a central corridor with the anaesthetic room on the opposite side. At Stockholm there are 28 theatres.

The delegates crystallize their impressions in some final conclusions. We quote a few:

Beauty in every aspect of hospital life is of first importance, not only in the external aspect of the buildings and in their harmony with their surroundings, but in the size, proportions, light, and decoration of the interior. There should be a high measure of flexibility in all arrangements for the nursing and other staff. There should be opportunity to live in or out for trained nurses. The most suitable unit of beds forming a ward under the charge of a single sister seems to be 24 or 25. Within the unit the largest bedroom should contain not more than eight and not fewer than six beds.

It is probably desirable that the out-patient department should be physically separate from the in-patient block. The maternity department, as regards both in-patients and out-patients, should also be physically separated from the departments dealing with general

ckness. The comfort of the out-patients should be carefully studied by the provision of chairs and tables instead of benches in waiting-alls, and reasonable provision of canteen facilities at certain points. Air-conditioning is essential for operating theatres and x-ray rooms, but not necessarily for the general hospital. The installation of automatic transmission should be carefully considered as a means of saving manpower.

It is to be hoped that the report will be studied by those responsible for hospital administration and planning in Britain, where it may well affect future policy.

## Preparations and Appliances

### CONTROL OF HOT-AIR STERILIZATION OF SYRINGES

Drs. J. COLQUHOUN and ARTHUR JORDAN, of the Royal Sheffield Infirmary and Hospital, write: We have been developing the use of all-glass syringes sterilized by exposure to a temperature of 160° C. for one hour. Experience showed the need for check on both time and temperature, since apparatus was not entirely satisfactory and personnel were largely unskilled. We were familiar with the use of control tubes which changed colour when autoclaving was adequate, and we approached the makers for something similar, to change colour at a temperature of 160° C. after one hour. They were able to produce such a tube, and in use it has proved satisfactory. The control tube is placed in the barrel of a syringe enclosed in a glass tube as are the other syringes; thus penetration of the heat to the inside of the items to be sterilized is verified.

These tubes led us to detect that the temperature on different shelves of a hot-air oven could differ: with a thermometer we found differences of up to 15° C. In the light of this finding we feel that sterilization for one hour in a hot-air oven with a single thermometer which reads 160° C. or more the whole time is not necessarily adequate sterilization, and more control is needed.

The control tubes are made by Messrs. A. Browne and Co., Chancery Street, Leicester.

## Reports of Societies

### THE RENAL CIRCULATION

A meeting of the Section of Experimental Medicine of the Royal Society of Medicine was held on Oct. 21 for a discussion on the renal circulation.

#### Radiographic Interpretations

Dr. A. E. BARCLAY introduced the subject by describing investigations which had been undertaken at the Nuffield Institute for Medical Research, Oxford. The growth of the clinical use of radiology, he said, had been phenomenal, not only in volume but in value, yet radiology had been frequently ignored as a means of approach to experimental studies. One of the great virtues of radiology was the opportunity which it offered of studying function without operative interference. It was necessary only to mention in this connexion the gastro-intestinal tract, the gall-bladder, and the kidney. Again, in studying just excretion from the lung it was possible by using radio-opaque dusts to see the distribution in the lung field of the living animal. The study of renal circulation had also benefited greatly from radiological investigation.

In the work on the renal circulation Dr. Trueta and Dr. Barnes, who came to the Nuffield Institute in 1941, had made a special study of renal ischaemia and the crush syndrome. A simple technique was developed by which, with the assistance of a radio-opaque substance, radiographs were taken at stated intervals of the lower abdominal aorta. In September, 1945, a team was formed to investigate the changes which occurred in the kidney in the crush syndrome—a study which was accelerated when presently adequate supplies of thorotrast

became available. This substance proved satisfactory and had no effect on the blood pressure. The method of cine-radiography was at first employed, but this was expensive, and the actual picture was too limited in size to be very useful. Cine-radiography had now been superseded by large still films (38×15 cm.) which included the whole abdomen. Rabbits were used in the experiments. As soon as the animal was anaesthetized a series of films was taken at intervals of 3 or 6 seconds, so as to get the control picture, and then a tourniquet was applied or other procedure adopted and a further series of films was taken at the same intervals. Comparison of the two series showed that the procedure caused large changes in many of the vessels, including the renal artery and renal vein.

The most constant observation was that with the tourniquet the renal artery was diminished in diameter and the renal vein greatly increased. The tourniquet technique was tedious, and experiments were made to find out whether electrical stimulation to the proximal end of the cut nerve could be used instead, and this was found to be effective. Prolonged anaesthesia by itself did not appreciably affect the measurements of the vessels. Various drugs were also tried without any significant effect. Severe haemorrhage reduced the size of both the renal artery and vein. It was suspected that the changes found in the tourniquet experiment were due to a nervous action, and this was confirmed by further investigation. The blood was shown not to be taking its normal course but to be short-circuited in some way.

#### Characteristics of Blood Flow

Dr. J. TRUETA followed with a pictorial description, accompanied by many lantern slides, of the renal circulation. He said that this work had occupied a little more than three years. To begin with, it was suspected that the effect produced on the renal vessels by a tourniquet could be reproduced by electrical stimulation of the splanchnic nerve. Experiments were carried out on rabbits in which the nerve was sectioned and stimulation was applied by means of faradic current. Methylene blue was then injected into the renal artery and was shown to distribute itself in a strange pattern which had not been observed before. They had had a suspicion of some anastomosis or short-circuiting occurring in the kidney, but they had not known which were the vessels concerned or their calibre or arrangement. Dr. Trueta drew attention to the arrangement and structure of the glomerular vessels as shown by means of thorotrast and other opaque media. The filling of the vasa recta in the rabbit was also shown. Another example was the cortical ischaemia produced by injection of staphylococcus toxin. The short-circuiting mechanism had been repeated in the cat and other animals. He mentioned that more than 700 radiographs had been studied in the course of this work and the movements observed had been analysed. In one example a tourniquet was placed around the thigh of the animal and an injection given, with the result that there was a great concentration of the contrast medium in the cortex, with complete emptiness of the medulla; but it had been shown to be possible to prevent the action of the tourniquet by splanchnic section, and after an interval the cortical circulation was seen to be closing and the medullary circulation opening.

This work was still being pursued, and a new x-ray procedure was being employed with a special technique as a result of which the glomeruli could be seen in great detail. He showed a remarkable series of x-ray pictures illustrating the stages and vagaries of renal circulation, the cortical ischaemia following the application of the tourniquet, and the different result when the tourniquet was applied after splanchnic section. He also showed "neoprene" casts illustrating true juxta-medullary arterial degeneration, and radiomicrographs of the cortex and capillaries.

Dr. J. F. HEGGIE showed some illustrations complementary to those already shown by Dr. Barclay and Dr. Trueta concerned with the experimental production of cortical necrosis in the rabbit, with special reference to glomerular circulation. He said that when the right renal blood flow was measured directly in the normal anaesthetized animal by the method of Dunn, Kay, and Sheehan the rate was found to lie between 2 and 4 ml. per gramme of kidney substance per minute, usually

between 2.5 and 3 ml. When finely particulate carbon-suspended in serum was injected into the renal artery in the normal anaesthetized animal at the same rate as the blood flow therein for 3 seconds and the pedicle immediately clipped, the renal vascular architecture was clearly demonstrated, and the pigment was found in the intra-interlobular arteries and afferent glomerular arterioles and glomeruli, and the essentially glomerular character of the circulation was confirmed. The efferent vessels of the glomeruli situated near the medulla, to which in 1941 the speaker gave the name juxta-medullary glomeruli, provided the supply to the medulla, and this, he suggested to Drs. Barclay and Trueta, was the explanation of the short-circuit which they described in their preliminary report. These vessels were wide and ran a fair length before they broke up to form the very rich capillary network around the tubules of the medulla, the ellipse of Henle, and the collecting tubules.

It was found that the glomerular volume in the normal rabbit changed five times each second. These velocities were not altogether unexpected having regard to the fact that the glomerular capillaries were interposed between two arterioles in which the pressure was high. In less "acute" experiments, if the total renal minute volume remained the same and if the medullary pathway alone was operating, then the glomerular volume was changed 30 times each second and the velocity proportionately increased; but if the juxta-medullary glomerular capillaries were dilated (and they could accommodate the normal glomerular capillary volume) the rate of change was five times per second and the velocity in the dilated capillaries was still normally 1.25 mm. per second.

Dr. E. M. DARMADY said that cortical necrosis following severe accident was not a very common finding. There were certain features found histologically in such cases which did not fit in very well with the findings shown that evening. The bloodless glomeruli, the puncture of the vein at the glomerular area, and the congestion of the parts in the medullary zone were among these. He felt that it was not quite fair to compare the findings in the rabbit with the human at this stage, because one knew that experimentally it was very easy to induce an ischaemia by traction on the kidney. They should be guarded before arguing from the rabbit to man.

Dr. R. H. PARAMORE said that he had made attempts to explain the lesion in the cortex in eclampsia and in certain cases of pregnancy after, for example, accidental haemorrhage (though only in concealed accidental haemorrhage, not when blood escaped), and in such cases it seemed to him that the kidney was compressed and that the urine secreted could not get out. There was blood stoppage through a part of the kidney and the pressure of the kidney was increased. It seemed to him that mechanical factors were extremely important.

The President of the Section said that he had been studying the circulation in the liver by means of the injection technique, and he had seen some phenomena which were very similar to those described in the case of the kidney. The thing which impressed him also was the mechanical factor, the swelling of the liver parenchyma, which dammed the blood back into the portal circulation.

The 291st annual Harveian Oration was delivered on St. Luke's Day, Oct. 18, at the Royal College of Physicians, by Dr. C. E. Lakin, Consulting Physician to the Middlesex Hospital, who chose as his subject "Our Founders and Benefactors." He said that the College was a Royal Foundation, having been founded in 1518 by Henry VIII at the instigation of one of his physicians, Thomas Linacre. Linacre was one of a group of men, including Grocyn, Dean Colet, Sir Thomas More, and Erasmus, who were profoundly influenced by the Renaissance of Learning and who took an active part in it. The foundation of the College and the revived interest in medicine were the direct result of that remarkable mental awakening. Among the Benefactors mentioned were John Caius and Dr. William Gilbert. He pointed out the three stages in the evolution of knowledge as exemplified by these investigators. Linacre looked to the past and recaptured the knowledge of Aristotle and the old philosophers; Caius was deeply steeped in the same learning but turned to the practical investigation of nature; while William Gilbert steadfastly looked forward, and by introducing the experimental method into research may be said to be the first English modern scientist.

## Correspondence

### Soviet Science

SIR,—Your leading article on "Genetics and Science in the U.S.S.R." (Oct. 18, p. 616) will not fail to stir the emotions of its readers; it also stirs reflection. What is happening in the Soviet Union is no haphazard attempt at security but a deliberate policy based upon a historical theory, a theory concerning the evolution, advance, and prosperity of a nation or of a group of any "beings." The theory may be shortly stated one which ascribes all these possibilities to war between opposites. War within, war without, are the productive habits productive in a nation of these events.

This theory is in flat contradiction to the facts that are the files of that study of relations which we call science, a most clearly in the part of this study which gives a historical account of the relations within and without living organisms. The relations to which biological science ascribes what equilibrium and evolution have been exemplified by organisms (a nation is an organism in potential equilibrium) may generally stated as the union or mutual balancing of complementaries. There is pressing need to-day not for a new philosophy but for a plain declaration by science of this general induction from its studies, and an exposure of the falsehood and fallacy from which the policy described in your article derived.—I am, etc.,

Wantage.

K. W. MONSARRAT.

### Education for General Practice

SIR,—At the beginning of the article by Dr. John Rickm on "Psychology in Medical Education" (Sept. 6, p. 363) tribute is paid to the teaching which many young doctors get from their principals in private practice; but the writer does not on to include the general practitioner in his scheme of teaching for the student. It would be so easy to arrange—a panel teacher-practitioners chosen by their fellows, and students giving two nights a week in their final year to sitting in at surgery, helping with medicines, and going out to lactic case with the doctor. Most students would think it fun and be grateful for it and learn a great deal, and the older men would long last get some recognition from their own profession for the good work they do.

The general practitioner is a lonely man. He is too busy to meet his fellows, and in a poor district of London, say, perhaps the only chance of understanding from his fellows and chance to talk about his cases is with the medical officers of the local L.C.C. hospital. They probably never meet, but they do talk on the telephone. The average H.S. or H.P. of a teaching hospital is so afraid of being "snagged" and is therefore a cocky, and in any case changes so often, that the general practitioner gives up quickly all hope of any fruitful medical contacts with even his own hospital.

As this letter shows, I seem more interested in the general practitioner than in the student, but they cannot be separated. The student can teach the doctor the latest in medicine. At present has to rely on the drug-house man (who often does this very well) I have the liveliest memories of pleasure in being taught by principals and teaching them too, and later on when I had assistant myself. I would hold that the house job and the assistantship in general practice are equally necessary and honourable to anyone starting a medical career. This, I feel, should be officially recognized with honours of some kind for the teacher-practitioner (honorarium or title).

So much has been taken away from the general practitioner (and the patient)—the satisfaction of fee-giving and taking (still recognized by the patient, who feels that the private doctor's medicine must be better than the panel-doctor's), the pride in the practice which inherited from a good man and which he could only dispose of to a successor tried and approved of by him and his patients, the teaching he used to do, the sense of undivided allegiance to his patients, the loss of dignity associated with form-filling, with tuberculous officers who treat your patients without by-your-leave, Ministry of Health doctors who examine your panel records (I know of a panel doctor who does not stay out all day the Ministry doctor comes and does not grind his teeth with rage for days after), Ministry referees who discount your certificates and continually remind you that you serve two masters.

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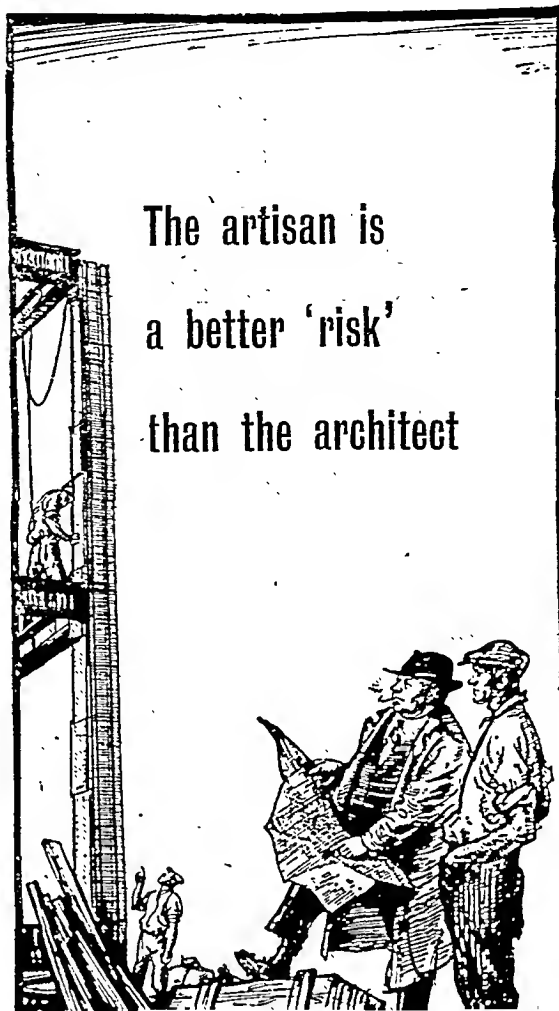
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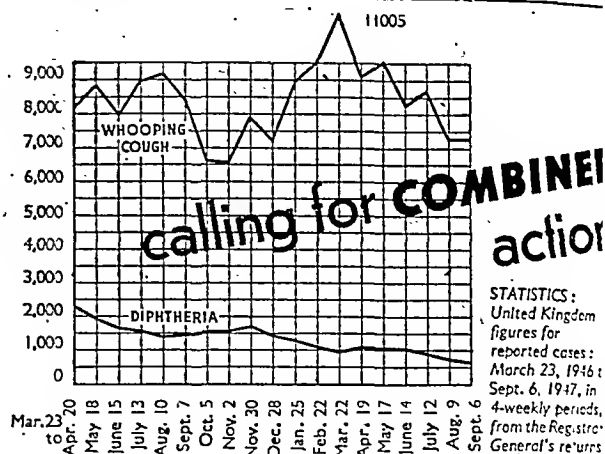
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I am not a die-hard, but I am sure that the satisfactions in a general practitioner's life are now very much less than they used to be and the dissatisfactions more. After all, what is the use of educating people to be doctors if being a doctor is no fun? If nothing could be brought back to general practice it would be more fun.

Dr. Rickman suggests that anatomy should go on side by side with work in casualty. I entirely disagree with this. A student doing his anatomy and physiology has quite enough to deal with motionally. It is his "latency period," as it were, as a student. Let him learn to deal with the body, dead, get to know it and be afraid of it, and enjoy the nice machines of physiology first. The denying of affect common to the life of the dissecting-room (if the proposal were followed) might lead to a greater carrying over of this mental attitude into relations with patients; or alternatively some of the students would never learn their anatomy.

The student nursing orderly is a first-rate idea. This, I think, could go well with the anatomy-room time or even earlier if the student is doing his First M.B. at hospital. (Why should he not earn his keep part of the time in this way?) It would give him a more limited responsibility and give chances for the expression and learning of gentleness (the student when he is in casualty is already a doctor, diagnosing and prescribing treatment). In the wards he would help to lift the heavy patients, make beds or learn to fix pillows (in general practice this was the most valuable single bit of knowledge that I had). I truly believe he would be willing to sweep floors and empty cans! I wish it could come true. Lastly, that footnote on the quack is a masterpiece. But should it not be admitted that the quack may be sometimes more imaginative than his contemporaries?—I am, etc.,

London, N.W.1.

JAMES M. TAYLOR.

### Penicillin for Infected Hands

SIR.—Frank D'Abreu *et al.* in their article on penicillin and the treatment of infected hands (Oct. 18, p. 603) proved one general rule—that if patients with septic hands are given penicillin in twice-daily doses of 300,000 units, in addition to other methods, then the loss of duty would be shorter than if penicillin had not been given; but one is not justified in giving all cases of sepsis of the hand routine systemic penicillin. Even in these days of adequate supply one still ought to economize in its use; therefore one has to ascertain in which cases penicillin will have most value.

Before deciding on any treatment the following factors should be ascertained: (i) Degree of pain (number of nights patient has been kept awake); (ii) degree of tenderness; (iii) temperature; (iv) presence of lymphangitis or adenitis.

During the first six months of this year I was in charge of a busy casualty department and had occasion to treat some 600 septic fingers. During this time I tried, with varying degrees of success, all the recognized methods of treatment with a view to assessing their value. I came to the following conclusions: (a) In very early cases, if the patient has pain not sufficient to keep him awake at night, prophylactic penicillin would be sufficient alone in some cases and incision avoided. This was shown, for instance, in the nurse (Case 8 in the article) who received by mistake some 500,000 units. (b) Once, however, a patient has lost a night's sleep due to pain, or there is no alleviation of the pain despite 24 hours' penicillin therapy, immediate incision is always indicated. (c) The presence of pyrexia above 99.4° F. (37.4° C.) with or without lymphangitis and adenitis, calls for penicillin.

I also tried the effects of penicillin in those rare cases of bone necrosis. These are the cases that, despite the above measures, do not respond. They are: (i) The neglected cases which come up for treatment only after almost all the pulp space has been destroyed; (ii) the rare case which, despite incision and penicillin therapy, fails to resolve. I have, during the six months under review, seen thirteen such cases. One begins to suspect that progress is not being made when, despite lack of pain and other symptoms, the finger begins to discharge pus profusely day after day. Radiological examination at this stage invariably shows some degree of bone rarefaction. Systemic penicillin alone to these cases does not seem to alter to any extent the amount of discharge once the bone is involved. This is due to the following reasons: (i) Bone necrosis is due to tension in the pulp space occluding the nutrient artery;

the blood supply to the bone is diminished, and the infection early takes a hold and the penicillin, therefore, given systemically cannot reach the area; (ii) the probable walling off of the necrosed area. Systemic penicillin was actually tried in the first three cases and had to be discontinued and local penicillin therapy instituted.

Of these thirteen cases all but two responded well to local penicillin infiltrated down the sinus and around the necrosed area. The two that did not respond to treatment showed, on radiological examination, that some two-thirds of the terminal phalanx had been destroyed. Both these cases, however, continued to discharge pus after the usual operative interference, but after local penicillin had been infiltrated the wounds healed rapidly.

The method I used was as follows. The discharging sinus was cleaned out and dried as much as possible. About 0.25 ml. containing about 50,000 units of penicillin was injected through a wide-bore needle which passed through the sinus into the necrosed area of bone. A dry dressing was placed over the affected area. The dressing was undisturbed for two days. After removing the dressings, in many cases they were found to be clean and uncontaminated by pus. From then onwards the sinus seemed to heal very slowly but without further discharge. In the minority of cases after two days there was still a discharge, but not very profuse, and the infiltration was repeated. In two cases three attempts were made before the discharge finally ceased permanently.—I am, etc.,

Manchester.

E. JAFFE.

SIR.—The excellent article on systemic penicillin in septic hands (Oct. 18, p. 603) brings me to mention a new method of local application. It is effective and economical. Penicillin powder or solution when applied to an incision in a septic hand is rapidly washed away by outflowing blood and pus, but a small tablet can be placed in the small abscess cavity of, for example, a pulp infection and will remain there long enough for blood to clot around it. One firm makes up these tablets, 10,000 units to a tablet, actually for solution.

The advantages of effective local application of penicillin over systemic are obvious. 10,000 units inside an abscess cavity wall must be worth 100,000 units outside in the blood stream. The incision and abscess heal so rapidly that smaller incisions can be made and drains dispensed with in many cases. Of course the method can only be used after surgical intervention has occurred, which ideally should be unnecessary but in practice is necessary in the majority of infected hands.

I thoroughly agree with leaving the initial dressing for three days, although the patient should attend during this time for temperature recording, etc.—I am, etc.,

London, W.13.

JOHN P. RAW.

### The Harveian Orations

SIR.—In an interesting article on the Harveian Orations (Oct. 18, p. 622) by Messrs. W. J. Bishop and F. N. L. Poynter, the following passage occurs: "The oration has been delivered by some 'so obscure as to make their appointment to that post their only claim to fame, and by men of such reputation as to make it their smallest title to distinction.'" The quotation given between inverted commas is theirs, but they do not state whence it comes. The authors go on to say: "The names of Akenside, Arbuthnot, Garth, Mead, Heberden, and Baillie are known to all; but who has heard of John Hawys, Charles Bale, Robert Hopwood, and Charles Feake?"

I wonder whether this is fair criticism. To take the first mentioned, John Hawys (or Hawes), born circa 1660, he matriculated 1676; Corpus Christi, Cambridge; took his B.A. in 1677, M.A. in 1681, M.D. in 1688, and was admitted a Fellow of the Royal College of Physicians on Dec. 22, 1692. He was Censor in 1704, 1725, 1728, and 1732; he gave the Harveian Oration in 1721, and was Councillor 1732–34. This is surely not an undistinguished career? John Hawys was the son of John Hawys (and Maud Gleame), of Wymondham, Norfolk, a physician and theologian who took his M.D. from Corpus Christi in 1660 and died on Aug. 19, 1683. His grandfather, also John, after taking his M.D. from the same college in 1629 practised and died at Wymondham on Dec. 15, 1679. His great-grandfather, again John, was born at Walsham in 1568.

matriculated 1585, was admitted to Caius College, and died in 1663. Dr. John Hawes, F.R.C.P., came to London; he married in 1692 Margaret, the daughter of Dr. William Smith, of Chiswick, and the baptisms of his children are entered in the parish register of St. Helens, Bishopsgate, where he was churchwarden in 1701.

Among his children were William, born Aug. 30, 1704, ordained (Lincoln) 1728; and John, baptized March 12, 1706. Dr. John Hawes was buried May 24, 1736, "at the lower end of the church," his wife Dec. 11, 1741. At some time he may have lived in the parish of St. Albans, Wood Street, and later in St. Bartholomew's Close. John Hawes may be but an obscure name to writers of to-day, but these few notes suggest, I think, that he may have been a worthy and honourable physician.—I am, etc.,

London, W.1.

HUGH S. STANNUS.

### Miliary Appearances in the Lungs in Mitral Stenosis

SIR.—I was glad to see that my article on "Miliary Appearances in the Lungs in Mitral Stenosis" (Sept. 27, p. 488) had evoked some comment, and am particularly interested to learn that Dr. Haldane G. Nelson has seen three such cases within the last twelve months or so. Two of his cases were seen shortly before death from congestive heart failure and might well have shown radiological signs representing a combination of miliary stippling and congestive shadowing. I would be most interested to see the films. The third case he describes is even more interesting, though in a clearly different category, as it was associated with a pyrexia which responded to salicylate therapy. This must almost certainly have been a case of rheumatic lung (rheumatic pneumonitis), first described, I believe, by A. E. Naish. I have seen a peculiar coarse lung mottling in this condition, but a fine stippling of the miliary type has been described by Pendergrass and Leopold (*J. Amer. med. Ass.*, 1945, 127, 701).

I do not agree with Dr. Muriel O'Doherty's views. She describes the pathogenesis of the miliary stippling we see in the finer pneumoconioses, such as the siderosis she quotes of the West Cumberland haematite workers. Haemosiderosis is an endogenous condition. My belief is that the haemosiderin-laden histiocytes are prevented from progressing along the lymph channels to the interlobular collections of lymphatic tissue, either by disturbed pressure relationships in the lymphatics due to chronic pulmonary venous congestion, or, as Prof. A. C. Lendrum suggests in a letter I have recently received from him, by the occurrence of fibrosis in the immediate neighbourhood of the choked-up alveoli. The rosette-like appearances of the individual nodules I described in the magnified photograph should, according to Dr. O'Doherty's theory, have a radio-opaque centre if these are due to hyaline degeneration in the centre of a fibrous nodule. Actually the reverse is the case, as the centre consists of a cross-section of a terminal respiratory bronchiolus, which is, of course, translucent. The finding of abundant haemosiderin-laden cells in the sputum also strongly supports the intra-acinar theory. Like Dr. O'Doherty, I would not expect an x-ray photograph taken to-day to be materially different from the one seen in 1946, but my reasons for doing so would be different from hers.—I am, etc.,

Sheffield.

T. E. GUMPERT.

### Treatment of Varicose Veins

SIR.—We surgeons rise like goldfish at feeding time to an article on varicose veins, but dislike clinics consisting mainly of em. I read with great interest the stimulating contribution

Prof. A. M. Boyd and Mr. D. J. Robertson (Sept. 20, p. 452). I think there are three ways of dealing with varicose veins. The first is that detailed in the above article by tying the "head springs" filling the superficial veins—i.e., the internal or external saphenous veins and their branches and prominent communicating veins. I find this gives good immediate results and the veins often spontaneously thrombose. In two years or so the veins reappear, especially in the leg, and later become troublesome. They have refilled from lesser communicating veins, for the varicose condition is a progressive one.

The second method is to tie the internal or external saphenous veins in one or more places and to inject a

sclerosing fluid down them either with a hypodermic or a long needle. The results of this are also good, even though, as Boyd and Robertson show, some of the fluid goes into the deep veins; massive superficial thrombosis often follows. In my patients some varicosities reappeared in the leg two or four years later, but the trouble was never so acute; most patients were symptom-free.

The third attack is to tie the internal saphenous vein at the groin and ankle and to scarify its interior mechanically by needle with a roughened head and thereby to make as certain as possible that the main stem of the internal saphenous is permanently destroyed by thrombosis and organization. In addition I slowly inject a moderate amount of sclerosing fluid to supplement this action and to permeate into the branches. This method has given the best effects in my hands. I am indebted to Mr. Riddoch, of Birmingham, for the physical abrasion of the interior of the vein.

*Symptoms of Varicose Veins.*—"Are varicose veins a disability? In most cases, in my experience, emphatically yes. A few people do come because of vanity and fear of their parents' suffering but on the whole, since I have inquired before and after operation I am surprised at the inconvenience, pain, itching, weight, tiredness, sleeplessness, incapacitation, and expense they cause, particularly when a recurring complication develops like phlebitis, eczema, ulceration, not to mention refusal of hard work and inferior feelings.

*The Incision.*—I found the vertical one gave a poor aesthetic result and that the transverse one was inadequate sometimes. I therefore combined the two into a "hockey stick" incision beginning externally in the crease of the groin and curving downwards and inwards parallel to the scrotum or labia. Its centre is where a line starting at the pubic spine intersects the groin at right angles. The exposure is perfect and the scar inconspicuous; it is almost a "normal" incision.

*Deep Thrombosis.*—I was aware of the passage of some of the large doses of common salt into the deep veins from the fall in blood pressure which takes place sometimes immediately afterwards as also from the occasional transient haemoglobinuria that followed its use. I still believe that it is quickly diluted into ineffectiveness. I now use a smaller bulk solution called P3G (phenol 2%, glycer 30%, glucose 30%, and gelatin  $\frac{1}{2}\%$ ), 10 ml. each at the groin and ankle. A few swollen legs have occurred in my patients. They have been temporary and only cause discomfort for two to three weeks and none have approximated to a white leg. The moment deep pain or swelling appears dicoumarol, 50 mg. t.d.s., is given and patients are kept about. The understandable impulse to lie up is restrained.

*Communicating Veins.*—I would thank Boyd and Robertson for their precise location by phlebograms of the large communicating veins above and below the knee. They occur often enough as primary sources to make precise diagnosis difficult unless the existence is known. It is on account of their variability in place, number, and size that I aim to permanently destroy the entire internal saphenous from the groin to the ankle. A large communicating vein does rarely require individual ligation. With my patients most have been at the lower third of the leg, just above the ulcer area. I believe the full clearance of the varicose veins of the leg is essential for the permanent relief of dermatitis, eczema, and ulcers. This is one reason for the ligation at the internal malleolus.

*Follow-up.*—Finally, for the perfect aesthetic result (and this the aim in hospital and private), I find that these patients require inspection every three, four, five, or six months, for "tidying-up" injections, for three years.

*Conclusion.*—The personal suffering and impairment of national efficiency due to varicose veins and their complication are enormous and generally unrealized.—I am, etc.,

London, W.1.

HAROLD DODD.

### Road Accidents

SIR.—With reference to road accidents, and particularly a regards the driver's liability, neither in your leading article (Oct. 18, p. 618), nor in Dr. Soddy's paper (p. 623), nor, incidentally, in my own letter which you were good enough to publish (May 17, p. 696) is there any mention of the individual's ability to do more than one thing at a time, or, rather, to follow more than one train of thought simultaneously. Strictly speaking, perhaps this is impossible, but from a practical point of view this mental agility is displayed in very varying degrees. One person will apparently be able to listen to and remember two or more simultaneous conversations, or even play a tolerable

game of bridge while talking or thinking about something quite foreign to cards. The above ability or the lack of it has a great bearing on the making of a good or a bad driver.

Driving is so easy in a well-found car that it is no longer, in most circumstances, a whole-time job. One must perforce think of more than the driving, and it is here that the trouble arises. If one can only do one thing at a time, then when one's mind wanders, which it inevitably will sooner or later, then the driving suffers, and one becomes a potential danger. Many drivers will most of the time unconsciously react correctly to road stimuli, but this unconscious or subconscious reaction is not to be trusted, it is too vulnerable to variations of physical health, alcohol, and other factors.

When one considers such slogans as "Keep your eye on the ball" and "Don't speak to the man at the wheel," it may sound heretical to suggest that in order to be a tolerably safe driver it is necessary to keep only part of one's conscious mind on the business of driving, and to expect more from all drivers at all times is being unreasonable. But I myself would certainly feel safer being driven by a garrulous, agile-minded driver than by one who religiously kept his mind glued to the road, for in the latter case there would be the thought of what might happen when he became unstuck.

It would be both unpractical and undesirable to submit every applicant for a driving licence to a psychological examination; matters are quite complicated enough as it is; but this much could be done without any additional irritation. The car in which the victim is to have his test should be fitted with a wireless set, which the examiner should switch on when the test was under way. Then if subsequently there was any doubt in assessing the driver's capability—that is, if he were a borderline case—he should be asked what he had heard over the wireless while driving, and his ability to answer would sway the decision either for or against. A just-good-enough driver who answered that he was sure he hadn't a notion, he'd kept his mind on his driving, would fail, whereas a similar driver who could give some account of the programme would pass.—I am, etc.,

Thame, Oxon.

E. GRANGER.

### Heparin for Coronary Thrombosis

SIR,—Prof. Lambert Rogers in an article entitled "Advances in Surgery" (*Practitioner*, 1947, 159, 247) cites a remarkable case of pulmonary thrombosis *in extremis* cured or relieved by an injection of 600 mg. of heparin. I suggest that here we have a drug that will prove of incalculable value for promptly treating cases of coronary thrombosis, and that it will save the life of many valuable patients, especially among doctors. It will prevent those most serious ravages to the heart muscle, and give time to treat the underlying arteriosclerosis with a suitable regimen and the use of iodides, etc., for many months. I suggest it should be given after the shock of the attack is treated with morphine, etc.—I am, etc.,

Glasgow.

JOHN T. MACLACHLAN.

\* The use of dicoumarol in coronary thrombosis was discussed in an annotation on Oct. 25 (p. 662).—ED., *B.M.J.*

### Treatment of Neurosyphilis

SIR,—I was surprised to find no mention of the well-known pentavalent arsenical called "stovarsol" in either of the two articles on the treatment of neurosyphilis in the *Journal* of Oct. 11. The drug is less toxic to the optic nerve than trypanamide and has a spirochaeticidal action when given by mouth. On the other hand it may cause rashes and gastro-intestinal disturbances. The alimentary symptoms can be avoided by using bismuth-stovarsol ("bistovol"), which has an additional advantage because some of the bismuth is absorbed.

I have used bistovol by mouth in about 170 unselected cases of G.P.I. prior to malarial treatment and have observed clinical and serological improvement very similar to that noted in the same hospital with penicillin. Moreover, the recovery rate for this series of consecutive admissions was 26% compared with only 10% recovery rate for 200 consecutive admissions treated with trypanamide and malaria. The details of these results have already been published in the *British Journal of Venereal Diseases*, 1945, 21, 174.—I am, etc.,

Lancaster.

R. PAKENHAM-WALSH.

### Pulmonary Haemosiderosis in Mitral Stenosis

SIR.—Dr. Muriel O'Doherty's letter (Oct. 11, p. 587) flatly and frankly disagrees with the pathological interpretations given by Dr. T. E. Gumpert in his interesting article (Sept. 27, p. 488). The correlation of the skiagraphic picture with the morbid anatomy is, as we have already shown (Scott, L. D. W. Scott Park, S. D., and Lendrum, A. C., *Brit. J. Radiol.*, 1947, 20, 100), a difficult enough matter, depending as it does on a correct reading of the morbid anatomy. The detailed histological study of our material (to be reported) does not support Dr. O'Doherty's view that the haemosiderin-laden phagocytes transfer the iron out of the alveoli and lead to hyalinized fibrous nodules in the intralobular stroma.

The striking fact about these cases is the persistence in the alveoli of the siderophores. In the immediately adjoining stromal tissues there is frequently seen iron incrustation of the elastica and the capillary walls, but no obvious haemosiderin, free or in cells, and it would appear as if a high local concentration of soluble iron must occur around the siderophore-filled alveoli. I presume that the fibrous change thereafter occurring in these parts comes to obstruct the lymphatic pathways and so actually prevents escape of the siderophores from the crammed alveoli.

The facts remain that a mitral stenotic showing the obvious skiagraphic picture of haemosiderosis may have an unchanged skiagraph over many months; that microscopically the fibrosis is seen only in the tissues immediately adjacent to the group of filled alveoli; and that despite the presence of many such groups of haemosiderin-containing alveoli there may be scarcely any recognizable iron in the lymphatics or lymph nodes.—I am, etc.,

Dundee.

A. C. LENDRUM.

### Retained Placenta

SIR.—It may interest Dr. Walter Calvert (Oct. 11, p. 589) to know that the method he calls "continuous light cord traction" was used by no less ancient a practitioner than the Father of Medicine himself. A description of the method is given in Smellie's *Midwifery*, the introduction to which, Dr. Smellie says, "contains a summary account of the practice of midwifery, both among the ancients and moderns . . . for the information of those who have not had time or opportunity to peruse the books from which it is collected. . . ." Of Hippocrates he says that he "no doubt availed himself of the observations of those who went before him in the exercise of the same profession." On page 13 of my own copy (edition unknown) comes the following paragraph:

"In the book *de superfoetatione*, after having described the methods of delivering a dead child, he [Hippocrates] says, if the secundines come not away easily, the child must be left hanging to them, and the woman seated on an high stool, that the *foetus* by its weight may pull them along; and lest this should be too suddenly effected, the child may be laid on wool newly plucked, or on two bladders filled with water, and covered with wool, which being pricked, as the water evacuates, they will subside, and the child sinking gradually, will gently draw the secundines away: but should the navel-string happen to be broke, proper weights must be tied to it, in order to answer the same purpose; these being the easiest and least hurtful methods of extracting the *Placenta*."

What a wealth of ancient knowledge and eighteenth-century scholarship is revealed in the introduction to this delightful book!—I am, etc.,

Peaslake, Surrey.

G. I. WATSON.

### Bilateral Abdominal Testes with Teratomatous Change and Torsion

SIR,—I was interested to read the reports of Drs. A. H. Bennett and W. G. Shaw (Feb. 15, p. 256) and Dr. E. C. Chitty (March 15, p. 356), who respectively report cases of seminoma and sarcoma in intra-abdominal testes associated with torsion. It seems to me perhaps that it might be of interest to report a case of bilateral intra-abdominal testes with teratomatous change and torsion of the right testicle.

#### CASE REPORT

At 2 a.m. on Feb. 14, 1947, a Mohammedan missionary aged 34 was admitted to the West London Hospital with a diagnosis of renal colic. He was seen by the house-surgeon, who did not consider his condition warranted a second opinion. On the 15th his

that brought him to the forefront in international neurology. I want only to pay a last tribute to one with whom I was associated in several ways and for whom I came to have so much affection. George Riddoch fortunately retained his boyish enthusiasms, one of which was the unashamed delight that he had in the urbanity and broad outlook of the inhabitants of a great capital. It was traits like this that so endeared him to his friends, gave his personality a more complete significance than could be gathered from his sincere, indeed his passionate, devotion to his work. He should have died hereafter. Even so he leaves behind him a wealth of happy memories for those who knew him and contributions to knowledge that will long survive his day. He was an original thinker with the rare gift of pursuing a problem beyond its first and most easily reached objective.

A friend writes: British medicine has lost an outstanding neurologist. Riddoch was one of the many promising graduates who have left Aberdeen University and attained London distinction. During the first war his appointment to the Empire Hospital for Officers brought him into close touch with nervous disorders, and he became a trusted pupil of such senior neurologists as Farquhar Buzzard, Campbell Thomson, Purves Stewart, and Henry Head. Of the last-named he became protégé and favoured pupil; they collaborated in researches upon spinal lesions which are now classics. Head was instrumental in bringing Riddoch to the London Hospital, which he joined as assistant to the newly formed medical unit. When Head became incapacitated by Parkinsonism, Riddoch was acting as his medical counsellor and intimate friend. From the prosecution of original clinical studies he graduated to an increasing practice which steadily grew to considerable proportions. Leaving Maida Vale for Queen Square, he became famed as a brilliant and stimulating teacher with just that amount of dogmatism which endeared him to students. He was spared the handicap of a mordant wit, but instead was blessed with a rollicking sense of humour and of fun. His striking success as a consultant was due not so much to his considerable abilities as to his personality. He had that rare quality of warmth and kindness, his reassuring smile and open-hearted manner going out to meet the unhappy or anxious sufferer. Riddoch was the most respected British neurologist in France. There he was an especial favourite, his mercurial charm making an appeal to Gallic sympathies, even though he was not a fluent linguist. To juniors visiting France he generously gave personal introductions which, like a golden key, opened all doors in Parisian academic circles. During the war years Riddoch drove himself unmercifully. Caught up as adviser to two Ministries, he instigated, and became chairman of, the Nerve Injuries Committee of the Medical Research Council. Later he was made consultant in neurology to the Army with the rank of brigadier. Despite frustration and disappointment he never ceased to strive for what he knew to be right. For some years his health had suffered gravely, but Riddoch's courage and sense of duty made him keep at his post, organizing the neurological service of the Army. When the war ended, his will power urged him on, visiting his hospitals, teaching, reassembling his disintegrated practice, and attending committees without relaxation or even adequate rest. It was all too obvious that his nerves were becoming strained as harp-strings, but he would not—could not—stop. By his colleagues "wee Georgie" will be sadly missed as a loyal, friendly, and very human personality.

LIEUT.-GENERAL SIR H. FAWCUS,  
K.C.B., C.M.G., D.S.O., M.B.

Lieut.-General Sir Harold Fawcus, Director-General of the Army Medical Services from 1929-34, and of the British Red Cross Society from 1934-8, died at Hillingdon on Oct. 24 at the age of 71.

Harold Ben Fawcus was born in South Charlton, Northumberland, and educated at Durham School and at the University of Durham. He played for the University at both cricket and football for five years, and he also played rugby for Durham County and Northumberland. He graduated M.B., B.S. in 1899, and soon afterwards began his Army career as an attached civil surgeon in the South African War. He was commissioned in 1900 and promoted captain in 1903. Two years later he took the Cambridge D.P.H., and at the examination for promotion

to major in 1911 he obtained a special certificate in state medicine. This led to his appointment in 1912 as assistant professor of hygiene at the Royal Army Medical College, and in 1914 he became instructor at the School of Army Sanitation, Aldershot. He went to France in November, 1914, and from then onwards he devoted himself to medical administration.

He was with the Guards' Division as A.D.M.S. for most of the 1914-18 war, and he was mentioned in dispatches six times, and awarded the C.M.G. in 1915, the D.S.O. in 1917, and also the Croix de Guerre. After the war he was sent to India, but remained there for only a short time. Sir John Goodwin, when he took over the office of Director-General, offered Fawcus the post of A.D.G., and in this capacity he served Goodwin, Sir William Leishman, and Sir Matthew Fell until he himself became D.G., A.M.S., in 1929. The appointment had a four-year limit, but when Fawcus neared the end of his four years an extension was sanctioned because the Warren Fisher committee of inquiry into the medical organization of the Services was still at work. This committee was considering a scheme to revise the status of the college at Millbank and to increase the professional opportunities of R.A.M.C. officers. Sir Harold Fawcus had sponsored this scheme. His one year's extension was cut short, however, when Brigadier-General Hugh Bateman-Champain, Secretary-General of the British Red Cross Society, died. Sir Harold Fawcus succeeded him with the new designation Director-General. Many of the important reforms that he had suggested in 1932 had been brought into effect. The heads of the specialist branches had been concentrated at the Corps College at Millbank as advisers of the D.G., and this new arrangement was working well. His tenure of office with the B.R.C.S. lasted from February, 1934, until 1938, the year in which he became Colonel Commandant of the R.A.M.C.

His appointment as honorary physician to the King dated from 1923, and he was also a commissioner of the Royal Hospital, Chelsea. He was awarded the C.B. in 1928, and created K.C.B. in 1931.

EDWIN ALFRED STARLING, M.B., M.Ch.

Dr. Edwin Alfred Starling died at Tunbridge Wells on Oct. 18 at the age of 90. Dr. Starling was born in North London in 1857, and at the age of 14 he became an articulated pupil to a qualified surgeon-dentist. After four years' apprenticeship he entered Guy's Hospital in 1876. Dr. Starling won the Gurney-Hoare prize and the Beane prize in pathology, and was later clinical assistant at the hospital. He qualified M.R.C.S., L.R.C.P. in 1881 and became obstetric resident and then house-physician at Guy's. After a short period as a ship surgeon, Starling acted as house-surgeon at Coventry Hospital in 1883, and while holding this post he took in 1884 the degrees of M.B., M.Ch. The following year he settled in general practice at Tunbridge Wells, where he formed a local branch of the Surgical Aid Society and, in company with two other Guy's men and a few others, started an eye and ear hospital as well as a natural history and philosophical society. He was on the staff of the eye and ear hospital as anaesthetist from its beginning and was later honorary physician until it was amalgamated with the present Kent and Sussex Hospital. He was then appointed to the combined staff as consulting physician and anaesthetist. Increasing arthritis and loss of sight steadily diminished the amount of work he was able to do, though he fought hard against both afflictions until in 1945 a fractured femur necessitated a long stay in bed. Starling was a member of, and had held office in, the Wesleyan Church and had been engaged in many of its activities. His wife pre-deceased him in 1944, after 58 years of married happiness. Their only son, Dr. E. C. W. Starling, is in practice at Tunbridge Wells.

Dr. Starling joined the British Medical Association immediately after qualification and soon interested himself in its work. In 1889 he was elected to the council of the old East Sussex District of the South-Eastern Branch, and in 1903, on the reorganization of the Association, became the first honorary secretary of the new Tunbridge Wells Division of the Branch, a post he held until 1910. In 1895 he was elected to the council of the old South-Eastern Branch and from 1909 to 1913 was honorary secretary of the Branch and its representative at the Annual Representative Meetings right up to 1928, when he resigned. He was chairman

of the Tunbridge Wells Division in 1910-11, and honorary secretary of the Kent Branch from 1913, the year of its formation, until 1927. From 1927 to 1929 he served on the Council of the Association, and was a member of the Private Practice Committee from 1927 to 1929, and the Medico-Political Committee in 1928-9. When the National Health Insurance Act of 1911 came in the South-Eastern Branch considered it wise to break up into three branches, one each for Kent, Sussex, and Surrey. Dr. Starling was largely responsible for this reorganization, and when it was completed he was presented with a massive silver rose-bowl. Before he retired from the Kent Branch secretaryship a cheque for 100 guineas and a study clock were given to him to mark the end of his fourteen years' service in that capacity.

Dr. Alfred Cox writes: These notes give a good idea of the man Starling was and as I well knew him: a hard worker in any sphere he entered, an enthusiastic B.M.A. man, and a man who was liked and respected by all who worked with him. He could be very persistent in pushing the claims of other people, but I never knew more modesty coupled with so much energy. At 90, when crippled and nearly blind, one must not be too sanguine about being remembered, but I am sure my old friend would be pleased to know that the *Journal* of the Association for which he did so much felt it a pious duty to remind his fellow members, and especially those in the south-east, that there has passed away one of the men who have done much to put the Association into the position it now holds as the indisputable representative of the medical profession in this country.

#### F. K. SMITH, M.B., Ch.B.

Frederick Keiller Smith died suddenly at his home in Aberdeen on Oct. 4 at the age of 67. He received his early education at Robert Gordon's College and proceeded to Aberdeen University, where he graduated M.A. in 1899, and M.B., Ch.B. in 1903. He was house-physician to Prof. Findlay and house-surgeon to Sir John Marnoch, and for a few years he engaged in general practice. He then became assistant surgeon to Sir Henry Gray at Aberdeen Royal Infirmary. At the outbreak of war in 1914 he was R.M.O. to the 4th Battalion of the Gordon Highlanders and was later with the First Scottish General Hospital, with which he served during the remainder of the war, attaining the rank of major. In addition to his military duties, he assumed charge of Sir Henry Gray's ward at the Royal Infirmary while the latter was overseas. On the retirement of Mr. Scott Riddell from the staff in 1919, Mr. Smith was appointed full surgeon, and until he relinquished this charge at the end of 1945 he devoted himself unsparingly to the service of the institution. He was also for many years lecturer on clinical surgery at Aberdeen University. In the recent war he became surgical director of the E.M.S. in the North-Eastern region of Scotland. For many years he was medical assessor and referee in the sheriffdoms of Aberdeen, Kincardine, and Banff. A member of the British Medical Association for forty years, he held many offices, including those of honorary local secretary at the Aberdeen meeting in 1914, and vice-president of the Section of Surgery in 1939. He was a member of the Scottish Committee from 1919 to 1924, and of the Scottish Consultants and Specialists Group Committee from 1934 to 1946. Interested in many sports, he excelled at golf, and was captain of the Royal Aberdeen Golf Club in 1930. "F. K." will be sorely missed, not only for his qualities as a surgeon, not only for his fine judgment and wise counsel, but perhaps most of all for his friendliness and serene and tranquil spirit.—S. G. D.

Dr. TUDOR BENSON EVANS died on Sept. 22 at the age of 59. He was educated at Denbigh County School and Liverpool University, graduating in 1912. He was a house-surgeon, and later house-physician, at the Liverpool Royal Infirmary before taking up a resident appointment at the Denbighshire Infirmary. He was a ship surgeon in the *Lusitania* at one time, and he served with the rank of captain in the R.A.M.C. in the 1914-18 war. Subsequently he practised in Liverpool and in Holyhead, and finally at Prestatyn. He was chairman of the Flintshire Panel Committee, a vice-president of the British Legion, and president of the local T.O.C. and of the Welsh League of Youth.

## Medical Notes in Parliament

Speaking in the debate on the Address, on Oct. 24, Mr. DALTON said there would be no delay in the operation of the National Insurance Act and the National Health Act. Both would come into operation next July. From another source it is learned that the Government proposes that in the Health Services a start shall be made only with urgent capital works.

The King's Speech with which the session was opened on Oct. 21 announced forthcoming legislation to abolish the Poor Law and provide a comprehensive system of assistance for all in need, and also to extend the scope of public care of children deprived of a normal home life.

#### Recruitment and Training of Nurses

Mr. MITCHISON asked on Oct. 23 whether Mr. Bevan could make a statement about the Report of the Working Party on the recruitment and training of nurses. This Report was summarized in our issue of Sept. 13 (p. 426) and was also the subject of a leading article (p. 422).

Mr. BEVAN replied that the views of the nursing and other organizations were being obtained. The Working Party's recommendations concerned long-term policy and could not be expected to produce an immediate increase in the supply of nurses. The Government trusted that hospital authorities would at once examine interim measures to reduce wastage and that they would make the maximum use of married and of part-time nurses, and would build up their domestic staffs to relieve nurses of domestic duties.

## Medico-Legal

### ANTI-VIVISECTION SOCIETIES AND INCOME TAX

[FROM OUR MEDICO-LEGAL CORRESPONDENT]

The House of Lords decided recently that the National Anti-Vivisection Society is not a charity and is therefore liable to pay income tax. The Special Commissioners had allowed the Society's claim, unwillingly, feeling that they had to follow the 1895 case in which Mr. Justice Chitty had ruled that the Society was a charity on the ground that its intention was to benefit the community, and that the court should stand neutral on the question whether actual benefit to the community followed or not. The Commissioners appealed to the Court, and Mr. Justice Macnaghten found in their favour, the Court of Appeal confirming his decision by a majority. Some account of the judgment appeared in our issue for Jan. 12, 1946 (p. 72).

Their Lordships (Lord Porter dissenting) held that the overriding test of whether the object of a society was charitable was whether it was in the public interest, and that this question was for the court to answer from the evidence before it, weighing the effect on the community against the purpose of the society as expressed in its stated objects. Having regard to the finding of the Commissioners that on balance the object of the Anti-Vivisection Society was detrimental to the public interest, they held that there could be no ground for saying that it was a charitable object.

Lord Porter in his dissenting judgment said that the object of the Society was the protection of animals from the sufferings believed to be involved in vivisection. That object was, in accordance with the decisions in the "animal cases," charitable. He could not accept the view that, when once an object had been held to be in the class of charities, it was then for the court to hear the evidence of both sides as to whether it was in fact beneficial. The object, in his opinion, did not cease to be charitable even if its success would be gravely injurious to the public benefit.

**Correction.**—Under the heading "Another Carbachol Accident" (Oct. 18, p. 636) we described the fourth fatal accident since the introduction of carbachol into this country in 1941. Our later comment on "moryl," which is a trade mark brand of carbachol, might have implied that this was the preparation used in the recent Sourbridge fatality. This was not the case.



No. 41

## EPIDEMIOLOGICAL NOTES

## INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Oct. 11.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included), (b) London (administrative county), (c) Scotland, (d) Eire, (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London), (b) London (administrative county), (c) The 16 principal towns in Scotland, (d) The 13 principal towns in Eire, (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1947					1946 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	45	3	23	4	4	37	3	19	1	2
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Diphtheria .. ..	201	18	60	11	5	269	21	88	36	15
Deaths .. ..	—	—	—	—	—	5	—	1	2	—
Dysentery .. ..	67	9	51	3	—	44	7	29	1	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Encephalitis lethargica, acute .. ..	2	1	—	—	—	1	—	1	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Erysipelas .. ..	—	—	43	10	3	—	—	43	8	2
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Infective enteritis or diarrhoea under 2 years .. ..	70	4	15	8	5	44	2	8	58	1
Deaths .. ..	—	—	—	—	—	—	—	—	17	—
Measles* .. ..	1,639	50	95	151	9	2,005	72	104	46	14
Deaths .. ..	—	—	1	—	—	1	—	—	1	—
Ophthalmia neonatorum .. ..	71	6	15	—	—	69	2	12	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Paratyphoid fever ..	12	—	1(A)	—	—	6	—	1(B)	—	—
Deaths .. ..	—	—	4(B)	—	—	—	—	—	—	—
Pneumonia, influenzal ..	403	19	3	1	2	351	31	1	3	1
Deaths (from influenza)† ..	13	3	2	1	—	9	3	1	—	—
Pneumonia, primary ..	—	23	164	15	3	—	23	143	21	7
Deaths .. ..	—	—	—	6	—	—	—	—	7	—
Polio-encephalitis, acute ..	26	3	—	—	—	1	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Poliomyelitis, acute ..	338	31	76	6	10	22	3	1	6	1
Deaths .. ..	—	2	—	—	—	—	—	—	—	—
Puerperal fever .. ..	—	—	8	—	—	—	1	15	—	1
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Puerperal pyrexia‡ ..	106	6	11	—	—	156	13	20	1	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Relapsing fever .. ..	—	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Scarlet fever .. ..	1,316	84	300	60	44	1,106	94	202	39	54
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Smallpox .. ..	—	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Typhoid fever .. ..	8	1	—	18	2	3	—	2	2	25
Deaths .. ..	2	—	—	—	—	1	1	—	—	—
Typhus fever .. ..	—	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Whooping-cough* ..	1,043	73	40	28	2	1,362	108	136	36	15
Deaths .. ..	3	—	—	1	—	12	—	1	1	—
Deaths (0-1 year) ..	361	46	66	25	12	327	39	59	41	12
Infant mortality rate (per 1,000 live births) ..	—	—	—	—	—	—	—	—	—	—
Deaths (excluding stillbirths) ..	4,240	676	556	147	85	3,846	579	507	179	106
Annual death rate (per 1,000 persons living) ..	—	—	11.6	9.3	—	—	—	11.2	11.5	—
Live births .. ..	9,031	1492	1096	430	276	9,532	1477	1160	414	269
Annual rate per 1,000 persons living ..	—	—	22.1	27.1	—	—	—	23.3	26.5	—
Stillbirths .. ..	216	30	42	—	—	258	35	31	—	—
Rate per 1,000 total births (including stillborn) ..	—	—	37	—	—	—	—	26	—	—

\* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

## Poliomyelitis

Notifications of poliomyelitis in England and Wales fell 276 (338). This is a reduction of about 18% on the figure for the previous week. The decline has now been established for six weeks. There was no marked difference in the decline registered in different parts of the country, but it was perhaps more noticeable in the South than in the Midlands and the North.

## Cholera in Egypt

Deaths from cholera continue to number between 400 and 500 each day, and 800 or more new cases are reported daily. Last Saturday and Sunday there were respectively 496 and 471 deaths. So far there have been no cases reported outside Egypt and all the neighbouring Arab States are exercising stringent control over travellers arriving by road, air, or sea from Egypt. The Lebanese Government will no longer admit travellers arriving directly or indirectly from Egypt. The *Manchester Guardian* correspondent says that some experts have suggested that "the worst may be over by mid-November, especially if all the large cities can be kept immune as they are at present.

## Discussion of Table

In England and Wales there was no change in the recent trend of infectious diseases. Further rises occurred in the incidence of measles 383, scarlet fever 230, and acute pneumonia 73, with another fall in the number of notifications of acute poliomyelitis 64 and of whooping-cough 43. Decreases were also observed in the incidence of dysentery 30 and diphtheria 17.

Notifications of scarlet fever are now three times the number recorded six weeks ago when the incidence first began to increase; during the week the largest rises were Staffordshire 55 and Warwickshire 36. The incidence of acute pneumonia, which has been doubled during the past five weeks, has tended to rise more rapidly in the North than in the southern half of the country.

The decrease in the notifications of whooping-cough was contributed by the southern section of the country; in the northern counties a slight rise occurred. The largest increases in the incidence of measles during the week were Yorkshire West Riding 101 and Somerset 46. In both these counties distinct centres of infection were reported, and the largest of these localized outbreaks were: Yorkshire West Riding—Coln Valley U.D. 25, Hebden Royd U.D. 25, Doncaster R.D. 37 and Hemsworth R.D. 23; Somerset—Chard M.B. 15, Yeovil M.B. 55, Shepton Mallet R.D. 13, and Yeovil R.D. 30.

The chief variations in the returns of diphtheria were an increase in Warwickshire 9 and decreases in Durham 8 Gloucestershire 7, and London 7.

Two small outbreaks of dysentery were recorded during the week in Yorkshire West Riding, Shipley U.D. 8, and Norfolk, Blofeld and Flegg R.D. 6. Other large returns of dysentery were Lancashire 12 and London 9.

In Scotland there were large rises in the incidence of scarlet fever 85, dysentery 31, and acute primary pneumonia 29. Notifications of poliomyelitis were 19 fewer than in the preceding week. Three outbreaks of dysentery were notified during the week: Aberdeen county 10, Kincardine county 12, and the city of Dundee 12. In the city of Glasgow the notifications of scarlet fever rose from 49 to 93 and the notifications of acute primary pneumonia from 79 to 96.

In Eire increases were recorded in the incidence of measles 21 and typhoid fever 15, while the notifications of whooping-cough decreased by 14. An outbreak of typhoid fever involving 13 persons was reported from Limerick, Newcastle R.D. Notifications of diarrhoea and enteritis 80 have remained fairly constant during the past three weeks.

In Northern Ireland no large fluctuations were reported in the incidence of infectious diseases.

## Quarterly Returns for Eire

During the June quarter the birth rate was 25.2 per 1,000, which was 1.1 above the rate for the second quarter of the preceding year and the largest rate for any quarter during recent years. Infant mortality was 65 per 1,000 registered births and was 8 in excess of the rate for the June quarter of 1946. The general death rate was 15.0 per 1,000, which was 0.9 above the rate for the preceding June quarter. There were 209 deaths attributed to the principal infectious diseases, 52 more than in the second quarter of 1946. Compared with the June quarter of 1946, deaths from whooping-cough increased by 60 and deaths from measles by 22, while deaths from diphtheria decreased by 14. Deaths under 2 years due to diarrhoea

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References: Lercel, 1944, 247, pp. 175 and 176. British Medical Journal: 1945, 1, p. 50. Pharmaceutical Journal: 1945, 155, p. 245.  
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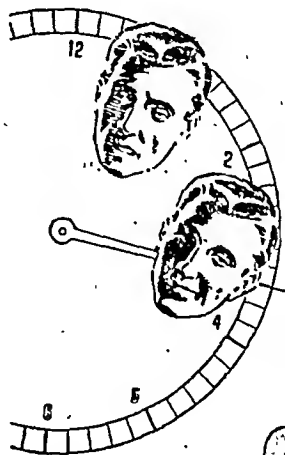
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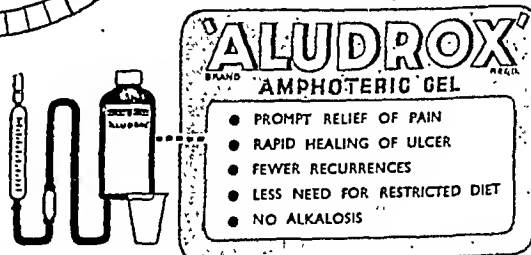


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and enteritis numbered 166, a decrease of 18. Deaths from pulmonary tuberculosis totalled 812, and there were 250 deaths from other forms of tuberculosis; these figures were 66 above and 4 below the corresponding figures in 1946.

#### Births during the September Quarter

A further fall in the birth rate has been announced by the Registrar-General of England and Wales. The birth rate rose steadily from the end of the war to a peak of 22.8 in the first quarter of this year, fell in the second quarter to 22.0, and is now recorded as 20.0 per 1,000 population for the third quarter.

#### Week Ending October 18

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,352, whooping-cough 1,009, diphtheria 202, measles 1,797, acute pneumonia 531, cerebrospinal fever 44, acute poliomyelitis 276, acute poliomyelitis 12, dysentery 46, paratyphoid 16, and typhoid 7.

## Medical News

#### Rector of Glasgow University

Mr. Walter Elliot, M.P. for the Scottish Universities, was elected Rector of the University of Glasgow on Oct. 25. The polling figures were: Mr. Elliot (C.), 1,022; Dr. O. H. Mavor ("James Bridie") (Ind.), 521; Mr. Tom Johnston (Lab.), 448; and Mr. David Niven (Ind.), 137.

#### U.S.A. Research Laboratory Burnt

The Roscoe B. Jackson Memorial Laboratory, of Bar Harbor, Maine, is reported to have been destroyed in one of the fires ravaging that region as a result of the prolonged drought. Experimental work on cancer and genetics has for many years been carried on at the laboratory, and animals bred there were distributed throughout the U.S.A. for research purposes. In recent years research at the laboratory has been conducted on the inbreeding of certain strains of rats, rabbits, and guinea-pigs.

#### Return to Practice in Ireland

The Medical Registration Council of Eire points out to medical practitioners resident in Eire that notices in the public press should do no more than notify the patients of absence from home, or return, or change of address. The Council considers that (1) no notice should appear more than once; (2) no title except that of Doctor (Dr.), or Mister (Mr.), or Surgeon should be used; (3) no degree or qualification should be inserted after the name; (4) in no case should hours or days of attendance be specified; (5) the telephone number and full address should be quoted only in case of taking up residence or change of residence.

#### B.M.A. Library

The Association's Library is to be transferred from its present accommodation in the main building at B.M.A. House to the first and second floors of the Garden Court wing. To facilitate the removal, the Library will be closed from 12.30 p.m. on Saturday, Nov. 1, until 9.30 a.m. on Monday, Nov. 17.

#### Chelsea Clinical Society

The first dinner meeting of the new session was held on Oct. 14, with Dr. Neil MacLay in the chair. Mr. Nils Eckhoff opened a discussion on "Surgery in America," and was followed by Sir Heneage Ogilvie. The next meeting will be held on Nov. 11, at the South Kensington Hotel, London, S.W.7.

#### Postgraduate Education

The North London Postgraduate Medical Institute was formed early this year at the Prince of Wales's General Hospital to provide senior postgraduate teaching in medicine and surgery within the British Postgraduate Medical Federation.

#### Resettlement of Disabled Persons

A circular from the Ministry of Health points out that the re-education of a disabled patient and supplying him with general information about resettlement facilities is, in the first instance, the duty of hospital staffs—particularly of the almoner's department. Suitable literature may be obtained from the Disablement Resettlement Officers of the Ministry of Labour. In order to provide D.R.O.s with expert medical guidance on the functional effect of disabilities, medical interviewing committees will be set up at certain hospitals this year; further details will be announced later.

#### Medical Golfing Society

At a meeting held at Deal on Oct. 11 and 12, Dr. W. J. Cotton won the Canny Ryall Cup and Mr. L. G. Brown, M.C., the Milson Rees Cup.

#### National Institute for the Deaf

Speaking at the Annual General Meeting of the National Institute for the Deaf recently, Mr. Scott-Stevenson said that the research laboratory was now in being under the direction of Mr. D. B. Fry, Director of Phonetics, London University. He thought that the Government-sponsored hearing-aid would be available by the target date of July, 1948. It would be good, but there would always be room for the good private manufacturers, who had done such excellent work in the past. Welfare workers for the deaf must be recognized and must receive adequate compensation for their highly specialized job. He ended by welcoming the formation of the British Association of the Hard of Hearing. Mr. Edward Evans, M.P., followed with a plea for research into the sociology and general needs of the deaf, since too many were being put into dull jobs such as boot-mending, cooking, and needlework. He wanted to see a wider field of vocation available.

#### Wills

Dr. John Percy Litt, formerly medical officer of health for the Borough of Lytham St. Annes, who died on May 25, left £51,021. Dr. Charles Gordon Gibson, of Launceston, Cornwall, who died on May 4, left £34,561. Surgeon Rear-Admiral Hamlet Mark Whelan, of the Royal Naval Hospital, Plymouth, who died on May 27, left £2,939.

### COMING EVENTS

#### Long Fox Memorial Lecture

The XXXVI Long Fox Memorial Lecture will be delivered by Prof. G. Hadfield in the large physics lecture theatre (Royal Fort), Bristol University, on Tuesday, Nov. 18, at 8.15 p.m. His subject is "Subacute Bacterial Endocarditis." Admission to the lecture is free.

#### British Association of Physical Medicine

The British Association of Physical Medicine has arranged for the following films to be shown at the Royal College of Surgeons, Lincoln's Inn Fields, London, W.C., on Wednesday, Nov. 5, at 5.30 p.m.: (a) The Early Diagnosis of Poliomyelitis, and (b) The New Horizon. The films will be followed by a discussion, with Dr. F. D. Howitt in the chair.

#### Royal Sanitary Institute

A sessional meeting of the Royal Sanitary Institute will be held at Belfast City Hall on Thursday, Nov. 6, at 10 a.m., when there will be a discussion on "The Control of the Manufacture and Sale of Ice Cream," with contributions by Dr. S. Barron, Dr. W. G. Swann, and Dr. G. F. W. Tinsdale.

#### Society of Chemical Industry

Prof. E. C. Dodds, M.D., F.R.S., will deliver a lecture on "Academic Research and the Chemical Industry" before the Manchester Section of the Society of Chemical Industry at the Engineers' Club, 17, Albert Square, Manchester, on Friday, Nov. 7, at 6.30 p.m.

#### The Vicary Lecture

The Thomas Vicary Lecture of the Royal College of Surgeons, on Lawson Tait, will be given by Dr. I. Harvey Flack on Friday, Nov. 21, at 5 p.m. Dr. Flack is Assistant Editor of the *British Medical Journal*.

#### Second Army Medical Services Reunion Dinner

The Reunion Dinner for officers and ex-officers of the R.A.M.C. who served with the Second Army, 1944-5, will be held at Kettner's Restaurant, Romilly Street, London, W., on Friday, Nov. 21, at 7.15 p.m. Tickets, one guinea each, are limited in number, and can be obtained by early application either to Dr. R. Gwyn Evans, 33, Sandford Road, Mapperley, Nottingham, or to Dr. R. F. G. Ormrod, Fountain Court, Temple, London, E.C.

#### Tropical Medicine

The Fourth International Congresses on Tropical Medicine and Malaria will meet in Washington on May 10-18, 1948, under the sponsorship of the Department of State. Over sixty governments have been invited by the Department of State to send official delegations. The officers of the Organizing Committee are: Dr. Thomas Parran, chairman; Dr. George K. Strode and Mr. Clarke L. Willard, vice-chairmen; Dr. Rolla E. Dyer, programme director; Dr. Wilbur A. Sawyer, executive secretary; and Mr. William L. Breeze, secretary. There will be twelve scientific sections covering the following fields: research and teaching institutes, tropical climatology and physiology,

bacterial and spirochaetal diseases, virus and rickettsial diseases, malaria, helminthic diseases, protozoan diseases, nutritional diseases of the Tropics, tropical dermatology and mycology, tropical veterinary medicine, public health, and medical and veterinary entomology. Visits will be made to the National Institute of Health in Bethesda, to the laboratories of the Department of Agriculture in Beltsville, and to other institutions and laboratories in and around Washington. Those interested should write to the Executive Secretary, Fourth International Congresses on Tropical Medicine and Malaria, Department of State, Washington 25, D.C., U.S.A., for the preliminary announcement and the advance registration and hotel reservation form.

#### Australasian Medical Congress

The sixth session of the Australasian Medical Congress (British Medical Association) will be held at Perth, Western Australia, from Aug. 15 to 21, 1948, under the presidency of Dr. D. M. McWhae. The scientific sections of the congress, numbering fourteen, are as follows: Medicine; Surgery; Naval, Military and Air Force Medicine and Surgery; Obstetrics and Gynaecology; Paediatrics; Ophthalmology; Oto-Rhino-Laryngology; Public Health, Tuberculosis, and Tropical Medicine; Anaesthesia; Pathology, Bacteriology, Biochemistry, and Experimental Medicine; Orthopaedics and Physical Medicine; Radiology and Radiotherapy; Dermatology and Industrial Medicine; and Neurology and Psychiatry. The names and addresses of the honorary local secretaries, from whom application forms for membership may be obtained, are: *New South Wales*, Dr. K. B. Noad, c/o British Medical Association, 135, Macquarie Street, Sydney; *Queensland*, Dr. Harold Love, Wickham House, Wickham Terrace, Brisbane; *South Australia*, Dr. J. M. Bonnin, 178, North Terrace, Adelaide; *Tasmania*, Dr. J. P. Millar, 163, Macquarie Street, Hobart; *Victoria*, Dr. Roy F. Watson, 294, Glenferrie Road, Hawthorn, E.2.

#### SOCIETIES AND LECTURES

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East, S.W.—Thursday, Nov. 6, 5 p.m. Bradshaw Lecture by Dr. Janet Vaughan: The Anaemia Associated with Trauma and Sepsis.

#### ROYAL SOCIETY OF MEDICINE

*Section of Epidemiology and State Medicine*.—Monday, Nov. 3, 4.30 p.m. Paper by Dr. E. A. Underwood: History of Cholera in Great Britain; Major-General Sir John Taylor: Current Problems in Cholera Control; Mr. P. Bruce White: Bacteriological and Immunological Aspects of Cholera.

*Section of Orthopaedics*.—Tuesday, Nov. 4, 5.30 p.m. (Cases at 4.30 p.m.)

*Section of History of Medicine*.—Wednesday, Nov. 5, 2.30 p.m. Paper by Dr. H. P. Bayon: Karl Marx (1818-83), his Ailments and Relations with Medicine.

*Section of Surgery*.—Wednesday, Nov. 5, 8 p.m. Presidential Address by Sir Max Page: Surgical Records. Discussion to be opened by Mr. H. Cotton.

*Section of Neurology*.—Thursday, Nov. 6, 8 p.m. Presidential Address by Dr. C. Worster-Drought: Some Observations on Charcot Arthropathy.

*Section of Otolaryngology*.—Friday, Nov. 7, 10.30 a.m. Presidential Address by Mr. Donald Watson: An Account of the Progress in the Treatment of Mastoid Infection and Some of its Complications.

*Section of Laryngology*.—Friday, Nov. 7, 2.30 p.m. Presidential Address by Mr. A. J. M. Wright: Milestones in Laryngology. Paper by Mr. Ian G. Robin: Snoring.

*Section of Anaesthetics*.—Friday, Nov. 7, 5.30 p.m. Presidential Address by Dr. J. H. T. Challis: The Teaching of Anaesthetics to Medical Students.

BRITISH INSTITUTE OF PHILOSOPHY.—At University Hall, 14, Gordon Square, London, W.C., Friday, Nov. 7, 5.15 p.m. Mr. J. D. Mabbott: World Peace and World Morality.

WICK TRUST.—At London Missionary Society, 42, Broadway, Westminster, S.W. Tuesday, Nov. 4, 2.30 p.m. Dr. C. T. Bond: Hospitals and Health Services.

SOCIETY OF HOMOEOPATHY.—At London Homoeopathic Hospital, Thursday, Nov. 6, 5 p.m. Dr. A. Kellner: Artificial Hazards in Prescribing.

LONDON UNIVERSITY.—At Royal Society of Medicine, 1, Wimpole Street, W. Thursday, Nov. 6, 5 p.m. Semon Lecture by Mr. E. D. Davis: Applied Anatomy and Physiology of the Pharynx and Oesophagus.

LONDON: UNIVERSITY COLLEGE, Gower Street, W.C.—Tuesday, Nov. 4, 5.15 p.m. Dr. Bernard Katz: Initiation of Impulses by Electric Stimuli. Wednesday, Nov. 5, 5.30 p.m. Dr. M. H. Pirenne: Physiological Mechanisms of Vision.

ROYAL INSTITUTE OF PUBLIC HEALTH AND HYGIENE, 28, Portland Place, W.—Wednesday, Nov. 5, 3.30 p.m. Mr. Arthur Ling: The Health Factor in Town Planning (illustrated).

ROYAL MEDICAL SOCIETY, 7, Melbourne Place, Edinburgh.—Monday, Nov. 3, 8 p.m. Guest Lecture by Mr. John Gillies: Simpson: A Pioneer of Anaesthesia. Friday, Nov. 7, 8 p.m. Dissertation by Mr. F. Starer: Biochemical Aspects of Growth Control.

#### POSTGRADUATE DIARY

EDINBURGH ROYAL INFIRMARY.—Thursday, Nov. 6, 4.30 p.m. Homan Gillespie Lecture by Prof. T. F. Marrian: The Cori Luteum Hormone.

INSTITUTE OF DERMATOLOGY, 5, Lisle Street, Leicester Square, London, W.C.—Tuesday, Nov. 4, 5 p.m. Dr. A. D. Port: Vitamins in Skin Diseases. Thursday, Nov. 6, 5 p.m. Dr. G. Mitchell-Heggs: Erythematous-papular and Erythematous-squamous Eruptions.

INSTITUTE OF LARYNGOLOGY AND OTOTOLOGY, 330, Gray's Inn Road, W.C.—Monday, Nov. 3, 2.30 p.m. Miss D. J. Collier: Fac Paralysis. Bell's and other palsies. Nerve grafts. Nerve anastomosis.

LONDON CHEST HOSPITAL, Victoria Park, E.—Friday, Nov. 7, 5 p.m. Dr. R. A. Beaver: Anaesthesia for Thoracotomy.

A lecture and demonstration, with living models, on contraceptive technique, will be given by Dr. Marie Stopes at the Mothers' Club, 108, Whitfield Street, London, W., on Thursday, Nov. 6, at 2 p.m. Applications to attend must be made in writing to the secretary at the above address.

Prof. J. Lhermitte will deliver a lecture in English on "The Relation of Neurology to Psychiatry" at the National Hospital (Queen Square, London, W.C.) on Friday, Nov. 7, at 4.30 p.m.

#### BIRTHS, MARRIAGES, AND DEATHS

##### BIRTHS

BEATON.—On Oct. 17, 1947, at Dumfries, wife of Dr. Donald R. Beat, F.R.C.S.Ed., M.R.C.O.G., a daughter.

COOO.—On Sept. 28, 1947, at Southmead Hospital, Bristol, to Isabel M. (née Wilson), M.B., Ch.B., wife of Dr. William Lawrence Codd, a daughter—Rosemary; a sister for Robert.

MACRAE.—On Oct. 21, 1947, to Dr. and Mrs. J. O. Farquhar Macrae, Chu of Scotland Mission, Ichang, China, a daughter—Meriel Fionnla.

MCERVEL.—On Oct. 14, 1947, to Cathleen (née Hardman), wife of Major McEvel, R.A.M.C., 21, Meredyth Road, Barnes, a son.

RUSHTON.—On Sept. 20, 1947, at Leeds, to Peggy, wife of Dr. J. Rushton, a son.

##### MARRIAGES

SCRIVENER—COMPTON.—On Oct. 15, 1947, at Chichester, Captain John Scrivener, M.B.E., R.A.M.C., to Mrs. Patricia U. Compton.

THOMAS—ANDERSON.—On Oct. 8, 1947, at Northwood Presbyterian Church, Harold Ernest Thomas, M.B., M.R.C.P., to Elizabeth Jenn Anderson.

##### DEATHS

CAMPBELL.—On Oct. 17, 1947, at Guildford, Surrey, William Sibbald Campbell, M.D.

CHARLES.—On Oct. 15, 1947, at Stanley, Co. Durham, while out walking, J. Charles, M.D., aged 82.

CROUCH.—On Oct. 19, 1947, at the Private Wing, University College Hospital, London, W.C., Harold Armstrong Crouch, O.B.E., M.C., M.R.C.S., L.R.C. late R.A.M.C. and Sudan Medical Service.

ELLIOTT.—On Oct. 7, 1947, at the British Military Hospital, Iqbal, Palestine, Alexander McKenzie Elliott, M.B., B.Chir.

FAWCUS.—At Hillingdon, Middlesex, Sir Harold Fawcus, K.C.B., C.M., D.S.O., D.C.L., M.B., late R.A.M.C., Director-General, Army Medical Services, 1929 to 1934, aged 71.

FOSKETT.—On Oct. 4, 1947, at Karama, New Zealand, Walter Foskett, M.D., aged 57.

FRENCH.—On Oct. 11, 1947, at Toronto, George William Henry French, M.D., F.R.C.S., late of Hornsey.

GORDON.—On Oct. 25, 1947, George Gordon, M.B., Ch.B., 8, Woodthorpe Oxford Place, Manchester.

GRANT.—On Oct. 23, 1947, at 44, Southlands Road, Weymouth, John Willi Geny Grant, F.R.C.S.

HALLIDIE.—On Oct. 19, 1947, Andrew Hallidie Smith Hallidie, F.R.C.S., The Guildhall, Cambridge, aged 85.

HARTE.—At 103, Botanic Road, Dublin, Thomas Christopher Harte, L.R.C. and S.I. and L.M.

HINDHAUGH.—On Oct. 9, 1947, Ernest Arnold Hodgson Hindhaugh, F.R.C. aged 42.

HUGHESDON.—On Oct. 17, 1947, Mary Redfern Hughesdon (née Davies), M.B., Ch.B., wife of Dr. P. E. Hughesdon.

LE FLUVRE.—On Oct. 16, 1947, at Keriworth, Capetown, William Philip Le Fluvre, M.R.C.S., L.R.C.P., aged 88.

LUCAS.—On Oct. 21, 1947, Simon Levy Lucas, M.B., Ch.B.

MACCORMICK.—On Oct. 25, 1947, at Le Val, St. Brelade, Jersey, Sir Alexander MacCormick, K.C.M.G., K.B., M.D., F.R.C.S.

MACLEAN.—On Oct. 17, 1947, at 10, Marius Road, Balham, S.W., Charles Forbes Maclean, M.B., Ch.B.

MASON.—On Oct. 12, 1947, at 61, Lower Baggot Street, Dublin, Henry William Mason, F.R.F.P.S., L.R.C.S.I.

PICKERING.—On Oct. 16, 1947, Harold John Pickering, M.C., L.R.C. L.R.C.S.Ed., 48, Canfield Gardens, N.W.

PHILLIPS.—On Oct. 21, 1947, at Davison Children's Home, Danby, North York, Wilfrid Westwood Phillips, M.B., Ch.B., late of St. Margaret's, Twickenham.

PINHOEN.—On Oct. 22, 1947, at Tunbridge Wells, Richard Pinhorn, M.R.C. L.R.C.P., aged 93.

RADCLIFFE.—On Oct. 19, 1947, Frank Radcliffe, M.D., The Grove, Dedham, aged 75.

RIDDOCH.—On Oct. 24, 1947, at the London Hospital, E.1, George Riddoch, M.D., F.R.C.P., aged 58.

STARLING.—On Oct. 18, 1947, Edwin Alfred Starling, M.B., M.Ch., aged 90.

STEVENSON.—On Oct. 16, 1947, in Malta, Surgeon Commander Alec Ki Stevenson, R.N.



## Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

### Bates on Better Eyesight

**Q.**—W. H. Bates, in a book entitled "Better Eyesight Without Glasses," has propounded the theory that: (a) the prevalent view that errors of refraction are incurable "does not fit the observed facts"; (b) "the lens is not a factor in accommodation and that the adjustment necessary for vision at different distances is affected in the eye, precisely as it is in the camera, by a change in the length of the organ, this alteration being brought about by the action of the muscles on the outside of the eyeball . . ."; (c) correcting lenses (glasses), far from doing anything to improve errors of refraction, are definitely injurious to the eyes; (d) "all abnormal action of the external muscles of the eyeball is accompanied by a strain or effort to see, and that with the relief of this strain the action of the muscles become normal and all errors of refraction disappear . . ."; and (e) by exercises designed to ensure relaxation of the "strain" and the training of the external muscles of the eye, errors of refraction can be cured in a matter of months or a year. Dr. Bates acknowledges that his theories controvert the "practically undisputed teaching of ophthalmological science for the better part of a century" but that he has been driven to his conclusions by carefully established facts. I should be glad to know if the theories propounded by Dr. Bates have ever been seriously tested in this country and, if so, with what results.

**A.**—A detailed criticism of Bates's hypotheses was given in an annotation in this *Journal* on September 13, 1941 (p. 383). As regards the specific points raised here, the following observations are relevant:

(a) Errors of refraction are incurable in the sense that the error remains unaltered in adult life. Hypermetropia is "curable" in childhood in so far as there is normally a decrease in its degree. The onset of myopia in later life from sclerosis of the lens may also diminish the degree of hypermetropia. For the rest the facts observed do fit with the view that errors of refraction are "incurable."

(b) There is considerable controversy as to the mechanism whereby the lens plays its part in accommodation, but there is no doubt as to the fact that the lens is the essential factor in accommodation. The daily experience with aphakic patients who have lost their lens in childhood owing to needling operations, or later in life by extraction, is conclusive of the fact that without the lens there is no accommodation. All patients who have lost their lens, from whatever cause, require a reading correction. The one exception is the high myope who after operation has a near point enabling him to read without glasses. There is no evidence whatever that accommodation is induced by alteration of the length of the eye. This view is of historical interest only, and was held in the eighteenth century.

(c) No one has suggested that glasses "improve" errors of refraction. The view that glasses are injurious to the eye goes back to the beginning of the last century.

(d) The suggestion that errors of refraction are psychological in origin does not lend itself readily to disproof. As for the proof for this contention, it is based on the mode of retinoscopy practised by Bates; it involves a capacity to observe half a dozen or more changes of refraction in the space of a second.

(e) The extension of Bates's unproved theory to psychological treatment is obviously also an aspect not readily disproved.

It would be unfair to condemn Bates's system on theoretical grounds alone. Valid therapeutic systems may have a poor theoretical interpretation. The onus of the proof must, however, rest on its originator, and it cannot be said that any convincing evidence has been brought forward. There is also much in Bates's book, such as the restoration of vision in optic atrophy, which is at variance with accepted views on the subject.

Long before Bates, however, it was recognized that "there were none so blind as won't see." Bates's "exercises" are a

form of psychological treatment for suggestible patients requiring these forms of therapy. Such occasional improvements as were noted in organic cases during the course of Bates's treatment are in all probability instances of remission in the course of chronic relapsing affections like iridocyclitis. It would be strange if such instances did not occur amongst the large number of patients who have undergone Bates's treatment.

### Osteoarthritis of Hips

**Q.**—What are the present accepted treatments for severe osteoarthritis of both hips, with special reference to intra-articular injections of a lubricating fluid into the joint, as advocated by Dr. P. Morris in his book, "Fifty Years in Surgery"?

**A.**—Disabling osteoarthritis of both hip-joints is a formidable and still unsolved problem in therapeutics. Treatment may be classified into non-operative and operative methods. Non-operative methods of treatment include the following: (1) Adjustment of the patient's routine of life in order to allow increased rest and to diminish the strain on the hip-joints. (2) Physiotherapy, in the form of local heat from infra-red radiation, or preferably short-wave diathermy, and measures to build up the normal supports of the hips—that is, the surrounding muscles. (3) Correction of any inequality in leg length due to fixed deformity by appropriate raising of one shoe. (4) Deep x-ray therapy. (5) Intra-articular injections. Treatment by intra-articular injections is under fairly extensive trial at several centres at the present time. Most authorities recommend the employment of solutions of weak acids as being more effective than fluids having a lubricating action. Solutions of lactic acid, of acid potassium phosphate (1%), or of acid magnesium phosphate (1%) are variously recommended. A course of six to twelve injections, each of 20 ml., is given at weekly or two-weekly intervals. The results of this form of treatment are difficult to assess. Most observers agree that they are inconstant and uncertain, but that a proportion of patients do appear to gain some symptomatic relief. A satisfactory response is, however, unlikely to be secured in cases of advanced disease or where a severe degree of deformity is present.

Operative treatment is usually advisable when the disease is of severe degree, provided that the general condition of the patient is suitable. The operations available, in order of increasing magnitude, are: (1) Neurctomy of the obturator nerve and the nerve to the quadratus femoris. This cuts off a large proportion of the pain fibres to the hip-joint, and is suitable when a useful range of movement is still present. This method of joint denervation is popular in some French clinics at present. It is still very much *sub judice*. It is not as effective as lateral chordotomy but it is a much simpler procedure. (2) Osteotomy of the femur at the level of the inferior margin of the acetabulum, as advocated by McMurray. (3) Arthrodesis of one hip with arthroplasty or pseudarthrosis of the other. (4) Arthroplasty of both hips. The last two methods are particularly applicable to cases where movement is greatly restricted or where considerable fixed deformity is present.

### Kapeller-Adler Pregnancy Test

**Q.**—Could you give me details of the Kapeller-Adler test for urinary histidine used as an aid in the diagnosis of pregnancy? How long after conception does this test become positive?

**A.**—The test is preferably carried out on a twenty-four-hour specimen of urine, but failing that the first morning specimen may be used. The urine is treated with a bromide reagent followed by a mixture of ammonia and ammonium carbonate, and the whole is then placed in a bath of boiling water for two to three minutes. The presence of histidine is indicated by the development of a red or reddish-violet colour. If the urine is alkaline it needs special preliminary treatment with 10% sulphuric acid and N/10 potassium permanganate solution. For further details, attention to which is important, reference should be made to an article by R. Kapeller-Adler (*J. Obstet. Gynaec. Brit. Emp.*, 1941, 48, 141). According to this author, a positive histidine test may be obtained as early as the first week after the first missed period, and sometimes even before a period is missed. In threatened abortion and missed abortion the

reaction may be only weakly positive; it remains positive in hydatidiform mole, but becomes negative when pregnancy is complicated by severe toxæmia. False positive reactions are sometimes seen in cases of over-function of the anterior lobe of the pituitary. It is difficult to say how reliable is the test. Kapeller-Adler claims almost 100% accuracy in cases of normal pregnancy, and only a 3% error in non-pregnant women. A few other workers have found it to be 99% accurate in cases of pregnancy, but record an error as high as 15% in non-pregnant women. It has been tried out in many laboratories in this country, and the fact that it has not come into general use and replaced biological tests rather indicates that it is not accurate enough to be of much practical value, or at least that reliable results depend to a large extent on the personal factor in the carrying out of the technique and in the interpretation of the colour reaction.

#### Addison's Disease

**Q.**—Has there been any recent advance in the treatment of Addison's disease? The present treatment consists in administration of extract of adrenal cortex and sodium chloride, but the question of gland implantation has been raised.

**A.**—Desoxycortone has proved a useful alternative to adrenal cortical extract and has two advantages: (1) 1 ml. is equivalent to 10 ml. of extract, and (2) tablets—for example, four of 100 mg. each—can be implanted in the subcutaneous fat of the abdomen and continue to act for some eight months. Recently in the U.S.A. Upjohns has produced a cortical extract from pigs which is said to be far more potent than the cortical extract usually obtained from cattle, in the proportion of one to five. Further, it is qualitatively richer in the glycogen-forming or carbohydrate-regulating hormone as distinct from the salt-and-water-regulating hormone, and this is of particular advantage in those patients with a tendency to hypoglycaemia. As to implantation of actual adrenal gland, this has been tried many times, and occasionally favourable reports are made. Broster recently reported a new technique in which a branch of the epigastric artery is implanted into the adrenal vein of the transplanted gland. However, in practice the method of adrenal transplanting has not come into popular use, and the probability is that it is too uncertain and hazardous.

#### Beeswax in Oily Solutions of Penicillin

**Q.**—Beeswax is incorporated in oily injections of penicillin to retard absorption. What is the fate of the injected beeswax and how does it act?

**A.**—The usefulness of incorporating 4.8% of beeswax in the arachis oil used as a vehicle for penicillin is amply attested by the work of Romansky and Rittman. The result is a very viscous medium undergoing slow dispersal; the contained penicillin is consequently slowly absorbed and exerts a prolonged action. The whole of the vehicle is ultimately disposed of by phagocytosis, and is said to have no injurious effect.

#### Intertrochanteric Fracture of Femur

**Q.**—Is an inch shortening and a right-angled coxa vara recognized as a good result following an intertrochanteric fracture of the femur?

**A.**—While the result described cannot be regarded as perfect, would not necessarily be inconsistent with a satisfactory recovery of function. In an elderly patient such a result could be accepted by most surgeons if it was felt that a better anatomical reduction could be achieved only by operation. Though intertrochanteric fractures invariably unite, the union remains soft for five or six months in elderly patients, and it is during this late period that secondary deformation is likely to occur, resulting in coxa vara and shortening. The only way this can be prevented is by maintaining traction in bed for four or five months; or by subjecting the patient to an extensive operation to apply one of the several methods of internal fixation. As always in old people, it is a question of gaining sufficient function for their needs by a method which carries the least risk to life. In younger patients, however, it should always be possible to obtain a perfect anatomical and functional result by early complete reduction and maintenance of the reduction by internal or external splinting.

#### Antiseptic Effect of Ether

**Q.**—Ether applied to the skin and allowed to evaporate is not actively antiseptic, but to what extent is it effective if a little is kept with a hypodermic syringe in a metal pocket-case?

**A.**—On the contrary, ether, although said to be less effective for the purpose than spirit, does kill extraneous bacteria on the skin. Neither can be depended on to sterilize a syringe. The most that ether can be expected to do in the type of use described is to sterilize the outside of the needle. For reference to further information on the sterilization of syringes see last week's issue (p. 680).

#### Toxicity of Phenobarbitone

**Q.**—What daily dose of phenobarbitone is it safe to give for a prolonged period as a sedative? Does the drug accumulate and if so what are the signs that this is taking place?

**A.**—The only guide to the daily dose of phenobarbitone which it is safe to give as a sedative for a prolonged period is that the maximum pharmacopoeial dose is 2 gr. (0.13 g.). This is a dose for repeated use, and it remains for the doctor to discover, for any particular patient, how often this dose can be repeated with safety. Patients vary a great deal in their susceptibility to all barbitone derivatives. The variation has been determined for one derivative—namely, "sodium amyltal"—and it was found that the most resistant patients require four times as much as the most susceptible ones. It is likely that there are patients in whom 2 gr. of phenobarbitone daily will produce some signs of accumulation, while others may tolerate 6 gr. (0.4 g.) or more daily. Phenobarbitone is excreted very slowly by the kidney and therefore accumulates. The signs of accumulation are dullness and drowsiness; there is also a diminution in the depth of respiration.

### NOTES AND COMMENTS

**Tobacco and Poliomyelitis.**—Dr. R. MONAHAN (Geneva) writes Referring to this subject in "Any Questions?" (Oct. 11, p. 598) this writer, in suggesting immunity for smokers, seems to have got hold of the wrong end of the stick. Tobacco smokers invariably develop the inflamed throat so favourable to infecting children. Nowadays children are brought up in a tobacco-drenched atmosphere irritating their throats, rendering them more susceptible to the poliomyelitis virus. To-day the whole atmosphere of England is contaminated as the result of this filthy habit. It might be interesting to compare respective graphs showing the increase of smoking in the last 30 years and the greater incidence of poliomyelitis.

**Loosening the Piston of a Syringe.**—Dr. S. J. D. ESSER Rustenburg, Transvaal, writes: The simplest way of loosening the piston of a syringe (Aug. 30, p. 358) is to dip the syringe in ice-water. Packing it with ice is apt to crack the glass, as the cold is distributed unevenly, but in every refrigerator there is a tray to catch the water when defrosting. We have to defrost every day to keep the refrigerator in good working order. The tray gets full of icy cold water in which the syringes are dipped and left for an hour or longer. We invariably find that the piston is then quite loose owing to the fact that metal contracts more than glass through cold.

**Addendum.**—We should have indicated in our issue of Oct. 2 that the paper on "Shock in Obstetrics" by Prof. W. A. Scott (p. 647) was read originally at the International Congress of Obstetricians and Gynaecologists held in Dublin from July 7-11 on the occasion of the Rotunda Bicentenary Celebrations.

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Atiology Westcent, London.* ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone, unless the contrary be stated. Authors desiring REPRINTS should communicate with the Publishing Manager, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs. Author overseas should indicate on MSS. if reprints are required, as proofs are not sent abroad. ADVERTISEMENTS should be addressed to the Advertisement Manager, B.M.A. House, Tavistock Square, London, W.C.1 (hours 9 a.m. to 5 p.m.) TELEPHONE: EUSTON 2111. TELEGRAMS: *Brimedads, Westcent, London.* MEMBERS' SUBSCRIPTIONS should be sent to the SECRETARY of the Association, TELEPHONE: EUSTON 2111. TELEGRAMS: *Medisecra, Westcent London.* B.M.A. SCOTTISH OFFICE: 7, Drumshough Gardens, Edinburgh.

# SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY NOVEMBER 1 1947

## HEARD AT HEADQUARTERS

### The Bill Comes In

New Zealand is sometimes cited as the paradise of the State Medical Service. A letter from a doctor in that country, a copy of which has been sent to Headquarters, shows that there are, if not serpents, a few lizards in the rock garden. To begin with, the New Zealand scheme has led to a greater incidence of illness, whether real or imaginary no one can say. The cost of prescribing in New Zealand, which in 1942 was £200,000, rose in 1946 to £1,700,000. The second point is that under the State scheme there is a greater demand for certificates, particularly to excuse absence from work. And, thirdly, there is the mounting cost to the beneficiaries and the public. The scheme is financed to the extent of about 50% by a levy on wages. The current levy for social security, which embodies the health service, is 1s. 6d. on each £1 of wages earned. This year, out of a total New Zealand budget of £106 millions, £42 millions is being paid for social security; in other words, the amount now spent on social security alone is equal to one-and-three-quarter times the amount of the total New Zealand budget ten years ago. Of the £42 millions, half is found by the wages tax and the remainder by other forms of taxation, primarily by what we should call purchase tax. The term "free medicine" evidently needs a great deal of qualification.

### Dollar Tales

Three stories (with the dollars changed into sterling), all from the U.S.A. The American papers report that a doctor in Indiana has received payment of an account rendered forty-seven years ago. A lady, born in 1899, discovered on the settlement of her father's estate that the doctor's bill for her mother's confinement when she herself was born had never been paid. The account rendered was £2, which she sent forthwith, adding another £1 for the doctor's "patience." Perhaps the only instance on record of the child paying for its own delivery. A provident fund organization in New York the other day was rather shocked to receive a claim for 2,400,000 dollars (£480,000) for a maternity case. Closer examination showed that the subscriber was stationed in China, and that the bill was in Chinese dollars, the American equivalent being 200 dollars, or £40. A surgeon writes in an American medical journal that he had operated on a patient and paid him many subsequent visits. He instructed his secretary to make out the account for £50 for the operation and £5 for each visit, £125 in all. The secretary objected. "The man's a millionaire," she said; "if you charge him only £125 he will think you're no good." The surgeon allowed her to persuade him to increase the bill to £250. A day or two later came a cheque for £500, with the remark, "Thank you, I thought it would be £1,000." The surgeon supposed that the millionaire had doubled the amount set down on the bill, but on his asking his secretary she said, "Oh, Doctor, you are such a poor business man. I doubled the amount again and sent in the bill for £500."

### Medical Students in Conference

Medical students from most of the schools of Great Britain came to Tavistock Square at the week-end for the annual meeting of the B.M.S.A. The Association is now five years old—a

healthy and voluble youngster. It suffers to a certain extent, of course, from its leaders' dropping off year after year to join the ranks of the qualified. Very few seem to remain associate members after qualification. Having spoken as students and thought as students, they resolutely, when the time comes, put away student things. The Association seems to be strongest in the North of England and Scotland, rather less strong in London, and weakest in the Midlands (which for this purpose includes Oxford and Cambridge). But it is full of energy and ambition and is planning an international clinical conference next summer, and a three-day clinical conference at three London hospitals next spring, at which 100 students drawn from other parts of Great Britain are expected. It was explained that the London students, who will be hosts, do not need such a conference, for they can get plenty of inter-hospital experience. For a 2½d. bus fare they can attend a lecture at another hospital, and can even, if they ask for it nicely, go on the ward round. The students showed themselves very anxious not to be thought a political body. Unfounded suspicions of Left-wingedness attach to them. As their president said, when people outside see a body of students demanding certain things they say at once, "Oh, yes, Communists, no doubt." Nearly all thought that they should keep themselves to themselves, not even passing resolutions on Palestine or the atom bomb. As one young student expressed it with charming frankness, "We must show that we are working for one great fixed ideal, and that great fixed ideal is ourselves."

### Angels Unawares

The exchange of medical students between this country and abroad is evidently a work of some delicacy. The able student from University College Hospital who is charged with this task for the B.M.S.A. told his fellow students something of his tribulations. One of them is the receipt, about May Day, of letters from medical students' organizations in certain countries in Central and South-eastern Europe saying how happy they are in the political government of their country, and hoping you are the same. Continental students seem to be more interested in what is going on in Great Britain than British students in what is happening on the Continent. One little difficulty is the assumption, apparently, by all hospital staffs that all students who visit this country from abroad are final-year students. Not long ago twenty Swedish students came over. One young woman who was assumed to be on the point of qualifying was asked to give her opinion at the bedside. She was actually a first-year clinical student, but she managed to make it appear that her imperfect English rather than her lack of knowledge was the reason for her unsatisfactory answers.

### The Headquarters House

The Garden Court wing of B.M.A. House has now been derequisitioned and is being occupied by departments of the Association. The library is moving over to the first and mezzanine floors of the new wing, and thus will have a home more worthy of its possessions. What has hitherto been the reading-room is proposed to be converted into a large committee-room, which can be made at option, by means of partitions, into two smaller ones. It is also desired to extend the common-room accommodation. The completion of repair of all outstanding war damage to the building, except for the unoccupied south

wing, was begun last August. The work was covered by a licence for £7,000 received from the Ministry of Works; but it is already evident that the final cost will exceed this sum, and application has been made for a licence to cover the additional expenditure. How far the intensified embargo on constructional work will operate we cannot say.

### When You Are Old

In last week's *Supplement* (p. 96) certain persons who acted in an advisory capacity during the preparation of *When You Are Old*, the popular edition of the "Report on the Care and Treatment of the Elderly and Infirm," were inaccurately stated to have been responsible for the compilation of this booklet. The booklet was written by Dr. William Edwards, author of the recently published sketch of medical life *The Art is Long*, and the credit for having planned the publication and arranged its production belongs to Mr. John Pringle, the Association's Public Relations Officer.

## OPHTHALMIC GROUP COMMITTEE

A meeting of the Ophthalmic Group Committee of the Association was held on Oct. 24, Dr. O. Gayer Morgan presiding. On the question of compensation for loss of capital value of ophthalmic practices—a question postponed from the last meeting of the committee—the view of the Ministry of Health was that, in so far as consultant and specialist practices might continue to be bought and sold, the National Health Service Act would not prevent the continuance of this custom, and therefore there was no case for compensation. It was pointed out in the committee that, while there would be nothing to prevent the ophthalmic surgeon from selling his practice, such sale would become more difficult.

### Future of the N.O.T.B.

The committee had before it proposals from a joint sub-committee on the future of the National Ophthalmic Treatment Board. These proposals, which were approved, included the organization of the service on a clinic basis, for which purpose a survey of the country should be undertaken, and the reopening of discussions with voluntary hospital ophthalmic clinics with a view to amalgamation or effective co-operation between the two bodies; while the functions of the Board should be to establish and maintain clinic premises, to prepare and keep lists of ophthalmologists and dispensing opticians available under the scheme, and to publicize the scheme. Ophthalmologists and dispensing opticians should contribute to the central administration on the basis of a fixed levy for each patient seen.

Correspondence which had taken place between the Association of Optical Practitioners and the Faculty of Ophthalmologists on the fee for examining cases referred to ophthalmologists by approved societies was referred to the committee. The committee agreed at a previous meeting to inform the representative organizations of approved societies that in its opinion any fee for cases which had already been examined by sight-testing opticians and referred to ophthalmologists should be increased to two guineas, and this was reaffirmed.

## TRADE UNION MEMBERSHIP

The following is a list of local authorities which are understood to require employees to be members of a trade union or other organization:

*County Borough Councils.*—Barnsley, Gateshead.

*Metropolitan Borough Councils.*—Finsbury, Fulham, Hackney, Poplar.

*Non-County Borough Councils.*—Dartford, Leyton, Radcliffe (limited to future appointments), Tottenham, Wallsend.

*Urban District Councils.*—Denton, Droylsden, Houghton-le-Spring, Huyton-with-Roby, Portslade, Redditch (restricted to new appointments), Stanley (Co. Durham), Tyldesley.

*Scottish Burghs.*—Motherwell and Wishaw.

## JOINT TUBERCULOSIS COUNCIL

On the invitation of the Evidence Committee on Remuneration of Consultants and Specialists, the Council has set down its views on the status and salaries of tuberculosis physicians in the National Health Service. The Council considers that among the specialist officers employed by Regional Hospital Boards should be included a chief administrative and consultant tuberculosis officer, physicians in charge of clinical teams dealing with tuberculosis and their assistant physicians, the medical superintendents of sanatoria, and assistant physicians in sanatoria. Physicians in charge of the clinical teams should hold high qualifications, and their status and remuneration should be identical with those of other consultants—e.g., general physicians. Medical superintendents of sanatoria should at rank with general physicians and receive similar remuneration with the addition of residential emoluments or their equivalent. Assistant tuberculosis physicians should correspond in status and remuneration to assistant general physicians.

The Council has deputed Dr. D. P. Sutherland, Dr. Jam Watt, and Dr. Norman England to attend, if invited, before the Spens Committee to give oral evidence in support of the views.

## Correspondence

### National Health Service

SIR,—Some recent letters have suggested that we may be driven to enter the Service whether it is good or bad. That is an enervating fallacy. *We are in command of the situation.* I am simply declining to operate the Service unless the despotic powers conferred on the Minister are removed from the Act. We can compel him to have it done. The only real danger lest we should be confused by discussing conditions of service and persuaded to enter with the Act not amended in this respect.

Amendment of the Act is the fundamental desideratum. As it is, the Act gives the Minister of Health unlimited power over the medical profession. He can cancel any agreement whether as to hours, pay, or any other conditions of service, and impose new ones whenever he likes; and if you object he can dismiss you from the Service. And you are deprived of the right of appeal to the courts, so you will be in the gutter, for the Act enables him to kill private practice. Powers of this kind are not needed for any good purpose. They benefit no one except those with a vested interest in bureaucracy.

The vital facts for us to keep in sight are, first, that until the Act is amended no agreement is worth the paper on which it is written; and, secondly, that we have it in our power, beyond any question, to defeat this trickery and save our profession from would-be dictatorship.—I am, etc.,

D. PRIESTLEY SMITH.

SIR,—The recent flood of correspondence in your columns from general practitioners leaves no doubt as to what opinion the latter hold about fixed hours of duty as compared with the prospect of a 24-hour shift. The genuine G.P. sees in the forthcoming National Health Service a chance of release from the "blood, toil, sweat, and tears" of a routine which has reduced him or her to a life of abject slavery.

In spite of propaganda to the contrary, I feel sure that, when the Minister of Health launches the new Service next July, I will not require us to remain on call for 24 hours in the day. How then did it come about that, at a recent B.M.A. meeting, a motion tabling the desire of G.P.s for reasonable hours of duty was summarily defeated? To state, as some representatives did, that G.P.s do not desire the Minister to tell them what hours they may devote to work and leisure is just so much hypocritical bunkum, and can only emanate from persons who do not care a fig about the welfare of the G.P. Surely it is patently obvious that, if we do not stress our desires for fixed hours of duty, there can be no choice at all as to what time is devoted to work or leisure under the proposed National Health scheme. What will obtain will be "the mixture as before", i.e., the nightmare of 24 hours' duty per day, seven days a week.

I venture to suggest, Sir, that if a ballot were taken as to the opinions held by genuine G.P.s at least 90% would vote for reasonable fixed hours of duty.

Incidentally, while on the subject of leisure, the abolition of the basic petrol ration will certainly abolish what little relaxation some of us were able to snatch. One would have expected the B.M.A. to take up this question very vigorously with the Ministry of Fuel, but as yet no movement in that direction is apparent, unless some manoeuvring is going on behind the iron curtain which seems to have descended between the hierarchy of the B.M.A. and the profession at large. Is it not time that G.P.s learnt something about the negotiations that have taken place with the Minister with regard to the proposed new State Medical Service?

It must be obvious to any disinterested onlooker that our representatives of the B.M.A. have lost touch with the desires of the "backbone" of the profession—the general practitioners. I for one hold the opinion that the reason for this is that the G.P. is not sufficiently represented on the Negotiating Committee. There are too many representatives who are attached to the Royal Colleges or who are in the fortunate position of being able to leave their "better class" practices in order to spend a few days in London. The rank and file of the G.P.s simply have not got the time (even if they had the energy) to relinquish their practices for a few days in order to voice their viewpoints at Headquarters. Thus, for the most part, they must content themselves with an occasional outburst via the columns of the *B.M.J.* It is useless for the B.M.A. to call for unanimity among the profession unless they are prepared to fight for the viewpoint of the common man who labours therein. If this fact is not realized, the B.M.A. may find, just as certain trade union leaders found, that the rank and file are unwilling to obey the dictates of their leaders when the time for concerted action arrives.—I am, etc.,

N. Wingfield, Derbyshire.

H. FIRMAN.

SIR,—May I again bring to the notice of the B.M.A. that it is high time that a lead was given to the profession regarding the National Health Service? For what are we waiting? The Minister of Health is proceeding rapidly, setting up committees to run a service which has already been refused by a plebiscite and regarding the working of which we know nothing at all. Shall we wait and wait until the Minister has completed all his arrangements and then be told, "What can the B.M.A. do about it? The Service is already in operation."

Can the B.M.A. not advise the doctors that they should not allow their names to go forward to be hand-picked by the Minister before we know all there is to know about the Act and the views of the profession determined by plebiscite? This is not a matter to be trifled with: it threatens the extinction of the medical profession, which has existed as private individuals since medicine became a science, and surely the B.M.A. can say that it officially advises that no action be taken by the doctors in spite of Government pressure until the proposed Service is based on the seven cardinal points upon which the B.M.A. insisted to begin with. Or are these seven cardinal points now out of date?—I am, etc.,

Kirkcubright, Angus.

J. MCINTOSH RATTRAY.

### Working Day in the Services

SIR,—I am in full agreement with the recent correspondence complaining about the wasted working day in the Services, and should now be most interested to read a letter in your columns in support of this gross overstaffing of Service establishments with doctors. I have been in the Royal Navy for nearly two years and for the past year have been stationed at a Naval shore establishment. During the whole of that time it has been for only the few weeks when my senior has been on leave that I have felt my existence here has been really justified, and even then it has been a most easy existence. For the times when my senior medical officer is present he has put in a great deal of thought and imagination in working out for me a full day's time-table, so that on paper my presence here should look justified.

The Service system of having two medical officers on the staff of an establishment with five or six hundred fit young

men and women is bad in that they are a further unneeded expense for the taxpayer and it leads to stagnation of any keen young brain.—I am, etc.,

SURGEON LIEUTENANT, R.N.V.R.

SIR,—Recent letters from R.A.F. M.O.s have drawn fresh attention to the chronic under-employment of the so-called general duties officers of the Forces. To their experiences I would like to add my own.

Of some 18 months' service I have spent over six on leave or in transit for one post or another abroad. Many more weeks were spent with almost nothing to do. Back in England I am now in my busiest post yet; nevertheless I rarely see more than six sick persons a day, most of them such trivial cases that in a factory or a public school the "sister" would have coped with them without the advice of a doctor. With great difficulty I sort out two or three to put to bed so that I may keep a staff of some twenty lads at least partly employed on nursing. My medical work over, I find myself surrounded and frustrated by endless administrative duties.

May I add that, before I arrived, for a short while a local practitioner had managed to see the sick before his 9 a.m. surgery, and the sergeant quite easily coped with the administration. A permanent arrangement like this must surely be possible in many places, and would not only release doctors at present wasting their skill but would also save the country no small sum of money.

Facilities, especially with regard to drugs, are not those of the G.P., and one's practice is so dictated by regulations that there is no doubt that professionally one is neither trusted to treat the sick nor to grade men according to their physical standards. Thus all cases except the most minor are sent to military hospitals, where many literally disappear, so that however interesting they may have been they can never be followed up.

I volunteered for a short-service commission believing that facilities for specialization were granted, but I have not had so much as a reply to three successive applications for traineeship, so am resigning myself to five years of futile redundancy. I hope, however, that this may be a warning to any doctor with the slightest enthusiasm, so that he may think more carefully than I did before agreeing to sign on for so long. And if this be a foretaste of the State Service, Heaven help us all!—I am, etc.,

CAPTAIN, R.A.M.C.

SIR,—May I add to the remarks of your R.A.F. correspondent (*Supplement*, Oct. 11, p. 89) on the subject of the Service M.O. When I qualified I understood that the need for doctors was acute both in civilian and Service fields. There came the time when the need of the R.A.F. appeared the greatest (and this in 1947) and I was "offered" a commission. For over six months I have been the supernumerary M.O. on a station in company with the M.O. I was sent out to release for posting. Thus the distribution on my particular station is one doctor per 400 men. We therefore are maintaining *double* the establishment; and I find it very hard to see just how the community benefits from this example of a National Health Service.

The two general practitioners near by are worked off their feet and have on occasion asked for my help, but, in common with your correspondent, my daily 90 minutes of prescribing for colds, flat feet, and bellyache is spread over the whole day, and I cannot make myself available for more useful work.

The direction of young doctors into the Services at this stage *ad lib.* does a grievous harm to doctor and the community as a whole.—I am, etc.,

FLYING OFFICER, R.A.F.V.R.

### The Country Practitioner

SIR,—May I through your columns draw the attention of the N.H.I. Committee to the plight of the rural practitioner who does all his dispensing? The fee paid us is, I believe, in the region of 3s. per head per year, so that with 1,000 patients the country doctor supplies the drugs and dressings and does the dispensing for £150 a year. With the cost of drugs what they are to-day, plus the purchase tax on them, the purely rural practitioner is subsidizing the N.H.I. to a considerable amount.

Further, his car costs are fantastic and he is in every way at a considerable disadvantage compared with the town practitioner.



tioner, who writes prescriptions and is therefore not affected by drug and dressing costs nor the work of dispensing.

These are but two facts which so far seem to have escaped our negotiators but should receive in the future their attention when terms are arranged for the State Service.—I am, etc.,

St. Osyth, Essex.

R. E. CLARKE.

\*\* The dispensing capitation fee is now 4s. 9d.; before the war it was 2s. 6d.—ED., B.M.J.

### Basic Petrol

SIR,—Would it not be only fair to permit doctors to use their cars for all purposes within a limited number of miles of their homes? In this way members of an overworked profession would be able occasionally to visit friends, go to the cinema or their golf club, and still be available with their cars for any emergency call to a case. As it is it seems probable that doctors will very seldom be able to leave their houses except on professional duty. Surely this privilege could not be dubbed unfair to the rest of the public, who are not at all hours of the day and night on immediate call?—I am, etc.,

Enfield, Middlesex.

H. FORBES PATRICK.

## H.M. Forces Appointments

### ROYAL NAVY

Acting Interim Surgeon Lieutenant-Commander W. A. Burnett to be Surgeon Lieutenant-Commander.

Acting Surgeon Lieutenants P. P. Clifford, J. D. F. Shaw, B. Marsden, D. O. Haines, and F. C. S. Pearson to be Surgeon Lieutenants.

### ROYAL NAVAL VOLUNTEER RESERVE

Temporary Acting Surgeon Lieutenant-Commander M. M. Walker has been transferred to List II of the Permanent R.N.V.R. in the rank of Surgeon Lieutenant-Commander.

### ROYAL ARMY MEDICAL CORPS

Lieutenant-Colonel J. R. Hayman has retired on retired pay. War Substantive Majors D. G. C. Whyte, D.S.O., H. R. Hartnell, and H. W. Whitchee, to be Majors.

Captain G. F. Anderson to be Major.

Short Service Commissions.—Lieutenants S. M. Adye-Curran and W. N. Erskine to be Captains. Captain R. M. Vanreenan, from I.M.S., I.A.M.C. Emergency Commission, to be Captain.

### REGULAR ARMY RESERVE OF OFFICERS

#### ROYAL ARMY MEDICAL CORPS

Colonel D. S. Skelton, C.B., D.S.O., late R.A.M.C., has ceased to be employed and has been restored to the rank of Major-General.

### LAND FORCES: EMERGENCY COMMISSIONS

#### ROYAL ARMY MEDICAL CORPS

War Substantive Major M. Chandra has relinquished his commissions and has been granted the honorary rank of Lieutenant-Colonel.

Short Service Commissions, Specialists.—War Substantive Major A. P. Graeie has relinquished his commission and has been granted the honorary rank of Major. War Substantive Captain G. D. Owen has relinquished his commission and has been granted the honorary rank of Major.

Lieutenants J. Cowie and A. M. Dorey have relinquished their commissions on account of disability and have been granted the honorary rank of Lieutenant.

To be Lieutenants: C. J. T. Archer, A. P. Baker, D. C. Barker, W. S. Bell, P. G. Bevan, B. H. Brock, H. C. Butterworth, J. H. Cameron, J. E. Carlyle, B. N. Catchpole, I. C. Church, H. C. Churchill-Davidson, L. W. Clarke, E. D. Cloughley, P. S. Davis, D. Dencer, E. M. L. Evans, D. M. Garratt, J. S. E. Gilbert, N. A. Gray, H. W. Hall, J. B. Hearn, J. H. Hobson, J. S. Holden, D. A. N. Hovic, R. G. Hughes, A. F. Fairlie, A. M. Huntley, G. A. Jeffery, A. S. Jones, J. M. Jones, K. L. Jones, D. R. Lucas, K. B. Lazarus, H. D. Leggatt, W. A. MacDougall, P. C. MacGillivray, A. M. McKinlay, H. S. McWalter, S. L. Mann, E. D. Marsh, R. Martin, D. G. Miller, R. D. Mills, W. C. Palmer, T. J. Parkinson, H. S. Paul, R. Pilsworth, A. Pines, R. J. Randall, A. H. C. Ratliff, J. S. Rivers, A. Ross, F. Sheffield, D. Stenhouse, I. M. Stewart, J. O. Taubman, J. H. Wallis, C. H. Wheatley, D. Whitehouse, I. C. Wilson.

### WOMEN'S FORCES

#### EMPLOYED WITH THE R.A.M.C.

War Substantive Captain T. M. Ward has relinquished her commission and has been granted the honorary rank of Major.

To be Lieutenants: Ellen M. Knight, Eileen Power, Clare E. Wildeboer.

### ROYAL AIR FORCE

Air Commodore (Acting Air Vice-Marshal) T. J. Kelly, C.M.C., has reverted to the retired list, re-attaining the rank of Air Marshal.

Group Captain (acting Air Commodore) E. D. D. Dickson, C.M.C., to be Air Commodore (Substantive).

Squadron-Leader (Temporary) R. J. A. Morris to be Squadron Leader (Substantive).

To be Flight-Lieutenants: P. H. Blackiston and I. M. Perkin

To be Flying Officers (Temporary): W. D. H. Conacher, I. Emerson, D. G. Jones, H. L. Jones, J. Mackintosh, D. A. McC. J. F. McMinn, A. McNab, J. W. B. Matthews, C. P. Newco and W. Seright.

## Association Notices

### Branch and Division Meetings to be Held

HYDE DIVISION.—At Dukinfield Town Hall, Wednesday, Nov. 3, 8.30 p.m. Prof. R. E. Lane: Industrial Life and the Doctor.

STOCKTON DIVISION.—At Stockton and Thoraaby Hos Bowesfield Lane, Stockton-on-Tees, Monday, Nov. 3, 8.30. Sir Stanford Cade: Radiotherapy, Present and Future.

### Meetings of Branches and Divisions

#### COVENTRY DIVISION

A meeting of the Coventry Division was held on Oct. 14. local scheme for immunization and vaccination was accepted.

Dr. H. N. Gregg was elected to the committee of the Coventry Marriage Guidance Council in succession to Dr. C. F. Turner, who was unable to accept re-election.

A resolution "That, while recognizing that any individual must be allowed to issue certificates in the form he or she wishes, the Division recommend that in general a diagnosis or provisional diagnosis be inserted on certificates issued to patients at their place of employment" was carried.

The Chairman, Dr. H. N. Gregg, G.M., then delivered an inaugural address on "Doctors and Doctoring in Coventry Hundred Years Ago." Discussing the medical world of those times, he pointed out that Pasteur was still a physicist and that Lister still a medical student. Coventry in 1847 was a disease-ridden town of some 35,000 souls, living in 6,000 houses. A death rate of 3,000 had caused the Government to set up an investigation, the report drawn up by a Mr. Ranger resulted in a new water supply being obtained. There were in the city 240 public-houses, 20 do 3 dentists, and 20 chemists. The doctors were not all quacks. There were two dispensaries, the larger of which, the Coventry Provident, was self-supporting, its fee being 1d. per week per patient. For confinements the fee was 7s. 6d. for the midwife, £1 for a doctor—these fees being payable at the time of booking. A doctor's income was about £350 p.a. plus £20 midwifery fees. The other dispensary was the Coventry General, which was absorbed by the Coventry and Warwickshire Hospital—opened in 1838. There were also two lying-in hospitals, and also Fords and Boads pits. Of the doctors in practice the best known was Dr. Nathaniel Traughton, who qualified M.R.C.S. in 1818 and who practised in Coventry for over 50 years, and whose drawings of old Coventry have been collected.

A vote of thanks was proposed by Dr. Rollason and seconded by Dr. Rudland, whose ancestors had practised in Coventry for more than a hundred years.

#### MORPETH DIVISION

A meeting of the Morpeth Division was held on Oct. 10. present were Dr. Spence (chairman), and Drs. Blaiklock, Mr. Hobbs, Stephenson, Macfarlane, McFie, Irvine, Lyon, and McGowan of the Morpeth Division, and Drs. Lowry, J. Brown, and McLellan of the Blyth Division. Apologies for absence were received from Drs. Skene, Dickie, and Pierce. It was resolved to elect Dr. Hobbs as a member of the Executive Committee in place of Mr. Bonar, who had left the district. It was unanimously agreed that Dr. William Stephenson should represent the Division at the Public Relations Conference at Newcastle.

Dr. C. C. Ungley then addressed the meeting on "Some Medical Aspects of Shipwreck." He discussed particularly "immersion foot," which was properly recognized and described only during recent war.

Dr. Stephenson proposed a vote of thanks to the speaker.

#### ROCHESTER, CHATHAM, AND GILLINGHAM DIVISION

A clinical demonstration was held at St. Bartholomew's Hospital, Rochester, on Oct. 9, when about 45 medical practitioners attended and discussed a number of cases.

### RETURN TO PRACTICE

The Central Medical War Committee announces that the following has resumed civilian practice: Mr. A. J. Heriot, F.R.C. 152, Harley Street, W.1 (Welbeck 9030).

## THE PEEP-SHOW

### A NEW TECHNIQUE FOR PURE-TONE AUDIOMETRY IN YOUNG CHILDREN

BY

M. R. DIX, F.R.C.S. AND C. S. HALLPIKE, F.R.C.P., F.R.C.S.

*(From the Aural Department and Otological Research Unit, Medical Research Council, National Hospital, Queen Square, W.C.1)*

In the course of the last eighteen months we have been called upon to examine a number of young children, many under the age of 6 years, with a view to establishing the possible role of deafness as a cause of backwardness in talking. Deafness was already suspected in nearly all of them, and, while in many its existence was virtually established, its extent was still a matter of conjecture. In a few the existence of any significant deafness was still in doubt, and in a few others mental deficiency was suggested as a possible cause of the backwardness in speech. Most of the children had already been examined elsewhere; in nearly all no quantitative assessment of their hearing capacity had been achieved, and it was the pressing need for this which caused all of them to be referred to us by school medical officers and others responsible for their care.

From the point of view of the medical officers the assessment was needed as a matter of urgency, in order that arrangements should be made without delay for any special education which might be required. From the parents' point of view, too, the matter was one of urgency. Although in many of the children the existence of some degree of deafness had come to be assumed, no definite decision had yet been made upon its severity and, in consequence, upon the kind of educational programme likely to be entailed. In all cases this decision was anxiously awaited.

In many instances the children were brought from a distance, and it was therefore important that the deafness assessment should not involve the hardship of repeated visits to hospital. The need, in fact, was for a test procedure which would ensure an accurate measurement of hearing capacity in the course of a single attendance.

Two methods are in common use for the quantitative testing of hearing in adults and older children: speech tests (words or sentences) and pure-tone tests.

Both types of test are very difficult to apply in children under the age of 6 suffering from deafness. Speech tests may sometimes be used in a form which calls for a motor response to a command or invitation, and here it is expedient to address the subject by name; but vocabulary is limited and may be quite lacking, and the tests, though often practicable, are always difficult and the results seldom have the requisite quantitative value.

Tests with pure tones are difficult for two reasons. For most young children the hearing of a pure tone is a meaningless experience. Pure tone audiometer tests, as usually applied, offer only a series of such experiences. It is impossible, therefore, to secure the co-operation of children in the performance of these tests.

There is another and even more serious obstacle to the use of pure-tone audiometry in children. Before the tests are applied it is necessary that the child should be given some explanation of the nature of listening and of hearing. With a child defective in speech and hearing such an explanation, however skilfully given, can seldom be effective. Thus, when the test is attempted the responses are inadequate and irregular, boredom speedily supervenes, further responses become meaningless, and the test has to be abandoned.

The procedure may be further embarrassed by the application of a telephone receiver to the child's head. A head-band is not as a rule well tolerated, and if the receiver is held in position by an assistant frequent small adjustments are needed to prevent serious displacement. These distract the child and fatigue the assistant.

A little experience with the earlier cases in our series led us to conclude that vocabulary defects in the children would prove an insuperable obstacle to the use of speech tests for any quantitative assessment of their hearing which would combine the necessary accuracy and ease of application. We were driven, therefore, to attempt instead the development of a pure-tone audiometric technique that would avoid the two major difficulties to which reference has been made.

It was necessary in the first place to give to the pure tones an arresting significance in the consciousness of the children. In the second place it was necessary to secure their co-operation rapidly and by a method which involved no explanation of the listening process.

By way of introduction to a description of the test procedure which we have been able to develop, something may be said concerning certain well-known features of pure-tone audiometry as practised in the conventional manner, in particular on the functional significance of its results.

#### The Pure-tone Audiogram

In Fig. 1 is shown a conventional type of audiogram. Frequency is plotted along the base line, intensity along the ordinate. Intensity is expressed in decibels above or below the normal threshold value. The decibel intensity scale is a logarithmic one: 10 decibels (1 bel) constitute a tenfold change in intensity, 20 decibels a hundredfold change, and so on. Deafness at any one of the frequencies named is represented by a fall below the zero intensity line at the frequency in question, and normal hearing at all frequencies would thus be represented by a horizontal line at the zero level.

In Fig. 2 is shown an audiogram upon which is inscribed a shaded zone representing the intensity-frequency range

of the speech sounds set up at the tympanic membrane of a listener by a normal conversational voice at a range of 3 ft. (90 cm.). Of this zone, the central portion lying between the frequencies 1,000 and 2,000 c.p.s. is the most important for the understanding of speech.

Now it may be taken that for speech to be readily understood the speech sounds should have an intensity at least 20 decibels greater than that at which they can just be

tone audiogram, whatever its limitations, makes possible a clear answer to the vital question: To what extent is the subject capable of hearing the sounds of ordinary conversation?

If the threshold curve falls below the 60 decibel level at the central frequencies we can say with certainty that the disability is severe, if below 80 decibels that it is substantially complete.

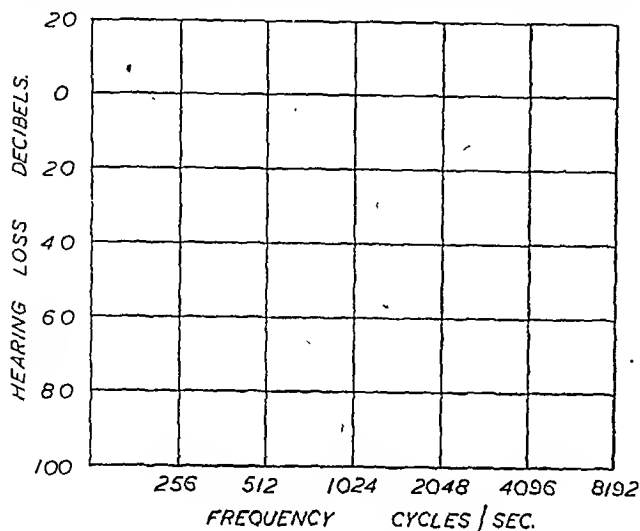


Fig. 1.—Typical audiogram chart.

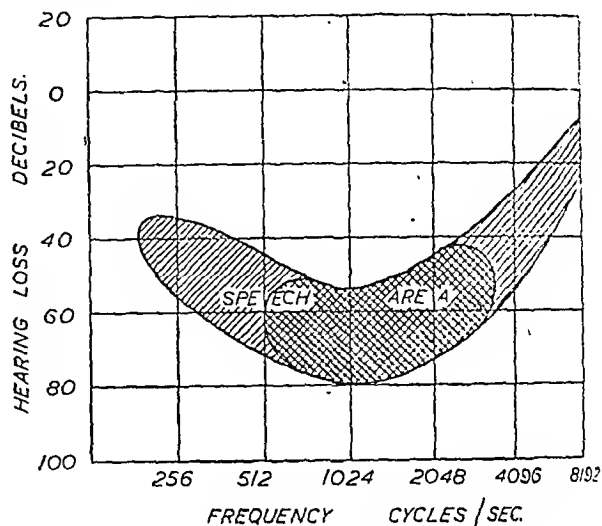


Fig. 2.—Audiogram showing the intensity-frequency of speech sounds set up by a normal voice at a distance of 3 ft.

heard. Fig. 2 shows that between 1,000 and 2,000 c.p.s. the speech sounds of normal conversation at 3 ft. are some 60 decibels above the normal threshold, and that conversation is therefore heard and understood without difficulty. With a 40-decibel loss of hearing at these central frequencies the 20-decibel margin required for easy understanding of speech is partially lost, and with this degree of loss some difficulty in understanding conversation can often be noticed.

With a 60-decibel loss understanding for conversation is always severely impaired, while a loss of 80 decibels or more is generally considered to constitute a total loss of serviceable hearing. It will therefore be seen that the pure-

### The Peep-show Test Apparatus

The apparatus consists of two parts: one, shown on the left of Fig. 3, consists of a wooden box with a picture at the back well suited to the taste of young children. This picture can be seen through a viewing hatch when illuminated by means of an electric-light bulb, which is also shown inside the box. Above the viewing-hatch is another 8-volt bulb, which can be seen through a shuttered orifice, and above this orifice is a loud-speaker. The bulb is a signal lamp, and is used with the loud-speaker to give synchronized visual and auditory signals in the manner to be described.

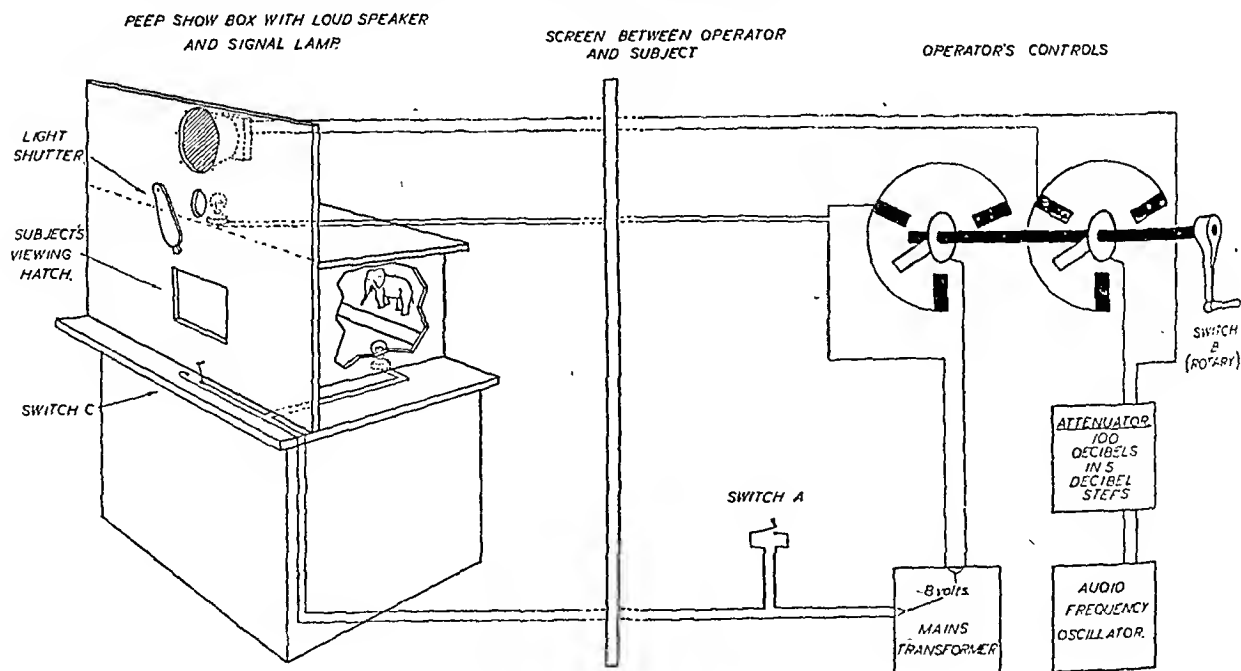


Fig. 3.—Diagram of the peep-show test apparatus

This first part of the apparatus is used by the subject, a child, who is seated on a chair in front of the viewing-hatch. In this position the child is separated by a screen from the second part of the apparatus, which is shown on the right of Fig. 3 and is used by the tester. The screen has a hole in it through which the tester can view the subject at a range of some 5 ft. (1.5 m.) or more without himself being observed.

The tester's part of the apparatus consists of a pure-tone generator and attenuator, together with a mains transformer giving an output of 8 volts. The output leads of the tone generator and of the transformer pass to the double rotary switch B, operated by a single handle as shown on the right of Fig. 3. From the switch the two pairs of leads pass respectively to the loud-speaker and signal lamp of the subject's part of the apparatus. These accordingly give synchronized impulses of sound and light when the handle of switch B is rotated by the tester. An additional 8-volt tapping from the mains transformer supplies the illumination bulb in the picture box. The leads reach it by way of two press-button switches arranged in series. One of these, switch A, is controlled by the tester; the other, switch C, is placed by the right hand of the subject near the viewing-hatch. It follows that the picture is illuminated only when both switches are pressed at the same time.

#### The Peep-show Test Procedure

The child is first engaged in play with a few simple toys, and as soon as its co-operation has thus been secured it is seated in a comfortable chair with its face 2 ft. (60 cm.) or so from the viewing-hatch. The position of the child is so arranged that switch C is within easy reach of its right hand. An instructor, whose function is a vital one, sits on the left of the child and focuses its attention, by pointing, on the signal lamp. Meanwhile the tester is observing the child from the opposite side of the screen. The general arrangement of the test procedure is shown in Fig. 4. As soon as he observes that the child's attention is focused upon the signal lamp he rotates switch B and simultaneously presses switch A. Synchronized impulses of light and sound are then emitted from the signal lamp and loud-speaker. The tone frequency used, for this initial signal is 1,024 c.p.s., with an intensity of some 80 decibels above the normal threshold as previously determined by a normal hearing subject with his head in the test position of the child. It will be understood that while this dual signal—auditory and visual—is being given with switch A closed, it is possible for the child, by pressing switch C, to light the lamp inside the box and be rewarded by the spectacle of the illuminated picture.

The first move is made by the instructor (M. R. D.). As soon as the signal appears he leans forward and, ostentatiously pressing switch C, points to the illuminated picture, now visible through the viewing-hatch. This the child scrutinizes with interest. The tester then stops the rotation of switch B and simultaneously opens switch A. The synchronized signals at once cease and the illuminated picture disappears. At this point the instructor withdraws her finger from switch C, indicating by a shake of her head that it no longer works. She then again focuses the child's attention on the signal lamp by pointing. As before, the synchronized signals are again given by the tester. Again the instructor leans forward and presses switch C, and again the picture is illuminated and observed with approval by the child. The signal is then withdrawn once

more and again the picture disappears. By this time the child has usually learnt that the moment to press the switch and be rewarded by the appearance of the picture is when, and only when, the signal lamp is flashing. Consequently, when the signals appear for the third time the child does not usually wait for the instructor to press the switch: instead he leans forward and presses it himself, and usually evinces considerable satisfaction at the appearance of the picture. Once this point has been reached the success of the critical hearing test procedure is assured, and it is then applied. The rationale of this is as follows.

So far as the test has gone, the synchronized light and sound signals will have been seen and, in the case of a child with hearing, heard. The two sets of signals promptly acquire a close association in the child's mind, each announcing with equal effectiveness the time to press the switch. It follows that when one set of signals (the visual) is withdrawn, the other set (the auditory) continues to act. In effect this means that the light signals can now be withdrawn and the test then becomes a test of hearing.

The withdrawal of the light signal is simply effected by closing the light shutter. This is done by the instructor. In the case of a child with a hearing loss of less than 80 decibels the response to the signal, which now consists of sound pulses only, is unchanged. He leans forward at once, presses the switch with unabated alacrity, and again displays his satisfaction with the result. The further steps of the test follow in logical sequence. The tester repeats the signal with rapidly decreasing intensities of sound (20-decibel steps), and a point is quickly reached at which the child fails to respond by pressing the switch. The signal intensity is then raised in steps of 10 decibels until the response again appears. As already stated, the equipment is calibrated for intensity in decibels above the normal threshold in the head position of the child. In consequence, the final threshold reading, which is of course for binaural hearing, can at once be inscribed in terms of decibels of

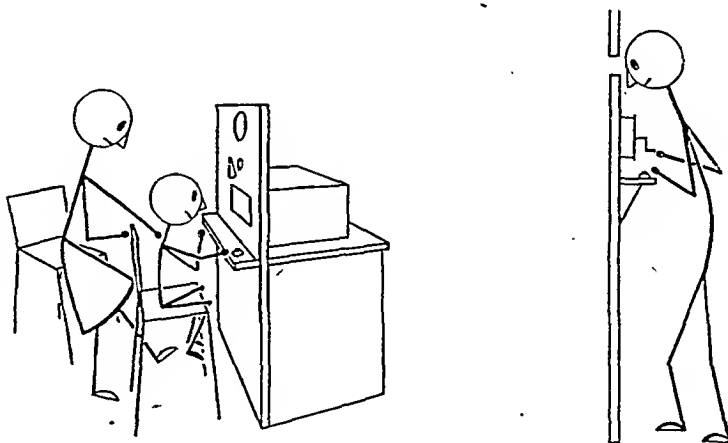


FIG. 4.—The apparatus in use

hearing loss on the usual audiogram chart. The same procedure is then repeated at 2,048, 4,096, 8,192, 512, and 256 c.p.s. These frequencies are used in the sequence given, and with each the test starts with the light shutter open. With the dual signal the child responds as usual by pressing the switch. The light shutter is then closed and the test proceeds, as already described, as a test of hearing. At each frequency it is usual to change the picture in the box, a simple procedure which is carried out by the instructor. The full test procedure at each frequency seldom lasts more than two minutes: often it is much less. The entire test is generally completed in 10 to 15 minutes. The

children show no signs of fatigue or boredom provided the pictures are changed as described, and the significance of the test results is strikingly shown by the alacrity of the responses and the regularity with which the threshold readings can be repeated.

It is necessary to add a final word of warning upon the need for care in regulating the intensity of the sound stimulus used to begin the test procedure. As described in the text, the figure is given of 80 decibels above normal threshold. In the case of a child with normal or near normal hearing such an intensity would be likely, of course, to prove unpleasantly high, and for this reason its use might bring about a complete breakdown of the test procedure. When, therefore, there is reason for suspecting that the deafness is slight, it is usual to begin with an intensity of 50 to 60 decibels above the normal threshold.

The age distribution of the 31 children tested with the peep-show was as shown in the table below.

Age in Years	No. of Children	Age in Years	No. of Children
2-3	1	5-6	6
3-4	4	6-7	15
4-5	5		

In addition, a few older children were seen with speech defects associated with mental deficiency.

### Selected Case Reports

J. J., a male child aged 2 years 4 months; could at the age of 10 months say "dad," "mum," and "baba." He then had bronchopneumonia followed by frequent colds with a little ear discharge. His speech has since deteriorated, and he expresses his wants by gestures, does not respond to calls or noises, and is thought to be deaf. The tympanic membranes are opaque but intact. There is no response to gong or hooter. He co-operates well with the peep-show, but does not respond at all to sound alone. *Diagnosis:* Hearing absent (or below the maximum intensity obtainable with the peep-show loud-speaker).

R. C. and D. C., uniovular twins aged 11, were low-grade mental defectives and had never developed speech. They were active, played football, and made many inarticulate noises. There were no neurological abnormalities, and psychological tests showed a mental age of 2 years 10 months. There was

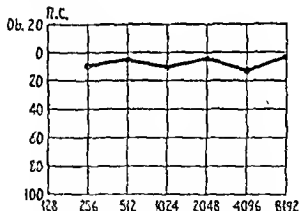


FIG. 5.—Audiogram of R. C.

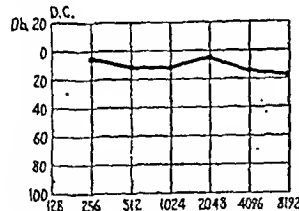


FIG. 6.—Audiogram of D. C.

no abnormality of the ears, nose, and throat. With the peep-show both responded fairly well and gave responses which were very near to normal. Their audiograms appear in Figs. 5 and 6. *Diagnosis:* Speech defect with aphasia; low-grade mental deficiency; hearing normal.

P. M., a girl aged 6, was normal as a baby and babbled freely. She had meningitis at 10 months, did not walk until 2 years, and speech has never developed properly. She attends primary school but is unresponsive, and her teacher thinks it is due to deafness. The girl appeared intelligent but was

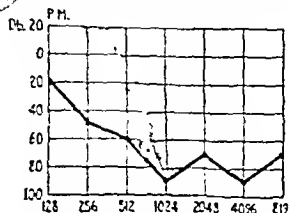


FIG. 7.—Audiogram of P. M.

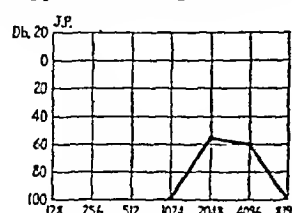


FIG. 8.—Audiogram of J. P.

remarkably shy. She repeated numbers spoken behind her at 1 ft. (30 cm.). No responses were obtained from caloric tests of vestibular function. She co-operated well with the peep-show. Fig. 7 shows her audiogram. *Diagnosis:* Incomplete deafness, probably due to meningitis. She was recommended for a special school.

J. P., a boy aged 3 years 9 months, was normal up to the age of 12 months. He then had pertussis and his speech has not developed properly. An intelligent child, he repeated numbers spoken close to his ear and responded well with the peep-show. (Audiogram, Fig. 8.) Caloric responses of vestibular function were normal. *Diagnosis:* Incomplete deafness due to bilateral neurolabyrinthitis.

R. R., a boy aged 6, was brought by his parents on account of inattention following brief attacks of earache two years ago after measles. Tuning-fork tests showed middle-ear type of deafness. Pure-tone audiometry was attempted and found

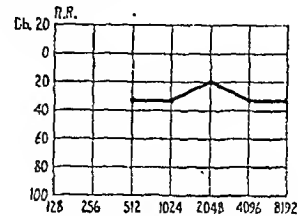


FIG. 9.—Audiogram of R. R.

impossible. He reacted well with the peep-show. (Audiogram in Fig. 9.) *Diagnosis:* Catarrhal deafness. Surgical removal of tonsils and adenoids recommended.

### Discussion

The peep-show technique described here certainly appears to overcome the two main difficulties of pure-tone tests in young children. By this we mean that the usually meaningless sound stimuli are given an arresting significance in the child's consciousness, while the still greater difficulties which arise when it is offered an explanation of the nature of listening and hearing are completely evaded by coupling the sound stimulus used to test the doubtful sense of hearing with a synchronized visual signal upon the effectiveness of which full reliance can be placed. In this way the child is induced, with no explanation other than a simple dumb show, to use any hearing it possesses to respond with vivid alacrity to pure-tone stimuli which are accurately controllable for frequency and intensity.

Perhaps the best-known of previous attempts to adapt pure-tone audiometry for use with children is the so-called tunnel test described by Ewing (1930). Its technique was not, however, designed to overcome the difficulty of explaining to the child the nature of the listening procedure, and the test is not stated to have been applied to children under the age of 6 years. Since it was first described no further reports of its use seem to have been published. Perhaps the most striking tribute to the increase in effectiveness of pure-tone audiometry in young children which can be achieved by the use of the peep-show procedure is to be found in a more recent paper in which the Ewings (1944) review very fully their present methods of testing the hearing of children. This paper includes a detailed account of the test procedures used for a group of some 72 children, most of them suffering from deafness, between the ages of 3 and 5 years—the age group in which we find the peep-show procedure to be of particular value. These authors rely chiefly upon drums, pitch-pipes, and spoken voice tests; pure-tone audiometry, applied according to the conventional technique, is not considered as a practical possibility. In this respect their opinion, with which we are in complete agreement, is given in the following terms:

"Pure-tone audiometric tests.—We found that some of the older children among those who proved to be either not deaf



all or partially deaf, like the older children in the war nurseries, learnt quickly to respond to loud or fairly loud pure-tone stimuli, but that they were not interested in listening to such meaningless sounds. The audiometer in itself roused little or no interest and the children's attention was apt to wander. Our experiments showed that except in three or four cases of very intelligent partially deaf children it was not possible to obtain threshold readings."

Pure-tone audiometry accurately applied as by the peep-show procedure certainly yields a quantitative assessment of hearing which is considerably more accurate than anything which can be achieved by means of pitch-pipes, drums, or the spoken voice. In addition, these latter tests also demand for their successful application the services of testers of high skill and long experience. Furthermore, it would seem inevitable that the test procedures must extend, not infrequently, beyond the scope of a single interview.

In contrast, it can be said of the peep-show procedure that great skill and experience are not required. The apparatus itself is simple, and the observational conditions for the tester very good. The responses of the child, too, are quite straightforward and can be inculcated by anyone able to secure his co-operation in simple play. As stated, too, the total time for the test procedure seldom exceeds fifteen minutes, while its results are, with very few exceptions, decisive.

From the administrative point of view there seems good ground for expecting that the peep-show test will prove of considerable value. According to the Education Act of 1944 the Ministry of Education is now called upon to provide special educational facilities for deaf children under the age of 5 years. Children are, of course, not infrequently sent to day schools at the age of 3 or 4 years, and an increasing interest is being taken by teachers and parents in the need for the early recognition of deafness. Young children are therefore likely to be referred in increasing numbers to otologists for confirmation and quantitative assessment of their deafness. No procedure at present in use would appear to possess the accuracy and ease of application of the peep-show test, and in this respect, therefore, we hope that its value will prove to be considerable.

### Summary

A new technique is described which greatly increases the efficiency of pure-tone audiometric tests in young children. By its means reliable threshold curves can be obtained in deaf young children of average intelligence down to the age of 3 years.

The equipment is simple and robust and the test procedure is rapid and easily applied.

Grateful acknowledgments are made to our colleagues at the National Hospital and to others who have referred patients to us for examination.

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— and Ewing, I. R. (1944). *J. Laryng.*, 59, 309.

The Medical Sciences Committee of the Association of Scientific Workers has issued a memorandum on pathology in the National Health Service. It envisages a service covering the whole country, able to perform routine pathological examinations when demanded by medical practitioners and to provide consultants to visit patients in their homes. The service could be extended to more remote parts by means of mobile laboratories. Five to six years' hospital training is suggested for the specialist in pathology, during which time he would take a university diploma or higher degree. The report suggests that academic societies might admit to their membership laboratory technicians who had done good original work. The report concludes by saying that "quite large numbers" of demobilized medical men are being trained as pathologists in a somewhat haphazard way, and that there is a need for the Ministry of Health to indicate the likely demand for pathologists and to establish criteria for their training.

## SOCIAL SURVEYS MEDICAL AND PSYCHIATRIC ASPECTS\*

BY

C. P. BLACKER, D.M., F.R.C.P.

Social surveys make a difficult subject to discuss interestingly and profitably. Descriptions of individual surveys, which perforce deal with problems of sampling and of method, with figures, and with the interpretation of findings, are apt to be difficult to follow, and general principles and conclusions are easily lost in mazes of detail. On the other hand our subject is a large one, extending into many spheres other than the medical. We are here concerned with social medicine and psychiatry. Where is the common ground between these subjects? How is our knowledge of their joint problems furthered by social surveys? How can we discuss this matter most usefully at an international conference?

I shall begin with a word about the evolution of social surveys; I will then pass on to something about medical terminology, which must be internationally intelligible for surveys in different countries to be comparable; and I will conclude with some remarks about the objectives of those surveys which are primarily concerned with problems of health.

### History of Surveys

Medicine and psychiatry are by no means necessarily a primary concern of social surveys in general, though they enter prominently into many and are tacitly recognized as important in most. In their valuable *Bibliography of Social Surveys*,† to which I am much indebted for what follows, Allen Eaton and Shelby M. Harrison bring out the fact that social surveys are essentially developments of the twentieth century. The earliest surveys figure as delayed expressions of a growing awareness of the evils of urbanization. Social surveys in general are attempts at social self-assessment whose beginnings were delayed because, like the individual's strivings towards self-knowledge, they mark the transition from boisterous adolescence to critical maturity.

Throughout the nineteenth century the populations of the United States and of most European countries were rapidly expanding. American towns were extending their range and attracting immigrants from Europe as well as many people from the countryside. The first surveys were inspired by the deplorable conditions which prevailed in towns. An early indication of this awareness in the United States was a book on slum conditions entitled *How the Other Half Lives*, by Jacob Riis, published in 1890, wherein is depicted from first-hand experience the insanitary conditions which prevailed in the most crowded sections of New York; other American works were Lincoln Steffens's *The Shame of the Cities* (1904), the Hull House Maps and Papers concerned with Chicago, and the report of the New York State Tenement House Commission, appointed in 1900 by Theodore Roosevelt. Early and important studies in this country, inspired by a similar concern about how the poor were living in big cities, were Charles Booth's *Life and Labour of the People in London* (1902) and Seebohm Rowntree's *Poverty: A Study of Town Life*, of the year before.

Noteworthy in the history of surveys for its breadth of conception and thoroughness of execution was the survey

\*Read at a joint meeting of Sections of Social Medicine and Psychiatry of the International Conference of Physicians on Sept. 11, 1947, at the London School of Hygiene and Tropical Medicine.  
†Russell Sage Foundation, 1930, New York.

of Pittsburgh, the centre of the western Pennsylvanian steel district. This enterprise was directed by Mr. Paul Kellogg and financed by the Russell Sage Foundation, always a patron of social surveys. The subject matter of this comprehensive inquiry, in Eaton and Harrison's words, "included the study of wages, hours of work, work accidents, and other questions of industrial relations and conditions for both men and women workers; of family budgets and home conditions among steel workers; typhoid fever and other problems related to health and sanitation; housing of the working population; the local system of taxation; the public schools; city planning and civic improvement possibilities; the hospital and other institutional needs of the city; certain phases of the crime situation and the administration of justice; playgrounds and recreation; dependent children in institutions; and a number of other related questions."

The large range of subjects will be noted. Together with industrial conditions, town planning, and housing, the survey comprised sanitary, fiscal, educational, medical, criminological, legal, and charitable activities. Because the survey was planned to effect social improvements which would concern every inhabitant of the town, much attention was given to a matter which tends to be ignored in purely medical surveys—namely, publicity. The chief findings were graphically presented in a public exhibition, and summaries of the various reports, eventually embodied in six volumes, were published in newspapers and magazines; full use was also made of addresses, discussions, and meetings—in short, of both the written and the spoken word.

The idea of turning the social survey into a communal enterprise wherein everyone can participate was carried a stage further in the survey of Springfield, Illinois, carried out in 1914. At that time Springfield contained about 60,000 people and, because of the wide diversity in its economic and social activities, had much in common not only with the other 47 State capitals but also with many other American cities. The enthusiasm which was awakened may be inferred from the fact that seventeen agencies—national and State, public and private—collaborated in the enterprise, a large proportion of the cost of which was borne by the locality. Over 900 citizens participated as volunteer workers, taking part in the field investigations or in the preparation of the Survey Exhibition. An elaborate educational campaign, outdoing in this respect Pittsburgh's exhibition, was also organized. "Those familiar with publicity work," write Eaton and Harrison, "will recognize the value of such things as the invitations sent out by a hospitality committee to mayors throughout the State; exhibit models . . . displayed in public places; unexplained cartoons posted in the windows at Exhibition headquarters; the street railway company's offer to transport school-children free to the Exhibition." Prizes were also offered for the best grammar-school essays on "What I saw at the Springfield Survey Exhibition"; special days were assigned to societies and organizations; and a daily newspaper gave a column entitled "The Survey Question Box."

The Springfield Survey took place in 1914. Looking back over the past 33 years, we discern a civic enthusiasm in these early American surveys which reflects the dynamic quality of these vigorously growing cities. A continent had been subdued by the initiative and faith of early pioneers; vast natural resources lay to hand, waiting to be developed; an abounding spirit of enterprise saw no limits to the perfectibility of the New World. Throughout these early surveys the stress was on the environment of the New World's cities, and it was hoped that the New World's citizens would become perfected with its cities.

Let us not understate the value of the exhibitions, the publicity, and the advertisement given to these geographically restricted surveys. Such surveys are being promoted in England to-day, though for reasons somewhat different from those which prompted the Pittsburgh and Springfield surveys. Here we are now confronted with the many problems of an increasingly congested population endowed with new powers of locomotion. Much excellent publicity was organized for the recent surveys of London. Luto and other provincial towns have held well-publicized surveys. Many of these surveys—that of London for example—are more concerned with problems of town planning and housing and less with sanitary, medical, educational, and psychiatric matters than were the American cities of a generation ago. The medical surveys tend in this small country, to be centrally organized, and in consequence receive little of the publicity which is accorded to geographically restricted enterprises by the civic authorities which has local roots. Indeed the absence of publicity accorded to, and the general indifference to the recommendations contained in, many excellent medical surveys and reports recently produced in this country have been the subject of comment by at least one experienced outside observer.

### An International Medical Terminology

I have already remarked that psychiatric terminology must be internationally intelligible for the results of psychiatric surveys in different countries to be comparable. The movement towards international understanding has borne fruit in medicine in the "International Statistical Classification of Diseases, Injuries and Causes of Death" which is now in preparation. This joint enterprise should be specially welcomed by psychiatrists because of the confusion of the diagnostic nomenclature of psychiatry. There is no sphere where terms become more rapidly pejorative and obsolescent. In 1890 the Lunacy Act was passed in this country; but now the word "lunacy" is banned. The word "asylum," French *asile* (an appropriate word meaning a place of refuge), is now so charged with sinister implications that it too is banned. Euphonious terms with impressive roots in Greek and absurd connotations—melancholia, hypochondria, hysteria, etc.—have dubious reputations and short lives not only because they become pejorative through their association with the feared condition of lunacy, they are also found wanting by advancing knowledge. It was because of clinical experience that "dementia praecox" yielded place to schizophrenia. Other terms, now reputable, may be thrown overboard especially those with wide meanings covering diverse syndromes which may respond differently to new treatments. I may be wrong, but I give a short life to a term like hysteria, which embraces heterogeneous clinical conditions and is likely to be broken up as further knowledge is gained.

In the stresses of war, moreover, new euphemisms, such as shell-shock (1914–18), are invented to facilitate the honourable disposal of good men who have broken down under severe strain. But when the wars are over these words come to be applied to men who have never experienced any but the most commonplace stresses; the words become abused, lose their original meanings, and are banned. The same is now happening to terms like "battle exhaustion" and "flying stress" (1939–45). The innocent word "mental" (from *mens*, the mind) is acquiring unpleasant connotations; so is the awkward word "psychiatrist," about which there are unkind jokes. It would be interesting to know if in other countries and other languages the useful lives of psychiatric terms are as short as they are here.

The attempt to assimilate the conditions of hospitals for mental with those for physical illnesses may reduce the still widespread fear of mental diseases and therefore retard the turnover of psychiatric terms. The international classification may also give to these better prospects of life.

If, moreover, psychiatrists in one country are to profit from surveys conducted in other countries the question of terminology becomes important. This fact became clear to me when, fourteen years ago, I was asked to prepare a report for the Brock Committee on Voluntary Sterilization. How much mental defect, I had been asked, would be preventable if all defectives ceased to have children? There were several relevant investigations reported in German and English. It became clear, however, that the terms used in the two languages ("Oligophrenia" in German and "mental defect" in English, as well as some of the terms denoting grades of defect) covered different ranges of abnormality. Since the milder forms of defect are the most strongly familial, and since the German term "Oligophrenia" has a wider upward range than the term "mental deficiency" as interpreted under our Mental Deficiency Acts, the German literature gave a somewhat different impression from the British of how far mental deficiency would be reduced if all defectives ceased to reproduce. Prof. Strömberg has drawn attention to how the proportions of abnormal persons found in regional surveys of mental abnormalities vary with the latitude accorded to certain diagnostic terms; and in his survey of the island of Bornholm he drew comparisons between his own figures for hospital cases and those of New York and Sweden.

If, therefore, an international classification is to serve the purpose for which it is devised, two things are necessary: first, that the list of approved terms should be subjected to revision at regular intervals, and, secondly, that where the terms are ambiguous some description should be given of the clinical conditions they are intended to cover. Arrangements have been made for meeting the first of these needs. The World Health Organization has appointed an interim Commission to which suggestions for improvement of the "list of categories" can be sent at any time. Indeed, the Interim Commission will at regular intervals ask for such suggestions. The second of the above-mentioned needs—that ambiguous terms should be supplemented by brief clinical descriptions—has been partly met by a decision to assemble many of the psychiatric terms in general or occasional use in an alphabetical index that would show under which number in the approved classification each of the terms should be listed. Such an arrangement would go far to meet difficulties arising in countries speaking the language in which the approved classification and the alphabetical index was prepared. But I doubt if it would be helpful to countries speaking other languages. The psychiatric idioms of English-speaking countries included in the alphabetical list might be difficult to translate into Russian, Hungarian, and Chinese. I see only two ways out of the difficulty. The first is that medical committees in countries speaking other languages than English—the language of the International Classification—should prepare their own alphabetical lists of current diagnostic idioms to fit in with a translated version of the International Classification. The second, and surely simpler, way out of the difficulty is to append to certain key terms in the International Classification short and succinct descriptions, readily translatable into other languages, of the clinical conditions which the terms are intended to denote. In the light of these short descriptions, idiomatic terms in different languages would then be assigned to their appropriate heading and number in the international list.

I have it in mind that the international list might be reproduced in a series of separate pamphlets corresponding to the different sections or specialties, and that in these pamphlets the key diagnostic terms should, where appropriate, be elaborated as suggested above. The International Classification of 1947, which by design can be further differentiated, is a somewhat massive document. It has room in all for 10,000 diagnostic items, not all of which have in fact been formulated. Numbers 3,000 to 3,300 are reserved for the psychiatric classification. These three hundred or so psychiatric terms, together with an alphabetical index of other currently used terms not included in the classification or in a supplementary "Tabular List," might be published as a pamphlet to be used by psychiatrists. The same could be done for neurology, cardiology, dermatology, etc. Armed with translations of such a (comparatively speaking) wieldy document, specialists in different countries could be assured of some common understanding as to usages. I wish to thank Dr. Percy Stocks for information on some of the matters mentioned above, though he is not to be associated with any of the conclusions reached or suggestions put forward.

### Objectives of Surveys

I now turn to my third theme—namely, the objectives of surveys concerned with health. Such surveys may be of local origin and circumscription, or they may be centrally initiated and designed to cover the whole country. It is probably true to say that most local surveys are indirectly concerned with health. Every town-planning and housing scheme has as an objective a healthier population. But the concern with health may be direct, as in surveys initiated by medical officers of health. Centrally initiated surveys are more likely to be organized in a small country like Great Britain than in large ones like the U.S.A. or the U.S.S.R. We can also distinguish between single, periodic, and continuous surveys. Prof. Strömberg's survey is an example of the first kind; a decennial census is an example of a periodic survey, and so perhaps is Dr. E. O. Lewis's in that a survey bearing comparison with his was made twenty years previously; and the process of notification of diseases, admitting of the publication of regular periodic returns covering the whole country, involves a continuous survey.

Most social surveys carried out in the territories common to social medicine and psychiatry have somewhere in the background a utilitarian aim: their results are expected to point the way towards social improvements. There are three possible objectives, which present themselves in a certain order, like lines of trenches to be captured. The first is the ascertainment of the gross incidence of the condition under investigation, or of its differential incidence, or, if possible, its trend. Thus Dr. Lewis was concerned with the gross incidence of mental defect in England and Wales, with its differential incidence in town and country, and with trends during the preceding twenty years. Prof. Strömberg was concerned with the total incidence of psychiatric abnormalities in Bornholm, and with the average expectation there of various forms of mental illness. His survey has something in common with that instituted in an area of South-West Scotland by Dr. Mayer Gross. The second possible objective of social research is the *cause* or *causes* of the condition under investigation. The Mental Deficiency Committee, to which Dr. Lewis made his report, had something to say about the familial incidence of the higher grades of defect; and Prof. Strömberg was concerned with the genetical character of some of the disorders he surveyed. The third objective is *remedial*: it supplies an answer to the questions, Up to what limits can improvements be made? and, How much can we reasonably expect to do?

An answer to the question, How much can we reasonably expect to do? can be gained from inquiries into differential incidence. Thus the fact that rheumatic fever, infantile deaths, and stillbirths are of relatively scarce incidence among people living in socially favoured conditions provides us with a vision of a goal which could be attained by social policy. The same can be said for the experiences of other countries. The fact that in 1939 the infant mortality rate for New Zealand was 31 while that for Malta was 227 provides for the Maltese and the rest of us a standard to which we can reasonably aspire. By such comparisons we can also learn something about the causes of infant mortality and also about remedies. When diagnostic terms used in different countries can be matched with each other as closely as can figures for infant deaths, then we shall be better placed than we are to-day to profit from the findings of other countries' surveys.

We in this country are surely on the threshold of a period when the social survey, the pilot inquiry, can be more usefully employed than ever before. The value of pilot investigations was well appreciated by the Nuffield Foundation when this body was concerned with exploring the possibilities of co-operation between the voluntary and municipal systems of hospital administration. How much greater can be their usefulness in the future when the structure of our medical services will be more uniform. Indeed, many will base their judgment of centralized medical services on the extent that universities and other unofficial organizations are encouraged to make pilot investigations. Unofficial bodies have in the past played the part of advance guards, reconnoitring new territories into which, when positions are established, the ponderous main body moves into occupation. The main body has now become large and ponderous: all the more need for scouts, patrols, and guides.

### Conclusion

I began this paper by commenting on how the early American social surveys and our own—the Booth and Rowntree surveys—were concerned with the effects of inequalities in the environment. If hopes are fulfilled by the new order we will witness a narrowing of the gap which separates the over-opulent from the slum home. There will be a general equalizing of those features of the environment which influence health. Differences between human beings will then be better recognized as being partly determined by innate qualities. For man is not only the product of his environment; he is also largely its architect.

Speaking at the Silver Jubilee National Safety Congress organized by the Royal Society for the Prevention of Accidents and held at Brighton from Oct. 6 to 10, Mr. Duguid said that only a few American States—notably New York and California—had safety legislation comparable to that in Great Britain. Other States either had very little legislation or else had laws which were not well enforced. America had nothing to teach us about the fencing of machinery. Dust and fume removal in American factories was good, but general factory ventilation was not. Mr. Tugman said that he went to America to learn what he could about safety methods and therefore visited only the best factories. What he had seen was not necessarily typical of American industry as a whole, but he was satisfied that the best results achieved in America were better than the best results achieved in Great Britain. Making all allowances for different methods of calculation, he had come to the conclusion that in the best American works the accident rate was only one-quarter of the lowest figures recorded in this country. One reason for this was that, in the best firms, the drive from the top was more apparent than in Great Britain, and there seemed to be a greater emphasis on managerial responsibility for accident prevention. More staff was employed to encourage, co-ordinate, and advise on safety at all levels of management. On the subject of protective clothing we did not have much to learn from the U.S.A., and guarding of machinery was not practised to nearly the same extent as in this country.

## CHILD-BEARING AND PULMONARY TUBERCULOSIS

BY

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Just how commonly do pregnancy and tuberculosis occur together? Routine radiography and screening of women attending antenatal clinics show that the rate of incidence of pulmonary tuberculosis is no greater among pregnant women than among others in the same age group (Nicolson, 1946; Jacobs, 1946; Dawson, 1945).

Rich (1944) estimates that in America one woman in eight of those aged between 15 and 30 years is pregnant at any given moment. A similar estimate for the population of Middlesex for the years 1943–4 shows that of women in child-bearing age (15 to 45) 1 in 12 to 1 in 16 were delivered of children in each year. The peak incidence of tuberculosis in females occurs during the same age period, hence it is clear that chance alone will ensure that a considerable number of women will be pregnant in a reasonably close time-relationship to the onset or course of a tuberculous illness. It is therefore wise to admit an aetiological association only if it is established that tuberculous disease is more frequent in women who have gone through pregnancy than in an otherwise comparable group. Such a comparison is in practice extremely difficult.

If the estimates given above hold for the whole of Britain it would seem that 2,000 to 3,000 tuberculous women become pregnant each year. The only large series of cases reported recently in this country is from the special unit for pregnant tuberculous women at Black Notley (Cohen, 1946). Because of the paucity of reliable information on the subject it was decided at a meeting of the Middlesex Tuberculosis Association in January, 1944, to keep a central register of pregnancies occurring in women attending chest clinics in the county. It was from this register that the present series of cases was obtained, and from the records of the clinic that the information regarding the patients was collected.

No attempt will be made here to review the extensive literature, as several recent summaries and reviews are available (Friedman and Garber, 1946; Cohen, 1946; Oxenham, 1941; and Brooks, 1940).

### Object of Investigation

Our aim was to determine what influence, if any, "child-bearing" has upon the course of pulmonary tuberculous disease in patients already diagnosed as suffering from pulmonary tuberculosis and those whose disease was found during the early months of pregnancy.

A deliberate distinction is made between "child-bearing" and "infant-rearing." By the former is understood the physiological process of conception, maturation of the foetus, and parturition, with the associated metabolic, endocrine, and mechanical changes in the mother. Rearing of an infant includes its care and nutrition. The early months after the birth of the child call for much effort from the average mother—extra washing, preparation of feed and sleepless nights often causing a state of tension and anxiety. Common to both these periods for most women are the normal household duties, including shopping; so the period surveyed here these were even more arduous than in peacetime. No attempt is made here to assess the

strain of rearing an infant. It must be admitted that it is difficult to separate these functions precisely: the puerperium, really a part of the child-bearing process, coincides with the early days of the period of rearing. For the above reasons the state of the disease was assessed as near to the beginning of pregnancy as available records allow; this state was then compared with the state three to six months after parturition.

### Material

#### Pregnant Cases

The estimated population of Middlesex for the period of the investigation was 1,900,000; at that time (1944) there were about 4,200 tuberculous females of child-bearing age on the registers of the chest clinics.

From January, 1944, a record of all cases of pregnancy occurring in females with pulmonary tuberculosis attending the chest clinics was kept. Up to June, 1946, 160 women were known to have completed full-time pregnancies, plus post-partum observation period of six months; 23 of these had embarked upon a second pregnancy. There were also 56 women who had had their pregnancies terminated surgically. With the 20 patients who were lost sight of this gives a total of 236 single pregnancies in a period of 18 months, allowing 15 months for the period of assessment (Table I). These patients were considered in two broad

TABLE I

Stage of Tb.	Pregnant	Non-pregnant
Arrested or quiescent .. ..	166 (70.3%)	125 (38.9%)
Active or progressive .. ..	50 (21.2%)	114 (35.5%)
Records inadequate .. ..	20 (8.4%)	82 (25.6%)
Total .. ..	236	321

groups: (1) those with quiescent and arrested disease, totaling 166; and (2) those with active disease (50), including progressive or advanced lesions and unstable but less severe disease. Patients who were "recovered"—that is, written off the clinic register after at least five years of quiescent disease—were excluded, as were patients moved from the county during the period of the inquiry. In Table I these latter cases are included in the line marked "records inadequate."

#### Controls

In assessing any group of tuberculous patients the question of controls is always a thorny one, and with the added complication of pregnancy the difficulties are in no way eased. Forssner *et al.* (1924), and many workers subsequently, were of the opinion that an adequate control group was impossible to obtain. In the early 1920's Alice Hill (1928) and others attempted it with some degree of success, but their figures would hardly satisfy the statistically minded.

In spite of forebodings aroused by the literature it was decided to try to obtain a control group from the married women of child-bearing age on the register of two of the Middlesex clinics on Jan. 1, 1944; from these were chosen all those who had had no pregnancy between January, 1943, and June, 1946—that is, all patients who might have had pregnancies in relation to the period of observation were excluded. All new patients and those who died in 1944 but who otherwise conformed to the above criteria were included.

There was a total of 321 such cases, 82 of which had to be excluded for various reasons, such as transfer to areas outside Middlesex, or because only inadequate clinical or x-ray records were available, and lastly because some few refused or were unable to attend the clinic for one cause or another. The reason for this disproportionately high number of cases with "inadequate records" among the con-

trols—26% compared with 8% in the pregnant group of patients—was partly due to the fact that the investigation of the pregnant women was planned before the collection of cases; all such cases had clinical and radiological examinations at three-monthly intervals, while the details of the control group of cases had to be collected in retrospect.

These two large groups, composed of 216 pregnant women and 259 non-pregnant women, were compared for (1) age composition, (2) social class, (3) previous pregnancies, (4) duration of disease, and (5) activity or quiescence of disease. It was found that there was no statistically significant difference under headings 2, 3, and 4, but for headings 1 and 5 there was an important distinction between the two groups. After separating the active from the quiescent cases and analysing them separately, comparison of the two active groups then showed that there was no significant difference under headings 1, 2, 3, and 4, while there still remained in the quiescent group a wide difference in the age composition of the pregnant and non-pregnant classes.

### Age Composition

In both "active" and "arrested or quiescent" groups the ages ranged from 18 to 43. There is a marked difference

TABLE II

Age Group	Active		Arrested or Quiescent	
	Pregnant	Non-pregnant	Pregnant	Non-pregnant
Under 30 .. ..	26	52	93	47
Over 30 .. ..	24	62	73	78
Total .. ..	50	114	166	125
$\chi^2=0.552$ ; P: 0.5 to 0.3			$\chi^2=9.458$ ; P<0.01	

in the age distribution of the two "arrested or quiescent" groups (Table II). Suggested reasons for this are given later in the paper.

### Social State and Environment

Middlesex lies to the north and west of London. From a densely populated area bordering London it shades off through typical suburban areas to rural surroundings on the periphery. Largely built upon between the two great wars, it now contains a mixed population derived from its former residents, persons removed from London as a result of slum-clearance schemes, and others from all parts of the British Isles. Many districts have their own industries which absorb the local working population; others are mainly residential and dormitory areas for London.

The period of the investigation covers the latter part of the second world war and the first year thereafter. It was a time when people had to contend with many hardships and restrictions affecting almost all aspects of their daily lives. From June, 1944, to May the following year the area was bombarded from the Continent, causing in many a constant state of anxiety and much loss of sleep. The diet, although possibly adequate in calories, contained the minimum requirements of fat and protein considered necessary for the tuberculous. Tuberculous patients at that time were allowed 14 pints (7.95 litres) of milk a week compared with the healthy civilian's 3 to 5 pints (1.7 to 2.8 litres); pregnant women were also allowed extra meat and approximately two eggs a week, as well as vitamin supplements in the form of orange juice and cod-liver oil.

The social classification used (Table III) was based on broad general lines from reports by welfare officers and health visitors. Patients living in comfortable circumstances and obviously in a position to pay for their treatment in a private sanatorium were classed as good; others living in poverty and overcrowded conditions were classed



TABLE III

Social State	Active		Arrested or Quiescent	
	Pregnant	Non-pregnant	Pregnant	Non-pregnant
Satisfactory or good ..	39	99	143	114
Bad ... ..	11	15	23	11
Total .. ..	50	114	166	125
	$\chi^2=2.936$ ; P: 0.1 to 0.05		$\chi^2=1.465$ ; P: 0.3 to 0.2	

as bad.. The great majority were in the satisfactory group, which contains the "black-coated" and "working-class" categories, and a large percentage had husbands serving in the Forces and were therefore living on Army pay and allowances.

#### Degree of Parity

Table IV shows that the groups are comparable in regard to the degree of parity. Among those who have borne children before it is important to eliminate so far as is

TABLE IV

No. of Previous Pregnancies	Active		Arrested or Quiescent	
	Pregnant	Non-pregnant	Pregnant	Non-pregnant
None .. ..	31	54	97	71
One or more .. ..	19	60	69	54
Total .. ..	50	114	166	125
	$\chi^2=2.798$ ; P: 0.1 to 0.05		$\chi^2=0.694$ ; P: 0.5 to 0.3	

possible any influence that infant-rearing might have upon the present pregnancy. Knowledge of the spacing and frequency of previous pregnancies is essential for an accurate assessment of this factor. As the records inspected did not give this information it was decided to exclude from the present investigation all patients who had had pregnancies during the year prior to the period of assessment; such are included in Table I under "inadequate records," and they amount to less than 2% of the total in both groups.

#### Duration of Disease and Obstetric Details

The duration of the active cases is shown in two-year groupings and for the non-active cases in five-year groupings (Tables V and VI). As is only to be expected, the non-active cases show greater chronicity than the active cases.

TABLE V

Duration of Disease in Years	Active Disease	
	Pregnant	Non-pregnant
0-1 .. ..	23	55
2-3 .. ..	13	35
4-5 .. ..	7	12
6+ .. ..	7	12
Total .. ..	50	114
	$\chi^2=1.005$ ; P: 0.8	

TABLE VI

Duration of Disease in 5-year Groups	Arrested or Quiescent Disease	
	Pregnant	Non-pregnant
0-4 .. ..	107	89
5-9 .. ..	46	26
10+ .. ..	13	10
Total .. ..	166	125
	$\chi^2=1.881$ ; P: 0.7 to 0.5	

The value of these figures is that they give a time picture of the state of the disease and a factual contrast to an opinion based on radiological appearances.

Details of the obstetric history were lacking in most cases, but no obstetric deaths were recorded. Two patients

were delivered by caesarean section on obstetric grounds; another who became ill showed multiple opacities in a x-ray film of the chest, diagnosed as metastatic pulmonary abscesses following puerperal cellulitis. This patient recovered after a long pyrexial illness.

#### Comments on Tables

Each of the foregoing tables has been submitted to the  $\chi^2$  test. The value of  $\chi^2$  and the limits of P (probability) are shown for each of the tables.

Where the value of P is greater than 0.05 the degree of difference between the two compared groups has been taken to be of no significance. In only one case—the age distribution of the arrested or quiescent cases—is the difference significant; in this respect, therefore, these two groups are not alike.

Table I shows that the proportion of pregnant women with active disease to those whose disease is quiescent is much lower than in the control series, where there is nearly the same number in each group. This suggests that women with active disease do tend to avoid child-bearing. Among those patients with active disease 11 (22%) were diagnosed during pregnancy; the other 78% became pregnant knowing they were ill and presumably against the advice of their physicians. At two of the clinics from which the control group was obtained it is known that 60 women had pregnancies in the period covered by the investigation (approximately 18 months). This gives an annual rate of pregnancy of one in 12 women of child-bearing age for this particular group of tuberculous women, which is almost the same as the estimated rate for the whole of Middlesex at about the same time. If we are correct in assuming that the woman with active pulmonary tuberculosis avoids pregnancy then it would appear that the rate of conception among those women whose disease has remained dormant for some time is similar to that of the normal population.

There is general agreement that 10% of marriages in this country and in America are naturally sterile (Hambley 1942; Report on Conference of the British Social Hygiene Council, 1943); such cases and those women who deliberately avoid pregnancy for one reason or another will appear in the control group. Pregnancy is also more likely to occur in younger women; this accounts (at least in part) for the greater proportion in the higher age group in the non-pregnant control series (see Table II, arrested or quiescent cases).

#### Assessment

The state of the disease was assessed at the beginning of pregnancy, or in the case of the controls as near to January 1944, as available records allowed, and was compared with the state 12 to 15 months later. Assessment was based upon clinical notes and radiological appearances in every case, and where available on examination of sputum, gastric contents, and laryngeal swabs for tuberculosis bacilli. In patients who were receiving treatment in hospital the detailed hospital reports, with temperature records, etc. were used. In the cases of non-active disease only relapses are recorded; no deaths occurred in this group. Patients classed as "better" in the group with active disease had become "quiescent"—that is, there had been general clinical improvement, sputum examinations were negative, and x-ray appearances were those of resolution and regression and no sign or symptom suggesting activity was present. Any case remaining active, even though there may have been improvement under one or more of the above observations, was classed as stationary. Relapsed cases showed clear evidence of clinical and radiological deterioration. S

s to obtain as uniform an assessment as possible throughout, all case papers and films were inspected by only one of us (C. J. S.).

### Results

The pregnant cases are separated into those that went to term and those in which the pregnancy was surgically terminated, including one case of abortion at the fourteenth week. The similarity of the outcome in the pregnant and the non-pregnant groups both for active and non-active disease is striking (Tables VII and VIII). Note the three

TABLE VII.—Results in Active Cases

Change in State of Disease	Active Disease		
	Pregnant		Non-pregnant
	Artificially Terminated	Full-time	
Better .. ..	7 (35%)	11 (36.6%)	42 (36.8%)
Satisfactory .. ..	5 (25%)	11 (36.6%)	35 (30.7%)
Worse .. ..	4 (20%)	4 (13.3%)	16 (14%)
Dead .. ..	4 (20%)	4 (13.3%)	21 (18%)
Total .. ..	20	30	114

TABLE VIII.—Results in Arrested and Quiescent Cases

Change in State of Disease	Arrested and Quiescent		
	Pregnant		Non-pregnant
	Artificially Terminated	Full-time	
Satisfactory or improved .. ..	33 (92%)	117 (90%)	110 (88%)
Worse .. ..	3 (8%)	13 (10%)	15 (12%)
Dead .. ..	0	0	0
Total .. ..	36	130	125

categories of the "active" patients: though the numbers are not large, we are of the opinion that these may be fairly compared, each containing similar proportions of patients with unstable or moderately active or severe progressive disease. Those patients whose pregnancy was terminated fared no better than those going to term or the control patients who had no pregnancies related to the period of observation.

The effect of the difference in the age distribution in the non-active cases is difficult to assess. Nevertheless it is felt that the figures for this group are worth presenting if they serve merely to demonstrate the difficulty in obtaining comparable unselected control groups. It might reasonably be expected that a higher relapse rate would have occurred among the relatively younger women who had borne children. For this reason the evidence is the more suggestive that pregnancy and parturition have little effect upon the course of stable or healed disease.

### Discussion

We feel that our investigation permits the broad deduction that, in general, a single pregnancy has little or no effect upon the course of a tuberculous illness whether the disease be active or non-active. Patients whose pregnancy is artificially terminated would seem to fare no better than their sisters who are allowed to continue to term. Thus it becomes incumbent upon those who advise termination of pregnancy as an almost routine procedure to establish its necessity in each patient rather than assume that it is of obvious and universal value.

These conclusions are supported by the more recent writers on the subject (Cohen, 1946; Ornstein and Epstein, 1939; Jameson, 1938; Mariette, Larson, and Litzenberg, 1942). Particularly in regard to the non-active cases they are agreed that there are no grounds connected with pulmonary tuberculous disease for advising termination. The few but well-documented and carefully reviewed cases of Cutler (1944) give further support to this view.

We wish to stress that in any investigation of this kind cases should be collected and reviewed over a limited number of years because of the variations in the standard of living and methods of treatment. Both are important factors influencing the outlook for the sufferer. These figures were collected during the latter part of the war, at which time the standard of nutrition in this country was fairly uniform and when the general management of patients and treatment by "collapse" therapy for cases in which it was indicated were reasonably consistent throughout the county of Middlesex.

### Conclusions

Pregnancy as an event in the course of a tuberculous illness has little or no effect upon the progress of pulmonary disease over a period of fifteen months whether the disease be active or quiescent; deterioration in the state of some tuberculous patients must be expected whether they are pregnant or not.

There is no evidence that surgical termination of pregnancy is necessary in the medical management of tuberculous pregnant women, except in a few selected cases. While it must be left to the physician in full possession of all the details of the individual case to make the proper decision with regard to the management of the patient, pessimism as to the influence which pregnancy has on tuberculosis and undue zeal in the termination of pregnancy are to be avoided.

### Summary

The change in the state of active pulmonary tuberculous disease has been assessed over a period of 12 to 15 months (period of child-bearing and early infant-rearing) in 50 pregnant women and 114 married women of child-bearing age who had had no pregnancy in relation to the period of assessment. The two groups were found not to be significantly different in any of the following respects: (a) age, (b) social class, (c) number of previous pregnancies, (d) duration of disease. At the end of the period of assessment in approximately 35% of all cases the disease was found to have become quiescent. Over the same period 30 to 40% in each group had deteriorated or died.

A group of 166 pregnant and 125 non-pregnant women whose tuberculous disease at the beginning of pregnancy was quiescent or arrested was similarly assessed. There was a significant difference in the age composition of these two groups. In each of these groups 8 to 12% deteriorated in a period of 15 months. There were no deaths in either group.

We would like to thank the physicians and their staffs of the clinics from which the records were obtained, particularly Dr. Norman MacDonald and Dr. Nicol Roe, from whose clinics the control group was obtained. To Dr. W. T. Russell and his assistant, Ian Sutherland, of the Institute of Social Medicine, Oxford, we are particularly grateful for much helpful advice on the statistical presentation of the results. We are solely responsible for all statements made and views expressed in this paper.

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## APPENDICITIS IN THE YOUNG CHILD

BY

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While appendicitis below the age of 3 years is not uncommon it is so frequently overlooked in the early stages and so often complicated when diagnosed that I am placing on record the common clinical features and problems encountered in dealing with 42 children with appendicitis in this age group. The object of this paper is to help the family doctor to understand more clearly the clinical pattern and problems of appendicitis in the young child, to indicate how it differs from that in the older child and so enable him to establish a diagnosis before complications have developed. It is mainly by early diagnosis and prompt treatment that the mortality and morbidity will be lowered. The situation is that uncomplicated appendicitis can be successfully treated, but complicated appendicitis, especially if general peritonitis be present, is a very dangerous illness with a high mortality.

The incidence of the disease in young children is shown in our figures from the Children's Hospital, Melbourne: Between 1935 and 1940, 1,487 children under the age of 14 years were treated for acute appendicitis, of whom 42 were under the age of 3 years. One patient was under 1 year, 11 between 1 and 2 years, and 30 between 2 and 3 years of age.

## Pathological Features

In this group of 42 patients three main morbid anatomical states were found at operation.

1. *Acute Uncomplicated Appendicitis*.—In 6 patients the acutely inflamed appendix was lying free in the general peritoneal cavity. Although gangrene was present in several, the appendix was unruptured. In some a little clear or slightly turbid fluid was found in the peritoneal cavity.

2. *An Inflammatory Mass*.—In 21 patients an inflammatory mass was found. This mass was the result of a local peritonitis, the appendix being walled off from the general peritoneal cavity by fibrinous adhesions between intestinal loops and peritoneum. The appendix was usually gangrenous and perforated, and a small abscess was commonly present. The omentum by reason of its immature development at this age played a negligible part in localizing the spread of the inflammation.

3. *A General Peritonitis*.—In 15 patients a general peritonitis was present, the result of either (a) rupture of an obstructive type of appendicitis with dissemination of appendicular contents over the peritoneal cavity, or (b) extension from a local peritonitis with an abscess.

It is thus very evident that appendicitis in this young age group, unlike that in older children, is usually complicated by either a local or a general peritonitis. The two important factors accounting for this are the long time interval from the onset of symptoms to the diagnosis and the more rapid progression of the inflammatory process to gangrene and perforation. The small immature omentum also fails to assist in sealing off the appendix effectively from the general peritoneal cavity. While it is uncommon for acute appendicitis to become complicated in under 24 hours, the variability of the rate of progress of the inflammation in this young age group makes it difficult to predict in any one patient what precise morbid state will be present at any particular time. Three examples from this series illustrate this variability: one patient who had been ill for as long as 60 hours had an uncomplicated unruptured appendix; another patient who had been ill for only 24 hours had an inflammatory mass; while another who had been ill for a period as short as 4 hours had a general peritonitis, the result of rupture of an obstructive type of appendicitis.

## Clinical Features

*Bellyache and vomiting* are the predominant symptoms. The illness almost always begins in a child who has been quite well. Not infrequently the initial symptoms may be of a general nature—peevishness, irritability, feverishness, refusal of food, and vomiting. Usually within an hour or two the mother is made aware that the child has pain or discomfort in the belly. He may wince, whimper, or cry, and say that his "tummy is sore," or he may hold his hand to his belly. He will want to be comforted. Owing to their very limited powers of expression these young children are unable to give any accurate information as to the nature, quality, or situation of the pain. This is a matter of secondary importance, the significant fact being that the child shows by his behaviour that he has pain in his belly. No fewer than 36 of the 42 mothers were quite definite that their children had pain, discomfort, or soreness in the belly. In 21 of the 36 the pain appeared to come in definite spasms during which the child would whimper or cry. In 15 of the 36 the pain seemed to be of a more constant nature. It is important to appreciate that the pain may be quite mild. These children may be very bright and active in between the spasms of mild bellyache. We should not be lulled into a sense of false security in interpreting a mild pain as being of no importance.

Vomiting is an even more constant symptom than pain. 39 of the 42 patients vomited repeatedly. There are distinguishing features about the vomiting in appendicitis: it may precede or follow the onset of pain. Late in the illness with peritonitis the vomiting may be faeculent.

I cannot sufficiently stress the clinical significance of continued abdominal pain and vomiting in the young child. Appendicitis should at once be suggested as a probable cause.

*Bowel Function*.—Constipation is by no means the rule and in almost half of the patients the bowels acted normally. Of the patients 14 were constipated, while 9 had diarrhoea.

*Disturbance of Urination*.—In 3 children with peritonitis and local peritonitis the frequent and painful passage of urine was the outstanding feature of the illness and in one patient retention occurred. It is quite likely that the pain was lower abdominal and was simply associated with frequent micturition.

## Examination

In no other field of medicine is there greater need for patience and gentleness than in the examination of the young patients. Examination at the first attempt is often unsatisfactory owing to the child being fretful, irritable and resentful of being disturbed. To persist with an immediate examination is worse than useless, for reliable information will not be obtained and examination later may be made more difficult. Call again in half an hour or wait over a cup of tea, and by this time the child is often co-operative and examination easier. Should the child still be fretful and resentful the practitioner is wise to refer the patient to a hospital, where expert opinion can be obtained. The practitioner as a rule has not the necessary time to call at half-hourly or hourly intervals at a patient's home until satisfactory examination can be made. These patients cannot be safely left till the morning to see what develops. In hospital it may be necessary in a few cases to administer either a sedative or a light ether anaesthetic to obtain satisfactory examination of the abdomen.

While one is gaining the confidence of the child an assessment of the state of the general health and condition is made. Some of these patients have a characteristic attitude in that they lie still either on their back or with their legs

curled up. Often they resent being disturbed or asked to sit up, as active contraction of the abdominal wall is painful. In this they differ from children with acute infections such as tonsillitis or otitis media or gastro-enteritis, who are restless or change their posture frequently.

Abdominal examination is the most important and most difficult part of the procedure. The two chief abdominal signs of appendicitis are tenderness and rigidity, and they are rarely absent. Valuable evidence of rigidity is obtained from observation of restricted movement of part or whole of the abdomen. Palpation is best carried out with the warm hand pressing gently on the abdomen and quietly feeling with the finger-tips as the child breathes. Always begin palpation in the upper and left side of the abdomen in the area where you do not suspect tenderness, and gradually move to the suspected areas of tenderness—namely, the right lower quadrant of the abdomen, the suprapubic region, and the right flank. Tenderness is determined by observing whether the child winces or attempts to pull away the palpating hand when pressure is applied to a focal part. It is better not to ask a child of this age whether a particular area is or is not sore. The reply may be misleading. Objective evidence of tenderness is much more reliable than subjective evidence. The usual site of tenderness is in the right lower quadrant of the abdomen. Suprapubic tenderness, especially on the right side and when pressure is directed towards the pelvic cavity, is quite common owing to the frequency of pelvic appendicitis. With spread of the peritonitis the tenderness may extend over the entire abdomen. While tenderness is usually very definite in most patients it may be slight in others, especially in the patient with pelvic appendicitis. The degree of tenderness is not reliable in assessing the precise state of the inflammatory lesion inside the abdomen.

*Muscle-guarding* is best determined by comparison and by judging whether relaxation or guarding remains when the child is breathing quietly. Do not move the palpating hand rapidly from area to area comparing muscle tension, as one is likely to be deceived by voluntary guarding. The area of muscle on guard may be quite small. In pelvic appendicitis it is frequently in the lower portion of the right rectus muscle.

An abdominal mass occurred in half of these patients; it was commonly felt as a firm discrete non-mobile mass, but in a few patients as a diffuse thickening. The degree of tenderness and muscle-guarding over a mass is very variable; it may be minimal, in which case the mass is easily felt, or so acute that it is difficult or at times impossible to determine the presence or outline of the mass.

*Abdominal distension* is common when general peritonitis is present, and is often observed in pelvic appendicitis and peritonitis.

*Rectal examination* can be misleading, for no matter how quietly and gently performed it will cause some children so much discomfort that it is impossible to assess whether there is any tenderness in the pelvis. If the child cannot be coaxed to be quiet during the examination then it is useless and misleading to attempt to determine whether there is any tender area in the pelvis. Some children will be quiet and co-operative. Rectal examination, however, is an invaluable measure to determine the presence or absence of a pelvic mass.

After abdominal examination routine clinical examination is conducted, particular care being directed to the chest, ears, and throat. Too much attention is often given to alterations in the pulse rate and temperature in the diagnosis of appendicitis. Neither pulse nor temperature gives a reliable indication of the inflammatory state inside the abdomen. It is well to realize that a child may be dangerously

ill with a normal temperature or one of only 99° F. (37.2° C.), while a temperature of 103 or 104° F. (39.4 or 40° C.) by no means makes a diagnosis of appendicitis unlikely. A very rapid weak pulse is a good indication of the severity of either dehydration or toxæmia or both, and usually is found in patients with general peritonitis. In some patients with appendicitis the pulse rate is only very slightly increased.

### Diagnosis

In some cases diagnosis may be difficult owing to a considerable variation in the clinical pattern, but the following are the essential facts.

A history from the mother of continued bellyache or discomfort and repeated vomiting should be presumptive evidence of appendicitis. I am of the opinion that such a history places the responsibility on the medical attendant of suspecting appendicitis and of acting accordingly. Determination of either focal abdominal tenderness or rigidity, or both, leaves no doubt that the clinical diagnosis is acute appendicitis. If in addition to these signs a mass is present in the pelvis or lower half of the abdomen then one should be very confident of the diagnosis. Should abdominal tenderness and rigidity be minimal one may be hesitant about the diagnosis if experience is limited. It is at this stage that expert opinion should be sought, and the practitioner should not carry the responsibility by waiting for the signs to become more definite.

Two kinds of patient present a different clinical onset and pattern which may be misleading. The first is the patient who has predominantly urinary symptoms and is suspected of having pyelocystitis. Should microscopical examination of the urine reveal the presence of only a small number of pus cells it is most improbable that a pyelocystitis is the cause of the illness. Patients with pyelocystitis who have pain and frequency of micturition have urine which is almost without exception heavily laden with pus cells and bacilli. The second is the patient with diarrhoea and abdominal pain who is suspected of having gastro-enteritis. Diarrhoea often occurs in pelvic appendicitis. Diagnosis is very difficult in the early stages of the illness, for the abdominal physical signs are usually minimal or absent and rectal tenderness is difficult to assess. Should a pelvic mass be present diagnosis is at once established.

In hospital practice total and differential leucocyte counts are commonly carried out as a diagnostic measure. They are of very limited value owing to the wide variations of the readings from normal to a very high figure of over 30,000 with a polymorphonuclear response. A normal, low, or very high reading would not for a moment deter me from making a diagnosis of acute appendicitis and of acting accordingly. The only real value of a leucocyte count in this disease would seem to be that if an unusual reading is found then the clinical evidence should be reconsidered before arriving at a final decision.

### Treatment

The treatment of these 42 patients, although conducted by several surgeons, was carried out on a uniform plan. All underwent operation as early as possible, the one factor delaying surgical intervention being a seriously ill child with peritonitis. Resuscitation by means of warmth, rehydration by intravenous therapy, and alleviation of intestinal distension by continuous gastric suction drainage were instituted until improvement of the patient permitted surgery to be undertaken safely. The time taken for improvement was from 6 to 12 hours and occasionally longer. The principles guiding the operative procedure were a planned incision giving the best access to the appendix, which was removed with the minimal possible disturbance of the

general peritoneal cavity. All patients with a mass or peritonitis were drained so that a tract for any exudate would be left from the site of the inflammatory lesion to the exterior. In all 42 patients the appendix was removed at operation. Post-operative measures were directed towards obtaining rest for the patient, and rest in particular for the alimentary canal. Morphine was given liberally, and when necessary continuous gastric suction and intravenous therapy were employed. The semi-Fowler position was adopted for all patients. Sulphonamides were used either by mouth or intravenously in one-third of the cases.

### Results of Treatment

There were eight deaths among the 42 patients. Three occurred in 11 patients aged 1-2 years; the remaining five deaths were among the 30 patients aged 2-3 years. The most important factor in mortality was the presence of general peritonitis. No fewer than seven of the 15 patients with general peritonitis died. The remaining death in the series was that of a patient with a mass and an abscess who developed a general peritonitis after operation. The other important factor in relation to mortality was the length of time the child had been ill before admission to hospital. Seven of the eight children who died had been ill for longer than 48 hours, while the other child had been ill for 40 hours.

### Conclusions

It is readily evident that the two major problems in appendicitis in the young child are: (1) How can an early diagnosis be established and so avoid complicated appendicitis with the accompanying high mortality and morbidity? (2) What is the best treatment for a patient with a complicated appendicitis, especially if general peritonitis is present?

Early diagnosis, within 12 to 24 hours of the onset, will be established only by better clinical training of the student, the family physician, and the paediatrician. This is the task of the clinical schools and societies. The two chief reasons for delay in the diagnosis are, first, a failure to suspect appendicitis at this age, and, secondly, a failure to take enough care with the history and clinical examination. It is not sufficiently appreciated that a single clinical examination is often inadequate and that several may have to be made before the physical signs are accurately determined. Rarely, late diagnosis is due to parents bringing their children for examination at a late stage of the illness.

The management of the patient with a complicated appendicitis presents a problem regarding which there is often a difference of opinion. Two main questions require an answer: (a) Should surgery be undertaken as soon as the patient's condition will permit, the object being drainage of pus and removal of the highly septic appendix if possible? (b) Should the body and alimentary canal be put at rest to allow the healing processes either to localize or to resolve the inflammation, the appropriate surgical treatment then being carried out?

While the main purpose of this paper is to assist the practitioner in establishing a diagnosis early and thus prevent complicated appendicitis, many problems concerning the complicated disease require to be solved. I would suggest that the different paediatric schools study these problems involved in the treatment of the complicated disease. Active clinical investigation would be an important measure in clarifying the clinical features for the student, house-physician, general practitioner, and paediatrician, and thus facilitating early diagnosis.

I am indebted to Prof. J. C. Spence and Dr. Donald Court for reading this paper.

## ENDOCYME FOETUS IN A FIJI INFANT

BY

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It is felt that the following case is of sufficient rarity and interest to merit its being placed on record: I am not aware of a similar case of *foetus in foetu* having previously been reported from this Colony.

### Case History

On Aug. 20, 1940, a Fijian female infant was admitted to the Lautoka District Hospital, Fiji, having been brought from Tavua, one of a small group of islands off the west coast of Viti Levu. The infant's age was later checked by reference to the provincial register of native births, and it was shown to have been born on April 11, 1940. Its age, therefore, at the date of admission was a few days over 4 months.

The mother being uneducated and rather unintelligent, an accurate history was difficult to obtain. She stated that the infant was the result of her first and only pregnancy. Nothing untoward had occurred during the pregnancy and she had remained well throughout. Labour had been quite normal, the mother being unattended until after delivery of the infant, when a native nurse had arrived in time to divide the cord and conduct the third stage. The infant had appeared perfectly normal at birth and nothing unusual was noticed until it was about three months old. The abdomen then began to enlarge, and continued to do so during the next month up to the time of admission to hospital. Over the same period the infant's general health had shown some impairment and its limbs had become thinner.

Both parents of the infant were of pure Fijian descent. There was no history of multiple births or of any congenital abnormalities on the mother's side. As the parents were unmarried and the father did not appear, his family history could not be obtained. The mother's age was about 26 years.

Examination of the infant showed it to be rather small for its age and poorly nourished, but there was no marked wasting. The abdomen was greatly enlarged, especially above the umbilicus, the enlargement appearing diffuse and symmetrical. On palpation the upper two-thirds of the abdomen was felt to be occupied by a large firm mass, irregular in outline and movable only within a narrow range.

On Aug. 22, under general anaesthesia, the abdomen was opened by a median supra-umbilical incision. The abdominal wall was greatly thinned from overstretching. The lower border of the stomach was seen crossing the upper angle of the abdominal opening, and below this the great omentum was spread out over a large smoothly rounded mass. An opening was then made through the omentum, revealing a smooth, grey solid mass enclosed in a very thin-walled sac. On incising the sac and passing a hand inside it the nature of the mass was finally revealed and a readily recognizable "foetus" was felt. The smooth-walled interior of the sac in which it lay contained a scanty amount of thin clear fluid. Owing to the large relative size of the foetus, the original abdominal incision had to be extended below the umbilicus before it could be delivered through the wound, and delivery was further facilitated by making one or two small incisions in the "head" of the foetus, from which some straw-coloured fluid escaped, thus reducing its size. Owing to the infant's weakly condition and the degree of shock produced by the delivery of the large intra-abdominal mass the operation had to be concluded without delay, and it was not possible to make any detailed exploration of the relations of the sac. It occupied the upper abdomen, lying between coils of small intestine, and was attached to the posterior abdominal wall. No attachments of the foetus to the interior of the sac had been felt. No attempt was made to remove or otherwise deal with the sac. It was left open, replaced in the abdomen, and the abdominal wound was sutured.

The weight of the foetus after removal was 1 lb. 10 oz. (737 g.), and the infant's weight on the day after operation 8 lb. 4 oz.



(3.74 kg.). On Aug. 25 a partial resuture of the abdomen was required, but otherwise the patient made an excellent recovery, and was discharged on Oct. 24, 1940. Her weight was then 11 lb. 4 oz. (5.12 kg.).

### The Foetus

This is illustrated in the accompanying photograph. There was a globular cephalic portion constituting rather more than half the total bulk of the foetus. Inside this cephalic portion were a number of fluid-containing cavities, covered in the greater part by skin only. There were two clearly recognizable upper limbs. The right upper limb showed flexures in the



position of elbow and wrist and had four distinct digits with well-defined nails. The left upper limb showed a distinct elbow and wrist, but the hand was less well developed, consisting of a mass in which five partly fused digits appeared to be represented, with a sixth, apparently supernumerary, digit at some distance from the rest. The nails were distinctly seen. There was a wedge-shaped caudal mass with a small terminal appendage arising from the bottom of a small pit-like depression. There was a short slender stump of "umbilical

cord," about 1 in. (2.5 cm.) long, attached to the ventral surface between the upper limb processes. This was not felt before delivering the foetus, but appeared to have been ruptured in doing so. It was apparently the only slender communicating link between parasite and autosite, and, since the foetus at operation had presented by the dorsal surface, it had presumably been attached to the posterior abdominal wall of the infant. The whole foetus was of a pinkish-grey colour and was covered in parts with a thin layer of sebaceous matter exactly resembling vernix caseosa. There was patchy lanugo over the dorsal aspect and the limbs, and a patch of well-developed hair on the anterior aspect of the "head." The length of the foetus was 6 in. (15 cm.) and its weight, as stated, 1 lb. 10 oz. The foetus was therefore approximately one-fifth the weight of the infant at the time of removal, and there was no doubt that it was then still "alive" in the sense that it was continuing to grow.

A skiagram of the foetus was taken after removal. Unfortunately, since a diagnosis was not made before operation, it was not x-rayed *in situ*. A rudimentary spine could be seen and also the long bones in the upper limbs. In the left upper limb the humerus, radius, and ulna were well developed. The wedge-shaped caudal portion of the foetus showed a single long bone, presumably a femur, and apparently represented a rudimentary lower limb.

I have to thank Dr. H. Silvester Evans, Acting Director of Medical Services, Fiji, for permission to publish the case.

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The latter work contains a number of other references to literature on this subject.

The Minister of Health has adopted the following recommendations of the Nurses Salaries Committee concerning the salaries of nurses employed in part-time service. If employed for not more than 30 hours a week: female ward sister, 2s. 11d.; female staff nurse (general trained), 2s. 3d.; female enrolled assistant nurse, 2s. If regularly employed for not more than 30 hours a week, but required on occasion to work for a few hours more, a nurse should be paid for the first 30 hours at the rates listed above and for additional hours as follows: female ward sister, 2s. 7d.; female staff nurse (general trained), 2s.; female enrolled assistant nurse, 1s. 10d. Nurses who regularly work more than 30 hours a week should be paid on the non-resident salary scale for the grade, provided that no nurse employed for more than 30 hours a week receives less than a member of her grade employed for only 30 hours.

## Medical Memoranda

### Severe Anaemia due to Diaphragmatic Hernia

It does not appear to be widely recognized that herniation of the stomach through the oesophageal hiatus of the diaphragm, often with minimal gastro-intestinal symptoms, may be associated with severe anaemia.

Hiatus hernia with ulceration was described by Richard Bright in 1836, but it was considered an uncommon condition until recent years, when improvements in radiological technique have made it clear that it is not infrequently the cause of upper abdominal symptoms. Radiological examination should include examination of the stomach in the supine, prone, and Trendelenburg positions in addition to the erect.

That hiatus hernia is capable of causing bleeding was emphasized by two American workers in 1943. Murphy and Hay (1943), examining the findings in 72 patients with hiatus hernia, of whom 84% were females, found the average age to be 60 years; pain was a prominent feature and anaemia was almost as frequent, for 27% of patients had a marked microcytic anaemia. Sahler and Hampton (1943) found either anaemia or a history of gastro-intestinal haemorrhage in 14.5% of a series of 221 patients with hiatus hernia. Chevallier and Danel (1944) and Mendelsohn (1946) reported cases of hiatus hernia with severe anaemia, the latter finding hiatus hernia in 16 out of 1,000 consecutive gastro-intestinal radiographs, three of which patients had bleeding as a symptom.

Gastroscopic and post-mortem examinations in cases of hiatus hernia with anaemia (Sahler and Hampton, 1943) have indicated the cause of the bleeding to be the constricting effect of the diaphragm on the herniated stomach, so that venous engorgement and oedema, with submucosal haemorrhages and shallow ulcerations, occur. Peptic ulcer of the lower oesophagus is a rare cause (Bock, Dulin, and Brooke, 1933).

### CASE REPORT

A married woman aged 64, with two children, had always enjoyed good health and had run a small shop unaided. For two weeks before admission to hospital she had been feeling increasingly weak and tired, was dyspnoeic on little effort, and had noticed swelling of the ankles. Appetite and bowel habit were unchanged, no darkening of the stools had been apparent, and she had not lost weight. On direct questioning the only other symptom to which she would admit was a feeling of fullness behind the mid-sternum. This was not troublesome and was attributed by the patient to having her meals disturbed by attending to customers in her shop. This symptom had been present for six months.

On examination the patient was seen to be somewhat obese, with marked pallor of skin and mucous membranes, ankle oedema, and dyspnoea on slight effort. There were no other abnormal physical findings. A blood count showed: haemoglobin (Haldane), 30%; red cells, 2,424,000, moderate anisocytosis and poikilocytosis; colour index, 0.63; white cells, 6,800. Examination of the sternal marrow revealed erythropoiesis, normoblastic in type and active. The faeces contained no macroscopic blood, but occult blood was present. Fractional gastric analysis revealed normal acidity. Gastric radiographs taken in the supine position showed the oesophagus entering the stomach in the abdomen, and a large part of the stomach herniated through the oesophageal hiatus into the thorax. The hernia was not visible in the erect position. Ulceration was not seen in oesophagus, stomach, or duodenum. A barium enema showed no colonic abnormality. Chest radiographs revealed no abnormality. The patient responded very rapidly to blood transfusion (2 pints (1.14 litres) of concentrated cells) and intensive iron therapy. Two weeks after admission the haemoglobin was 72% and red cells numbered 4,660,000. One must conclude that in any case of unexplained microcytic anaemia full consideration should be given to the possibility of hiatus hernia.

Our thanks are due to Dr. S. Almond for helpful criticism and for permission to publish this case, to Dr. Goldman for examination of the sternal marrow, and to Dr. Morris and Miss Lowe for radiological examinations.

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## Reviews

### VESALIUS

*A Prelude to Modern Science. Being a discussion of the History, Sources and Circumstances of the "Tabulae Anatomicae Sex" of Vesalius.* By Charles Singer and C. Rabin. Publications of the Wellcome Historical Medical Museum. New Series, No. 1. (Pp. 141; 59 text-figures, and 6 plates. 50s.) London: Published for the Wellcome Historical Medical Museum at the Cambridge University Press. 1946.

The history of medicine and the allied biological sciences has in the past owed much to many learned members of the medical profession in this country. Indeed, until comparatively modern times biology had no existence apart from medicine. This leaning towards the historical approach to learning is foreshadowed in the works of Thomas Linacre and John Caius, and acquires a more definite form in the *History* of John Freind. Thereafter, to mention only some representative names, the lead was followed by Thomas Young, Francis Adams, William Greenhill, William Ogle, and Frank Payne. Dr. Singer's studies, therefore, are in line with an expanding and distinguished tradition, and his own work is a record of masterly additions to the *opera magna* of his predecessors. So far his research has inclined rather towards the general and philosophical aspects of history, but in the monograph now reviewed he has shown that he can work also in miniature and without loss of that scrupulous accuracy so dear to the meticulous historian. His colleague, Dr. C. Rabin, has made available such knowledge of comparative philology as was essential to the development and completion of the argument.

This prelude to modern science takes the *Tabulae Sex* of Vesalius as a text on which to base an investigation not only into the sources of the *Tabulae* but also into the "currents of thought that lie behind it, and its relation to contemporary studies and activities, medical, intellectual and artistic." Such a research makes exacting demands on the judgment and scholarship of the authors, and that these demands have been met there can be no question. Dr. Singer thus celebrates his seventieth birthday by the publication of a work which will ensure for him in times to come a place among the elect of the historians of science. The plan of the work includes a historical analysis of anatomical and medical terms of the Renaissance, the character and purpose of the *Tabulae Sex* of 1538, Galenic physiology and its Latin presentation, Vesalius's reliance on and use of animal *vice* human anatomy, and a photographic reproduction of the *Tabulae* with English translation and an elaborate critical commentary. As only two complete sets of the *Tabulae* have survived, and only one of the three facsimile editions is readily available, it is gratifying that all students of the history of anatomy may now obtain a copy of the *Tabulae* which for purposes of research is an adequate substitute for the original. The Wellcome Historical Medical Museum and the editor of the series, Dr. E. Ashworth Underwood, are to be congratulated on the publication of this very important work.

F. J. COLE.

### MYO-FASCIAL INFLAMMATION

*Rheumatism and Soft Tissue Injuries.* By James Cyriax, M.D. (Pp. 410. 42s.) London: Hamish Hamilton Medical Books.

This well-produced book is mainly an expansion of the author's views on physical medicine, most of which have been previously published elsewhere, and he discusses rheumatism less than might be supposed from the title. In the chapter entitled "Traumatic and Rheumatic Inflammation" he puts forward the hypothesis that both terms designate an identical type of inflammatory lesion arising in the myo-fascial tissues without apparent cause, and resolving with irregular fibrous scarring and the formation of organic adhesions. It is on the basis of this simple pathology that he has founded his method of treatment by mobilization of the soft tissues. He is somewhat dogmatic throughout the book, as, for instance, in his saying that nodules have no importance in the chronic rheumatic diseases, or, again, in such a statement as "Lumbago . . . is now known to have no connexion with rheumatism, being in

fact the name given to an attack of internal derangement in lower lumbar-spinal joint." In spite of this remark (in Chap. 11) he discusses the therapy of lumbar fibromyositis at so length on the assumption that a muscular lesion is responsible. He criticizes the current terminology of rheumatic diseases rightly pointing out that much of it is unnecessary and should be simplified. He states, for example, that osteo-arthritis is no connexion with rheumatism and omits it from his classification, but later he classifies bursitis of the shoulder under fewer than five headings. In the next chapter he summarizes current views on referred pain, and then in an interesting section considers the diagnosis of soft-tissue lesions, which he refers to as the clinical aspect of the work of a physiotherapist department, stating that "the problem which faces the physiotherapist is 'Where is it?' rather than 'What is it?'" In this chapter he tries to describe the principles of a systematic diagnosis which will reveal the origin of a pain wherever the symptoms are perceived, and he discusses the use of local analgesia for this purpose. In the next twelve chapters he relates this system to pains of all sorts as they affect the various regions of the body and includes notes on treatment.

Chapters 17 and 18 on "Treatment by Movement" are perhaps the most important ones in the book, for he there describes his whole theory and practice of deep massage. They follow a section on anaesthesia and analgesia, and one on functional pain in which he reveals considerable experience and wise handling of the psychoneurotic patient. He then considers the problem of rheumatism and non-specific arthritis, but he little new to say upon the subject if we accept his encouraging statement that "fibrositis and fibromyositis are conditions very simple to relieve if the medical man finds the site of scar tissue and the physiotherapist has learnt how to deal adequately with such adhesions." The view expressed that "it is in the highest degree sanguine to trust that vaccine therapy will modify the course of fibrositis" is reinforced by a later statement: "I worked for over a year at a clinic at which vaccines were injected with the intention of benefiting patients with the rheumatoid arthritis, osteo-arthritis, prolapsed intervertebral disc, spondylitis deformans, and fibrositis alike, and my experience there confirmed me in this view." Under the heading of "Infective Arthritides" he discusses rheumatoid arthritis, infective arthritis, and "spondylitis deformans," but he has compressed his account of the treatment of rheumatoid arthritis into little more than a page. In the final "Commentary" he suggests a working hypothesis that our knowledge of all the rheumatic diseases, from rheumatic fever and chorea to epidemic torticollis, can be unified on the basis that they show evidence of virus aetiology, and he makes a plea for further research along these lines.

The volume is lavishly illustrated with photographs, some of which are perhaps redundant, and line drawings by Mr. Michael Rotherstein. Some medical men and physiotherapists will read it with interest, but it is perhaps rather too long and too specialized to become widely popular.

W. S. C. COPEMAN.

### CHILDREN'S DISEASES

*Diagnostik der Kinderkrankheiten.* By E. Feer. Fifth revised edition. (Pp. 428; 285 illustrations. 32s.) Vienna: Springer-Verlag. London: H. K. Lewis and Co.

It is good to see a new edition of Prof. E. Feer's book, for it is an old and trusty friend to many paediatricians. This new version (the fifth edition) is published from the Springer firm in Vienna, whereas the book previously appeared as a special part of a larger work—the *Enzyklopaedie der klinische Medizin*—and bore the imprint of Julius Springer, of Berlin. These facts are mentioned as an indication of the revival of medical book publishing in German-speaking parts of Europe.

Prof. Feer has extensively revised the book and included some new illustrations, though many old friends remain. The x-ray photographs of lung conditions are clearer, but in contrast the few on heart disease are disappointing. The younger children are illustrated—and Switzerland presumably has a good supply—have less umbilical protrusion than is usual in Britain. (We refer to the illustrations before the text because they are such a dominant feature of the book.) Prof. Feer has added a summarized account of metabolism, the endocrine glands, and the

vitamins, but it is not full enough to help much in diagnosis. On the other hand he has extended the scope of the book, and thereby improved it, by discussing some aspects of treatment where they have a bearing on diagnosis.

Originally dedicated to his wife, Prof. Feer's book now is presented to his four children and twelve grandchildren. He can be assured that its popularity and value have grown over the past quarter of a century as certainly as his family.

ALAN MONCRIEFF.

### EASY CHILDBIRTH

*The Birth of a Child. Obstetric Procedure in Normal Childbirth for Those who Attend Women in Labour.* By Grantly Dick Read, M.D. (Pp. 99. 5s.) London: William Heinemann Medical Books. 1947.

Dr. Dick Read's views on normal childbirth and its management, from the standpoint of rendering it easy and less painful, are sufficiently well known not to require any introduction. In this small and inexpensive book he restates his beliefs in a simple and practical form suitable for midwives, physiotherapists, and the laity, as well as doctors. It should be a particularly useful book for intelligent expectant mothers (and fathers) to read for themselves. Essentially it is a collection of lectures and previously published papers, and most of the chapters are complete in themselves, each a variation on the same theme. Inevitably, therefore, there is much repetition, which may be instructive to the lay reader even though wearisome for others.

Few will question the fundamental soundness of Dick Read's ideas, though some may think he overstates his case. It is to be hoped that this book will not lead readers to expect too much so far as painless labour is concerned, and that it will not be allowed to discredit what is perhaps the most important aspect of his thesis—namely, that emotion and nervous tension can, and often do, profoundly disturb and inhibit uterine action in labour.

T. N. A. JEFFCOATE.

### BEDSIDE VERSES

*The Diagnosis of the Acute Abdomen in Rhyme.* By Zeta. Drawings by Peter Collingwood. (Pp. 88; illustrated. 5s. 6d.) London: H. K. Lewis and Co. 1947.

How much surgery should be taught the medical student of the future? Most of the operations that he now watches with interest but without profit, particularly the major operations of neurosurgery, cardiovascular, thoracic, and gastric surgery, proctology, and urology, should be shown rather to post-graduates. But all medical men should be taught the principles of first aid, the treatment of soft-tissue injuries and ambulant cases of fracture, the surgery of sepsis and in particular of the septic hand, the part that operative surgery can play in the treatment of disease (without operative details being discussed), and above all the recognition of all those emergencies in which early operation offers the only chance of saving life. Of these the abdominal emergencies are the most important.

*The Diagnosis of the Acute Abdomen in Rhyme* is an excellent little book, for "Zeta" considers the whole of this important subject with admirable completeness. Many of the more popular works favoured by the student tend to encourage the "penny in the slot" mentality: consult a table, stick in a few needles, send a few fluids to the laboratory, and the place where the pointer stops is the disease from which the patient is suffering. "Zeta's" advice is commendably practical. He insists that nothing can replace careful clinical observation, and that only by repeated bedside study can wisdom finally be attained.

The use of rhyme, the serio-humorous style, and the delightful cartoons by Peter Collingwood are exactly right, for lessons conveyed in this way remain in the mind long after these delivered in more serious vein have faded. The coat of arms on p. 21, with the motto *Per Annum ad Salutem*, might well be hung in every students' club. "Zeta" exemplifies many of his more important lessons by describing mistakes that have occurred in his own practice. This may be the reason why he has adopted a pseudonym, which masks without concealing the identity of one of the leaders of surgery to-day.

HENRAGE OGILVIE.

### BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

*Ulcers of the Stomach and Duodenum.* By Edmundo Vasconcelos, M.D., F.A.C.S. (Pp. 125. No price.) Sao Paulo, Brazil: Editora Renascença S.A. 1947.

The author summarizes his experience of over 1,000 operations for peptic ulcer.

*Sex Power in Marriage.* By E. W. Hirsch, B.S., M.D. (Pp. 218 S3.) Chicago: Research Publications of Chicago. 1947.

A practical discourse on sex for the layman.

*Albert Schweitzer: The Man and His Mind.* By George Seaver. (Pp. 346. 18s.) London: Adam and Charles Black. 1947.

A biography of Schweitzer—theologian, philosopher, musician, and medical practitioner.

*Sex and Common Sense.* By Maude Royde, D.D., C.H. Revised edition. (Pp. 112. 8s. 6d.) London: Hurst and Blackett. 1947.

Essays on various aspects of sex and society.

*A Penicilina Por Via Arterial Nas Osteomielites.* By Eurico Branco Ribeiro. (Pp. 124. No price.) Sao Paulo, Brazil: Sao Paulo Editora S.A. 1947.

A monograph on penicillin in the treatment of osteomyelitis.

*Beiträge zur Kenntnis der Blutgerinnung.* By W. K. Rieben. (Pp. 96. 9 Swiss francs.) Basle: Benno Schwabe and Co. 1947.

A monograph on blood coagulation and anticoagulants.

*Brochure on Control of Malaria in India.* By C. F. Chenoy, M.B., B.S.(Bombay), D.T.M., D.P.H.(London.). (Pp. 63. No price.)

A short account of the malaria parasite, the mosquitoes that transmit it, and the control of the disease in India.

*Le Infiltrazioni del Simpatico.* By E. Tosatti. 2nd ed. (Pp. 203 No price.) Rome: Edizioni Italiane. 1947.

A monograph on infiltrating the sympathetic nervous system with local analgesics.

*New Biology.* Edited by M. L. Johnson and Michael Abercrombie. (Pp. 175. 1s.) London: Penguin Books. 1947.

A number of biological topics discussed for the layman.

*Introducción al Estudio de la Plasmoterapia.* By J. M. Massons. (Pp. 276. No price.) Barcelona: Editorial "Miguel Server." 1947.

A monograph on transfusion therapy, its technique, indications, and dangers.

*Rezeptaschenbuch.* Edited by L. Heilmeyer. 7th revised edition. (Pp. 410. No price.) Jena: Gustav Fischer. 1946.

A manual of classified therapeutics.

*Symptoms and Signs in Clinical Medicine.* By E. Noble Chamberlain, M.D., M.Sc., F.R.C.P. 4th ed. (Pp. 463. 30s.) Bristol: John Wright and Sons, Ltd. London: Simpkin Marshall (1941), Ltd. 1947.

A general account of how to examine the patient; the text has been thoroughly revised for this edition.

*The Trend of National Intelligence.* By Godfrey Thomson, D.C.L., Ph.D., D.Sc. (Pp. 35. 2s.) The Eugenics Society and Hamish Hamilton. 1947.

The 1946 Galton Lecture. The author suggests that the mean level of national intelligence is likely to decline.

*Cancer: Diagnosis, Treatment, and Prognosis.* By L. V. Ackerman, M.D., and J. A. del Regato, M.D. (Pp. 1,115. £5.) London: Henry Kimpton. 1947.

A general account of malignant neoplasms; with many illustrations.

*Nora e Rapida Interpretação do Quadro Leucocitário.* By Eurico Salis. (Pp. 26. No price.) Bagé: Rio Grande do Sul. 1947.

Notes on the differential leucocyte count.

## BRITISH MEDICAL JOURNAL

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## THE END OF THE POOR LAW

"The Laws relating to the Poor," as they used to be called, have been an unconscionable time dying. There was the massive report of a Select Committee of the House of Lords in 1888. There were later reports by other committees, until in 1909 a Royal Commission unanimously recommended "a clean sweep" of the English Poor Law and Poor Law organization. Yet the death knell of the Poor Law was sounded only in 1929 when Parliament passed the Local Government Act, which extinguished the old boards of guardians and transferred their duties to local authorities. Even then in certain shapes and under an alias the Poor Law lingered. Lord Beveridge in his famous report five years ago recommended the transference to the State of the remaining public assistance functions of local authorities other than treatment and services of an institutional character, and he added, "In view of the increasing number of old persons there is probably considerable scope for experimentation with and development of services concerned with the recreation and welfare of the old, including special housing facilities." The National Assistance Bill, published last week together with a White Paper,<sup>1</sup> gives liberal effect to this social conception. It is described as a Bill to "terminate the existing Poor Law and . . . to make further provision for the welfare of disabled, sick, aged and other persons. . . ." The Bill is sponsored by the Ministries of Health and National Insurance and the Department of Health for Scotland. It consists of 65 clauses and 7 schedules, and it repeals in whole or in part something like 80 Acts going back as far as George I.

The proposals in this Bill complete the pentagonal structure of social security which the Government is erecting, the other four sides being the Family Allowances Act, the Industrial Injuries Act, the National Insurance Act, and the National Health Service Acts for England and Wales and for Scotland. It provides a comprehensive assistance service falling into two categories. The first takes the form of financial aid, which henceforth will be a national and not a local charge. The National Assistance Board, with advisory committees throughout Great Britain, will give a unified State service of financial assistance available according to need. This will take the place of unemployment assistance, supplementary pensions, blind domiciliary assistance, tuberculosis treatment allowances, and outdoor relief. It is expected that the applicants will be mainly the aged, disabled, and sick who are living in their own homes. The second category is the provision of residential accommodation for the aged and infirm and others, together with special welfare services for certain physically

handicapped persons. Here local authorities will continue to function, but the provision will be separated entirely from the relief of destitution; in other words, if an elderly person, irrespective of his means, is in need of care an attention he may become a resident in such a home, and his admission will have no more to do with what has been known as "relief" than the sending of a case of major illness to hospital. Those who receive such aid will not include the sick who need hospital treatment; they will be the responsibility of the National Health Service, to which it is estimated 50,000 people at present in public assistance institutions and 18,000 mental cases will be transferred. This new provision is for those whose disabilities prevent them from living a normal life at home. The majority of such people—the great majority as time goes on—will be in receipt of retirement pensions or insurance benefits, and, to save their pride as well as to relieve expenditure, they will be required to pay a fixed sum for their accommodation, leaving them with "pocket money." During the next five years it will be necessary to provide for this purpose 20,000 additional beds in England and Wales and 3,000 in Scotland, 60% of them in new buildings. It follows from the provision of such homes (hostels) by county and county borough councils that existing private homes which are run solely or mainly for old people or for the blind or those otherwise incapacitated will be subject to registration and inspection, but this will not apply to ordinary hospitals and mental institutions, registered nursing homes, and certain other exempt establishments. It is in keeping with the spirit of the Bill that voluntary organizations, whether for accommodation or welfare services, will not be discouraged, and indeed grants may be made to them.

In this proposed legislation the effect of the recent awakening of public interest in the care of the aged, as shown by the Nuffield inquiry and by the report of the special committee of the British Medical Association,<sup>2</sup> can be traced, but very little information is to be gathered from the Bill as to the proposed size or arrangement of such hostels. The B.M.A. committee suggested that they should be as near as possible to families and friends of the residents, and that, to prevent institutionalism creeping back, the number of residents in a home should be limited to 30 or 40. The amenities, of course, will depend less upon enactment or regulation than upon the way in which local authorities and their officers interpret their duties. We may have got away from the old idea of parish relief, the parish having been the immemorial "unit of obligation," but we still depend upon the public spirit of the locality. One clause in the Bill requires the local authorities to have regard to the need "for providing accommodation of different descriptions suited to the different descriptions of such persons." One may hope that the tautology of the Act will be translated concisely into a flexible administration. It is disappointing that the Bill does not go on to provide a co-ordinated medical service for these aged persons. All that is stated is that the medical service provided at the home or hostel will be of the kind specified in Part III of the National Health Service Act—that is, the service provided by local authorities

<sup>1</sup> Cmd. 7248. H.M.S.O., 3d. net.<sup>2</sup> Supplement June 21, p. 133.

including health centres, health visitors, and home nursing. The B.M.A. committee called for the establishment in each region of geriatric departments based on general hospitals. The medical service it suggested would have three interdependent units: the residential home for elderly persons in need of reception but not of nursing care, the long-stay annex for elderly patients whose cases were irremediable, and the geriatric department. The Government proposals will make it easier, however, for Regional Hospital Boards to institute some such arrangement.

Local authorities already have the duty of making arrangements for the welfare of the blind, and they are now to be empowered or directed to make similar arrangements for the deaf, the dumb, and others handicapped by illness, injury, or congenital deformity, instructing them in suitable cases in methods of overcoming their disability and training them for an occupation. One other provision should be noted. On the certificate of the medical officer of health persons suffering from grave chronic illness or the aged and infirm, living under insanitary conditions and unable to provide for themselves, may be removed to a suitable hospital.

The Poor Law, which stretches back beyond the Tudors, is at last broken. Its days began to be numbered when there appeared on the scene public health services, compulsory insurance, and State schemes of pensions for the aged and relief for the unemployed. A salute in passing should be given to the memory of Sidney Webb. He and Beatrice Webb<sup>3</sup> showed how the Poor Law would become of less and less importance in a social policy based on the duty of the State not merely to relieve but to eradicate the condition of destitution. The new Bill will mean another redistribution of income within the community. It will make more out of date than ever Disraeli's remark about the "two nations"—the rich and the poor—under the British sovereign. But the measure is well timed to the awakening of the public conscience regarding the aged and infirm, and interpreted with imagination in the spirit of social service it will give what the popular edition of the B.M.A. committee's report calls "A New Deal for the Old," to whom may be added the chronic sick and the physically handicapped.

### GAMMA GLOBULIN IN MEASLES

During the war solutions of human serum albumin were extensively used by the medical departments of the Defence Services of the United States for the transfusion of casualties. The system of fractionation developed by E. J. Cohn and his colleagues at Harvard aimed primarily at the preparation of pure human serum albumin for transfusion. As the work progressed a secondary objective developed, to separate the plasma proteins into a limited number of main fractions. The production of these solutions provides large quantities of the globulins from human serum as a by-product. It is known that the different antibodies in adult human serum are associated with the globulin fraction; accordingly, after methods for the preparation of the albumin solutions had been

perfected, attention was directed to the other proteins of human serum. As a result of a series of masterly researches at Harvard methods have been devised for the preparation of the different proteins of human serum in a high state of purity, and their chemical and physical properties have been fully investigated. At the same time workers in the immunological field examined the solutions of these different globulins for the presence of antibodies, determined the quantities present where this was practicable, and assessed their value as therapeutic agents.

Cohn and others<sup>1</sup> showed that the gamma globulins of the plasma proteins retained the physiological properties of antibodies after separation and that these globulins, from a purely physical standpoint, are the most active constituents of the plasma protein complex. Enders advanced the work a stage further when he succeeded in isolating a number of antibodies from the gamma globulin fraction. Sweet and Hickman<sup>2</sup> administered gamma globulin to some 267 susceptible children within eight days of exposure to measles. In assessing the results certain variables had to be considered, such as the nature of the contact and the varying potency of the gamma globulins used, though if the material is obtained from a large pool of human convalescent serum the potency of the antibodies may be assumed to be reasonably uniform; and, of course, in an investigation of this kind age and individual susceptibility play a part.

For children of 5 years or under 0.5 ml. seems to be an attenuating dose and about 2 ml. to afford protection. For older children up to the age of 12 approximately double the dosage is recommended. In the group of cases quoted by these authors about 50 developed mild measles and 7 had an ordinary attack. In 16 children who were re-exposed within four weeks of the original injection the protection appeared to be adequate; only three developed very mild measles.

A further paper by Sweet and others<sup>3</sup> describes the use of gamma globulin in an attempt to prevent infection in prematurely born infants. This failed, for after giving 2.5 ml. of this protein fraction to premature babies no improvement in the mortality rate was found. It would seem to be impossible to increase resistance to infection by giving gamma globulin in the absence of a fully developed reticulo-endothelial system and of the undifferentiated antibodies it produces.

The full harvest of these studies in immunology and therapeutics has yet to be reaped, but one result of great practical importance is the clear demonstration that the measles antibody is associated with the fraction of the serum proteins known as gamma globulin, that this fraction can be separated from the other proteins of serum and prepared in a high state of purity, and that its efficacy for the prophylaxis of measles is undoubted. This research aroused interest in many countries, and quantities of gamma globulin, small in amount but adequate for the purpose, were placed at the disposal of workers in Great Britain by the American authorities. The results reported from the United States were confirmed in this country.

<sup>3</sup> Webb, S., and B., *The Break-Up of the Poor Law*. 1909. London: Longmans, Green & Co.

<sup>1</sup> *J. clin. Invest.*, 1944, 23, 417. See *British Medical Journal*, 1945, 1, 739.

<sup>2</sup> *J. Pediatr.*, 1946, 28, 566.

<sup>3</sup> *Ibid.*, 1946, 28, 571.



Before the war the hospital and laboratory services of the London County Council had evolved a scheme which had shown the possibilities of a "convalescent measles serum bank." During the war limited quantities of adult human serum were supplied for the same purpose through the Public Health Laboratory Service. These forms of human serum differ in so far as the concentration of measles antibody is considerably greater in convalescent serum than it is in the serum of adults, yet neither is entirely satisfactory. While the dose of convalescent serum injected is small, the total quantity available in any year is limited, uncertain, and variable; on the other hand, though larger quantities of adult human serum could be obtained, and with greater certainty and regularity, the volume to be injected is inconveniently large except, perhaps, for very small children. Accordingly, comparative tests of the therapeutic value of gamma globulin and convalescent measles serum were carried out in order that information would be available to assist the authorities in their decision as to the form of measles prophylactic to be manufactured for use in this country. Some novel and difficult administrative and production problems arose. Whatever form of measles prophylactic was preferred, the raw material would have to be obtained from human beings; and while there had been no difficulty about supplies during the war it might not be so easy to obtain them in times of peace. The question of cost arose and could not be disregarded. By Cohn's methods gamma globulin is obtained when the concentration of electrolytes and ethyl alcohol, and the reaction, are suitably adjusted and sufficiently low temperatures are maintained throughout the operations; but these procedures tend to be costly. Again, Cohn's method yields a product of high purity and potency, but the amount of adult serum required to produce one dose of gamma globulin is relatively large.

These problems have engaged the close attention of administrative and research workers in recent years, and it is encouraging to learn from the recently issued report of the Governing Body of the Lister Institute that by work in which the Medical Research Council, the Ministry of Health, and the Institute have been concerned a method of separating the globulin of human serum has been developed which is suitable for large-scale production. Therapeutic trials indicate that the products obtained by these methods contain measles antibodies. We understand that the later clinical trials continue to show promise, and there would now appear to be good grounds for hoping that, in this country also, gamma globulin will become available in due course for the control of measles, although further research is required and production difficulties have yet to be faced.

### DEAFNESS IN YOUNG CHILDREN

In a Report issued in 1938 by the Board of Education on defective hearing in children it was estimated that in England and Wales there were nearly four in every 1,000 of the school population whose hearing was so impaired that in ordinary circumstances they were unable to hear their teacher's voice at school. Some (1 in 1,000) were quite unable to hear speech in any circumstances, while the remainder, by means of amplifiers or by sitting near

the teacher, were able to hear something, if not all, of what was said in class.

Deafness in young children is never an obvious defect though it may seriously retard the development of speech and intellect. Consequently the true cause of backwardness in a deaf child may not always be appreciated during the earliest formative years, even though a child be almost totally deaf. When the deafness though severe is not complete a child may respond to loud sounds in everyday life while being deaf to speech. In such a case any backwardness in speech and intellectual development may be attributed to causes other than deafness, and remedial measures employed that are both inappropriate and ineffectual. Thus the importance of early ascertainment of the nature and extent of the deformity handicapping a child with defective hearing cannot be overemphasized, though no one with experience of deaf children would underestimate its difficulty.

The pioneer work of Dr. and Mrs. Ewing has done very great deal to improve both the ascertainment and education of the child with defective hearing, but the still remains the problem of measuring the amount of residual hearing in a young child suspected of being deaf. It is often impossible to sustain the interest of a young child, even with normal hearing, by the conventional test so that it may be difficult to decide whether or not response to a sound-test is due to lack of interest or to inability to hear. The use of sound stimuli likely to attract a young child (bells, musical pipes, drums, etc.) helps to overcome this difficulty, but there still remains the problem of actually measuring the hearing. To do this Dix and Hallpike have evolved a technique whereby young children can be made, with a minimum of persuasion and explanation, to respond as soon as they hear the test tone of a pure-tone audiometer. In this way a quantitative assessment of hearing is made possible, and the "peep-show" technique which they describe in this issue of the *Journal* may well become the standard method of testing hearing in young children. Up to now it has not been possible for reasons already mentioned to carry out a satisfactory pure-tone audiometer test on a child under 7. The peep-show technique offers the possibility of an accurate test that can be carried out quickly and without difficulty, and it will be of great interest and of practical value to all who are concerned with child health and education.

### MORBIDITY ASSOCIATED WITH THE INDUCTION OF LABOUR

Thompson<sup>1</sup> has stated that the induction of labour involves the minimum of risk when the patient is at term, the head is engaged, the cervix is effaced, and dilatation has begun. When such conditions are fulfilled, however, induction of labour is not often required. In a study of the morbidity associated with induction in 500 cases, Roblee<sup>2</sup> found the combined maternal and foetal morbidity to be 25%, as compared with 10.5% in a similar number of normal spontaneous labours. This grouping together of maternal and foetal morbidity is not altogether satisfactory, and it should be noted also that the figures given have been corrected. Roblee ascribes the increase in morbidity largely to "the forcing of labour before the cervix, lower uterine segment, and uterus have been prepared for labour." Lacerations of the cervix were three times more frequent in the morbid than in the non-morbid cases, but their incidence could be reduced by 75% by eliminating the use of pituitary preparations from the procedures used for induction.

<sup>1</sup> *Calif. West. Med.*, 1938, 49, 358.

<sup>2</sup> *Amer. J. Obstet. Gynec.*, 1947, 53, 382.

The morbidity rate was found to be increased in proportion to the length of time between induction and onset of labour and with the duration of labour. It was two and a half times greater in primigravidae than in multiparae, and relatively higher in patients under 25 years of age. The highest morbidity (80%) was associated with attempts to induce labour after spontaneous rupture of the membranes, but in nearly half of the cases bags or bougies had been employed. The author did not determine morbidity in relation to the method of induction, but a study of his tables shows that, irrespective of the indication for induction, morbidity was increased by the frequency of employment of bags and bougies—methods which have been largely discarded in this country. The lowest morbidity (14%) was associated with induction within two days of the estimated date of confinement for no reason other than the convenience of the patient or the obstetrician. It is noteworthy in this respect that the incidence of induction was 10.2% for private patients, against 0.8% for general ward patients. Roblee views with disfavour the induction of labour for cephalo-pelvic disproportion, for suspected postmaturity, or for the convenience of the patient or attendant, although the last was the indication in 150 of the 500 cases. He finds the chief justification for induction in cases of toxæmia. In this country there has been in recent years a similar trend away from the induction of premature labour for contracted pelvis, although some still consider that when there is only a moderate degree of disproportion the results compare favourably with those of a trial of labour.<sup>3</sup>

Roblee's 500 cases include 300 which date from before 1935, and it might be expected that the morbidity in cases of more recent vintage would reflect modern advances in technique and in the prevention and treatment of infection. The morbidity in 150 cases in 1944, however, was as high as 20%. But, as Roblee asserts, the factor which will effect the greatest reduction in morbidity is the careful selection of cases according to the indications, the local condition, and the general health of the patient. He thus comes to the same conclusion as Thompson, that only in patients who are entering the threshold of labour can induction be carried out without risk. Finally, Roblee draws attention to recent work by Lyon<sup>4</sup> which suggests that knowledge that this threshold has been reached can be obtained by determining whether the antepartum decline in urinary pregnanediol excretion has begun.

### TOXICOLOGY RESEARCH

A new advisory committee has been formed to assist the Medical Research Council in the promotion of research into toxicology, with particular reference to industrial hazards. The following have been appointed to serve on it: Prof. G. R. Cameron, F.R.S. (chairman); Prof. J. H. Gaddum, F.R.S.; Dr. Donald Hunter; Mr. F. C. MacIntosh, Ph.D.; Dr. E. R. A. McEwether; Prof. R. A. Peters, F.R.S.; Mr. J. Davidson Pratt, B.Sc.; Dr. J. R. Squire; Mr. J. Walker, D.Phil.; Dr. J. M. Barnes (secretary).

In order to carry out experimental work on toxicology the Council have recently established at the Chemical Defence Experimental Station at Porton, Wilts, by arrangement with the Ministry of Supply, a new Toxicology Research Unit under the direction of Dr. J. M. Barnes. For clinical investigations in this field the Council already have their Department for Research in Industrial Medicine at the London Hospital, under the direction of Dr. Donald

Hunter, and their Industrial Medicine Research Unit at the Birmingham Accident Hospital, under the direction of Dr. J. R. Squire. In appropriate circumstances, research in the subject may be promoted by the Council elsewhere, either within their own staff organization or by means of grants to independent workers.

### VAGINAL SMEARS AND UTERINE CARCINOMA

The possibility of applying vaginal smear studies to the diagnosis of uterine carcinoma was first realized by Papanicolaou in 1928, but he did not follow up the suggestion until 1938 when, working first with Traut and later with Marchetti, he began a routine investigation at the Women's Clinic of the New York Hospital. The results and conclusions were published in a monograph<sup>1</sup> in 1943, and have been reviewed again recently.<sup>2</sup> Among 3,014 adult women examined 127 suffered from carcinoma of the cervix and 53 from carcinoma of the body of the uterus. By the vaginal smear technique a correct diagnosis was made in 96.8% of cases when the growth was cervical and in 90.7% when it was in the uterine fundus. Others, including Ayre,<sup>3</sup> report a degree of accuracy in diagnosis to within 5-7% for all types of genital malignancy. Not all workers, however, are convinced of the reliability of the method, and even its advocates emphasize that experienced pathologists require special training before they can interpret the smears satisfactorily, and that it is not yet a method for general application.

Although, up to the present, examination of vaginal smears has limitations so far as the diagnosis of uterine carcinoma is concerned, it is capable of other applications. Ruth Graham<sup>4</sup> used it to study the effects of radiotherapy on both normal and neoplastic cells. She examined 206 women treated with radium or x rays for carcinoma of the cervix—adeno-carcinoma in 27 and epidermoid carcinoma in 179; 35 patients were investigated by taking vaginal smears every one to three days before, during, and after treatment, 50 were investigated within six months of treatment, and the remainder at varying periods up to fifteen years after radiotherapy. It was found that the effect of irradiation is seen first in the normal cells of the vagina and cervix, sometimes as early as the second day. The basal cells, both inner and outer, show progressive alterations in shape and staining reactions and degenerative changes in the nuclei and in the cytoplasm, which becomes vacuolated; ultimately they become considerably enlarged and may assume bizarre forms. Similar effects also occur in the pre-cornified cells, and in the cornified cells, except that the pyknotic nuclei of the latter are little affected. A large increase in the number of leucocytes is also seen in the smear. A change in the malignant cells was usually apparent by the eleventh day, but the full effect was sometimes delayed until the seventeenth day after treatment and was similar in type to that seen in the normal cells—increase in size, vacuolation of the cytoplasm, and degeneration and breaking up of the nuclei: "it is often very difficult to say whether a radiated cell was originally malignant or benign." The average time taken for cancer cells to disappear completely from the smear was twenty-four days. Graham's descriptions of the effects of irradiation agree fairly well with those previously reported by workers who studied biopsy material except that, as she points out, abnormal mitosis is a less striking feature. This is because vaginal smears do not usually contain many cells undergoing mitosis.

<sup>1</sup> *Diagnosis of Uterine Cancer by the Vaginal Smear*, 1943, New York: The Commonwealth Fund.

<sup>2</sup> *Amer. J. Obstet. Gynec.*, 1946, 51, 316.

<sup>3</sup> *Ibid.*, 1946, 51, 743.

<sup>4</sup> *Surg. Gynec. Obstet.*, 1947, 84, 153.

<sup>3</sup> Barnett, V., *J. Obstet. Gynec. Brit. Emp.*, 1942, 49, 524.

<sup>4</sup> *Amer. J. Obstet. Gynec.*, 1946, 51, 403.

Perhaps the most interesting observation is that in a considerable proportion of cases neither the normal nor the neoplastic cells in the smear showed much reaction to irradiation. Out of the fifty cases studied one to six months after radiotherapy, 32 showed little if any reaction and in eighteen of these cancer cells were persistently present in the smear. This naturally raises the question whether it is possible to assess the prognosis in a particular case by the degree of response noted in smears taken during and immediately after treatment. This aspect of the problem is dealt with in a second article<sup>5</sup> describing 73 patients followed up for periods varying from six months to three years. Immediately after radiotherapy 36 were classified as showing a good response judged by vaginal smears, and of these three were untraced, five were dead, and 28 remained alive and free from signs of active growth at the time of report. Thirty-seven patients were assessed as showing a poor response to treatment, and the subsequent history of these was 26 dead, 8 alive but suffering from a recurrence, one alive and well, two alive and not examined but presumed well. Graham points out that in interpreting the response a sharp reaction on the part of normal cells may be more significant than a rapid disappearance of cancer cells from the smear. On the basis of these results it is suggested that the routine examination of vaginal smears permits an assessment of the prognosis with an 88% degree of accuracy, and that at an early stage in treatment. Moreover it is a method which can be easily applied, whereas the alternative—repeated biopsy—is impracticable. If this work is confirmed it should prove of the utmost value, because it means that in those cases where the cellular response is unfavourable and where the growth is not too extensive the patient can at once be given the chance which is offered by surgery.

### ENDOCRINE ALLERGY

In 1945 Zondek and Bromberg<sup>6</sup> performed skin tests with crystalline steroid hormones dissolved in purified olive oil. Previous work with aqueous extracts had been unsatisfactory, as a relatively long period of contact was necessary between the relatively insoluble hormones and the tissues. Of 165 women tested, 9.3% were found to be sensitive to the oil or to cholesterol and were therefore excluded. In the remaining cases the hormone skin tests gave a satisfactory indication of sensitivity, and this sensitivity to an endogenous hormone they term "endocrine allergy." That such a sensitivity exists is indicated by positive passive transfer tests, by generalized reactions accompanying some of the positive skin tests, and by their general findings. Following specific desensitization 80% of these cases were either free from symptoms or improved. In 32 normal healthy women the skin tests were all negative. Of 27 women suffering from diseases known or suspected to be allergic in whom symptoms appeared at, or were exacerbated by, menstruation, 70% gave positive skin tests. In a similar group in which the symptoms were not affected by menstruation or the menopause, only 7% gave positive skin tests. Cases of hormonal sensitivity were also found among women suffering from symptoms related to menstruation or the menopause but not usually classified as allergic.

More recently Zondek, Landau, and Bromberg<sup>7</sup> have recorded their findings in 6 cases (3 males and 3 females) of keratitis rosacea accompanying facial rosacea. As in the previous work, skin tests were done with testosterone, oestrone, oestradiol, progesterone, pregnandiol, corticosterone, insulin, and gonadotropin. In each case a posi-

tive reaction to testosterone only was obtained, all the other tests being negative. Allergy to testosterone in women is explained by the formation of testosterone by the adrenal. Treatment was by daily injections of gradually increasing doses of testosterone, starting with the minimum dose which gave a positive skin test and increasing to 1 mg., followed by the implantation of 10-mg. tablets of testosterone every few months. These cases, three of which are described in detail, were of four to twenty years' duration and were refractory to accepted methods of treatment. Specific treatment promptly relieved them of their subjective symptoms and the limbal and corneal vascular dilatation was considerably improved and disappeared; there was also marked improvement of the facial rosacea. The implantation of testosterone was necessary to prevent relapse; excessive dosage caused exacerbation of the symptoms.

This work is of considerable interest, but, as the authors point out, the finding of allergy to endogenous testosterone in these few cases does not exclude the possibility that other endogenous hormones may act as allergens in some cases or that other factors are involved in the aetiology of keratitis rosacea.

### STANDARDS OF NUTRITION

The Council of the B.M.A. at its meeting last week decided to appoint a Special Committee "to consider and report on the problems of nutrition in this country, including current nutritional standards." It was in April, 1933, that the Association appointed a similar committee with a more precise reference: "To determine the minimum weekly expenditure on foodstuffs which must be incurred by families of varying size if health and working capacity are to be maintained and to construct specimen diets." This committee's report was published as a special Supplement to the *British Medical Journal* of Nov. 25, 1933. The late S. E. Kaye Le Fleming, then chairman of the Representative Body, presided over the Committee, and its conclusions were generally accepted and widely quoted in the years before the war in any discussion of minimal standards. We described this earlier report as "of national importance." The wider task of the present Special Committee is perhaps of even greater importance. Only last week we pointed out in a leading article<sup>2</sup> that the recent food cuts would involve a reduction in terms of daily food intake per head from 2,870 to 2,700 calories, a figure authoritatively described as "probably too low." The 1933 committee was able to assume, without taking into consideration the question of food cuts, that "3,400 great calories have to be purchased as food to keep an adult male in health and working capacity." The report of the present committee, now being appointed, will be awaited with much interest in the light of the greatly altered circumstances prevailing in this country.

The Hon. Harold Nicolson will deliver the Lloyd-Roberts Lecture on "The Health of Authors" before the Royal College of Physicians of London (Pall Mall East, S.W.) on Tuesday, Nov. 11, at 5 p.m.

Sir Cecil Wankley will deliver the Bradshaw Lecture on "Vogue and Fashion in Abdominal Surgery" before the Royal College of Surgeons of England (Lincoln's Inn Fields, London, W.C.) on Thursday, Nov. 13, at 5 p.m.

<sup>5</sup> *Surg. Gynec. Obstet.*, 1947, 84, 166.

<sup>6</sup> *J. Allergy*, 1945, 16, 1.

<sup>7</sup> *Brit. J. Ophthalmol.*, 1947, 31, 145.

<sup>1</sup> *British Medical Journal*, 1933, 2, 980.

<sup>2</sup> *Ibid.*, 1947, 2, 696.

## HEALTH REGULATIONS FOR AIR TRAVEL

BY

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Medical practitioners are often asked for information on the health regulations in force for passengers travelling by air to foreign countries. It may therefore be of interest to discuss the quarantine procedure as it affects passengers and aircraft leaving the United Kingdom on international flights.

The times taken from London to reach distant points in the world by air are now approximately:

Egypt ..	13 hours	Australia ..	2½ days
Canada ..	20 hours	South Africa ..	3 days
West Africa ..	1 day	New Zealand ..	4 days
India ..	1½ days	Hong Kong ..	6 days

The duties of the health authority are therefore becoming more difficult and responsible in view of the lack of clinical signs of infectious disease to be expected among the passengers examined. More reliance has to be placed on immunization, hence the insistence on the use of vaccines of known efficiency and on the production by the passenger of proof, in the form of certificates, that the operation has been performed satisfactorily. Certificates of immunity have in this way become an essential part of the formalities of air travel and seem likely to remain so for some time to come.

## International Convention for Aerial Navigation, 1944

The carriage of infectious disease from one country to another is controlled by this Convention, to which the majority of nations are signatories.

**Quarantine Procedure.**—The Convention defines the procedure and methods to be adopted by the signatories for the purpose of quarantine. The methods in use are: (a) immunization of persons by inoculation and vaccination against the five major epidemic diseases—yellow fever, smallpox, plague, typhus, and cholera; (b) medical inspection of suspected cases of infectious disease embarking or disembarking at an airport; (c) segregation or surveillance of infectious persons and their contacts; and (d) application of sanitary measures to passengers and aircraft, including the disinfection of persons, clothing, and bedding, and the destruction of mosquitoes and other vectors of disease where considered necessary by the health authorities.

**The "Convention" Diseases.**—The Convention is intended to cover all infectious diseases, including those carried by insect vectors (e.g., malaria) and in particular those major epidemic diseases referred to above, for which special measures are applicable and are set out in detail in the Convention. The incubation periods of these diseases and the periods of validity of the certificates of immunization agreed on internationally are shown in Table I.

TABLE I

Disease	Incubation Periods	Periods of Validity of Certificates of Immunization
Yellow fever ..	6 (India 9) days	For 10 days to 4 years from date of inoculation
Smallpox ..	14 days	For 14 days to 3 years from date of vaccination
Cholera ..	5 "	For 6 days to 6 months from date of inoculation
Plague ..	6 "	Not stated, but usually for 6 months from date of inoculation
Typhus ..	12 "	For 1 year from date of completion of course of inoculations

**Notification of Epidemiological Information.**—The Convention also provides for the collection and dissemination of epidemiological information to the signatories. The Interim Commission of the World Health Organization maintains an epidemiological information service at Geneva for this purpose. The service issues a weekly *Epidemiological Record* which gives the notifications concerning pestilential disease and similar information required by health services throughout the world. A *Statistical Supplement* is also issued every

month giving tabular information concerning notifiable diseases and vital statistics. Our Ministry of Health issues a *Weekly Record of Infectious Diseases at Ports, or other localities at home and abroad*. From these sources, and from information sent to airline corporations direct from overseas stations concerning local health regulations, it is possible to deduce the requirements for a passenger on any particular journey.

## Health Regulations Affecting Passengers

**Inoculation and Vaccination.**—The number of inoculations or vaccinations required by a particular passenger depends on the route he will fly. It will be necessary for him to comply with the regulations of each country in which he lands as well as those of the country of departure and of his destination. The regulations, however, usually make a distinction for a passenger who is only in transit through a country and not disembarking into it, and in the former case an alleviation of the rules is sometimes permitted. Health authorities are naturally anxious to prevent the entry of a person incubating any disease into a country where conditions are particularly favourable for its spread. This is the case in India, where regulations against the importation of yellow fever are very stringent in consequence of the presence of the *Stegomyia* mosquito. Similarly in Australia special precautions are insisted on against smallpox.

**Variation in Validity of Immunization Certificates.**—The periods of validity of certificates of inoculation and vaccination as shown in Table II vary in certain countries, and it is necessary to ensure that each passenger is in possession of certificates that are valid for all countries in which he will land during his journey. It would of course simplify the procedure for passengers if all countries would agree to accept the same periods of validity.

TABLE II

Disease	Convention Validity	Limits of Variation*	
		Maximum	Minimum
Yellow fever ..	10 days/4 years	15 days/2-4 years (India)	15 days/2 years (Madagascar)
Smallpox ..	14 days/3 years	21 days/2 years (Egip)	12 days/1 year (Thailand)
Cholera ..	6 days/6 months	14 days/6 months (Abyssinia)	6 days/3 months (Hong Kong)
Plague ..	None stated	5 days/2 years (Cyprus)	6 days/3 months (Hong Kong)
Typhus ..	—/1 year	12 days/1 year (Lebanon)	8 days/6 months (Cyprus)
Typhoid ..	None stated	6 days/1 year (Burma)	6 days/3 months (Java)

\* Calculated from date of completion of inoculation or of vaccination.

**Forms of Certificate.**—The Convention recommends that certain prescribed forms of certificate should be used for the purposes of travel by air. Airline companies sometimes print and issue these certificates to their passengers on request. These forms, or copies of them, should be used, since certain countries insist on the use of the Convention certificates and may refuse to accept any other as valid, with resulting delay and inconvenience to the passenger. It is important, therefore, that the certificate should be completed in all details; if an official stamp be affixed it will add to the value of the document.

**Notification of Health Regulations to the Passenger.**—Inoculation and vaccination required by regulations are notified to the passenger through his travel agency, and he should lose no time in consulting his doctor in order to have them completed before starting the journey. It is important that the passenger and practitioner should take into account the interval of time that must elapse before the certificates of these operations become valid. These periods are referred to in Tables I and II. The consequences to a passenger who is not in possession of the requisite certificates may be a refusal to permit embarkation, an enforced period of quarantine at the port of disembarkation, or refusal of permission to land.

**Precautionary Inoculation and Vaccination.**—Practitioners may be asked what inoculations and vaccinations are recommended as health precautions in addition to those required by the regulations. In general, vaccination against smallpox and inoculation against the typhoid group should be recommended to any person proceeding abroad. Other inoculations need be

advised only when epidemics are known to be in progress, and this information can be ascertained from any of the publications mentioned above.

**Health Regulations for Entry into the United Kingdom.**—Passengers are required to provide certain details of their travel during the previous 14 days, and are then given a "warning card" to hand to their doctor should they fall ill within the next 21 days. The card notifies the doctor that the patient has come from abroad and may be suffering from a notifiable infectious disease, and requests him, if the diagnosis is confirmed, to notify the local medical officer of health.

**Personal Declarations of Health.**—These should be completed by each passenger before arrival at a foreign port. Their purpose is to trace the movements of passengers during the period covering the longest incubation period of the Convention diseases, which is that of smallpox—i.e., 14 days. They should be completed and signed before the aircraft lands. The steward usually distributes these declarations in ample time for this to be done.

**Medical Inspection of Passengers.**—Passengers who have been in contact with an infectious disease or who are suspected of having contracted it may be required to undergo a medical inspection followed by observation in a hospital or surveillance at their place of residence. Under the Convention their persons and personal effects may be cleansed or disinfected according to the circumstances. Passengers who present a clean bill of health and have the necessary valid certificates of immunity are not subjected to any delay for quarantine reasons.

### Clinical Details of Inoculations and Vaccinations

The following details of dosages for inoculations may be of value to practitioners. The dosages and instructions are those used in this Corporation in consultation with the Wellcome Laboratories.

(i) **Yellow Fever.**—The only vaccines so far recognized internationally for inoculation against yellow fever are those prepared by: the Rockefeller Foundation and the U.S.A. P.H. Service Laboratory, Montana, in the U.S.A.; the Wellcome Research Institution, in London; the South African Institute of Medical Research, in Johannesburg; and the Pasteur Institute, Dakar. No other vaccines have yet been accepted for the purposes of inter-

by their travel agents of the most convenient medical sources which approved yellow fever inoculations may be obtained.

(ii) **Cholera.**—Two injections are given at 10 days' interval, sisting usually of 0.5 ml. and 1 ml. respectively for adults, children under 12 the doses are 0.2 ml. and 0.4 ml.

(iii) **Typhus.**—The adult dose is three injections of 1 ml. at 7 intervals, and is used for all ages down to 12 years. From 7 years the dose is 0.5 ml., and from 2 to 7 years 0.33 ml.

(iv) **Plague.**—This vaccine is apt to cause some reaction, a given only in the presence of an epidemic or where health reactions require it. The adult dose consists of two injections at week's interval. The gradation of dosage for children should that recommended for typhoid (T.A.B.).

(v) **Typhoid (T.A.B.).**—Doses recommended for alcoholized vaccine: Adults: first dose, 0.25 ml.; second dose, 0.5 ml. Children under 12 should receive vaccine two-fifths of the full strength follows: From 6 to 12: first dose, 0.25 ml.; second dose, 0.5 ml. From 2 to 5: first dose, 0.2 ml.; second dose, 0.4 ml. The injections are separated by a minimum interval of 10 days.

(vi) **Smallpox.**—The method used is the making of one deep scratch, then applying lymph and making a second scratch through the lymph.

The interpretation of vaccination reaction may be described as follows:

Day of Vaccination	Reaction		
	Primary Vaccinia	Accelerated (Vaccinoid)	Reaction Immunity
1			
2			
3			
4			
5			
8			
11			
16-21	Papule Vesicle Pustule Scab Scab off	Papule Vesicle Pustule Scab Scab off	Papule No vesicle Rapidly fading
Immunity of individual before vaccination	Nil	Fair	Good

**Inoculation and Vaccination of Children.**—Children under 2 years of age may be vaccinated against smallpox and inoculated against yellow fever unless there are medical indications to the contrary. The remaining inoculations are not recommended for children of this age unless there is an epidemic progress or health regulations make them essential.

### Health Regulations affecting Aircraft and Crews

The same regulations apply to aircrews as to passengers. It is customary, however, for aircrews to have their health certificates always up to date in order to avoid delays and to ensure that they are available for service on any route without additional medical preparation. Airlines have their own organization for carrying out these inoculations at regular intervals.

(i) **Sanitary Measures.**—An aircraft may act as a carrier of disease in several ways. In addition to the passengers, who may be incubating human diseases, it may carry vectors in the form of mosquitoes, lice, fleas, other insects, or infected rodents. It may also carry infection in food, water, cargo, or sewage. In addition to the sanitary measures applicable to passengers there are special measures for the aircraft itself. The usual process of disinfection of the interior of aircraft and cleansing of containers and water supply present few difficulties.

(ii) **Disinsectization.**—The killing of mosquitoes or other insects known as "disinsectization" or "disinsection," however, requires special mention. This measure is required to be applied to aircraft whenever it arrives or departs from an airport in a malarious zone or a malarial district. It is best done with the aircraft loaded but without passengers or crew on board. The method employed in the U.K. for aircraft flying to India is as follows.

The interior of the aircraft is sprayed with a pyrethrin aerosol containing not less than 0.4% pyrethrins, or not less than 0.2% pyrethrins and 3% D.D.T. applied from an aerosol dispenser at a rate of not less than 15 seconds per 1,000 cu. (28.3167 cu. metres) of free air space. The dispenser used is the Westinghouse type, and the cap is removed completely during the process. All openings in the aircraft are kept tightly closed during the spraying and for a period of five minutes thereafter.

(iii) **Certificate of Disinsectization.**—A certificate of disinsectization issued under the authority of the Ministry of Health in

TABLE III

City	Address	Telephone Number	Times of Attendance
London	Wellcome Research Institution, 183-193, Euston Road, N.W.1	Euston 4668	Mondays and Fridays, 10.30 a.m.-12.30 p.m. Tuesdays and Thursdays, 4-5 p.m.
Aberdeen	City Hospital Laboratory, City Hospital, Urquhart Road	Aberdeen 2242 Ex. 11	Thursdays 3 p.m. or by prior arrangement
Birmingham	Regional Blood Transfusion Centre, 17, Highfield Road	Edgbaston 1182	Tuesdays 2-3 p.m.
Bristol	Regional Blood Transfusion Centre, Southmead Hosp.	Bristol 68021	Tuesdays 2-3 p.m.
Cardiff	Regional Blood Transfusion Centre, Newport Road	Cardiff 4521	Mondays 2.30-3.30 p.m.
Edinburgh	Bacteriological Dept., Edinburgh Royal Infirmary, Edinburgh, 3	Edinburgh 26031	Mondays and Wednesdays 2.30-3.30 p.m.
Glasgow	Public Health Clinic, 20, Cochrane Street, Glasgow, C.1	Glasgow Central 9600 Ex. 302	Fridays 2.30 p.m.
Leeds	Regional Blood Transfusion Centre, Meanwood Park Colony	Leeds 52651	Fridays 2-3 p.m.
Manchester	Regional Blood Transfusion Centre, Manchester Royal Infirmary, Oxford Road	Ardwick 3832	Tuesdays 2.30-3.30 p.m.
Newcastle-upon-Tyne	Regional Blood Transfusion Centre, 78, Jesmond Road	Jesmond 2992	Mondays 2-3 p.m.
Oxford	Southern Regional Blood Supply Depot, Churchill Hospital, Headington	Oxford 61316	Mondays 2-3 p.m.

national certificates. The vaccine must be kept at a temperature between 0° C. and 4° C. The dosage is made up to an injection of 0.5 ml. with water or normal saline for an adult. Children under 2 years receive half the normal dose. A list of official yellow fever inoculation centres notified by the Ministry of Health is shown in Table III. This list is not exhaustive, and passengers are informed



Britain, using the method described above, is accepted by the Indian Government as proof of the aircraft being "clean" in respect of yellow fever. Passengers from the U.K. in an aircraft so treated would therefore not require to possess certificates of immunity to yellow fever on entering India unless they had been in a yellow fever area within the previous nine days.

(iv) *Regulations for Aircraft Entering India.*—The Indian Government defines the sanitary state of aircraft entering India in respect of yellow fever under the Indian Aircraft (Public Health) Rules, 1946. This may be summarized as follows: (1) "Suspect" if it arrives in India from the west. (2) "Infected" if it has on board a case of yellow fever or it has not been subjected to the prescribed measures since the disposal of such a case, or if there is a person on board who has been in a yellow fever area within nine days and does not possess a certificate of immunity, or if the aircraft has come from a yellow fever area and has not been disinfected. Similar definitions are applied to aircraft in relation to the other four Convention diseases, and the special measures that may be applied are given in detail in these regulations and in Part III of the Sanitary Convention.

*Aircraft Declaration of Health.*—This is required under the Convention to give information on the sanitary condition of the aircraft and its passengers and cargo. The declaration amplifies the information formerly given in the bills of health and is analogous to the "declaration of health" now in use for shipping. It is required to be signed by the commander of the aircraft and handed to the health authority on arrival at an airport.

### Summary

The main features of the quarantine position as it affects commercial flying are briefly surveyed. If the methods employed to control the entry of disease into countries by air appear to assume an importance not hitherto known in sea or land transport, it should be remembered that practically all international flights are, from the point of view of quarantine, well within the incubation period of the major epidemic diseases.

Relaxation of health controls could only come about through a general raising of the standard of hygiene in all countries and the elimination or more effective control of pestilential diseases. Consideration might be given, however, to the standard of hygiene of airports used on international flights. The 1944 Convention gives the definition of a sanitary airport, but the standards of hygienic requirements might well be extended to include immunization of personnel serving at the airport and the establishment of a zone surrounding the airport which would be completely epidemic-free and be built to the best hygienic standards so that passengers and aircraft in transit could land without risk of infection. Such a scheme would do much to relieve passengers of the health requirements now enforced for transit passengers.

Standards similar to those enforced for immunization also require to be laid down for the disinsection of aircraft. Methods of disinsection vary in certain countries, with the result that a certificate issued at one airport on a route may not be valid for the whole route. This is a cause of much duplication of work and expenditure of materials. An agreed standard would serve to satisfy all authorities and remove a source of delay and inconvenience.

It is to be hoped that the joint consultation of the World Health Organization and the International Committee on Aerial Organization will prove a fruitful source of agreement and so permit of a reduction of the controls without loss of efficiency.

I am indebted to Sir William Tyrrell, Director of Medical Services, British Overseas Airways Corporation, for permission to publish this article, and to Colonel P. G. Stock, Brigadier H. T. Findlay, Brigadier J. S. C. Boyd, and Air Commodore J. Kyte for their kind help in preparing it.

The summer number of *Nutrition: Dietetics: Catering* (subscription for 4 issues 10s., from Newman Books, Ltd., 356-366, Oxford Street, London, W.1) opens with an address by Sir Jack Drummond on the "Scientific Approach to Food Problems During the War." He reviews the nutrient requirements of different types of workers, their deficiency in the nation's food supply, and the best food from which to obtain them. He also discusses the most suitable composition of bread. Prof. J. R. Marrack gives a general account of folic acid, and there follows a speech delivered at the Oxford Conference of Dietitians in 1945 by Sir John Boyd Orr, now Director General of F.A.O., on "The British War Food Policy and the Future World Food Policy." Other writers discuss nutrition in industry, school meals (including a short account of breakfast in Norwegian schools), and the catering system at the Radcliffe Infirmary, Oxford.

## ECONOMICS OF PUBLIC HEALTH

Dr. F. Hall chose this subject for his presidential address to the Society of Medical Officers of Health on Oct. 23.

He said that the appointment of the first medical officer of health was "a business proposition," as evidenced by the salary of £750 per annum paid to Dr. Duncan. The wealth of a nation lay in the physical and mental energy of its people, and it was not just a coincidence that in this centenary year there had been placed upon the Statute Book an Act for the establishment of a National Health Service. The administrative provisions of the Act had been noted by medical officers of health with a certain amount of apprehension and disappointment, in that the local government organizations had been given what appeared to be a minor part to play in carrying out the purposes of the Act.

Dr. Hall reviewed briefly the sequence of events which led to the Act. Public, voluntary, and private medical services had worked in close association, and especially during the recent war in matters of civil defence and in the Emergency Medical Services. The success achieved and the administrative pattern evolved probably contributed to the decision taken during the war that a National Health Service should be established.

New statutory administrative bodies had now been created, and the ease with which this had been accomplished was a striking example of the position Parliament occupied as the supreme policy-making and administrative authority. By the decision of Parliament, well-organized and apparently stable local government authorities would lose many of their health functions, and the voluntary hospital system, with its long tradition of service, passed under a new form of control. This demonstration of what was the real power in the constitution had no doubt been observed by medical officers of health with "the enthusiasm of good democrats."

The factual reports of the hospital surveyors had drawn attention to the low standards, in matters of premises and equipment, of a great many of both the voluntary and the rate-provided hospitals. They could have stated with equal truth that the responsible authorities were for the most part quite unable to face the financial burdens which the modernization of these hospitals would have involved. The transfer of administrative function from one type of authority to another neither removed the necessity for such modernization nor materially altered the cost. An alteration in the responsibility for these services would have an important effect, however, in that the expenses incurred by treating sickness in hospitals and other institutions would not be partly hidden by gifts, either of money or of service, but would appear in the nation's accounts with due publicity. Here then was an economic factor in public health which would call for renewed attention by administrators.

Efforts to make the nation "health conscious" would perhaps be more successful when public health authorities obtained a greater degree of support from the organizations and associations which represented the industrial and commercial undertakings. To make people living under slum or near-slum conditions "health conscious" was a formidable, if not an impossible, task. The evacuation of overcrowded districts during the war plainly indicated that progress in this matter had been slow and that new methods of approach should be attempted.

He had stressed the economic aspect of public health work because in the difficult times before this country it was clearly necessary that in using the scientific and financial resources which might be available certain priorities should be observed. Much remained to be accomplished, and there was no easy way of preventing ill-health. Of the measures proved useful there were some which could be carried out by central authorities, but the majority demanded local investigation and personal contact with the people, and formed the day-to-day work of public health officers. Further improvements in the productive capacity of the nation would be most profitably effected by extending and intensifying this form of activity. Many branches of medical science were involved, and team work was clearly essential.

## Correspondence

### Health Centres

SIR,—The medical profession has approved of the conception of health centres with certain provisos to safeguard the public and the medical men who may work in them. In fact the idea originated in the profession, but doctors foresaw the dangers of such centres degenerating into miniature hospital clinics or becoming the playthings of local politics or the dead ends of bureaucratic control and interference. The essential safeguards are that in any health centres the doctors working there should do so freely and by voluntary association or in partnership, and further that these doctors should either own or rent the building and major equipment and most certainly own all personal equipment, otherwise they risk becoming the serfs of Government. As Carlyle says, "Without his tools man is nothing." Another important proviso is that health centres must be made suitable to the particular locality, as obviously one in a town near to hospital facilities need not be so elaborate in scope as one in the country. The variations in size, type, and equipment must be very great, even to the inclusion in some districts of casualty and observation beds.

I have had the good fortune to work in a country practice in a mining valley in Wales, and for close on twenty years in a large partnership practice in a county town, which has in fact been run on health-centre lines. From this experience and from what I know of medical friends who practise in different types of town and country practice I am convinced that the basis on which the health centre, wherever situated, should be built up should, with moderations according to local needs, be as described below.

If possible the doctors should be in partnership and should mutually agree upon their individual shares and should own their goodwill. If a partnership cannot be formed there must be mutual agreement on the formation of the team, as no mere appointee, possibly disliked by, or unsuitable to, or unfitted to the team, should be foisted on the others by a local or central authority. Friendly team work is essential to the welfare of patients and doctors. The doctors should own or rent the building or parts thereof. Each doctor should have his own consulting room and personal equipment and be part-owner or part-renter of such major equipment as may be required. Waiting rooms should be large, comfortable, and either communal or not according to local circumstances, and there should be appropriate examination rooms, dressing rooms, minor operating rooms, and laboratory. There should be a full-time secretary in charge of the required number of assistant secretaries, receptionists, and surgery maids. The secretary should see to the organization of the secretariat, card-keeping, filing, visiting lists, calls, and appointments, etc., and keep the accounts of the team and expenses of the health centre. The secretary should be given wide discretionary powers by the medical team and owe her allegiance to the team; further, the secretary should, if possible, live in the flat above or in the health centre.

A fully trained nurse may be required in a whole-time capacity in a large country health centre. Each member of the medical team should take up a part-time specialty, so that his services are available to the team for consultation, treatment, or operations, but all should do general practice as well. Thus in a team of five one might specialize in general surgery, one in eyes, one in ear-nose-and-throat work, one in midwifery and gynaecology, and one in children's cases; and if possible each should hold an appointment in his specialty at a local or near-by hospital in order to keep entirely up to date. An agreed rota should be drawn up by the team for half-days, week-ends, holidays, second-call duty, and postgraduate work; and, in my view, in a team of four there should never be less than two on duty at any one time. Obviously there will be many times when all will be on duty.

By this means the team keeps fit and happy and able to work hard, while the patients get the benefit of this and get to know, to trust, and to rely upon the team and its members, and come to realize that they are not being let down if they cannot see Dr. A when he is away or ill, because they know and have been treated by Dr. B or C or D on various previous occasions. This family feeling and personal touch of friendship and loyalty is essential to good medical practice in these abominably materialistic days. A large team should include at least one woman doctor and, according to the locality, a medically qualified dental surgeon. Both for town and country health centres of any type consultants should be available, either for domiciliary visits or special consultations at the health centre according to need. An x-ray and pathological service could be included

in the health centre if suitable hospitals were too far away, as in mid-Wales, for example.

I am certain that along these broad lines which I have indicated health centres could be made a great success and be of immense benefit to the people, both in preventive and curative medicine, because above all the medicine of the future must be human and not merely humane. The freedom, honour, and integrity as well as the physical and mental well-being of the patients are in the doctor's hands, and if the doctor is not a free man and does not remain the arbiter between the patients and any third party then the patient is inevitably lost in totalitarian oppression. "For what shall it profit a man if he shall gain the whole world and lose his own soul?"—I am, etc.,

Reading.

S. F. LOGAN DAINE.

### Aetiology and Prophylaxis of Puerperal Sepsis

SIR,—Every throat surgeon must be particularly interested in a few of the many facets presented in the fascinating survey of "The Aetiology and Prophylaxis of Puerperal Sepsis" by Prof. Joseph W. Bigger (Oct. 18, p. 599). It is not only the throat (tonsil and pharynx) which harbours in great numbers the specific virulent strain of the *Streptococcus pyogenes*, the cause and spread of puerperal sepsis. Such a focus has long been recognized, coped with, and the danger eliminated. There remains, however, in an infected maxillary antrum (as a sole lesion or part of a suppurative pan-sinusitis) another insidious and frequently overlooked, but nevertheless a recurrent, source of the virulent causal organism. The pharynx is merely the catchment area of the nasal passages, which are continually polluted from the cesspool of streptococcal pus in the antrum. The infection persists for a period far beyond that of any acute transient primary throat streptococcal lesion. Some years ago, in discussing puerperal sepsis with a colleague, he informed me that in every necropsy performed by him where the cause of death was infection after labour or a septic abortion he had never failed to find pus in the maxillary antrum.

The maxillary antrum is a cavity in which pus can be easily overlooked, a fact attributable to the mildness of the symptoms an empyema there commonly produces. The complacency with which such a condition once diagnosed is left untreated is staggering. This suppurative lesion appears to have received a special dispensation from the universal surgical rule of *ubi pus, ibi evacua*. The infected antrum case is permitted to remain ambulant, and probably untreated, to constitute a far more dangerous streptococcal "throat" carrier. The throat surgeon should also read with interest, profit, and admiration of the stringent precautions adopted to prevent the entry and outbreak of infection in the obstetric wards and of the great and sustained success achieved—a high standard taken for granted by contemporaries.

Those to whose lot it falls to supervise any large and busy ear-nose-and-throat surgical ward soon become only too familiar with the unpleasant regularity with which a dangerous form of spreading cross-infection rears its ominous head—an infection conspicuous by its absence when similar cases are nursed in a single room. The designers of the ear-nose-and-throat ward in the new era would do well to ponder on Prof. Bigger's remarks that "the ideal method of avoiding case-to-case transfer of infection is to provide a separate room for each woman admitted." Such an arrangement would go far to control at its source the spread of any infection.

General wards for surgical E.N.T. patients should find no place in the hospital of the future. If at all necessary the wards should be designed solely to house convalescent patients. For over twenty years I have stressed the inherent dangers of performing operations such as removal of tonsils and adenoids, submucous resection of the nasal septum, and, more recently, the fenestration of the labyrinth on patients housed in a large busy ear-nose-and-throat ward. Operative morbidity and serious complications are rife especially at certain seasons of the year, and many such an operation of convenience is but the prelude to a period of pyrexial anxiety terminating in a subsequent emergency operation for a dangerous infective complication. If the measures of prophylaxis against hospital infection described by Prof. Bigger are adopted in the ear-nose-and-throat wards of the new hospitals which are to arise phoenix-like from the ashes of the old, this stigma of recurrent epidemics and cross-infection should be a thing of the past. But the price of success will be constant bacteriological vigilance.—I am, etc.,

London, W.1.

N. ASHERSON.

### Bornholm Disease in the South Pacific

SIR.—Drs. W. M. Jamieson and D. M. Prinsley (July 12, p. 47) state that they are aware of only one previous report of an outbreak of Bornholm disease in the Tropics (McDaniel, 1944). Two epidemics of Bornholm disease occurred in South Pacific islands, one in Tonga and the second the following year in the Cook Islands. Tongatabu, the main island of the Tongan Kingdom, lies in about 20 degrees south latitude. It is a low coral island and, although within the Tropics, the climate is not excessively hot nor is the rainfall great. The hottest months of the year are January to March.

In February, 1946, the first case of Bornholm disease was brought to the hospital. This was a Tongan boy, aged 10 years, who collapsed on the road. The Tongan medical practitioner who first saw him suspected an acute abdominal emergency because of pain, tenderness, and rigidity of the right side of the abdomen. Examination showed that the signs were more marked in the upper right quadrant and that they lessened on passing down to the right iliac fossa. The temperature was 101° F. (38.3° C.) and there were no physical signs above the diaphragm. A tentative diagnosis of Bornholm disease was made, and the subsequent progress confirmed the diagnosis. This proved to be the starting-point of an epidemic which affected from 20% to 40% of a population of 16,000 people, mostly Tongans. The European population in Tonga is small, but they suffered equally with the native population.

The clinical picture did not differ from the classical description—sudden onset with diaphragmatic pain and fever. In a fair proportion of cases shoulder pain was noted, and in some here were also abdominal pain and chest pains. The temperature range varied, but readings of 104° F. (40° C.) were not uncommon. The acute stage generally lasted two to three days and recovery was rapid and complete. There were no deaths, no complications, and no sequelae. The epidemic lasted about four weeks in Tongatabu. It spread to other islands of the Tongan group. Reports from several of the out-stations mentioned numerous cases of "influenza with pleurisy." These were obviously cases of Bornholm disease.

So far as could be ascertained, none of the Tongan medical practitioners had ever seen or heard of similar cases, so that within recent times Bornholm disease, at least in epidemic form, has not occurred in Tonga. Tonga has free communication with the outside world by a regular monthly steamer from New Zealand. There is also a plane service from New Zealand, via Fiji, and occasional cargo boats from the Pacific coast of North America.

The second epidemic occurred in Rarotonga, the main island of the Cook group. Rarotonga lies about 600 miles due east of Tongatabu and in the same latitude. The rainfall is higher than in Tonga and the climate is warmer, although for a tropical island it is not excessive. The first case of Bornholm disease to be seen occurred early in January, 1947, but it was not until late in February, 1947, that the disease became epidemic. By the end of March the epidemic had burnt itself out. Clinically the cases seen were similar to those seen in Tonga the previous year, and the course of the epidemic resembled that of the Tongan epidemic. Rarotonga is served by a steamer from New Zealand and also by a weekly plane from New Zealand, which calls at Fiji, Tonga, and W. Samoa on the way. One of the native medical practitioners remembers a few cases of "pleurodynia" some years ago, but there is no record that the disease was ever epidemic.

Puka Puka is the most isolated of all the Cook Islands. It is situated in latitude 11 degrees south and is visited only once or twice a year. Puka Puka, or Danger Island, is a low coral atoll. At the end of March, 1947, the Resident Agent reported by radio an epidemic, described as "gastric influenza," which swept through the three villages on the island and finally died out in three weeks. There is no trained person on this island and it was difficult to get an accurate description of this sickness. The prominent symptoms appear to have been sudden onset, pain in the epigastric region, and fever. Mostly young people were affected, and recovery was complete in three days. The point of interest is that no ship had visited this island since October, 1946. This sickness may or may not have been Bornholm disease, but whatever the nature of the epidemic it is

hard to understand how it could have originated after six months of complete isolation from the rest of the world. Could the infective agent remain dormant for so long a period or could it arise spontaneously?—I am, etc.,

Rarotonga, Cook Islands.

FARQUHAR MATHESON.

### Anaesthesia for Head and Neck Surgery

SIR.—Dr. J. G. Bourne (Oct. 25, p. 654) has drawn attention to the use of *d*-tubocurarine chloride as an aid to endotracheal intubation. That *d*-tubocurarine chloride removes many of the difficulties associated with oral intubation cannot be doubted and has long been recognized, but I would question his method of administration. I agree with him that "it is difficult to predict the approximate dose of curare that is required for any individual." But emphatically the solution to this difficulty is not to give 20 mg. "quickly in one injection immediately after the thiopentone." Individual variation in the reaction to a given dose is characteristic of this drug, and more than one case of apparent idiosyncrasy has occurred. The single injection of 20 mg. into an anaesthetized patient seems therefore an unjustifiable procedure.

To render the administration as safe as possible Dr. John Halton and I have for long advised the following procedure. (1) The intravenous injection of a test dose of "tubarine," usually one-third of the estimated initial dose, followed by a pause of at least two minutes. The normal reaction of a healthy adult to this small dose (usually 5 mg.) is a sensation of heaviness of the eyelids, very occasionally diplopia, and little else. Anything in the nature of ptosis which *cannot be voluntarily controlled* is an excessive reaction indicating the need for caution in the further administration. (2) In the presence of a normal reaction the injection of the *d*-tubocurarine chloride is completed and followed immediately by (3) the dose of thiopentone. The induction of anaesthesia by this method has been carried out on many hundreds of patients, none of whom have complained of any unpleasant sensation before going to sleep.

The initial test dose has always given valuable information of the range of dosage likely to be required, and the administration of the *d*-tubocurarine chloride before the thiopentone produces a synchronization of the maximal effects of both drugs. This probably accounts for the fact that I have never had the slightest difficulty in intubating after 15 mg. of tubarine and 0.5 g. of thiopentone, a dose of each considerably less than appears to be required by Dr. Bourne.

I am glad that Dr. Bourne emphasized the need for full oxygenation of the patient after the induction prior to intubation. This gives added relaxation and, as he stresses, a little more time for introducing and fixing the tube. One wonders, however, whether the use of *d*-tubocurarine chloride is really required for operations of this type. In the average patient endotracheal intubation under vision can be performed rapidly and very satisfactorily under thiopentone and a local spray alone, and it appears to me that the upset of the respiratory function caused by *d*-tubocurarine chloride is unjustified for these comparatively superficial procedures.—I am, etc.,

Liverpool.

T. CECIL GRAY.

### Duodenal Ulcer and Priority Foods

SIR.—On more than one occasion attention has been called to anomalies in the schedule of diseases governing the issue of priority certificates. With one notable exception the schedule seems just and reasonable, but I am more and more appalled by the colossal amount of milk and eggs that is squandered upon patients with duodenal ulcer by granting them 2 pints (1.1 l.) of milk a day and priority eggs. In the course of a year the milk so cast upon the waters would probably float a battleship (albeit one of a pocket variety). In the schedule, I. D. includes gastric, duodenal, and anastomotic ulcers. Few would grudge priority to those with gastric and anastomotic ulcers, as their symptoms are more frequent and severe, and moreover in point of numbers they are relatively far fewer. The incidence of duodenal ulcers is very high. It has, indeed, become a somewhat popular malady—and no wonder!

Now, if there is one thing more constant than another in the practice of medicine it is the long intervals of complete freedom

from all symptoms enjoyed by patients with chronic duodenal ulcers. Surely there would be a large measure of agreement that there is no need for a patient, even during an acute phase of his duodenal, and far less during a chronic phase, to live exclusively, or even largely, upon milk and eggs. As a rule they can and do have a varied and extensive diet, and many of them are well covered and might reasonably be described as "comfortable" in appearance. If an exclusively milk-and-egg diet continued for, say, a year would cure their ulcers, it might justify such lavish awards, but we know perfectly well that it would do nothing of the sort. Furthermore, the schedule says "duodenal ulcer," not "acute duodenal ulcer," and we know that in the long intervals of freedom from symptoms the ulcer has rarely, if ever, permanently healed except where surgical measures have been adopted, and so all those who have at one time or another had an established ulcer may reasonably claim to come into the category. Indeed, as most of us know to our cost, once the patient's course has been set upon the "milky way" it is almost impossible to set a limit upon it. No infant was ever so difficult to wean as the men (they usually are men) who appear so regularly at three-monthly intervals for their certificates.

At this time of stringency to continue to grant 2 pints of milk a day and priority eggs to the duodenal ulcers, apparently in perpetuity, seems out of all proportion in the national economy and devoid of common sense. I believe that if duodenal ulcer was removed altogether from category I. D. it could be dealt with justly and adequately under II. C., and priority in eggs could be allowed during the relatively short acute stage. In this way I am confident that the scanty allowance for the general public could be appreciably improved.—I am, etc.,

London N.W.7.

A. H. MORLEY.

### The Extent of Neurosis

SIR,—Patients with functional rather than organic illness, it is commonly estimated, constitute from one-third to two-thirds of the claimants for general practitioners' attention. Considerable help towards the solution of their problems could be given by general practitioners' regularly devoting two afternoons a week to four or five patients for whose illnesses no materialistic interpretations suffice. It would quickly be evident that therapeutic listening alone produces effects, and further discoveries would follow in due course. Some more experienced colleague might before long be consulted, as psychotherapy has its effects on doctors as well as on patients. Observing the emergence of his patients' problems, the practitioner might find himself confronted by previously unrecognized problems of his own. But from the start any practitioner sufficiently concerned with the welfare of sufferers from functional illness would be satisfied that his time was well spent.

In support of this proposition, brief notes of six patients with whom in all fifty-six hours were spent are submitted.

### CASE REPORTS

*Case 1.*—Mrs. A, in her thirties, three months pregnant, complained of attacks of terror at night, with palpitation, following the birth of her fourth child. "I shot out of bed, rampaged round the house, not knowing what to do with myself, then got back to bed shaking and feeling that I was passing right out," she said. In the course of eight one-hour consultations the terror turned to nightmares, and the nightmares to memories and sweet dreams. Her exposure of herself to her when aged 6, and her father's death, her uncle's occasional drunkenness, and the general tenor of her miseducation had persuaded her that men such as her worthy husband did terrible things to women. But she is now radiantly enjoying the fifth terrible result of what men do to women. And her four children are finding life easier.

*Case 2.*—Mrs. B, in her twenties, with one infant, complained of heart attacks and fainting, for which she had earlier been invalided out of the Land Army. After eleven interviews her husband was wondering what had been done to transform his wife from a shrinking girl into a vigorous young woman. Mainly we had discussed her dreams and her ideals. She had been much attached to her churchwarden father.

*Case 3.*—Mr. C, in his thirties, had been rejected from the Army owing to essential hypertension. He could not stop worrying about his high blood pressure, which was 190/110 at his first interview. At the start of his seventh interview his B.P. was 138/95. He had been left alone in an air raid at the age of three, and had other sources of anxiety.

*Case 4.*—Mr. D. had been in the Army from 18 to 24 and had a lot to tell of his experiences. He was suffering from headache, poor sleep, inability to hold down jobs, and marital troubles. He told his tale, and felt a great deal better after ten discussions. Shooting of prisoners by his N.C.O. had not helped him.

*Case 5.*—Miss E, aged 20-odd, was suffering from tantrums, headaches, backache, and bedwetting. Her mother had died three years earlier and her father had remarried. Her place in the home the spoilt eldest child was gone for good. After eight interviews accepted this. Then she dreamt of a fortified breast-shaped island sinking into the sea, and her complaints forthwith ceased, and became a little less attached to her elderly boy friend.

*Case 6.*—Mr. F, in his forties, complained of recurrent eczema of the face. This particularly irritated him whenever he was wrong. He was also troubled by a very strict sense of right and wrong, childish origins of which we investigated. He began to see black and white were not the only colours in the world, and ceased, after twelve consultations, to suffer from irritation of flushed face.

These six cases are culled from some fifty to whom, in course of an initial year of psychotherapeutic endeavour combined with general practice, over 1,000 hours were devoted, further six patients conspicuously failed to derive apparent benefit from prolonged attention. Encouraging responses have come from the majority of the remainder, but this is sufficient exposure of the bare bones of some benefits to be derived from psychotherapy.

It has been long known that much may be done by a passionate inquiry into the lives of sufferers from functional illness and by dispassionate discussion of their problems, still general practitioners' surgeries remain crowded by men and women in need of understanding who get medicines and pills. This is no new problem, but it bears repetition as long its existence is at all ignored or denied. Sufficient recognition of its existence will, as is the case with patients' problems, do much towards reducing its deleterious effects.

Grateful acknowledgments are made to Dr. E. Grafton-Howe for his help and encouragement.—I am, etc.,

Ruislip, Middlesex.

WILLOUGHBY CLARK

SIR,—It is to be hoped that Dr. H. Crichton-Miller (Oct. p. 669) will not be prevented by "limits imposed by a letter in elaborating his ideas on the prevention of neurosis. His theme should be emphasized on all possible occasions until it may sink into the mentality of politicians and statesmen. It was under the stimulus of "fear" (in the psychologist's sense of the word) that the human race has evolved, and fear in one form or another has been responsible for most of the advances which human hands and brains have achieved. When the stimulus of fear is removed and milk-sop sociological ideas substituted, the poor moron is removed from his true place in the fringe of the herd and becomes the spoilt boy of his group and, alas, too often the pet of his doctor.

Under the more robust ideas of the pre-Socialist age human riff-raff was taken at its true worth to the herd. To it too often becomes the group standard above which none may aim (500 bricks a day). "Freedom from fear," with its fellow slogan "Safety first," may well become the mottoes of our so-called decadence.—I am, etc.,

Alverstoke, Hants.

W. H. EDGAR

SIR,—Why does Dr. H. Crichton-Miller (Oct. 25, p. 669) suggest that Socialism eliminates fear? In a *laissez-faire* economy fear was certainly present as he suggests, but in experience it is far from absent in such services as may be described as socialized. In local government, in municipal hospitals, in the fighting Services one sees quite a lot of fear of getting a bad mark, of not being in favour with superiors, and fear of responsibility, fear of employers' unions. If things come to such a pass that those who have the favour of the "machine" have lost their chance of employment, which is not impossible, then fear will be augmented. The simple-minded may be inclined to put their trust in the State. But do we find the State as honourable in its dealings as we would like to be ourselves? I think not. And if we cannot trust the State we experience fear.

There seems much to be said for maintaining a society in which those out of favour are not unduly penalized. But so trade unions think differently, and so do the rulers of Russia.

Many Russians in my care during the war, even those who had been wounded before capture, awaited their return home with extreme terror. Why?

I agree that social security, whatever it may mean, has tended to reduce effort for the reasons advanced by Dr. Crichton-Miller. Many economists suggest that the economic basis for this social security is crumbling, so we may soon see the next phase developing.—I am, etc.,

Barnet, Herts.

G. C. PETHER.

### Prognosis of Pleural Effusion

SIR.—Dr. Brian C. Thompson's reply to Dr. J. D. L. Reinhold's letter (Aug. 30, p. 348) prompts me to add my views on the point at issue in this important correspondence. A study of my cases in private and hospital practice during the last eight years goes to support Dr. Thompson's statement that "there was no evidence that differences in treatment of the original pleurisy affected the subsequent incidence of pulmonary tuberculosis." The study brings out two points conspicuously:

(1) The subsequent development of pulmonary tuberculosis is more common in those who show a "tuberculous diathesis." The latter can be recognized clinically to some extent from the history of tuberculosis in the family, relatively low weight, inelastic skin, dry hair, pallor, easy fatigue, "phthisical" configuration of the chest. Such persons are often styled by laymen as of "delicate constitution."

(2) Rest and sanatorium line of treatment have no effect on the prognosis. Under Indian conditions patients of pleural effusion, when afebrile and free from respiratory embarrassment, have to work with fluid still in the pleural cavity. They cannot afford to take rest till, as Thompson writes, "their blood sedimentation rate becomes normal." Under these conditions many have not developed pulmonary tuberculosis for over five years. Two female patients had one and two deliveries during this period, in spite of medical advice, without untoward effect. One patient who had effusion on one side and subsequently on the other is quite well and working now three years after.

This has been my impression based on clinical experience but unsupported by statistical data. I have come to believe that development of pulmonary tuberculosis subsequent to pleural effusion depends mainly on the "soil" and the resistance of the patient, to less extent on the environment and conditions of life of the patient, and to a negligible extent, if at all, on the rest and sanatorium treatment as held by Drs. Reinhold and Coope.—I am, etc.

Poona City, India.

P. L. DESHMUKH.

### Early Diagnosis of Tuberculous Meningitis

SIR.—A patient was recently admitted for streptomycin treatment of a tuberculous meningitis only after he had been retained one week in another hospital because the chlorides in the cerebrospinal fluid (C.S.F.) had been found to be 0.72% and the diagnosis of tuberculous meningitis, to which other facts pointed, had consequently been rejected. A clear answer seems to be needed to this question: Given a patient with a meningitic picture whose C.S.F. shows a moderate pleocytosis, does a knowledge of the C.S.F. chloride level materially help to distinguish those cases suffering from tuberculous meningitis?

The chloride levels of the first specimen of C.S.F. examined in 52 cases of tuberculous meningitis, 8 cases of benign lymphocytic meningitis, and 10 cases of anterior poliomyelitis (all children) were as follows:

C.S.F. Chlorides	Tuberculous Meningitis Cases	Benign Lymphocytic Meningitis Cases	Acute Poliomyelitis Cases
0.70% or over ..	11	5	10
0.65-0.69% ..	23	3	—
0.60-0.64% ..	18	—	—
Total ..	52	8	10

It is seen that in 1 in 5 cases of tuberculous meningitis the C.S.F. chloride level was not lower than normal, while in nearly half the cases the chloride level fell within the zone of slight reduction (0.65-0.69%) in common with several of the cases of lymphocytic meningitis. In only a third of the cases of tuberculous meningitis was the chloride level substantially reduced

(0.60-0.64%), and in none did it reach the level of 0.59%, which is accepted as diagnostic of the condition. Thus, while a substantial lowering of the C.S.F. chloride level to 0.64% or less would, under the circumstances postulated, favour a diagnosis of tuberculous meningitis, the finding of a normal C.S.F. chloride level should in no wise argue against tuberculous meningitis.

All in all, I suggest that the time devoted by a clinical pathologist to an estimation of the C.S.F. chlorides would be more profitably spent in a search for acid-fast bacilli.—I am, etc.,

Newcastle-upon-Tyne.

DOUGLAS GAIRDNER.

### Reiter's Syndrome

SIR.—As Reiter's syndrome occurs apparently mainly in young adults, I may be permitted to put the following case on record.

On July 23, 1945, an engineer, 55 years of age, consulted me for a purulent urethritis. No gonococci were found in the discharge. On Aug. 3, after 20 g. of sulphathiazole had been given, the discharge had practically ceased, and the smear contained only epithelial cells; but by that time the patient had a bilateral purulent conjunctivitis, again without gonococci in the smears.

On Aug. 10 the eyes were nearly normal, but he then had a painful swelling of an interphalangeal joint of the right foot, which took about 10 days to disappear. On Aug. 15 he started to complain of pain across the shoulders and in the lumbar region, without any obvious pathology, possibly due to a spinal arthritis.

He then went to his home in the North of England, and told me on his return that those pains did not leave him completely for more than two months. In the North a film of his spine was taken in which no changes were seen. He had no diarrhoea either before or during his illness.—I am, etc.,

Harrow Weald, Middlesex.

ALFRED LETICNER.

### Safer Administration of Intravenous Anaesthetics

SIR.—A method for increasing the safety in administering intravenous anaesthetics consists in giving the patient oxygen to inhale for two or three minutes before and during the administration of the intravenous anaesthetic. It is, in my opinion, particularly indicated in patients over 60 or ones who are sub-normal risks.

The rationale of this method is as follows. With most intravenous drugs given for anaesthetic purposes, and particularly with thiopentone, one is struck by the initial and severe depression of respiration that occurs. It is, I think, inevitable that some degree of anoxaemia must ensue, and it is this factor that endangers the patient. In many patients, particularly the elderly, in whom alarming symptoms are most likely to occur with these agents, there is the factor that their lungs have lost their full efficiency and that oxygenation of the blood is neither so quick nor so easy to bring about by the usual methods. If, however, one makes certain that the respiratory system is flooded with a high percentage of oxygen before this period of respiratory depression; then the period will do little harm.

In actual practice I have found that to all appearances my hopes have been justified; the patients have kept an excellent colour and there has been no cause for worry. Occasionally the patient has been told that "he won't have anything put over his face to put him to sleep"; then I assure him that what I am giving him to inhale will not put him to sleep but will help.—I am, etc.,

London, N.W.7.

D. C. CLARK.

### Morphine in a Patent Medicine

SIR.—I should like to comment on the medico-legal note which appeared in your issue of Sept. 27 (p. 511), and referred to the death of a 2-year-old child after taking a patent medicine containing morphine. I gave evidence to the effect that the bottle when full contained just under 1 gr. (65 mg.) of morphine, but according to the *Daily Mail* (June 25) the manager of the firm which manufactures the medicine denied this, alleging that each bottle contained 0.432 gr. (28 mg.). In point of fact the incriminated bottle when full would contain 6 oz. (170 ml.) of fluid and as the concentration of morphine was 0.033% (as stated on



the label) this would work out at just under 1 gr., which is the amount I quoted in my evidence. I have had this checked independently by two chemists. I contacted the manager of the firm and he alleged that the *Daily Mail* had misquoted him. However, he told me that they have now suspended the sale of the preparation.

One further point. Your medico-legal correspondent refers to the Dangerous Drugs Regulations 1937 (S.R.O. 560), which allow the free sale of preparations, etc., containing not more than 2.5% of methylmorphine or ethylmorphine. This is correct, but surely does not apply in this particular case, as the medicine in question actually contained anhydrous morphine, so that the maximum concentration in an inert substance could not contain more than 0.2% in order to be sold freely to the public (*The Chemist and Druggist Year Book*, 1947, p. 339, para e).—I am, etc.,

Manchester.

PAUL B. WOOLLEY.

### Dicoumarol

SIR,—In the annotation (Oct. 25, p. 662) on dicoumarol it is stated: "The prothrombin time is kept at one and a half times the normal value by means of daily doses of 100 to 300 mg. dicoumarol." Earlier it is stated that dicoumarol therapy should be continued for a month at least. Dicoumarol is a very valuable drug, very effective and quite safe if carefully controlled. However, to recommend that 100 mg. to 300 mg. should be given daily for at least a month—even with daily prothrombin estimations as controls—is courting danger.

It would be much safer to recommend 300 mg. a day for two days, then wait for the prothrombin time to lengthen and give no more dicoumarol until the prothrombin time has shortened nearly to normal; this may take ten days. The renewal dose of dicoumarol may be quite small, 25 mg. or 50 mg., and the reaction to the renewal dose will be much greater and more rapid than to the initial doses. There is danger of discrediting a very useful remedy unless dicoumarol is used with great care.—I am, etc.,

Epping, Essex.

FRANK MARSH.

SIR,—The annotation on dicoumarol (Oct. 25, p. 662) prompts me to make certain points which would appear to be of vital importance to those proposing to use that drug.

(1) With levels of dosage of dicoumarol similar to those mentioned by your annotator a sharp rise of the prothrombin time is seen to occur at any time between the 12th and 24th days of therapy. If therapy is discontinued at this time, it is my experience that the prothrombin time not only takes three or four days to fall to safe levels, but may rise alarmingly during those days. It would appear that a cumulative effect of the drug occurs, an effect which constitutes the main danger of dicoumarol, for it is impossible to prognosticate how high the prothrombin time will rise in any given case. It is surprising that more is not made of this cumulative effect in the British or American literature.

(2) Your annotator states that haemorrhagic manifestations may be treated with 50 to 100 mg. of vitamin K intravenously with blood transfusion. A case of my own was under treatment with dicoumarol for post-operative venous thrombosis; 300 mg. were administered on the first day followed by 100 mg. daily. After nine days' treatment the dicoumarol was discontinued, as the prothrombin time had reached 32 seconds. In the next six days one 50-mg. dose of the drug was given to prevent a return to more normal levels of the prothrombin time. This dose should not have been given, as there were red cells in the urine. Six days after the end of the main course, and three days after the 50-mg. dose, the prothrombin time reached 46 seconds and severe haematuria developed. Vitamin K was administered on this day and for the following five days, at a rate of 150 mg. orally per diem. On the first two days of vitamin K therapy 1 pint (568 ml.) of blood was administered. Haematuria remained profuse for two days, diminished on the third day, and was absent from the fourth day. The prothrombin time did not fall until the fifth day, when it fell abruptly to 22 seconds and thereafter to normal levels. This experience strongly suggests that those using dicoumarol should bear in mind that a rapid response to vitamin K and even blood transfusion cannot be counted upon when dicoumarol therapy has produced dangerously high prothrombin times.

(3) Your annotator states that the prothrombin time should be kept at one and a half times normal during dicoumarol therapy. As Allen<sup>1</sup> has shown, it is not adequate to control the therapy by prothrombin times alone. Allen has shown that venous thrombosis is unlikely to occur if the prothrombin percentage is less than 30% of the patient's normal and that 10% of the patient's normal is the critical level for haemorrhagic manifestations. The control should be by prothrombin percentages, which can be obtained from the prothrombin time by the method described by Allen. The margin of safety in dicoumarol therapy is so narrow that any attempt to simplify the control methods is liable to be fraught with grave danger and should be regarded with grave misgivings.—I am, etc.,

Mauchline, Ayrshire.

GAVIN CLELAND.

### REFERENCE

<sup>1</sup> Allen, E. V., *Quart. Bull. Nthw. Univ. med. Sch.*, 1946, 20, 1.

### Nicotinamide and Blood Sugar

SIR,—I have been interested in the recent article by Dr. J. N. Cumings (Oct. 18, p. 613) on nicotinamide and blood sugar, in which he refers to investigations carried out by me in 1943. It is indeed surprising that such discrepancies in experiment and medical observation can arise, but in Dr. Cumings's work it is certain that many well-established observations on the action of insulin have been overlooked. It is always difficult to adjust curves so that they start from the same level, but in this particular investigation care should have been taken to start from a lower level, for it is well known that the higher the blood sugar the greater the action of insulin. The latter is naturally taken as the deciding factor in the abstracting mechanism of sugar from the blood. The similarity of the curves obtained suggests that the relationship between nicotinic acid amide dosage and its effect was of the same nature in all four subjects. What has not been taken into account is the nature of those factors which so uniformly modified the results in contradistinction to my own.

One may regard the action of nicotinic acid amide by analogy with insulin as the resultant of two opposing forces—viz., the action of the sugar-abstracting mechanism and the glycogenolytic mechanism liberating sugar into the blood. If a level of 105 mg. % is regarded as the uniform fasting level of all individuals tested, then there is after half an hour an abstraction of sugar of 12 mg. %. After one hour there is a rise in the curve by the addition of 5, after one-and-a-half hours of another 5 mg. %, and at the end of two hours sugar is again abstracted from the blood by 14 mg. %. Thus in Cumings's curves, where the fasting level is high, the first sign that the fall of blood sugar is opposed is shown (probably in all four experiments) by a rise in blood sugar after one to one-and-a-half hours, a sign that the raised activity of a surplus of insulin is at once masked and counteracted by a compensatory supply of sugar from the liver into the blood. Otherwise why should there be first an abstraction and then an addition of sugar? For this reason all subjects should have been allowed to settle to a more physiological fasting level on a strict diet before experiments started. It is also suggested to compare the result of smaller doses of injected nicotinic acid (not nicotinic acid amide) and ingested nicotinic acid amide—i.e., 100–300 mg.—to avoid if possible, or to lessen the reaction of, the opposite mechanism. Individual reactions to nicotinic acid vary as they do with insulin, and before larger doses are given smaller ones would ascertain individual reactions to the drug.

The practical value of nicotinic acid in certain cases of elderly diabetes is in my opinion unequivocal, and every case should be first tested as to its response over a period of one to two weeks in varying doses before any other measures are resorted to.—I am, etc.,

Rochdale.

F. J. NEUWAIL.

SIR,—I was very much interested in the article by Dr. J. N. Cumings (Oct. 18, p. 613) and in his negative findings of the effect of nicotinamide (N.A.A.) on the blood-sugar levels in normal controls and in diabetic patients. In spite of these negative findings I feel that there is something in this subject that has not yet been explained, and my clinical experience of two cases in which there has been without doubt some benefit

apels me to suggest that some further research would possibly throw some new light on a treatment which is in some danger of being discredited.

My first case was one of undoubted diabetes mellitus. The patient, a woman aged 67, consulted me on June 9, 1947, because of an intolerable pruritus vulvae which she had had for a fortnight. There was an associated very severe vulvitis. There had been, she said, a sore tongue and mouth a month before. Examination of the urine disclosed a large amount of sugar, and a glucose tolerance test proved this to be due to a diabetic condition (0.18%, 0.3%, 0.33%, 0.28%, 0.28%). I took her to see a consultant, who suggested taking her into hospital for investigation and for the institution of insulin treatment if this was found to be necessary. While waiting for admission to hospital, with a delay of probably a month, the patient was temporarily put on diet. All local treatment of the pruritus and vulvitis had failed to give any relief or effect any improvement either before she was put on diet or for a fortnight afterwards.

I then decided to try the effect of N.A.A. She was given 100 mg. d.s. The urine was carefully watched. No improvement in the pruritus or vulvitis or in the amount of urine sugar was noticed for one week. Then the effect was dramatic. Sugar disappeared from the urine, and the vulval condition completely cleared up in three or four days. There has been no recurrence of either since then. About a month after the commencement of the N.A.A. a florid rash appeared on various parts of the body, but was heaviest on the arms. This was very irritable indeed. She had complained some time previously of tingling of the fingers and a burning sensation in the skin. On the appearance of the rash I stopped the N.A.A. completely for the time being, and it was withheld for one week. No sugar appeared in the urine during this week. When the rash had faded, the dose of N.A.A. was reduced to 50 mg. t.d.s., and she was kept to this dose since with the exception of the last three weeks, when she decided to take none at all to see how she fared without it. No sugar has appeared in the urine during these three weeks. Further, she states that her general health has improved, that she has gained several pounds in weight, and that increase in her carbohydrate intake has not caused any appearance of sugar in her urine or caused any pruritus. When a bed was available in the hospital she refused to be admitted, saying that she was quite better and that, as she had no symptoms and no sugar in the urine, she saw no reason to do so. She has also refused further blood tests for the same reasons.

The second case was that of a man aged 49. Eighteen months ago sugar was found in his urine, and a glucose tolerance test gave perfectly normal findings. Apart from being about 2½ stones (16 kg.) above normal weight he was otherwise normal. He was advised to reduce his weight, and he was put on a strict diet. Sugar was constantly present in the urine on this diet and would only disappear when the carbohydrate intake was minimal. He reduced his weight to normal, but the same appearance of sugar in the urine was constantly noticed.

In June this year I put him on to N.A.A. treatment, 100 mg. t.d.s. This very soon had the effect of causing burning sensations in the skin, very troublesome tingling of the fingers, nervous instability, and, after about five weeks, the onset of the same florid rash noticed in the other case. There was no noticeable diminution of sugar in the urine in this case for the first two weeks of the treatment. A moderate intake of carbohydrate produced no urine sugar subsequently, but a heavy intake produced a small amount. After the first five weeks, the dose of N.A.A. was reduced to 50 mg. t.d.s., and this dose has been kept up ever since. For the last six weeks, no sugar has appeared in the urine no matter what amount of carbohydrate has been taken. The patient states he feels better in health, is more energetic, and there has been some increase in sexual potency. Apart from some tingling of the fingers, there have been no further untoward disturbances as a result of the taking of the N.A.A.

I am aware that only two cases are here described and that no scientific evidence has been adduced, but in spite of these drawbacks I feel that on clinical grounds a case has been made out for further trial and investigation of a line of treatment which, at least to me, appears to have some merit.—I am, etc.,

Leeds

L. GORDON.

### Road Accidents

SIR.—The "Psychological Aspects of Accidents and Accident Prevention," by Kenneth Soddy (Oct. 18, p. 623), recalls to mind a case of a young commercial traveller who used a car for business. He was suffering from a neurosis, one symptom of which was agoraphobia. The open space of a cross-road filled him with terror. He told me that, crossing, he was compelled to look neither to left nor right but to put his foot on the

accelerator and pass his symbolic nightmare as quickly as possible. I saw him twice, when our ways parted owing to the onset of the war. Does he still travel?—I am, etc.,

Ilford, Essex.

R. N. C. SMITH.

### Antihistamine Drugs for Pruritus of Jaundice

SIR.—Re Drs. R. B. Hunter and D. M. Dunlop's letter on this subject (Oct. 4, p. 547), may I point out that "antistin" (N-phenyl-N-benzyl-aminoethyl-imidazoline), now marketed by Ciba in England, was used by Schindler (1946) for seven patients with jaundice of diverse aetiology, with relief of the pruritus in six patients.—I am, etc.,

Leicester

JAMES OVERTON.

#### REFERENCE

Schindler, O. (1946). *Schweiz. med. Wschr.*, 76, 300.

### POINTS FROM LETTERS

#### Foetal Cries

Dr. J. R. EATOUGH (Preston) writes: I wonder if there is any prior record of foetal cries than that contained in *A Second Continuation of Ingulph's History of the Abbey of Croyland*, from which the following extract is taken under the year 1467. "A certain woman, in the county of Huntingdon, who was with child and near the time of her delivery, to her extreme horror, felt the embryo in her womb weeping as it were and uttering a kind of sobbing noise. The same was heard by other women who were surprised in no slight degree thereat."

Dr. ROBERT ANDERSON (Birmingham) writes: Forty years ago I heard an infant cry *in utero*. The head was at or above the brim of a contracted pelvis. I had to introduce my hand into the vagina and was conscious that air was entering alongside of it. Presently I heard a cry but said nothing. When I had delivered it the anaesthetist said, "I heard that baby cry," and the nurse said, "So did I." The baby was all right.

\* Vagitus uterinus was the subject of an article by Mr. I. M. Jackson in this *Journal* in 1943 (Aug. 28, p. 266).—Ed., *B.M.J.*

### NEW MEDICAL FILMS

#### [FROM A CORRESPONDENT]

The Public Relations Division of the Ministry of Health arranged a preview last week of two films intended for medical audiences. Both are worth seeing, and together they unintentionally provided a contrast between the American and British ways of medicine.

The American film, "Prevention of Tuberculosis in Hospitals," opened and closed with a burst of music and had a message. Mass radiography reveals evidence of unsuspected pulmonary tuberculosis in 12 per 1,000 of ordinary Americans. The corresponding figure for Americans attending hospital as out-patients or in-patients is 40 per 1,000. Therefore every hospital should arrange to apply miniature mass radiography to all its patients. This involves a production-line lay-out of the out-patient department, and simplification of the apparatus to the point at which anyone can press the button. Electronic control does everything else except change the spool after every 800 exposures. The patients are numbered. The possible interpretations of the miniature radiograph are numbered. Future action is indicated by a letter code. Numbers and letters are spoken by the radiologist in the general direction of a blonde typist. The camera lingers fondly on admission slips in quintuplicate, filing-cabinets, code numbers, and cameras, and somewhere behind all this glossy machinery is a real live patient.

The British film had no music save that which is heard through a stethoscope. There were no figures except on a sphygmomanometer. And there was one patient, a small girl, who took the centre of the screen all the time. She had a patent ductus arteriosus, which was diagnosed clinically—an old-world touch—and explained diagrammatically by a physician. Then the surgeon took over and ligated the duct. His running commentary was the kind of thing that goes on in every operating theatre. And finally there was the same small girl playing the games she had been unable to play. The message, that early diagnosis is desirable and operation at 7 or 8 gives good results, was spoken, but with so little emphasis that it was easy to remember.

## Obituary

### J. W. GEARY GRANT, F.R.C.S.

Mr. Geary Grant, consulting surgeon to the Royal Infirmary, Cardiff, died at Weymouth on Oct. 23 at the age of 81. He had been in retirement for less than a year, after having been engaged in the active practice of surgery for over fifty years.

John William Geary Grant, son of the late Admiral J. F. Grant, was a student at St. Thomas's Hospital. He qualified in 1890 and took the F.R.C.S. in 1909. He settled in Cardiff in 1913 and soon became well known throughout South Wales. In the first world war he was attached to the Western General Military Hospital at Whitchurch, near Cardiff. After the war he continued in surgical practice and in 1921 was appointed first assistant to the whole-time professorial unit established in Cardiff at that time. He was on the staff of the Cardiff Royal Infirmary for many years, and he was associated with the Treherbert Hospital; the King Edward VII Welsh National Memorial Association; Porth, Bridgend, Caerphilly, and Aberystwyth Cottage Hospitals; and Pentwyn Hospital. He was vice-president of the Section of Surgery at the annual meeting of the B.M.A. in Cardiff in 1928 and contributed a paper on acute necrosis of the pancreas, a subject in which he was particularly interested. He published many other short papers in this and in other journals.

L. C. R. writes: Mr. Geary Grant practised surgery in Cardiff for many years and was much beloved by his colleagues, friends, and patients, for his was a lovable character, invariably courteous, cheerful, and kind. When in 1921, at the instigation of Sir William Osler, whole-time professorial units were established in Cardiff and A. W. Sheen was appointed the first professor of surgery, Geary Grant became the first assistant. He was an inspiring teacher and it would have been difficult to find a more suitable man for the appointment. His mature experience was backed by a keenness for surgery which was undimmed by passing years, and he was an omnivorous reader of surgical papers of all kinds. In consequence there were few surgical questions in which he could not only quote his own experience but that of workers in many and varied clinics. When he was operating, Geary was apt to mutter strange oaths under his breath: they were barely audible and were said with the least invective and entirely without malice, and merely served to endear him all the more to his associates. He came of a Naval ancestry, being the son and grandson of admirals, and it is probable that he would have followed in their wake but for a lame leg which restricted his activities; but he had a somewhat nautical appearance, so that a distinguished stranger at a large dinner, when seated opposite Mr. Grant, once asked his neighbour who the admiral was. Geary Grant's name shines bright in South Wales and perhaps brightest of all in the memories and homes of the miners for whom he did so much, for he was on the staff of various miners' hospitals in different parts of Glamorgan and Monmouth, where the high standard of his work and the kindness and charm of his character will not soon be forgotten.

### JAMES BEATTY, M.D., M.R.C.P.

Dr. James Beatty died at Weston-super-Mare after a short illness on Oct. 16 at the age of 77. He graduated in Dublin in 1895, and afterwards in the London University with honours. Many prizes and distinctions came to him, including the gold medal in anatomy in the London M.B. He took a D.P.H. and the M.R.C.P., and for some years was in the public health service, becoming medical officer of health to Northampton. He entered the R.A.M.C. in the 1914-18 war, and subsequently made his home in Cardiff, where he specialized in dermatology. The department of dermatology at the Cardiff Royal Infirmary was initiated with his appointment as honorary dermatologist in 1923, and he was also dermatologist to the Queen Alexandra Hospital, Weston-super-Mare. He was lecturer in dermatology in the Welsh National School of Medicine, and for a long time also he lectured in pharmacology. Dr. Beatty retired from

the active staff of the Cardiff Royal Infirmary in 1937, returned to full duties when required during the recent war. He was President of the Cardiff Medical Society for 1940 and vice-president of the Section of Dermatology at the Annual Meetings of the B.M.A. in 1928 and 1934.

To many of us who knew Beatty well, he was outstanding as a man of originality, keen perception, and of wide extensive knowledge. Reading was his main relaxation, and had a store of knowledge on such diverse subjects as pharmacology, organic chemistry, ancient history, and the occult, as well as dermatology. For many years Beatty had been increasingly handicapped by failing vision, but had been able to continue his reading and his work under conditions of brilliant illumination, although for some time his vision was restricted to allow him to get about alone. His patience and perseverance in this were remarkable. Despite poor hearing and failing vision Beatty was not one to complain, and preserved an active and cheerful interest in all professional affairs. His colleagues in Cardiff deeply regret the passing of James Beatty, a man of personality and learning and a devoted member of the profession.—J. W. T. T.

Dr. CHARLES KINSMAN RAWES died suddenly after a brief illness at his home on Oct. 8, at the age of 81. A student of Owens College, Manchester, he graduated M.B., Ch.B., in 1911. He was resident medical officer at the Barnes Convalescent Hospital, Cheadle, and later at Weston-super-Mare Dispensary. He was then in general practice at Harlesden, London, N.W. where he remained for forty-four years until he retired in Harrow twelve years ago. He was a keen golfer and was captain of the Wembley Golf Club. A man of retiring disposition, he was much loved by patients and friends alike.—C. I.

ERNEST ARNOLD HODGSON HINDHAUGH, visiting assistant surgeon to Broadgreen Hospital, Liverpool, died on Oct. 5 at the age of 42. He was a student at the London Hospital, qualified M.R.C.S., L.R.C.P. in 1928, graduating M.B., B.S. the following year. He held resident surgical appointments at the London Hospital, the Royal Cancer Hospital, and National Temperance Hospital, and obtained the F.R.C.S. in 1933. Subsequently he held surgical posts at the Royal Portsmouth Hospital; the Royal Hospital, Wolverhampton; and the Road Infirmary, Liverpool. In November, 1939, he became surgical specialist in H.M. hospital ship *Amarapoora* and a distinguished service career until, in 1944, illness led to being invalided out. On his return to Liverpool he became visiting assistant surgeon to Broadgreen Hospital. Despite handicap of failing health, he was in active surgical practice until a few months before his early death. Hindhaugh served a long apprenticeship in surgery and had acquired judgement and skill: He kept meticulous records of all his cases and he was constantly striving to improve on his own standards. Of quiet and retiring disposition, he enjoyed social occasion and liked his fellow men. His hobby was music, and he obtained much pleasure from it. To his wife he brought a deep sense of responsibility and devotion which matched his surgical competence. He will be sadly missed by a wide circle of friends and colleagues, who will wish to extend their sympathy to his sister, Mrs. E. E. Allen, of Dorking, who survives him.—L. F.

Dr. LEONARD WHITE died on Oct. 11. He was a student at Westminster Hospital and qualified in 1906. After a period as house-surgeon, he settled in Mossley, Lancashire, over fifty years ago and soon established himself as a successful practitioner. Though in general practice, his main interest was pathology, and he became pathologist to the District Infirmary, Ashton-under-Lyne. Later he was appointed medical officer of the County Hospital there and remained in charge until 1941. For the last eighteen years he was medical officer of health for Mossley. He was a man of considerable culture and particularly conversant with French literature. He had wonderful memory for what he read, and he maintained interest and did a certain amount of research throughout his years as a practitioner. He equipped himself with a laboratory which was said to be unique for a man in general practice. His technique was so good that it excited the admiration of anyone who was privileged to see him work. For some years he took an interest in local politics, and for a time was a member of the town council. Among his many attainments should be mentioned his versatility as a sportsman. Dr. W.

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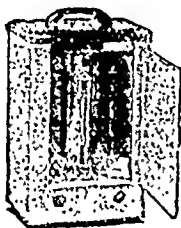
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had been in failing health for some time and had been unable to work since April. His struggle against ill-health and his calm demeanour and fortitude won him the respect of all who were in contact with him. His passing leaves a gap which will be difficult to fill. His wife, who was French, predeceased him some years ago, and he is survived by four children.—M. L. G.

Dr. CHARLES JOSEPH KIRK died on Oct. 9 after an illness which lasted for two months. He was born in 1884 near Dumbarton, and graduated at Glasgow University in 1913. As a student he took an active part in the production of the university magazine, and many of his poems appeared in that journal. He published a volume of "Clyde Ballads," and wrote several plays, one of which was produced in Darlington several years ago. After qualifying, he settled in Darlington, and during the 1914-18 war carried on single-handed a practice which had required two men to work it. He was honorary secretary of the Darlington Division of the B.M.A. from 1922 to 1925. He was chairman a year later and again in 1945-6, and he represented the Division at the A.R.M. from 1922-5 and again in 1943. In the last war he was a very active and extremely efficient secretary of the Local Medical War Committee, and everyone who came in contact with him knew that his requests would be dealt with quickly. He was also medical officer to an A.R.P. centre. As a colleague he was very loyal, as a friend he gave all he had, and as a doctor he was sympathetic and much loved by his patients. He married Alice Marley in 1917, and she survives him with two sons.—A. M.

Dr. MARY JANET DODDS, formerly a medical missionary at St. Margaret's Hospital, Poona, died at her home in Edinburgh at the age of 77 on Oct. 15. She was a daughter of the late Rev. Dr. James Dodds, of Corstorphine, and sister of a former Under-Secretary of State for Scotland, Sir James Miller Dodds. She was educated at Park School, Glasgow, Edinburgh Ladies' College, and the Edinburgh School of Medicine for Women. She took the Scottish triple qualification in 1895, and was awarded the O.B.E. in 1919 for war work in connexion with the Scottish Churches' Huts at Dregghorn, Colinton. After completing her work in India she was for some years up to 1932 principal of the Deaconess House Training College for Church of Scotland missionaries, and she later became honorary principal of the Women's Missionary College.

Dr. WILFRID WESTWOOD PHILLIPS died suddenly on Oct. 21 at the age of 59. A student of Edinburgh University, he graduated M.B., Ch.B. in 1914, and in the first world war he served as a captain in the R.A.M.C. with the Argyll and Sutherland Highlanders in France and in Mesopotamia. After holding appointments at Leicester Infirmary and at Greenbank Hospital, Darlington, he went into general practice in Twickenham, Middlesex, and Isleworth, where for some years before his retirement, in December, 1945, he acted as district medical officer of health and public vaccinator. Since then he had been living quietly in Yorkshire.

Dr. FRANK RADCLIFFE, of Dedham, Essex, formerly of Oldham, died at the age of 75 on Oct. 19 after a long illness. Dr. Radcliffe graduated M.B., Ch.B. at Owens College, Manchester, in 1894, and proceeded M.D. three years later. As a student he won the Bradley Memorial Scholarship in Clinical Surgery, and after qualifying he acted as prosector and assistant demonstrator in anatomy at Owens College. He had studied midwifery under Tweedie at the Rotunda, and he was a house-physician at the old Manchester Royal Infirmary when it was still in Piccadilly. He acted as a ship surgeon on one of the "Blue Funnel" liners, visiting the East Indies before settling in Oldham. There he was a visiting surgeon on the staff of the Oldham Royal Infirmary until his retirement at the age of 60, and he was also visiting surgeon to the Boundary Park Hospital. He took a prominent part in the local and central activities of the B.M.A. for many years. He was secretary of the Oldham Division for a long period, and he was a member of the Oldham Panel Committee from 1917 until 1932. He had been a member of Council from 1920 to 1934, and he represented the Division at the A.R.M. on nine occasions. He did particularly valuable work on the Insurance Acts Committee, the Public Health Committee, and more recently on the Hospitals Committee. Oldham has long had a reputation for sturdy independence in medical affairs, and Dr. Radcliffe, a hard-headed Lancashire man, ably maintained this tradition. His views on financial matters were always useful, and he was a most efficient Divisional secretary. After his retirement he went to live at Dedham, where he became a member of the Lexden and Winstree Rural District

Council and took part in other local activities. During the war he was interested in A.R.P. work, and was a surgeon to the local St. John Ambulance Brigade. He was a J.P. for the County of Lancaster for many years. He is survived by his widow, who was a daughter of the late Samuel Dronsfield, two sons, both in medical practice, and two daughters.

The Reverend COURTENAY CHARLES WEEKS, who died on Oct. 26 at Pershore Cottage Hospital after a long and trying illness, was a student at University College Hospital and qualified M.R.C.S., L.R.C.P. in 1895. On the outbreak of the 1914-18 war Dr. Weeks was vicar of St. Hilda, Crofton Park, where he had a large congregation. He accepted a commission in the R.A.M.C., and was at the military hospital in Malta during the Gallipoli campaign. On returning to this country Dr. Weeks served as a surgeon at the Royal Herbert Hospital, Woolwich. In September, 1920, he joined the National Temperance League and became one of its most active lecturers. Dr. Weeks also served the temperance movement in many other directions. He gave evidence before the Royal Commission on Licensing in 1929; he convened the centenary celebration of the temperance movement in 1932, and the 20th International Congress on Alcoholism, 1934; and he arranged many medical and educational conferences. Dr. Weeks was an eloquent speaker and a prolific writer. He contributed many articles to different journals and periodicals, and his best-known book was *Alcohol and Human Life*. Since 1940, when Dr. Weeks became the Rector of the Combortons, Worcester-shire, the incumbency of which, owing to the state of his health, he felt it necessary to resign only a fortnight before his death, he had continued his long connexion with the National Temperance League as its honorary medical director and editor.

Dr. ROBERT JAMES LYTLE died on Oct. 26 at the age of 65. The third son of William Lytle, of Cookstown, Northern Ireland, he graduated M.B., B.Ch. at Queen's College, Belfast, in 1906, proceeding M.D. in 1912. After holding resident posts at the Royal Victoria Hospital, Belfast, he came to Portsmouth in 1907 and started private practice in partnership with Dr. Cole Baker. He was for many years honorary physician to the Royal Hospital, the Eye and Ear Hospital, and to the Gosport War Memorial Hospital; he was also visiting physician to St. Mary's Hospital and consulting neurologist to the Ministry of Pensions. He was an active member of the British Medical Association, and was chairman of the Portsmouth Division in 1927-8. In the 1914-18 war he served as a captain in the R.A.M.C. in Malta. In the recent war he carried out his work single-handed and found the time and the energy to hold the onerous position of chairman of the Local Medical War Committee. Here his guidance in the many delicate and difficult problems which arose was of the utmost value. Straightforward and fearless in all he undertook, he had a strong and simple faith, and it was a real source of satisfaction to him when he was made a lay canon of Portsmouth Cathedral. He was a notable and beloved citizen of our city who will be sadly missed in every walk of life. He leaves a widow and four children, and his three sons will carry on his work.—T. B.

Dr. BERNARD RENSHAW BECKIT TRUMAN died suddenly on Oct. 26. A student of Cambridge University and St. Bartholomew's Hospital, he graduated M.B., B.Ch. in 1900 and settled in Nottingham, where his father and his grandfather had practised. He was in charge of the infant welfare clinics in Nottingham, was honorary physician to the Nottingham Children's Hospital, and was in active practice for over forty years. He was a former president of the Nottingham Medico-Chirurgical Society, and on his retirement about two years ago he was appointed consulting physician to the Children's Hospital.

Dr. J. B. Miller, Bishopbriggs, writes: The death of Dr. John Goff recalls to older members the names of Bruce and John Goff, father and son, who for over sixty years carried on an extensive practice, based on the village of Bothwell on the banks of the Clyde in Lanarkshire. Bruce Goff occupied a prominent position in medical circles in the West of Scotland and in Association activities. He was a member of Council for twenty-four years (1884-1908), and was also President of the Faculty of Physicians and Surgeons of Glasgow, a very rare honour for a country practitioner. John Goff was, in succession, chairman of his Division, president of the Branch, and chairman of the Scottish Committee, while he was a member of Council for four years (1917-21), relinquishing office on his removal to Surrey. He always had the deepest interest in medico-political affairs, and carried out his various duties in a conscientious if unobtrusive manner.

## Medical Notes in Parliament

### Medical Practitioners and Pharmacists Bill

In the House of Lords on Oct. 28, Lord HENDERSON introduced on behalf of the Government the Medical Practitioners and Pharmacists Bill, and it was formally read a first time. Lord Henderson said the Bill was to make provision for the registration as medical practitioners or as pharmacists of certain persons having qualifications other than the United Kingdom qualifications required by the Medical Acts and the Pharmacy Acts and to repeal certain provisions as to pharmacists. This Bill was given a first reading in the House of Commons on Aug. 4 and was the subject of a leading article in our issue of Aug. 16 (p. 258).

### National Assistance Bill

The National Assistance Bill was presented in the House of Commons on Oct. 30 by Mr. BEVAN and was read a first time. The Bill is discussed in a leading article elsewhere in this issue (p. 736).

### Criminal Justice Bill

On Oct. 31 Mr. CHURCHILL presented the Criminal Justice Bill to "abolish penal servitude, hard labour, prison divisions, and sentence of whipping; to amend the law relating to the probation of offenders, and otherwise to reform existing methods and provide new methods of dealing with offenders and persons liable to imprisonment; to amend the law relating to the proceedings of criminal courts, including the law relating to evidence before such courts; to regulate the management of prisons and other institutions, and the treatment of offenders and other persons committed to custody; to re-enact certain enactments relating to the matters aforesaid; and for purposes connected therewith."

The Bill received a first reading.

**Milk for Infants.**—Mr. STRACHEY said on Oct. 27 that the milk allowance for babies up to 12 months old had not been reduced. The reduction in the allowance to children between 1 and 5 years of age was made in preference to reducing other priority or non-priority allowances on the recommendations of the medical and nutritional advisers of the Ministry.

**Canine Hysteria.**—Mr. RHYS DAVIES on Oct. 28 called the attention of the Home Secretary to two reviews of feeding experiments on dogs designed to produce symptoms of canine hysteria. He asked the Minister in future to refuse to sanction the duplication of such experiments. Mr. EDE assumed that Mr. Rhys Davies referred to experiments regarding the effect on the practice, which Mr. Ede said was now generally adopted, of treating flour with agene. Mr. Ede said he would not feel justified in disallowing these experiments on the ground that parallel ones were in progress.

**Shoreditch Hospital.**—On Oct. 30 Mr. ERNEST THURTELL asked the Minister of Health if he had considered the memorandum signed by 33 medical practitioners in Shoreditch and neighbourhood regarding the threatened closing of the in-patient wards of St. Leonard's Hospital, Shoreditch, and asking that he should intervene and cause a public inquiry to take place before action to close the hospital was taken. Mr. BEVAN said he had considered this representation. The London County Council had appealed to him under the Nurses Registration Act, 1919, against the decision of the General Nursing Council to withdraw recognition from this hospital as a training school for nurses. He was arranging for the appeal to be heard shortly.

**Mass Radiography.**—Mr. SIDNEY SHEPARD inquired on Oct. 30 what progress was being made in the provision of mass radiography sets. Mr. BEVAN replied that there were 23 sets operating in England and Wales. Arrangements were in progress for starting 14 more, and further expansion was planned as apparatus came forward. Up to the end of June some 1,669,000 persons had been examined.

**Groundnuts Scheme.**—Mr. STRACHEY states that the establishment of health services for the East African groundnut scheme is well advanced. Thirty-four appointments have been made in the medical department. In addition African medical auxiliaries and nursing staff are being trained. Temporary hospital accommodation is available.

**Rationed Calories.**—Dr. Summerskill calculates, that the caloric value of the rations, including points rationed foods, of the ordinary adult in Great Britain is about 1,530 calories a day.

## Medico-Legal

### RESPONSIBILITY FOR CRUELTY

[FROM OUR MEDICO-LEGAL CORRESPONDENT]

Cruelty as a matrimonial offence has never been defined by courts but has always been strictly interpreted. Roughly speaking a party who petitions the court for divorce on the ground of cruelty by the other party to the marriage must prove a course of conduct which endangers the life or health of the petitioner or causes reasonable apprehension of danger. Moreover, conduct must be deliberate. In *Astle v. Astle* (1939) the court rejected a petition because the wife had been insane during the period in question. Recently it rejected another on the ground that the wife had been irresponsible though not actually insane. The parties were married in 1932, the husband being a regular Army officer. In India in 1940 the wife became extremely ill. In her early life she had had a double mastoid operation and she had ever afterwards suffered from sinus trouble. She had two serious operations during her married life and lost her ovaries, and later she developed coronary thrombosis and suffered from myocarditis. One of the results was constant severe insomnia. A most difficult situation developed for the husband, for she became physically dependent on him to an extreme degree. She required him to read her to sleep at night and to dress her and bathe her, and to be in constant attendance on her whenever he was not on duty. He and his work began to suffer from worry and lack of sleep. He lost his concentration and efficiency. In 1944 he took her back to England and lodged her in her mother's house. From India he wrote her kindly and affectionate letters until 1946, but then he declared that the strain of living with her was impossible to bear and that he would not live with her again.

Mr. Justice Finckmore said that the case had caused him great difficulty and his mind had fluctuated during the hearing. The dilemma was complete: either he had to refuse relief to the husband although his married life had been desperately difficult or he had to declare guilty of matrimonial cruelty a wife who had during the material years been extremely ill. Counsel for the husband argued that the wife must be taken to have appreciated the effect her demands would have on him and to have intended their natural consequences—that his health would break down. He referred to the rules in *M'Naghten's Case* which lay down that to escape responsibility on the ground of mental disease a defendant must show either that he did not know what he was doing or that he did not know that it was wrong. The judge thought that this was a rather unreal position to apply in a case of this kind. The wife had not been accused of crime, and there was no question of her being insane and thinking a thing was right when it was obviously criminally wrong. On the other hand, the husband accused her of deliberately, maliciously, and sadistically stopping him from sleeping, and the judge thought that the case stood or fell on whether the wife's conduct was what is commonly called nagging, which when continued for a long period has been held to constitute cruelty. He doubted whether she had thought very much about her husband. She was very sick and in considerable pain. If a wife were to say, "I can't sleep, so you shan't," it might be cruelty, but the judge did not think that she had done this deliberately, out of spite, set out to hurt him or prevent him from sleeping.

He did not find the deliberateness, or malignity, or intention which the law requires to constitute cruelty. Unfortunately many marriages one party developed an incurable disease and demanded constant attention of all sorts, but no one would dream of saying that that involved cruelty. It was part of the marriage service that the parties undertook to cherish each other in sickness or in health. This marriage became impossible not because the wife was cruel but because she was desperately ill and getting worse. He therefore would not grant the divorce.

## Universities and Colleges

### UNIVERSITY OF CAMBRIDGE

The following medical degrees were conferred on Oct. 18:

M.D.—C. W. A. Searle.  
M.B., B.Chir.—A. S. Fairbairn, \*A. P. C. Bacon, \*H. B. Barlow, \*D. M. Evans, \*L. C. K. Mackenzie, \*J. S. W. Whitehead, \*E. T. Roberts, \*M. H. D. Veale, \*P. E. Hughesdon, \*W. Spector, \*C. F. Hingston, \*R. H. L. Wolfsohn, \*A. J. W. Woodroffe, I. B. Smith, J. L. Harris.  
\*M.B.—N. C. London.

\*By proxy.

### UNIVERSITY OF ABERDEEN

John Craig, M.B., Ch.B. Aberd., F.R.C.P.Ed., M.R.C.O.G., lecturer in diseases of children, has been appointed to the new Chair of Child Health in the University.

### UNIVERSITY OF EDINBURGH

Norman McOmish Dott, M.B., Ch.B., F.R.C.S.Ed., Director of the Neurological and Neurosurgical Brain Injuries Unit at Bangour Hospital, Uphall, West Lothian, has been appointed first holder of the Forbes Chair of Neurological Surgery in the University.

### UNIVERSITY OF GLASGOW

At a Ceremony of Graduation, held on Nov. 1, the following degrees were conferred:

M.D.—P. Macarthur (with commendation), F. J. Hebbert, J. E. Tillotson.  
The degree of Bachelor of Law was conferred on George Buchanan, L.R.C.P.&S.Ed.

### UNIVERSITY OF LONDON

Dr. Hermann Mannheim will deliver a course of eight weekly lectures on "The Philosophy and Psychology of Punishment," at the Institute for the Scientific Treatment of Delinquency, 8, Bourdon Street, Davies Street, W., on Mondays, at 6.30 p.m., beginning on Jan. 12, 1948. He will develop his theme from punishment in primitive societies, punishment by parents and teachers and by Church and State, up to a concluding lecture on punishment in the international sphere, with special reference to war crimes and the Nuremberg trials. He will also discuss the aims and the effect of punishment, and the obstacles in the way of establishing a reasonable penal system.

Prof. Henry Barcroft, M.D., has been appointed to the University Chair of Physiology tenable at St. Thomas's Hospital Medical School from Jan. 1, 1948.

Victor Wilkinson Dix, F.R.C.S., has been appointed to the University Chair of Surgery tenable at London Hospital Medical College from Oct. 1.

Thomas Duncan Day, M.D., has been appointed to the University Readership in Pathology tenable at St. Thomas's Hospital Medical School from Oct. 1.

Thomas Russell Cumming Fraser, M.D., M.R.C.P., D.P.M., has been appointed to the University Readership in Medicine tenable at the British Postgraduate Medical School from Aug. 1, 1947.

C. J. O. R. Morris, M.Sc., Ph.D., has been appointed to the University Readership in Chemical Pathology tenable at London Hospital Medical College from Oct. 1.

The degree of D.Sc. has been conferred on Claude Rimington, Ph.D., professor of chemical pathology at University College Hospital Medical School.

The following candidates have been approved at the examinations indicated:

ACADEMIC POSTGRADUATE DIPLOMA IN CLINICAL PATHOLOGY.—B. M. Bloomberg, M. J. G. Furnell, B. Godwin, Elizabeth Himmelfoch, G. B. Leyton, A. G. E. Pearce, J. T. Prendiville, V. A. Vanikar.

EXTERNAL DIPLOMA IN CLINICAL PATHOLOGY.—H. B. Stein.

### UNIVERSITY OF SHEFFIELD

The following appointments were made at a meeting of the University Council held on Oct. 17: *Honorary Lecturers in Pathology*, J. L. Edwards, M.B., Ch.B., M.R.C.P., LL.B., and L. C. D. Hermitte, M.B., Ch.B. *Part-time Lecturer in Medicine to Dental Students*, R. T. Gaunt, M.Sc., M.B., Ch.B., M.R.C.P. *Assistant Lecturer in Pathology*, H. J. Whiteley, M.B., Ch.B.

### ROYAL COLLEGE OF SURGEONS OF ENGLAND

The annual meeting of Fellows and Members will be held at the College (Lincoln's Inn Fields, London, W.C.) on Wednesday, Nov. 12, at 5.30 p.m., when a report from the Council will be presented.

### ROYAL COLLEGE OF SURGEONS OF EDINBURGH

At the annual meeting of the College held on Oct. 29 the following officers were elected for the ensuing year: *President*, Mr. Frank E. Jardine; *Vice-President*, Mr. James M. Graham; *Secretary and Treasurer*, Mr. K. Paterson Brown; *Representative on General Medical Council*, Sir Henry Wade; *Conservator of Museum*,

Mr. James N. J. Hartley; *Convener of Museum Committee*, Mr. W. Quarry Wood; *Librarian*, Dr. Douglas Guthrie.

The following candidates, having passed the requisite examinations, were admitted Fellows:

J. Aitken, H. M. Bennett, S. M. Bactor, Y. G. Bodhe, E. S. Brawn, J. E. S. Carmichael, Florence Cavanagh, D. H. Clark, J. C. Comline, W. T. Cumming, J. B. Cuthbert, N. M. B. Dean, D. Dencer, M. D. Desai, G. de L. Fenwick, W. J. Fraser, D. Ghose, I. L. Gregory, A. P. Guttman, J. A. V. Hamilton, H. El S. Higazi, R. M. Hugo, J. Hustoo, G. C. W. James, J. M. Jones, V. A. F. Martin, E. Millington, J. C. G. Moore, G. Murdoch, A. M. Murray, M. P. McCormack, C. G. G. Mackay, F. D. Mackenzie, D. L. Poddar, E. W. Price, Agnes R. Russell, W. H. Scrase, E. Seideoman, N. C. Sen, N. C. Shah, H. V. Ol-M. Shaibany, K. J. Sheth, D. W. Short, F. MacN. Smith, C. E. E. Stevens, F. V. Stonham, J. W. M. Sutherland, A. F. Torrie, S. L. Townsend, H. M. Urquhart, C. H. Vipond, R. G. M. Wedderburn, V. H. Wheble, J. S. Young.

### ROYAL COLLEGE OF PHYSICIANS OF IRELAND

At the annual meeting of the College, held on Oct. 18, the following officers, etc., were elected: *President*, Dr. Bethel Solomons; *Vice-President*, Dr. E. A. Keelan; *Treasurer*, Prof. G. Bewley; *Registrar*, Dr. T. P. C. Kirkpatrick; *Representative on General Medical Council*, Prof. T. Gillman Moorhead; *Representative on Medical Registration Council*, Prof. J. W. Bigger.

## The Services

The King of Norway has conferred the Knight Grand Cross of the Order of St. Olav upon Air Marshal Sir Harold E. Whittingham, K.C.B., K.B.E., R.A.F. (Retired).

Major (Honorary Lieutenant-Colonel) J. G. McCrie, O.B.E., and Captains (Honorary Majors) W. A. Liston, M.C., and G. K. Thornton, R.A.M.C., have been awarded the Efficiency Decoration of the Territorial Army.

Captain B. G. Duggan, Lieutenant (now Temporary Major) J. J. Wiese, and Lieutenant (now Captain) H. A. Wood, R.A.M.C., have been awarded the Long Service and Good Conduct Medal (Military), without Gratuity.

Captain (Honorary Major) J. Kerr and Lieutenant (Honorary Captain) L. C. J. Coker, R.A.M.C., have been awarded the Efficiency Medal (Territorial).

### DEATHS IN THE SERVICES

Surgeon Rear-Admiral Sir GEORGE WELCH died on Oct. 26 at the age of 90. Born on Sept. 13, 1858, he entered the service in 1884 and was promoted surgeon-general in 1915. He was surgeon of the *Royalist* in the Niger expedition in 1886, and staff-surgeon of the *Tyne* during the Cretan troubles in 1896-7, and was specially promoted to fleet-surgeon in 1899 for conspicuous professional merit. Among other appointments he held were those of assistant to the medical director-general, 1899-1906, and instructor in Naval hygiene to surgeons on entry at Haslar, 1906-10. He was a member of the Commission to inquire into tuberculosis in the Navy in 1911; deputy director-general of the Medical Department of the Navy, November, 1912-16; and a member of the Committee on Vision of Naval Officers, 1914. He was awarded the C.B. in 1917 and created K.C.M.G. two years later. He was placed on the retired list in 1918 after thirty-four years' service, for the last two years of which he was P.M.O., R.N. Hospital, Haslar.

## EPIDEMIOLOGICAL NOTES

### Poliomyelitis

Notifications of poliomyelitis in England and Wales in the week ending Oct. 25 showed a further small reduction on those of the previous week, 251 (276), but those of poliomyelitis showed a rise, 29 (12). The trend of incidence of poliomyelitis has not been very consistent throughout. It seems likely that there are considerable differences in the meaning attached to this term by different doctors.

Provisional figures of registrations of deaths from poliomyelitis and poliomyelitis supplied by the Registrar-General are as follows: July, 74; August, 206; September, 160. It is, of course, impossible to relate these directly to notifications because of the varying duration of illness and possible delay in the registration of a death, but notifications which relate to roughly the same periods were:

	Poliomyelitis	Poliomyelitis
July .. .. .	668	75
August (5 weeks) .. .. .	2,900	235
September .. .. .	2,246	143
	5,814	453

These figures suggest a case fatality rate of the order of 7%. Preliminary analysis of deaths by age suggests that the increase

in the fatality of the disease in older age groups which has been reported in other countries has also been a feature of the epidemic here.

It is hoped that more information on this and other matters will be derived from the survey of hospital cases now being undertaken by the Ministry of Health. In our last issue (Nov. 1, p. 698) some details were given of the two large-scale investigations of this year's prevalence of poliomyelitis which are now in progress. Once the questionnaires have been drawn up and completed their final analysis will be undertaken by the Institute of Social Medicine and the Bureau of Health and Sickness Records.

In the week ending Oct. 18 notifications of poliomyelitis declined for the sixth consecutive week, and the largest centres of infection during the week were Lancashire 46 (Manchester C.B. 11, Liverpool C.B. 6); London 24; Yorkshire West Riding 18; Middlesex 27 (Ealing M.B. 6, Harrow U.D. 6); Warwickshire 20; Hertfordshire 11; Kent 10; Durham 8 (Sunderland C.B. 5); Essex 8; and Glamorganshire 8.

### Cholera in Egypt

Official reports still list 300 to 400 deaths from cholera and 800 or more new cases daily. The true figures are probably higher because of the failure to notify cases. Penalties for non-notification have recently been increased, and it is officially stated that the whole Delta is affected except Cairo and Alexandria. The disease has also continued to gain ground in Upper Egypt.

Daily bulletins were not issued over the three-day Bairam holiday, but the consolidated figures over this week-end showed that there had been 2,672 cases and 1,360 deaths. The two areas most affected are still Dakahlia and Gharbieh. More cases have also been reported recently from Behera. According to a report from Reuter the Egyptian Government is to buy and destroy the new date crop from Koerin, where the present epidemic is thought to have originated.

Stringent precautions have been taken to prevent the possible spread of cholera to the British Forces in Egypt. All native villages and restaurants have been placed out of bounds; anti-fly measures have been intensified; and a more careful watch than usual is being kept upon the food and drink supplied to the troops. All officers and men likely to come in contact with infected material or to pass through infected areas have been inoculated, though it has not yet been thought necessary to introduce large-scale inoculation.

### Discussion of Table

In *England and Wales* further increases were recorded in the incidence of measles 158, acute pneumonia 128, and scarlet fever 36, while further decreases were reported in the number of notifications of acute poliomyelitis 62, whooping-cough 34, and dysentery 21.

A rise in the incidence of measles was general; the largest increase was in Monmouthshire 48. The rise in the notifications of acute pneumonia was most marked in two regions, London and the South-east, with an increase of 45, and the west Midland counties with a rise of 49. The largest variations in the local returns of scarlet fever were an increase in London 32 and a decrease in Staffordshire 23.

The only fluctuation of any size in the trends of whooping-cough was a fall in Lancashire 35. The returns of diphtheria showed little variation from those of the preceding week; the greatest change was a decrease of 9 in Warwickshire. The only return of dysentery of any size was in Lancashire 11.

In *Scotland* infectious diseases were less prevalent during the week, and the decreases in incidence included: scarlet fever 33, acute poliomyelitis 21, whooping-cough 12, and measles 11. The only appreciable rise was in the notifications of acute primary pneumonia 20. The largest returns for poliomyelitis were those of the cities of Edinburgh 8 and Glasgow 8. The increase in cases of acute primary pneumonia was confined to Glasgow, where the notifications rose from 96 to 119.

In *Eire* increases were recorded in the notifications of measles 41, scarlet fever 21, diarrhoea and enteritis 21, and whooping-cough 9. The rises in the incidence of measles and diarrhoea and enteritis were due to the experience of Dublin C.B., with increases of 31 and 19 respectively.

In *Northern Ireland* only small changes were recorded in the trends of infectious diseases. The notifications of poliomyelitis were 4 fewer than in the preceding week.

### Week Ending October 25

The notifications of infectious diseases in *England and Wales* during the week included: scarlet fever 1,452, whooping-cough 1,003, diphtheria 238, measles 1,981, acute pneumonia 482, cerebrospinal fever 34, acute poliomyelitis 251, acute poliomyelitis 29, dysentery 340, paratyphoid 3, and typhoid 4.

## INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Oct. 18.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included), (b) London (administrative county), (c) Scotland, (d) Eire, (e) Northern Ireland

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London), (b) London (administrative county), (c) The 16 principal towns in Scotland, (d) The 13 principal towns in Eire, (e) The 10 principal towns in Northern Ireland

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

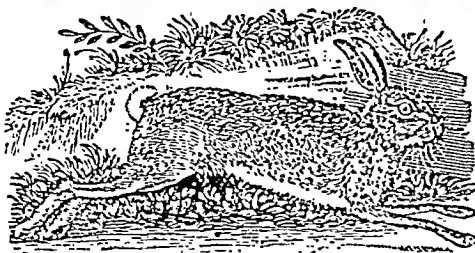
Disease	1947					1946 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	44	4	24	1	1	30	2	19	1	3
Deaths .. ..	—	—	1	—	—	—	—	—	—	—
Diphtheria .. ..	202	22	64	12	1	278	23	83	33	8
Deaths .. ..	2	—	—	—	—	1	—	3	2	—
Dysentery .. ..	46	4	47	1	—	57	2	48	—	1
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Encephalitis lethargica, acute .. ..	—	—	—	—	—	1	—	3	—	—
Deaths .. ..	—	—	—	—	—	—	1	—	—	—
Erysipelas .. ..	—	—	24	7	2	—	—	56	7	6
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Infective enteritis or diarrhoea under 2 years .. ..	60	2	20	101	5	48	—	6	63	1
Deaths .. ..	—	—	—	10	—	—	—	10	—	—
Measles* .. ..	1,797	63	84	192	11	2,385	116	200	63	6
Deaths .. ..	1	—	—	1	—	1	—	—	—	—
Ophthalmia neonatorum .. ..	67	5	10	—	—	72	4	14	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Paratyphoid fever ..	16	—	2(B)	1(B)	—	22	2	1(A)	1(B)	—
Deaths .. ..	—	—	—	—	—	—	—	2(B)	—	—
Pneumonia, influenzal ..	531	35	4	2	2	407	26	2	1	3
Deaths (from influenza)† ..	11	5	—	—	—	8	2	—	—	—
Pneumonia, primary ..	—	—	184	16	—	—	—	153	14	—
Deaths .. ..	—	18	6	6	—	—	20	3	4	—
Polio-encephalitis, acute ..	12	1	—	—	—	1	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Poliomyelitis, acute ..	276	24	55	10	6	20	1	—	7	3
Deaths .. ..	1	—	—	—	—	—	—	—	—	—
Puerperal fever .. ..	—	—	18	—	—	—	1	17	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Puerperal pyrexia‡ ..	113	6	14	—	—	134	11	7	1	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Relapsing fever .. ..	—	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Scarlet fever .. ..	1,352	116	267	81	49	1,048	90	218	24	40
Deaths .. ..	—	—	—	—	—	1	—	—	—	—
Smallpox .. ..	—	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Typhoid fever .. ..	7	—	4	3	—	5	—	1	2	17
Deaths .. ..	—	—	—	—	—	1	—	—	—	—
Typhus fever .. ..	—	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Whooping-cough* .. ..	1,009	87	28	37	6	1,375	101	147	24	45
Deaths .. ..	2	—	—	1	—	11	1	—	—	—
Deaths (0-1 year) ..	335	40	74	27	9	356	49	45	20	12
Infant mortality rate (per 1,000 live births) ..	—	—	—	—	—	—	—	—	—	—
Deaths (excluding stillbirths) ..	4,023	610	546	184	84	4,051	663	542	140	166
Annual death rate (per 1,000 persons living) ..	—	—	11.4	11.6	—	—	—	11.9	9.6	—
Live births .. ..	7,981	1300	1045	355	239	8,660	1303	1118	438	223
Annual rate per 1,000 persons living ..	—	—	21.0	22.4	—	—	—	22.5	28.1	—
Stillbirths .. ..	222	25	30	—	—	295	28	36	—	—
Rate per 1,000 total births (including stillborn) ..	—	—	28	—	—	—	—	31	—	—

\* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

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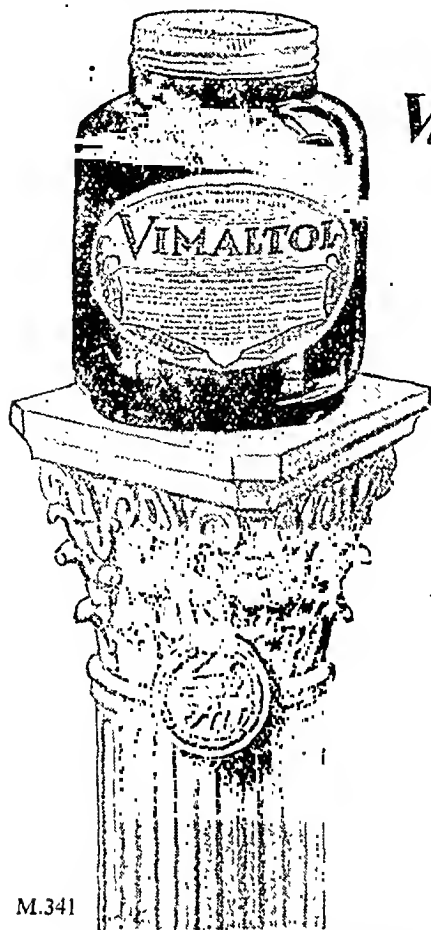
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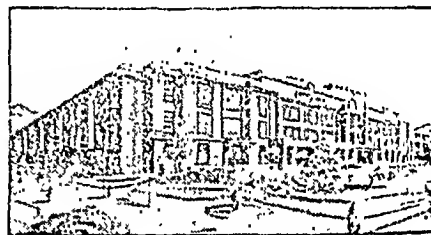
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## Medical News

### Report on Nursing

Mr. Aneurin Bevan, Minister of Health, addressing nurses at the Middlesex Hospital on Oct. 24, described the Report (Sept. 13, p. 426) of the Working Party on the recruitment and training of nurses as the "most stimulating and challenging document yet produced on nursing." He suggested the following plan for immediate action: (1) Review of factors likely to contribute to wastage among nursing recruits; (2) relieving nurses of domestic work; (3) part-time nursing. Some big hospitals with no shortage of nurses still used them for domestic work, such as sweeping wards, he continued. This was not fair to other hospitals faced with the terrible prospect of having to close wards. We could no longer afford to waste the skill of nurses with domestic responsibilities who were willing to work on a part-time basis. But, as they had learned in the war, hours and conditions for married women must be made to fit their convenience, instead of their having to fit the convenience of the hospital. Having promised to consider the views of the nursing profession before any final decisions were taken on the Working Party's recommendations, he had sent the Report to all the major bodies concerned with nursing and asked for their views. Mr. Bevan gave the following figures of hospital staffing: Over 12,600 nursing staff, including 1,740 midwives, have so far responded to the appeal for part-time service. As a result, hospitals in different parts of the country have been able to reopen wards. There are now nearly 100,000 full-time and 18,000 part-time domestic workers in hospitals—an increase of some thousands since 1946. They include nearly 3,000 European volunteer workers.

### Emergency Bed Service

The telephone number of the Emergency Bed Service has been changed. Instead of Monarch 8515 it will in future be Monarch 3000.

### Orange-juice Jelly

Stocks of orange-juice jelly are coming to an end, and it therefore cannot be supplied in schools after Nov. 8. A Ministry of Education memorandum to education authorities draws attention to the value of salads as an alternative source of vitamin C.

### The Surgical Congress

Prof. Grey Turner informs us that Prof. Tomas Zerolo, representative of the Consejo General de los Colegios Medicos of Spain, has written expressing gratitude for the reception accorded to himself and his colleagues at the 12th Congress of the International Society of Surgery, held in London in September. "The Congress has not only been a great success scientifically," he wrote, "but it has been the means of bringing together surgeons from all over the world, in mutual understanding of friendliness and true comradeship for the good of humanity."

### Radiologist in Turkey

Dr. H. Gálami Hodgson, Director of the Diagnostic X-Ray Department at the Middlesex Hospital, London, has gone to Turkey for a three weeks' lecture tour on behalf of the British Council. His subjects will include: mass miniature radiography of the lungs; the planning of a modern diagnostic x-ray department; and lectures on the radiology of the temporal bone, the upper gastro-intestinal tract, and the accessory nasal sinuses.

### South-West Metropolitan Regional Board Psychiatric Advisory Group

At a recent meeting of psychiatrists of the South-West Metropolitan Region it was resolved to form a psychiatric advisory group to take the initiative in forwarding to the regional board such proposals as seem to it desirable for the development of the mental health services in the region, and to be available for consultation with the subcommittee on matters of psychiatric importance. Membership of the group is open to all psychiatrists in the region and all who are interested are asked to communicate with Dr. T. P. Rees, Warlingham Park Hospital, Warlingham, Surrey.

### Anaesthetist Visits Argentina

Dr. W. W. Mushin, Director of the Department of Anaesthetics at the Royal Infirmary, Cardiff, attended the Congress of Anaesthesiology in Buenos Aires, on Oct. 20-26 at the invitation of the Argentine Association of Anaesthesiology and under arrangements made by the British Council. He read a paper on "Recent Anaesthetic Research."

### International Orthopaedic Course

The Second International Course for the Emergencies of Medicine and Surgery met in Lisbon and Oporto from Oct. 1 to 15. It was organized by the Civil Hospitals in Lisbon under the aegis of the Portuguese Ministry of the Interior. The British representatives who spoke were Sir Archibald MacIndoe (on middle facial injuries and burns); Mr. H. A. Britain (on the acutely prolapsed intervertebral disk and compound fractures of the femur); Prof. R. G. Pulvertaft (on tendon injuries in the hand); and Mr. H. Osmond Clarke (on compound fractures and rehabilitation).

### Willis

Dr. Alwyn Hewett Bradley, of Leicester, who died on March 9, left £36,019. Colonel Edgar Thomas Inkson, V.C., late R.A.M.C., of Chichester, who won his V.C. in 1900 "for conspicuous bravery in carrying an officer to safety under heavy fire," left £7,257.

## COMING EVENTS

### Franco-Anglo-American Medical Society

The next quarterly meeting of the British Section of the Franco-Anglo-American Medical Society will be held at 11, Chandos Street, London, W., on Tuesday, Nov. 11, at 2.30 p.m., with Lord Horder in the chair.

### Tuberculosis Association

A meeting of the Tuberculosis Association will be held at the Assembly Hall, Royal Empire Society, Craven Street, London, W.C., on Friday, Nov. 14, at 3 p.m., when Dr. F. R. G. Heaf will deliver the presidential address on "Accommodation for the Tuberculous" and Mr. Hamilton Bailey and Dr. Suzette Gauvain will read papers on "Tuberculous Glands of the Neck."

### Association of Allergists

A meeting to discuss the formation of an Association of Allergists will be held in the lecture theatre of the Nuffield Laboratory of Ophthalmology, the Oxford Eye Hospital, on Saturday, Nov. 15 at 2.30 p.m. All those interested in the study of allergy are invited to attend.

### Harben Lectures

We are informed by the Royal Institute of Public Health and Hygiene that the dates of the Harben Lectures, announced in this column on Oct. 25 (p. 676), have been changed. Prof. E. D. Adrian, O.M., M.D., F.R.S., F.R.C.P., will deliver them at the Institute (28, Portland Place, London, W.) on Monday, Tuesday, and Wednesday, Dec. 15, 16, and 17, at 3 p.m. each day, *one week later than originally arranged.*

### Hunterian Society

The 1947-8 session of the Hunterian Society opened on Oct. 29 when Mr. Alex. E. Roche delivered his presidential address on "The Interpretation of Urological Symptoms." Other meetings have been arranged as follows: Monday, Nov. 17, 8.30 p.m., at Apothecaries' Hall, Black Friars Lane, Queen Victoria Street, London, E.C. Motion, "That Our Present Diet is Undermining the Health of the Nation," to be proposed by Drs. Franklin Bicknell and Kenneth McFadyean and opposed by Sir Jack Drummond, D.Sc., F.R.S., and Magnus Pyke, Ph.D. Monday, Dec. 15, 7 for 7.30 p.m., dinner-meeting at Talbot Restaurant, London Wall, E.C. Discussion on "Menstrual Disorders in Relation to General Medicine," to be opened by Mr. Aleck Bourne, Dr. Edward Sharp, and Mr. John Howkins. Monday, Jan. 19, 1948, 8.30 p.m., at the Mansion House, London, E.C. Hunterian Lecture by Prof. J. Cid Dos Santos (Lisbon), "Recent Improvements in the Diagnosis and Treatment of Vascular Obstruction." Thursday, Feb. 12, at Grosvenor House, Park Lane, London, W. Annual dinner. Monday, Feb. 23, 8.30 p.m., at the Mansion House, London, E.C. Hunterian Oration by Dr. W. S. C. Copeman, "Rheumatism in the Time of John Hunter." Monday, March 15, 7 for 7.30 p.m., dinner-meeting at Talbot Restaurant. Discussion on "Neuritis," to be opened by Dr. Philip Ellman, Dr. Aldren Turner, Mr. Dudley Buxton, and Dr. F. S. Cooksey. Monday, April 19, 7 for 7.30 p.m., annual general (dinner) meeting at Talbot Restaurant. Address by Mr. A. L. Bacharach, "Laboratory Animals—Their Uses and Abuses."

### Pharmaceutical Society of Great Britain

On Thursday, Nov. 13, at 7.30 p.m., the Hanbury Memorial Medal of the Pharmaceutical Society of Great Britain (17, Bloomsbury Square, London, W.C.) will be presented to Hans Flück, D.Sc., professor of pharmacology in the Faculty of Pharmacy of the Swiss Federal Technical Institute, Zurich. Prof. Flück will then deliver a lecture on "Chemical and Biological Aspects of the Conservation of Vegetable Drugs."

## SOCIETIES AND LECTURES

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East, S.W.—Tuesday, Nov. 11, 5 p.m. Lloyd-Roberts Lecture by the Hon. Harold Nicolson: The Health of Authors.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, London, W.C.—Thursday, Nov. 13, 5 p.m. Bradshaw Lecture by Sir Cecil Wakeley: Vogue and Fashion in Abdominal Surgery.

ROYAL COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS, 58, Queen Anne Street, W.—Friday, Nov. 14, 5 p.m. William Blair-Bell Memorial Lecture by Dr. D. J. MacRae: Heart Disease in Pregnancy.

## ROYAL SOCIETY OF MEDICINE

*Section of Psychiatry.*—Tuesday, Nov. 11, 5 p.m. Paper by Dr. Fraser-Steele: The Assessment of Prognosis in Psychiatry.

*Section of Physical Medicine.*—Wednesday, Nov. 12, 4.30 p.m. Discussion: Brachial Neuralgia. Openers: Dr. W. Russell Brain and Mr. D. W. C. Northfield.

*Section of Proctology.*—Wednesday, Nov. 12, 5 p.m. Presidential Address by Mr. A. Dickson Wright: Total Colectomy.

*Section of Ophthalmology.*—Thursday, Nov. 13, 5 p.m. (Cases at 4.30 p.m.) Discussion: Policy in Dealing with Partially Sighted and Blind Persons. Openers: Mr. D. D. Stenhouse-Stewart and Dr. A. A. Newth.

*Clinical Section.*—Friday, Nov. 14, 5 p.m. (Cases at 4 p.m.)

LONDON: UNIVERSITY COLLEGE, Gower Street, W.C.—Tuesday, Nov. 11, 5.15 p.m. Dr. Bernard Katz: Nature of the Propagation of Messages in Nerve. Wednesday, Nov. 12, 5.30 p.m. Dr. M. H. Pirenne: Physiological Mechanisms of Vision.

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, Cavendish Square, W.—Monday, Nov. 10, 8.30 p.m. Discussion: Cardiac Pain. To be introduced by Dr. William Evans.

ROYAL INSTITUTE OF PUBLIC HEALTH AND HYGIENE, 28, Portland Place, W.—Wednesday, Nov. 12, 3.30 p.m. Prof. W. C. W. Nixon: Diet in Pregnancy (illustrated).

ROYAL MEDICAL SOCIETY, 7, Melbourne Place, Edinburgh.—Friday, Nov. 14, 8 p.m. Address by Mr. George Perkins: A Broken Ankle.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—At West London Hospital, Hammersmith, W.—Friday, Nov. 14, 8.30 p.m. Clinicopathological meeting. Demonstration of Some Results of Medical and Surgical Treatment.

## POSTGRADUATE DIARY

INSTITUTE OF DERMATOLOGY, 5, Lisle Street, Leicester Square, W.C.—Tuesday, Nov. 11, 5 p.m. Dr. I. Muende: Pathological Demonstrations. Thursday Nov. 13, 5 p.m. Dr. J. Franklin: Cutaneous Neoplasms.

EDINBURGH POSTGRADUATE BOARD FOR MEDICINE.—At West Medical Lecture Theatre, Edinburgh Royal Infirmary, Tuesday, Nov. 11, 5 p.m. Prof. W. S. Tindal: The Modern Approach to Miracles.

EDINBURGH ROYAL INFIRMARY.—Thursday, Nov. 13, 4.30 p.m. Honyman Gillespie Lecture by Dr. E. A. Carmichael: Some Observations on the Dynamics of the Cerebrospinal Fluid.

LONDON CHEST HOSPITAL, Victoria Park, E.—Friday, Nov. 14, 5 p.m. Dr. J. R. B. Hern: Dyspnoea.

## BIRTHS, MARRIAGES, AND DEATHS

## BIRTHS

SINCLAIR.—On Oct. 19, 1947, at East London, to Nancy, wife of Dr. S. A. Sinclair: Lovedale, a son.

IPTON.—On Oct. 31, 1947, to Leslie, wife of Ivor P. D. Skempton, M.B., B.S., second son—Howard White.

LIAMS.—On Sept. 21, 1947, in Nairobi, Kenya, to Philippa Gaffikin, M.B., Ch.B., wife of John G. Williams, twins—son and daughter.

## MARRIAGES

WILSON—GILLAN.—On Sept. 26, 1947, in London, William Proctor Wilson, C.B.E., B.Sc., M.J.E.E., to Agnes Christian Gillan, O.B.E., M.B., Ch.B.

## DEATHS

BEADLES.—On Nov. 1, 1947, John Nathaniel Beadles, M.B., B.S., of 85, Valleyfield Road, Streatham, S.W.

BRIDEN.—On Oct. 27, 1947, at 2, Adamton Terrace, Prestwich, William John Jardine Briden, M.B., Ch.B. (Edin.), aged 29 years. Late of District Asylum, Inverness, and dearly beloved husband of Anne Scott Morrison, S.R.N.

HINGTON.—On Oct. 14, 1947, at "Polentre," Falmouth, Colonel James Clarence Ledatt Hington, late R.A.M.C.

LYTLE.—On Oct. 26, 1947, Robert James Lytle, M.D.

PALETTE.—At Earls Colne, Essex, Thomas Edward Palette, M.D.

PIERCE.—On Oct. 26, 1947, at 14, Roland Gardens, London, S.W., Ward Irving Pierce, M.D.

RICHMOND.—On Oct. 23, 1947, at Dartford, Kent, Hugh Richmond, M.B., Ch.B. SCHWIZER.—On Oct. 22, 1947, as the result of a car accident, George Clemens Schwizer, M.D., Medical Officer, Shell Refinery, Ellesmere Port.

TRUMAN.—On Oct. 26, 1947, at Woodlands, Woodland Drive, Mapperley Park, Nottingham, Bernard Renshaw Beckitt Truman, M.B.

WEBER.—On Oct. 26, 1947, at West Cliff, Cliff Road, Sandown, Isle of Wight, Alexander Moxon Weber, M.S., F.R.C.S., formerly of 2, The Ropewalk, Nottingham.

WEEKS.—On Oct. 26, 1947, at Pershore Cottage Hospital, Courtenay Charles Weeks, M.R.C.S., L.R.C.P., Rector of The Combertons, Worcestershire.

WELCH.—On Oct. 26, 1947, at the Royal Naval Hospital, Haslar, Surgeon Rear-Admiral Sir George Welch, K.C.M.G., C.B.

## Any Questions?

*Correspondents should give their names and addresses (not publication) and include all relevant details in their queries which should be typed. We publish here a selection of the questions and answers which seem to be of general interest.*

## Quinine in Auricular Fibrillation

**Q.**—A middle-aged patient subject to frequent short attacks of auricular fibrillation finds that taking a 5-gr. (0.32-g.) tablet of ordinary quinine two or three times a day almost completely wards off the attacks. He has taken large quantities of quinine tablets over a long period; is there any danger in its continued use and is it a good treatment?

**A.**—Paroxysmal auricular fibrillation requires treatment only if the bouts are prolonged or frequent or if there is underlying heart disease. Sometimes they produce discomfort and anxiety quite out of proportion to their significance. The regularizing effect of quinine on the rhythm of the heart was recognized long before quinidine was introduced. Wenckebach recommended its use in a pill combined with nuxvomica: quinine sulphate gr. 3 (0.2 g.) with ext. nucis vomicae gr. 1/4 (16 mg.) twice or thrice daily. Probably this pill will suffice to control the attacks. Frequently the patient is able to anticipate the onset of attacks and can prevent them by taking the pills. If the measures are satisfactory they may obviate the need for larger doses which have been taken. Alternatively, quinidine gr. 3 (0.2 g.) twice or thrice daily may be taken with impunity.

## Allergy and the Endocrines

**Q.**—Is there any interrelationship between the production of histamine in the body and the endocrines? I have a puzzling case of vasomotor rhinitis associated with breathlessness, vertigo, and headache. This is thought to be allergic in origin but it is noted that the condition is aggravated during the premenstrual phase. Treatment on antihistamine lines, presuming an allergic factor is responsible, is contemplated; but would endocrine imbalance be remediable by oestrogen therapy (diethyl oestrol), either independently or in conjunction with the antihistamine treatment?

**A.**—The clinical influence of phases of the menstrual cycle and of pregnancy on some allergic conditions indicates relationship with the endocrines. It is also known that some patients react allergically to the injection of one of the hormones, even in pure crystalline state. Further, Zondek and his colleagues have demonstrated an apparent allergy in some cases to endogenous natural hormones. Intracutaneous injection may demonstrate allergic reactions to oestradiol, progesterone, testosterone, as well as to the pituitary trophic hormones. Such a reaction is obtained desensitization may be brought about by the daily injection of small and progressive doses of the appropriate hormone. Other aspects of allergy should not be neglected, of course, and may be more important in any particular case.

## Chilblains

**Q.**—A man aged 60 has had chilblains for several winters. He has fissures across his finger nails as a result of previous chilblains at the base of the nails, which keep reappearing. What is the probable cause and is there any helpful treatment?

**A.**—The cause of chilblains is unknown, but they are influenced by circulatory, nutritional, and endocrine disturbance and by environmental conditions of temperature and humidity. The combination of small doses of phenobarbitone, thyroxine and vitamin K may be helpful.

## "Dead-weight"

**Q.**—Why is a dead body much heavier than the same body alive—hence "dead-weight"?

**A.**—A dead body is not heavier than the same body alive. The complete inertness and lack of all co-operation, compensated frequently by the rigidity and consequent awkwardness of a dead body, give the impression of greater weight—this is the significance of the term "dead-weight."

### Loss of Hair during Lactation

**Q.**—During the successful breast-feeding of her first child a healthy woman of 28 noticed that her hair was becoming thin and was coming out in large quantities on combing. Hair growth became normal again after the baby was weaned. Now, four years later, she notices the same symptoms while nursing her second child. Is the causative factor for this known, and what treatment would be advised?

**A.**—Hair changes are not uncommon during both pregnancy and lactation. Many women notice alterations in the texture of their hair, which tends to lose its colour and glossiness. In others the hair becomes brittle or falls out, and the writer has noticed not only loss of scalp hair during lactation but also loss of hair from other areas, such as the pubes and eyebrows. Women with superfluous hair sometimes lose it during pregnancy and lactation. On the other hand, there are reports of the temporary development of hirsuties during pregnancy. The explanation of these changes is unknown—indeed, the whole subject of hair growth in different parts of the body and its sex differences is one full of intricacies which are not yet fully understood. Of the ductless glands, the pituitary, thyroid, adrenal, gonads, and placenta—one or all—may be involved. So far as loss of hair during lactation is concerned, it is tempting to postulate either an endocrine or a nutritional causal factor. Not everyone appreciates that the nutritional requirements during lactation are even greater than during pregnancy. Either endocrine or dietary therapy would be empirical but could be tried, bearing in mind that androgens and oestrogens might affect lactation adversely. Thyroid, however, should do no harm. If all else fails and the loss of hair is becoming so much as to cause alarm, lactation should be discontinued as soon as is reasonable from the standpoint of the baby.

### Aluminium and Gastritis

**Q.**—Is there any justification for the suggestion that gastritis can be caused by alum salts, which are normally insoluble in the soil but are rendered soluble by ammonium sulphate fertilizer? Up to 4 cwt. of ammonium sulphate is used per acre when the price of potatoes is high, and the point arises whether soluble aluminium salts find their way into the potatoes. Have any analyses been undertaken to settle this point?

**A.**—It is true that excessive quantities of ammonium sulphate added to a very acid soil will render some of the aluminium found in the form of complex silicates more soluble, but in agricultural practice this increased solubility is largely of theoretical interest. Assuming that small amounts of soluble aluminium compounds are liberated and are absorbed by root crops, the amount must be negligible. The consumption of minute amounts of aluminium compounds is not deleterious to health. This is borne out by the fact that aluminium cooking vessels have been in use for many years and large quantities of aluminium preparations are habitually consumed by some patients with peptic ulcer without producing gastritis.

### Localized Dental Erosion

**Q.**—A patient has some erosion of the buccal surface of both lower premolar and canine teeth; there is no erosion of the lingual surface of these teeth, nor are the upper teeth affected in any way. What is the cause of this condition and can you suggest any treatment?

**A.**—Erosion of the buccal surface of the teeth in the lower premolar and canine area is frequently in fact abrasion of these areas due to misuse or over-use of the toothbrush and paste. The premolar and canine areas, projecting slightly on the arch of the teeth, are more liable to receive abrasions from the toothbrush because of their position, particularly when the brushing is done in a horizontal plane rather than from the gums towards the biting surface. Cervical caries is also often seen in this area, the onset following this type of repeated abrasion, which in turn is followed by some recession of the gums allowing food particles to adhere to the enamel-cemental junction. If the eroded areas are clean and not carious, no treatment is required, but over-vigorous horizontal brushing of the teeth should be forbidden. If they are carious, the caries should be removed and fillings inserted in the ordinary way.

### Treatment of Dupuytren's Contracture

**Q.**—In a case of Dupuytren's contracture in the early stage, is any treatment available (excluding surgical operation) to prevent the fingers eventually folding into the palms?

**A.**—Until recently the only non-surgical form of treatment available for preventing progressive deformity in cases of Dupuytren's contracture was by means of daily stretching of the contracted tissues, usually carried out by the patient himself, and a continuous stretch at night by a splint keeping all the digital joints in maximum extension. This treatment might delay but frequently failed to prevent the development of the deformity. Recently it has been claimed that vitamin E has an effect in preventing progression of the disease. The method is still on trial, but some encouraging results have been obtained. The dosage recommended is 100 mg. three times daily for a few weeks until satisfactory improvement is secured, followed by a maintenance dose of 1 mg. per kilo of body weight. The drug is administered orally in tablet form.

### Weekly Ultra-violet Therapy

**Q.**—Are there any dangers in exposing one's skin to ultra-violet light once weekly for an indefinite period to control a most intractable acne vulgaris? The time and distance are regulated to secure a first-degree erythema with subsequent desquamation. I notice a very small discrete red spot developing, resembling a purpuric lesion. Is it safe to proceed with treatment?

**A.**—No known risk attaches to weekly exposure to ultra-violet irradiation calculated to produce a first-degree reaction. It may be expedient, however, to interrupt such treatment for a matter of two months in order that the skin may lose its tolerance to these rays; on resuming the treatment the desired reactions should be obtained with a smaller dosage. It is doubtful if a single discrete red spot could be attributed to the exposures, but should this persist or increase in size, it would be advisable to seek the opinion of a dermatologist.

### Acne Rosacea

**Q.**—A healthy woman of 55 has suffered for nine months from a periodic reddened papular eruption which usually appears symmetrically on the face, but occasionally on one side and the next day the other. It is now spreading to the forehead. Tortoiseshell spectacles are worn for reading, and the condition is more pronounced where the frames touch the skin, causing irritation and being aggravated by heat and radiation from a fire. It dies down overnight, but not completely. No medicines are being taken, and no particular food seems to be associated with the rash. What are the cause and the treatment?

**A.**—The condition described is probably rosacea and of menopausal origin. There may also be a contact dermatitis present from the spectacle frames, though this has not been described in relation to pure tortoiseshell. Soap and water should be avoided on the face; ordinary cosmetics should be used by day and a 2% sulphur and salicylic-acid ointment applied lightly at night. A very small dose of unfiltered x rays (70–100 r at 60 kV.) is helpful. Phenobarbitone gr. 1/2 (32 mg.) at night and stilboestrol 0.5 mg. daily, rest, restricted carbohydrates, and the avoidance of hot and irritating foods and of strong tea should be advised.

### Legal Definition of Consummation

**Q.**—A woman aged 38 married her second husband seven years ago. He has no interest in sex, but is an otherwise excellent husband. They had intercourse on a few occasions when first married, and then more rarely, the last time being over a year ago. He always used a condom. They do not sleep together. I suggested that I should see her husband, but she said he would probably order me out of the house. Would a psychiatrist help? Has the marriage been consummated from the medico-legal point of view?

**A.**—It is possible, although not very likely, that the man has some organic defect, such as testicular atrophy. Many men have little interest in sex: it is part of their individual make-up, or perhaps more especially of their upbringing and mode of

life. Marriage at a comparatively late age might also be a factor. The management of the case will depend on aspects such as these. A psychiatrist might help, but only if the man is willing and anxious to co-operate.

The question whether the marriage has been "consummated" is hardly a medico-legal one; it is rather a question of the legal definition of the term "consummation." This was discussed at length and very helpfully by one of the leading authorities on divorce law, Mr. William Latey, in a paper read before the Medico-Legal Society, and reported in the *Medico-Legal and Criminological Review*, 1946, 14, 51.

In the case quoted there was undoubtedly "consummation," since the parties are said to have "had intercourse on a few occasions when first married." This case must therefore be distinguished from that of *Cowen v. Cowen* (1946) in which a marriage was declared on appeal to be a nullity, on the ground that the husband had persisted in using a condom, against the wishes of his wife. This was held to be a failure to consummate, so giving the petitioner a right to a declaration of nullity under section 7, subsection i (a), of the Matrimonial Causes Act, 1937 (the "Herbert" Act). A petition on this ground would fail if the wife did not satisfy the Court that she had always objected to the use of this contraceptive device. The wife may have another remedy; if she can prove to the satisfaction of the Court that the husband's conduct has had, or is likely to have, a serious effect on her health, this may constitute grounds for divorce by reason of "cruelty" on his part.

#### Lead Contamination of Water

**Q.**—Would you consider the presence of lead in a public water supply (pipe service) to the extent of 1/350 gr. of lead per gallon (0.04 mg. per litre) injurious to health when consumed, over a period of many years? If so, what symptoms might be expected?

**A.**—One authority states that 2 mg. (1/32 gr.) absorbed daily will in time undermine the constitution and set up chronic lead poisoning with changes in the kidneys and arteries which will shorten life (*Industrial Maladies*, by Sir Thomas Legge, p. 47).

#### NOTES AND COMMENTS

**Ejaculatio Praecox.**—Dr. K. F. D. SWEETMAN (Kuala Belait, Brunei) writes: This evening while relaxing at the end of a day's work I opened my latest copies of the *B.M.J.*, which arrived only an hour or two before, and tucked away in odd corners I found in two copies (June 28, p. 958, and July 12, p. 82) references to the treatment of the condition known as ejaculatio praecox. It seemed to me that both articles dismissed the subject rather summarily without touching upon several important points. Ejaculatio praecox is not by any means of no consequence; it can be the cause of serious marital maladjustment, causing frigidity on the part of the wife and, from this, antagonism and even open anger in the first or ending male. Several factors should be considered before attempting to treat this condition, some of them being:

The build of the male sexual organs. Often one finds the penis a little shorter than normal, a circumcision which has cut the prepuce too short, or some mild condition of chronic inflammation. Local causes are by no means the only or main factor concerned, because one may find that the patient sometimes has an ejaculation before he can commence the act of intercourse. (2) The mental make-up of the man concerned. Almost invariably they are what is called "a little highly strung," without there being any suggestion of mental pathology, though a state of anxiety may be caused secondarily from marital maladjustment arising from premature ejaculation. No amount of local anaesthetic applied to the genitals can overcome this factor. (3) The woman. Frigidity, opposition, inexperience, or lack of co-operation occurring in the female partner may decide the occurrence of ejaculatio praecox in a borderline case and most certainly aggravates it enormously. Also frigidity, opposition, and passivity can follow continual ejaculatio praecox. Fear of pregnancy can make a normal warmly reacting woman passive, frigid, or frankly in opposition.

In treating a case of this condition all these and other factors as well must be taken into consideration. My experience has been that it is impossible to eradicate the condition; whatever is done only lessens the degree of disability, but this is no bar to a successful marital adjustment for both partners, the real aim of treatment. At the commencement any general or local pathology should be eliminated and treated, at the same time making sure that the

symptoms complained of are not temporary, due to mental stress, business worries, etc., and other factors of a non-sexual nature, or over-indulgence. This leaves to be treated what one might be excused in calling true ejaculatio praecox. From the outset both partners must be considered, their confidence obtained, and separate advice given. Where the woman is concerned plain speaking is necessary and she must be convinced that she can do a lot to help her husband. More active movement on her part and love play extragenitally will take her husband's mind away a little and lessen his mental tension, and a dorsal position with the legs raised and flexed more than usual will facilitate full entry, all these manœuvres tending to hasten her own orgasm, thus lessening greatly the difference in time between hers and that of her husband. Secondly will follow also an increased flow of natural secretions and lessened friction.

The man should not indulge in intercourse if overtired, sick, emotionally upset, or if his wife is obviously in a non-responsive mood. It is also a help to avoid intercourse when the bladder is full. Though I have found local anaesthetics alone to be of little use, a lubricant used on the penis to decrease local friction is a definite help to both parties. Oleum arachidis I have found to be as good as any and practically odourless as well as non-irritating. He should be advised to indulge in extragenital love play to distract his attention a little and thus decrease his mental tension. Alcohol in small quantities is an asset to treatment; it helps to prolong the erection and abolishes some of the mental tension at the same time as the higher cerebral controls. All of these points are only contributory and cannot cure the condition, though they are essential to what treatment should aim at—satisfactory orgasm and sexual satisfaction for both man and wife. These points all tend to one result—earlier orgasm for the woman and a later one for the man. In some cases they will be enough, but not continually.

I consider the next step the most important—that is, to train the man to maintain his erection after the premature ejaculation. The longer the duration of the erection before ejaculation the easier it is, and for it to occur there must be the minimum of local friction. With training this can be regularly accomplished, if intercourse is limited to say once or twice a week. Once accomplished the woman can be carried on to her own orgasm, which is often accompanied by a second orgasm on the man's part, or he can relax with no ill effects, as one climax has been accomplished. This procedure can be readily accomplished by practice and involves no unpleasant or awkward and prolonged measures. If some frigidity of the woman is present make sure this is not due to fear of pregnancy; and, if so, abolish this by prescribing a suitable and safe method of contraception—preferably not elaborate, and using, if possible, a substance which acts as a lubricant as well. Condoms are definitely contraindicated. This rather lengthy discourse is not meant to be an authoritative treatise; it is merely an account of the condition drawn from my own observations and experiences in patients treated.

#### Corrections

Dr. LESLIE HARRIS writes: In my passing allusion ("All the Vitamins," Nov. 1, p. 683) to recent observations on the treatment of lupus vulgaris by massive doses of vitamin D, I should have written "by massive doses, orally or by injection" rather than "by massive local injection." Administration by mouth has of course been the procedure described in most accounts, although, for example, Dr. D. E. Macrae (*Lancet*, Jan. 25, p. 135) treated some cases by intramuscular injection and some by mouth (either oily solution or emulsion) and concluded that there was no difference in the results obtained by the different methods of administration. Incidentally, the international unit is 0.025 µg. of calciferol, not 0.02 µg. as printed.

The price of *Human Genetics*, by Prof. R. R. Gates, which was reviewed on July 12 (p. 57), has been reduced to £3 15s.

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# SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY NOVEMBER 8 1947

## British Medical Association

### PROCEEDINGS OF COUNCIL

Wednesday, Oct. 29, 1947

A meeting of the Council was held at the House of the Association, Tavistock Square, on Oct. 29, with Dr. H. Guy Dain in the chair.

The death was reported with regret of a former member, Dr. John Goff.

The Chairman stated that on behalf of the Council he had authorized the presentation of a Humble Address to Their Majesties on the marriage of the Princess Elizabeth. The Council endorsed his action by applause.

#### National Health Service Act: The Next Step

The Council considered the various resolutions of the recent Annual Representative Meeting which bore on the National Health Service Act, and the Secretary repeated the expected order of events, as set out in the *Journal* of Oct. 25 (p. 661), following the receipt of the Minister's reply to the representations of the Negotiating Committee. If the Minister's reply was available in documentary form a fortnight after the meeting with him fixed for Nov. 11 and 12, it would be possible to issue at the end of November in a combined document the considered case as represented to the Minister by the committee and the Minister's reply. This would be sent to all members of the profession, and a special meeting of the Council would be summoned to consider the form of a plebiscite and the calling of a Special Representative Meeting in the light of what the Minister had said.

The Chairman expressed the view that the Council would be wise to determine, in advance of the plebiscite returns, the character of the support it would need, as expressed in minimum percentages, to justify it in advising the profession to accept or not to accept the Service, and, after discussion, this view was generally accepted by the Council, though the decision as to the minimum percentage to be taken was deferred.

The resolution on midwifery services in which the Representative Body declared that all registered practitioners should be entitled to undertake domiciliary obstetrics under the Act and that ten years' experience in domiciliary obstetrics was an adequate preliminary condition of entry to an examination for a postgraduate diploma was considered. The Council endorsed the view expressed by the Chairman that the proper course was to confine themselves to a condemnation of Section 23 (3) of the Act, which added the words "including conditions as to the qualifications of such medical practitioners" to the section of the Midwives Act, 1936, which enables the Minister to prescribe conditions subject to which fees are to be payable by the local health authority to practitioners called in by midwives.

#### Shortage of Nurses: Committee Appointed

The Annual Representative Meeting called upon the Council to request the Minister of Health and the Secretary of State for Scotland to give urgent attention to the problem of the shortage of nurses and to set up a special committee for the purpose. The Council agreed, and the following were appointed to the new committee: the four principal officers of the Association, the chairmen of the Hospitals, Consultants and Specialists,

General Practice, Scottish, and Public Health Committees, Drs. Janet Aitken, E. B. Brooke; O. C. Carter, Mary Esslemont, A. C. Foster-Carter, A. Staveley Gough, C. G. Martin, W. G. Masefield, J. B. W. Rowe, Alex Smith, and C. O. Stallybrass, with two members nominated by the British Hospitals Association, two by the Royal College of Nursing, and one by King Edward's Fund, and with power to co-opt.

On the report of the Scottish Committee it was stated that, in common with a number of other medical bodies in Scotland, it had been invited by the Secretary of State to submit views on the recommendations of the Working Party on the Recruitment and Training of Nurses, and it was inviting the other bodies to co-operate in a joint committee with a view to preparing an agreed statement for submission to the Secretary of State. The other bodies, numbering about nineteen, had agreed to this proposal.

It was agreed, on the recommendation of the Science Committee, to award three Association prizes annually, each of the value of 20 guineas, and three further prizes, each of the value of 10 guineas, for essays by nurses on selected subjects. The subjects for the first award were "Suggested Improvements in the Methods of Training Nurses," "The Nurse-Patient Relationship," and "Difficulties of Domiciliary Nursing."

#### World Medical Association

A long report by the Hon. Secretary of the World Medical Association (Dr. Charles Hill) was laid before the Council. It recounted the decisions of the first annual meeting of the Association in Paris in September last, which was the subject of a leading article in the *Journal*. The report set out the constitution which was adopted, the details of subscription, membership roll, secretariat, and election of officers, and the report of a committee which was set up to formulate a recommendation on the attitude of the profession to war crimes.

Dr. J. A. Pridham, one of the B.M.A. representatives at the conference, who was elected a member of the first council, gave an interesting account of the proceedings in Paris. He said that the delegates worked very hard in extremely hot weather, and many of them gave up social occasions in order to leave more time for discussions. There was controversy, severe at times. Underneath some of the controversies was a fundamental difference between the French and the English-speaking countries in their conception of the new Association, differences too great to be bridged by compromise. But contention was better than apathy and showed that something big was being built. There were errors of tact on all sides, and all learned useful lessons, but the great fact emerged that nobody was prepared to leave the W.M.A. or to wreck it. He reminded the Council of the precursor of the W.M.A., the A.P.I.M., a body limited to Europe. The idea of the W.M.A. began with a tea-party in B.M.A. House in 1945, was followed by an impressive gathering of the representatives of 30 nations, again in London, in 1946, and finally took shape at this Paris meeting, when 47 nations were represented and all five continents. It was unfortunate that the debate on the relations of medicine

and the State, which was to have been opened by Dr. Dain, and for which the French secretary, Dr. Cibric, had prepared an impressive document, was crowded out, but even with very limited opportunity the Chairman of Council made the kind of impression to which they were all accustomed.

Dr. Pridham concluded by saying that, if United Nations and its subsidiary bodies such as the World Health Organization were to succeed, it was absolutely necessary that there should be a world body to represent the opinion of the medical profession. The doctors of the world possessed tradition, knowledge, and ethics which were of vital importance to humanity, and they must have a powerful organization which could speak in their name with authority. It was evident from the meeting in Paris that Britain and the B.M.A. were respected, and he believed the B.M.A. could and must give valuable guidance to the World Association which it had done so much to bring to birth.

#### The "Doctor" Sign on Cars

Dr. S. Wand, chairman of the General Practice Committee, brought forward a recommendation that, notwithstanding an earlier decision, no objection be raised during the period of petrol restrictions to the use by members of the profession of "Doctor" signs on their cars. Mr. R. L. Newell spoke against this recommendation. During the war the sign must have helped doctors to get through a blitzed area, but those conditions no longer existed. Dr. N. E. Waterfield also opposed. Dr. F. Gray spoke in favour. As doctors had the right to use their cars during a period of petrol restriction it was only reasonable that they should be able to avoid being stopped and questioned by the police. Dr. J. B. Miller suggested that when the car was parked the sign might attract the attention of thieves. Dr. R. W. Cockshut suggested some less prominent sign which would be known to the police but would not seem like advertisement. The recommendation was carried and it was agreed that, failing issue by a Government department of an official distinguishing sign, labels of a smaller design than those used during the war might be reissued through local Divisions.

The General Practice Committee report included a statement on action taken on over 30 separate matters.

#### Industrial Medicine

Dr. Vaughan Jones introduced a report of the Industrial Medicine Committee, the principal matter in which concerned the salaries of industrial medical officers, and eventually a recommendation on this question was carried, but was subject to an undertaking by the chairman of the committee to study again the question of increments within the range of salaries suggested, on which it had not so far been thought advisable to lay down specific figures and to define the term "assistant industrial medical officer." It was considered that the minimum commencing salary of a whole-time industrial medical officer in charge, single-handed or with assistants, should range from £1,000 to £1,750 according to the degree of responsibility, qualifications, experience, and age, and that of an assistant industrial medical officer should be £850.

The committee also submitted its replies to a questionnaire issued on behalf of the Industrial Health Advisory Committee of the Ministry of Labour and National Service on the development of industrial medical services. The replies were criticized in respect of certain details, and eventually Dr. Vaughan Jones agreed that the committee should look at the report again in the light of the suggestions made.

Dr. I. D. Grant presented a report of the Joint Evidence Committee concerning the scheduling of diseases as industrial diseases under the Workmen's Compensation Acts. The committee had included representatives of the B.M.A., the Association of Industrial Medical Officers, and the Association of Certifying Factory Surgeons. The committee was unanimous in arriving at its report.

Dr. Wand said that this was an excellent report, one of the best pieces of committee work that had come to the Council for a long time. Dr. Cockshut referred to the absence of any recommendation for the education of medical referees. Most of these people were out of touch with factory life, and never saw a factory from one year's end to another.

The Chairman said that this and other points could be brought out in oral evidence which the committee would give to the Departmental Committee on Industrial Diseases.

Dr. Grant said that the committee was indebted to Dr. Agnes Kelynack, Assistant Secretary of the Association, who was responsible for the memorandum.

#### Consultants and Specialists

On the recommendations of the Consultants and Specialists Committee, whose report was introduced by Mr. A. M. A. Moore, it was agreed that no action be taken at the present time to review the salaries of E.M.S. specialists; that in view of the appointment of the specialist Spens Committee no further action be taken at present to reconsider the minimum salaries for whole-time consultants and other appointments in the public health service; and that representations should be made to the Minister of Pensions that specialist members of his Ministry's medical boards should be remunerated at the rate of 4 guineas a session, and to the Ministry of Health urging the continued payment of part-time consultant members of the staffs of voluntary hospitals. Attention had been drawn to the action of the Minister in refusing to pay part-time consultant members of the staff of a provincial voluntary hospital and proposing to appoint a smaller staff of full-time consultants.

#### The Marriage Bar

Dr. J. Fenton, chairman of the Public Health Committee, brought forward a recommendation reaffirming the policy of the Association enunciated some 20 years ago that, in considering grounds for the appointment or dismissal of a woman medical officer, marriage should not be made a reason for withholding or terminating an appointment. This was agreed to, and it was further agreed that a copy of the resolution should be sent to the Negotiating Committee and to the Glasgow Corporation and Northern Ireland Government, two authorities which impose the marriage ban so far as women medical officers are concerned.

The report of the Public Health Committee contained an account of the negotiations which have led up to the second interim revision of the Askwith memorandum. Dr. Fenton mentioned that the Society of Medical Officers of Health had conveyed an expression of appreciation to the Chairman of Council for the part which the Association had taken in arriving at the new percentage increases of the Askwith scales.

Some twenty other matters on which action had been taken were contained in the Public Health Committee's report.

#### Co-ordination of Policy on Remuneration

Dr. E. A. Gregg presented the first report on the committee concerned with co-ordination of policy on remuneration. It contained one recommendation—which was agreed to—that the question of the sessional fee for refraction work be discussed again with the local-authority associations when other questions relating to the payment of medical practitioners employed on a part-time basis by local authorities were under consideration. The bulk of the work of the committee, however, concerned the comparison and co-ordination of the proposals of the various committees with regard to fees, and rates of remuneration generally, and in one case it was able to point to, and secure the rectification of, a disparity between the proposals of two committees in respect of salary scales for similar employment.

The Chairman of Council said that this obviously was a very useful committee, and it had been instructive to review the scales of salaries and fees in so many and various fields of activity.

#### Organization and Public Relations

Dr. Pridham, for the Organization Committee, proposed the establishment of a standing committee on medical films to manage the Medical Film Bureau and the Film Library and to deal generally with matters concerning medical films. This was agreed to.

It was agreed also that a special committee be set up to examine and report on the relationship of the Association to the profession in the Dominions of India and Pakistan. The

position of B.M.A. members in Burma and in Ceylon was added to the committee's reference.

The report of the Public Relations Committee was presented by Dr. Guy Dain. Mr. Newell congratulated the committee on the popular illustrated edition of the report on the care and treatment of the elderly and infirm, entitled *When You are Old*.

#### A Nutrition Committee Appointed

The Council agreed to appoint a special committee to consider problems of nutrition, including present nutritional standards. This is to be a scientific committee, making a factual report to the Council. The Chairman of Council and the Chairman of the Science Committee (Dr. R. G. Gordon) were authorized to decide its composition. The Chairman said that it had been stated in the report of the Committee on Nutrition appointed before the war that a certain number of calories was essential. The number provided by the present ration was much smaller, and therefore it seemed to be imperative to set up a committee to consider how the present food standards reflected on the national health.

#### Empire Medical Advisory Committee

In June last the Council resolved to establish an Empire Medical Advisory Bureau, and the Finance Committee now brought forward a scheme of organization for approval. The object of the Bureau was generally to provide a personal advisory service to practitioners visiting the United Kingdom, particularly those from the Dominions and Colonies. The service would include the making available of information concerning facilities for postgraduate study, as well as a wide range of other information, the maintenance of a register of suitable lodgings and hotels and the arrangement of private hospitality, and the organization of social functions and other means to enable practitioners from different parts of the Empire to meet each other and prominent members of the profession in this country. Proposals were made for staffing and finance. The scheme was expected to cost between £4,000 and £5,000 in the first year and more in subsequent years.

The present idea was that practitioners from the Dominions and Colonies should be encouraged to come to this country, and when they came should be encouraged also to make their first call at B.M.A. Headquarters and that the organization there should be available to give them what help they needed.

Dr. J. H. Anderson said that this proposed organization offered a good opportunity for liaison with Branches overseas. Dr. J. G. M. Hamilton reminded the Council that London was not contemporaneous with Great Britain and that there should be co-operation with Branches at home as well as overseas. The Chairman said that it would, of course, be assumed that some of the visiting practitioners would want to go to provincial centres and to Scotland.

A discussion took place on possible alternative titles, but "Empire Medical Advisory Bureau" was most favoured.

The recommendation was agreed to and a committee of management appointed.

#### Churches' Council on Healing

Dr. Waterfield, for the Central Ethical Committee, said that his committee had discussed the relationship of the Association with the Churches' Council on Healing. It had been feared that members of that body had been adopting unscientific and psychologically unsound methods. A deputation headed by the then Bishop of Croydon (now Bishop of Lincoln) had been received and a lucid description given of the Council's work. The deputation completely allayed the fears of the committee, and a statement had been prepared for submission to the B.M.A. Council and to the Churches' Council on Healing setting out the result of the discussions, which had made it clear that the Churches' Council was doing valuable work and that there existed a field for legitimate co-operation between the two bodies. The statement is published in the *Supplement* at p. 112.

A question was asked by one member whether the list of churches adhering to the Central Council included the Church of Christ Scientist, and the reply was that it did not. The Council was set up by the late Archbishop Temple to co-ordinate the activities of some 13 denominations or groups of churches.

The Chairman said that there was no desire on the part of the Churches' Council to overlap the realm of physical or psychiatric medicine. These churches claimed, quite properly, their place in the work of healing, but they made no claim to heal by laying on of hands or pouring of oil. They wished to provide healing for the spirit.

Dr. Cockshut said that he regarded this statement as a most thrilling document. Very often doctors did not have any contact with the clergy, and very often they did not seem themselves to get to the root of what was wrong with the individual. He envied the members of the Ethical Committee their privilege in starting something which might prove to be of very great importance.

The statement was unanimously approved, and it was agreed that representatives of the Association be appointed to the Churches' Council on Healing.

In June, 1946, the Council approved a statement which had been prepared for the assistance of practitioners who were asked to co-operate in the work of the National Marriage Guidance Council. The statement was now again submitted after revision and agreement between the Central Ethical Committee and the Marriage Guidance Council. The alterations, of a very minor character, were approved. Dr. Dornan objected to the setting up of a list of medical practitioners deemed suitable to provide the advice required. He thought that inclusion in the *Medical Register* should be sufficient. Dr. Sutherland said that the list was open to all practitioners who expressed themselves as competent and willing to render the service required.

The objections were not pressed and the statement was approved.

#### Scottish Committee

Dr. G. MacFeat presented the report of the Scottish Committee, some of the matters in which have been referred to under earlier headings. He said that a liaison committee had been set up with the Scottish Division of the British Dental Association. The list of members of the Regional Hospital Boards will be found on p. 111. The Scottish Committee had been asked to provide reading-room facilities for postgraduate students in Edinburgh, and it was happy to furnish such accommodation at Headquarters.

Dr. Forbes referred to one matter touched upon in the Scottish report—the fees for reports required by procurators fiscal. The fees in certain cases appeared to be below the fees in England, and it would be desirable to have some co-ordination. Dr. MacFeat agreed that the suggested scale of fees should be reconsidered by the Scottish Committee. The Chairman pointed out the desirability of submitting such questions to the new Committee on Co-ordination of Remuneration. It was agreed that the membership of the Co-ordinating Committee should include the chairman of the Scottish Committee. Dr. MacFeat.

#### Colonial Medical Service

Dr. J. B. W. Rowe presented a report from the Dominions Committee, the chief matter in which concerned the terms of service in the Colonial Medical Service. It was agreed to draw the attention of the Colonial Office to the inadequacy of the present salary scales, and to inform the department that the Association proposed at a later date to raise the whole question of these salary scales in the light of the findings of the Spens Committee. In the meantime it was felt that negotiations with the department should be opened with a view to securing the adoption retrospectively of percentage increases in the pre-war salary scales on the basis of the second interim revision of the Askwith memorandum. The Colonial Office would be asked to reach a decision on this latter question by Dec. 31 next.

#### Other Business

Sir Victor Richardson presented the report of the Armed Forces Committee. He said that there had been a deputation from the committee to the Ministry of Commonwealth Relations with regard to the compensation, etc., of officers compulsorily retired from the Indian Medical Service. The committee had prepared a draft of what took place at that meeting, but the draft was still under consideration.

A report was produced from the Arrangements Committee for the Annual Meeting at Cambridge in June next. It contained the nominations for the officers of the sections. Dr. C. M. Stevenson said that the Cambridge people were satisfied with the nominations offered to them and thought they had been treated generously.

A report of the Aliens Committee of the Central Medical War Committee was placed before the Council. This drew the attention of the Council to certain points in connexion with the recently introduced Medical Practitioners and Pharmacists Bill, which provides for permanent registration of certain temporarily registered practitioners and provisional registration of certain others. The Minister, said the Chairman of Council, had now agreed to fix a date after which an alien coming into this country—say, as a farm worker—would not be able at the end of twelve months to go on to the *Medical Register*, a thing which had been happening.

On the motion of the Science Committee it was agreed to suggest to the secretaries of Regional Hospital Boards and university postgraduate committees that postgraduate committees should be modified to ensure the inclusion of representatives from the staffs of local hospitals, local medical societies, and Branches or Divisions of the B.M.A.

Reports were presented from the Insurance Acts and the Hospitals Committees. The business contained therein has already been published in the *Supplement* in the reports of the meetings of those committees. Routine reports were made by the Journal, Staffing, and Building Committees, and a progress report by the Joint Committee on Psychiatry and the Law.

The Council, which had assembled at 10 a.m., rose at 5.30 p.m.

## ANNUAL PANEL CONFERENCE

### THE MINISTRY OF HEALTH DISCUSSIONS

The Annual Panel Conference of representatives of Local Medical and Panel Committees was held in the Great Hall of B.M.A. House, London, on Thursday, Oct. 30. Dr. J. A. Brown (Birmingham) was in the chair, supported by Dr. E. A. Gregg (chairman of the Insurance Acts Committee) and Dr. Charles Hill (Secretary).

At an early stage in the conference, in view of a number of motions on the agenda calling for a statement of the position with regard to the National Health Service, Dr. H. Guy Dain, Chairman of Council, spoke on the discussions which have been taking place.

#### Dr. Dain's Statement

Dr. Dain: In February last, after the plebiscite had shown a majority against any negotiation with the Government, the Minister finally accepted the terms upon which he had agreed to enter into discussion—namely, that the possibility of an Amending Act should not be ruled out. The Minister himself on the first occasion met the Negotiating Committee and said that the amendment of the Act was a possibility. Later subcommittees dealing with various parts of the Act were set up, and from February to July a complete examination of the whole structure of the Act was made. These talks were not with the Minister himself but with his officers, and the arrangement was that when they were completed the case which had been put forward on behalf of the profession should be reported to the Minister by his officers. The committee, in order to ensure the proper emphasis on the points for which it was contending, also prepared a document for presentation to the Minister, restating the arguments used for the principles they desired to see established in the Service. The subject at the final meeting with the officers of the Ministry was partnership agreements, and it has been possible to show that sect. 35 of the Act is entirely unworkable.

On a number of grounds a case has been established for the amendment of the Act. The more the case has

been argued the more satisfied are those who speak for the profession of the soundness of their principles. I may say that on matters relating to partnerships, agreements, and purchase and sale of practices we have had the best legal advice we could get and have tendered that advice to the officers of the Ministry.

The Minister has undertaken to see us on the afternoons of Nov. 11 and 12, and it is expected that he will then, or soon after, give his answer and say whether and to what extent he is prepared to amend the Act. Our own document and the Minister's reply will afterwards be circulated to every member of the profession. The Council of the Association will meet and decide on the subsequent procedure. It will seek to obtain from the Representative Body an expression of opinion, which will be conveyed to all members of the profession at the time when they will be asked, in a second plebiscite, whether or not they are prepared to accept service. The committee's document is in complete pursuance of what has been laid down at Representative Meetings. There is no secrecy at all about it, but there would have been no point in reporting the discussions week by week, for the arguments used were familiar ones, and the officers of the Ministry of course had no authority to make an official reply. I am very sensible of the patience and forbearance which the members of the profession have exercised over a period of months during which they have received very little information—a period prolonged by the holiday season—but they can be assured that, whatever misgivings have been felt in some quarters, there has been no departure whatever from the principles by which we stand. (Applause.)

#### Questions by Representatives

Dr. J. A. Ireland (I.A.C.) said that the basis of compensation was causing some perturbation. On what basis was it to be assessed—1939 or present-day figures?

Dr. W. D. Steel (Worcester) asked whether it was contemplated that there would be a Representative Meeting before the plebiscite.

Dr. A. C. E. Breach (Kent) said that even to representatives in that hall, who were mostly in close touch with events, the period had been one of disquiet and uncertainty, and in the rank and file the long delay had meant a decline in enthusiasm and a risk of apathy.

Dr. A. V. Russell (Wolverhampton) said that the Minister on one occasion had told an enthusiastic audience that the doctors were at last beginning to see reason and willing to dance to his tune. They were not willing to dance to any such fiddle or to give up their freedom. Could Dr. Dain say whether the Minister was likely to launch a "blitzkrieg" after this "phony peace"?

Dr. F. E. Gould (Wolverhampton) asked whether any idea could be given as to how long it would be after the "appointed day" before compensation would be paid to those who were in a position to receive it.

Dr. R. W. Cockshut (I.A.C.), speaking as a "die-hard" opponent of the Act, told the conference with confidence that nothing whatever had been given away during these discussions. Except for Dr. Dain and the Secretary, the members of the Negotiating (or better called, the Discussions) Committee had had only a small part to play. The prolongation of the discussions had been an advantage because the further they had gone along the road the better they had been able to point out how this or that would not work. Before they entered upon these discussions many of them were opposed to the Act on principle, but after listening to the discussions he at any rate, if he had been favourable to the Act on principle, would now as a reasonable man have been opposed to it from the point of view of practicability. The procedure Dr. Dain had outlined could not be bettered as a means of ensuring that the voice of the profession would be heard.

Dr. W. Fraser (Cumberland) asked whether the committee still adhered to the principles regarding sale of practices, direction, and capitation fee.

Dr. J. A. Pridham (I.A.C.) endorsed all that Dr. Cockshut had said. He hoped they would not consent to receive a penny of compensation, but would zealously preserve the right to buy and sell goodwill.

Dr. Dain, in reply, said that compensation had not been discussed with the Ministry because they had had no instructions from the Representative Body that it would be willing to accept the loss of goodwill which compensation would involve. The problem of what it would cost the Government to make compensation was entirely outside the discussion. A formula was prepared for their own purposes when the matter was first broached, but the Negotiating Committee had never said a word to the officers of the Ministry on that question. He asked the Secretary to explain the formula.

Dr. Hill said that in the computation of the £66 millions in the Act there was taken by the Government the aggregate pre-war general-practice gross income on the basis of the figures collected by Prof. Bradford Hill in the statistical evidence prepared for the first Spens Committee. If that aggregate was multiplied by 2 and an amount equal to 16% added to the product, the result was rather less than £66 millions. If, again, the aggregate was multiplied by 1.9 and 22% was added, a similar figure was obtained. It was provided in the Act that there should be available for compensation a global sum of £66 millions or an appropriate proportion thereof. If there were fewer than 17,700 practitioners entering the Service there would be a deduction from the £66 millions of an amount equal to one-17,900th part on account of each practitioner to the number falling below the figure stated, but for every practitioner in excess of 17,900 there would be no proportionate increase in the £66 millions.

Dr. Dain, continuing, said that it was impossible to determine what would be the share of any particular practitioner for a long time after the "appointed day," so that any practitioner who was waiting until July 5 in order that he might then retire and claim his compensation was living in a fool's paradise. There would be a Representative Meeting before the plebiscite. A lead would be given by the Representative Body before the plebiscite vote was taken. Some reference had been made to statements by the Minister which suggested that he had the profession eating out of his hand. It was his policy, of course, to tell that to his public.

He agreed that there might have been a damping down of enthusiasm in view of the long interval, but that was not altogether a bad thing. It was out of the question to suppose that enthusiasm could be kept at a high pitch over very many months, and it would rise again and be effective at the proper moment. The committee had put in the forefront its opposition to the abolition of sale of practices and to direction of doctors, and its insistence on the method of remuneration by capitation fee; it had not receded in any way. Were they likely to get what they wanted? They had no idea. The officers of the Ministry, quite rightly, had not given away what the Minister might do. It was for the profession to see to it that he did what they wanted.

Dr. Gregg, in the name of the conference, expressed warm thanks to Dr. Dain. The fact that they had had a discussion of this kind was an indication of the importance attached to the present conference. Every representative was a key man; he was a man who was looked up to and whose opinion was sought in his own area. Someone had talked about enthusiasm. This matter was not going to be brought to a successful conclusion on a wave of enthusiasm but only by dogged determination. He was sure that the profession was satisfied in its leaders. There was no one who was not sure of Dr. Dain. They had had opportunities of trying him out over many years. He had been with them in many a fight and they had full confidence in him and in those associated with him. He begged each of them in his local sphere of influence to act with determination never to surrender until this matter was brought to a successful conclusion. This would be something to wipe out the criticism brought against the profession in 1911. Then they were not united together—they had had no opportunity of uniting. To-day the doctors were a firmly united body, and working together under such leaders he had not the slightest doubt about the result.

The vote of thanks to Dr. Dain was accorded with acclamation.

On a motion by Glasgow it was agreed that, if and when terms came to be discussed, the Insurance Acts Committee, as experts, should be consulted on the capitation fee before negotiations began.

## ANNUAL REPORT OF INSURANCE ACTS COMMITTEE

The Conference then turned to the discussion of the report of the I.A.C., published in the *Supplement* of Oct. 4 (p. 77).

### N.H.I. Certificates

Dr. J. F. Clarke (Montgomeryshire) moved that the Minister be informed that practitioners would issue N.H.I. certificates for N.H.I. purposes only, and that where an employer asked for evidence of incapacity the approved official forms as issued by the Ministry of Labour and National Service should be used. He had statements by three firms in his own town to the effect that it was their custom to ask for any type of certificate as to incapacity. Workmen objected to paying a shilling for a certificate when the N.H.I. certificate could be used for nothing. While practitioners did not want to multiply certificates, he did not see why the very concise form issued by the Ministry of Labour, for which a fee of 1s. was payable, should not be used.

Dr. J. O. McDonagh (Perthshire) thought the motion inexpedient at a time when they were fighting for less certification. Personally he was always thankful not to have to sign a certificate. It was in the interests of industry in the present crisis that there should be proper certification of illness causing absenteeism. Dr. A. C. Dawes (Smethwick) and Dr. R. S. Paton (Perth) also opposed the motion, the former saying that the Ministry of Labour certificate was an unnecessarily complicated document. The N.H.I. certificate and the private certificate were sufficient to meet all needs.

The motion was lost.

### The Dispensing Capitation Fee

Dr. Harrison (East Sussex) moved that in view of present-day costs the dispensing capitation fee was totally inadequate. Many practitioners in his area would prefer not to do dispensing, but it was forced upon them. So long as they had to do this work they expected an adequate fee. The cost of old-time medicines had gone up greatly since before the war, and the newer drugs such as the sulphonamides and others were very expensive.

Dr. Gregg said that in urban areas the payment made to chemists when worked out in terms of capitation fee was 5s. 6d., and in rural areas 5s. They had been informed—and were unable to dispute it—that the payment available for specially expensive drugs worked out at 3d. per insured person, and this, added to the dispensing capitation fee of 4s. 9d., gave an amount equal to that received by the rural chemist. Dr. J. R. Baker (Lindsey) said that for his own rural dispensing list of about 1,300 the new fee would recompense him adequately for the drugs he provided, though not for the cost of a dispenser, or the time spent in dispensing, or the cost of sending the drugs. He complained of the cumbersome methods of claiming for special drugs.

This motion also was lost.

A motion by Swansea, that the dispensing capitation fee should be on a sliding scale in view of the rising trend of dispensing costs, was met by a motion to proceed to the next business.

### The National Formulary

Dr. E. J. Allan (Derbyshire) moved to request the Council to consider the publication in the *British Medical Journal* of a series of articles devoted to the practical use of the *National Formulary*, 1947. He said that in the *Formulary* there were a large number of prescriptions difficult to understand. Many of the drugs had strange names: some were too new to be in the reference books, and certain of the pharmacological arrangements of the prescriptions required explanation.

Dr. Gregg said that it would be wrong to conclude that the present *Formulary* would be the one available in the new Health Service. At present a joint committee of the B.M.A. and the pharmaceutical societies was grappling with the problem



of devising a formulary. He thought the suggestion in the motion was a good one for a future occasion, but hardly worth while so far as the present *Formulary* was concerned.

The motion was lost.

### Chemists' Hours

Dr. J. Arthur (Northamptonshire) moved that the Ministry be requested to make arrangements to ensure that in every prescribing area at least one pharmacy was open for the dispensing of N.H.I. prescriptions during the evening surgery hours of local practitioners. Dr. Howie Wood (Isle of Wight) said that in many areas insured patients were getting a raw deal in this respect. Chemists in some towns had adopted an evening rota so that only one chemist was on duty. If a doctor asked permission of the insurance committee to omit his evening surgery, what would be said to him? In some areas such permission had been asked and refused. In his area the chemists were under an obligation to the committee to dispense urgent prescriptions, on which they were paid a double dispensing fee, if they resided on their premises, but in one town only one chemist did so.

Dr. C. G. Martin (London) spoke against the motion, feeling that the Ministry ought not to be brought into it at all. If they insisted that the chemists be open at certain hours, the Ministry might insist that doctors' surgeries should be open at certain hours also.

The motion was lost by a large majority.

### Reference of Patients to Specialists

Dr. Hayes (Bristol) moved to deprecate the practice of the Ministry in referring patients for specialists' opinions without reference to the patients' own doctors. If the Ministry declined to discontinue this practice the specialists concerned should be asked to consider the ethics of the matter.

Dr. Gregg said that while it was a proper thing to endeavour to make the position plain to the specialists it had to be remembered that in many instances the person to whom the patients were referred was the tuberculosis officer, who was not a consultant in the ordinary sense of the term but had certain obligations outside those of the ordinary consultants and specialists. The I.A.C. had tried to impress upon the Ministry that the proper way to deal with the slack practitioner was not to take responsibility away from him by instituting wholesale references in the Regional Medical Service, which was likely to make the slack practitioner more slack than ever, but to give him more responsibility.

An amendment by East Sussex to substitute the words "That this conference challenges the right of the Ministry of Health to override the ethical tradition of the medical profession" for "... deprecates the practice of the Ministry of Health" was accepted, and in that form the motion was carried.

### Rural Practice

It was agreed, again on the motion of East Sussex, to draw particular attention to para. 29 of the report of the I.A.C. concerning rural medical practice under the National Health Service. The mover, Dr. Harrison, said that the claims of rural practitioners should be given urgent consideration by the committee. The village might be the last stronghold of the real family doctor, to whom so much lip service was paid. Dr. Gregg assured the conference that the committee had the interests of rural practitioners very much at heart.

### Sickness Benefit in Pregnancy

Dr. Howie Wood (Isle of Wight) moved to express profound dissatisfaction with the refusal of the Ministry to accede to the request of the Insurance Acts Committee that where a doctor was satisfied that his patient would not be capable of work until after her confinement he should be allowed to issue a special intermediate certificate without waiting for the qualifying period of 28 days to elapse. Why should a woman during the last four weeks of her pregnancy be compelled to come to their waiting-rooms? If every practitioner were to adopt the suggested procedure and issue a special intermediate certificate the Ministry would soon alter its regulations.

Dr. A. Beauchamp (Birmingham) spoke to the same effect, and Dr. Gregg said that the committee was still pursuing the question with the Ministry.

The motion was carried.

### Postgraduate Courses for General Practitioners

Dr. W. H. Hayes (Bristol) asked the conference to express the opinion that doctors living within a short radius of large hospitals would best be kept up to date by constant attendance on their patients when they went to hospital for consultation or treatment. Special refresher courses were an inferior form of postgraduate teaching and should be reserved for those practising remote from teaching centres. He did not expect immediate action to be taken on this motion, but in the future a more satisfactory state of things might be achieved.

Dr. F. Gray (London) hoped the conference would look at this proposal carefully. Was it a practical proposition that all the doctors in large cities should be visiting their patients in the different hospitals? The mover had spoken lightly of extra pay—pay was to be based on the assumption of such service of mutual benefit to patient and practitioner. He was willing, apparently, to assume a tremendous obligation without any guarantee that practitioners would receive anything whatever for a great increase of work. Practitioners had their own job to do, for which they were specially qualified. Their job was to endeavour to cut short minor illness and to keep their patients healthy before they got to the hospital stage. They had sometimes been told, in quarters not very friendly to the general practitioner, that the only way to keep the general practitioner up to date was to see that he went into hospital and was under the supervision of specialists. That was unnecessary and untrue: they did their best work in their own surgeries.

Dr. S. Wand (Birmingham) said that many of them believed that the general practitioner should be in constant association with some kind of hospital at which consultants and specialists were in regular attendance. Whether the motion from Bristol would achieve this or not was a matter which need not concern them in too much detail, but the principle behind the motion was sufficiently good to justify further consideration by the I.A.C.

It was agreed to refer this motion to the committee, together with another from the same source, drawing attention to the inadequacy of short courses of study and expressing the view that a refresher course should be of at least three months' duration. The mover said that there was no slur on the general practitioner intended in the Bristol motion.

Dr. C. W. Marshall (Exeter) said that it was unfair and anomalous that the single-handed practitioner should receive from the Government a fee for a locum tenent when the practitioner was attending a postgraduate course, whereas the practitioner who had a partner or assistant received no such grant.

Dr. C. F. R. Killick (I.A.C.) considered that so long as the work of the practice was continued satisfactorily it was immaterial from the point of view of the Government whether it was done by a locum tenent or a partner, and the fee should be given as a right in either case. Dr. J. A. Ireland took another view. Considerable success had been achieved in getting a fee for a locum tenent granted by the Ministry, and he thought the matter should be allowed to rest there.

An Exeter motion "That when a practitioner attends a postgraduate course the fee for a locum tenent should be forthcoming from the Government as a matter of right" was carried by 75 to 53.

A motion by Swansea was also carried to the effect that the body promoting the postgraduate courses should arrange a panel of locum tenents from which a practitioner attending such a course might be able to secure suitable help while absent from his practice.

On a motion from the Isle of Wight para. 42 of the Annual Report dealing with recruitment of doctors and protection of practices was amended so that it read "... satisfactory arrangements of an *ad hoc* nature can and should be made for the protection of the practice of any doctor who is in need of such assistance." The words "can and should" took the place of the permissive "could."

Dr. D. F. Whitaker (Surrey) moved a resolution of congratulation to the I.A.C. on securing an increase in the capitation fee, the mileage fund, and the dispensing capitation fee.

The resolution was carried unanimously, and the report of the committee was then approved.

### ELECTIONS

It was announced that Dr. J. A. Brown was the only person nominated for the chairmanship of the conference, and he was accordingly re-elected.

The following were elected by the conference to the Insurance Acts Committee: Drs. A. Beauchamp, I. G. Innes, J. A. Ireland, J. A. Pridham, F. M. Rose, and W. Woolley.

Dr. C. G. Martin was elected to represent the conference on the Conjoint Committee of Epsom College, in place of Dr. J. G. Greenfield, who has represented the conference on that body for ten years and has now resigned. A vote of thanks was accorded to Dr. Greenfield for his services.

Dr. Brown, in returning thanks for his re-election, said that he did not know what form the conference would take next year, but whatever form it took he would endeavour to serve them as before.

### NATIONAL INSURANCE DEFENCE TRUST

Dr. J. W. Bone (Treasurer of the National Insurance Defence Fund) presented the balance-sheet. He said that up to the end of 1946 a sum of £325,500 had been accumulated. The actual sum was larger than this because the investments were shown at cost, and at the current market figure were worth perhaps £50,000 more. The amount received in subscriptions in 1946 was only £18,000, and this with dividends and interest gave a total income of £24,000—a position which he did not regard as entirely satisfactory.

A special appeal was made in February of this year, and since then the heartening total of £126,000 had been received. If that rate were maintained until July of next year the target of £1,000,000 would not, of course, be reached but they would be well on their way towards it. He drew attention to certain areas which had as yet paid only small percentages of their quota—what he referred to as scandalously small amounts. These defaulters were injuring the prospect of reaching the target. During the last five weeks a sum of just upon £41,000 had been received. In conclusion he expressed the opinion that they would want all this money—and very soon.

The accounts of the Trust were approved.

### MISCELLANEOUS MOTIONS

The conference proceeded to consider a number of miscellaneous motions from panel committees. One was from Bristol deprecating the fact that medical practitioners, as a profession, should have to certify that their patients were habitual smokers or snuff-takers. Certification should be limited on this and other forms to the witnessing of the signature of a person or patient known to them and not be regarded as a guarantee of his or her habits or desires.

Dr. S. Wand said that action on this matter had been already taken. He could not conceive how it should be expected that doctors should be in possession of information that old-age-pensioner patients were habitual smokers or snuff-takers. What was more important, however, was that they had to witness their signature, and many of these persons were confined to their homes and even to their beds, so that it was necessary to visit them for this purpose.

The Bristol motion was carried unanimously.

Dr. J. Beek (Glasgow) moved to instruct the committee to ask the Ministry to issue definite directives as to the procedure to be observed by new entrants seeking to obtain medical benefit and as to the issue of evidence of title to such benefit. Dr. A. Hamilton (Leicestershire) said that this difficulty appeared to arise particularly where the cards were received at the Post Office, not at the Labour Exchange. The remedy might be to give a postcard along with the card issued at the post office and to have this sent to the appropriate insurance committee. Dr. Gregg said that it would be desirable to obtain rather fuller knowledge about this than was available at the moment.

It was agreed to refer the matter to the I.A.C.

### Doctors' Cars, Telephones, Surgeries

Dr. A. Owen (Lancashire) had a motion pleading for effective priority for doctors in the supply of motor-cars, the Government to be asked to insist that this priority be given by the manufacturers, if necessary direct, and not through the usual agency channels. He said that, in the North of England at any rate, many doctors went about in cars which were not fit to be on the road.

Dr. S. Wand said that Headquarters was doing everything in its power on behalf of doctors without cars or whose cars were worn out. Dr. A. B. Davies (Walsall) said that they all appreciated the work done by the B.M.A.; the difficulty did not lie there. It was apparently necessary to satisfy a needs test before a doctor's name could be put down on the list at all. Certificates from garage people or others had to be produced that the existing car was not only unroadworthy but incapable of being made roadworthy. Many of them also had cars of old vintage and found difficulty in obtaining spares, which were often as important as new cars.

Dr. L. S. Potter (Assistant Secretary) said that such a resolution would assist the efforts he was making to convince the Ministry of Supply that there would be a breakdown in many parts of the country if this problem were not settled now. He had between 2,000 and 3,000 cases of urgency, and this number represented only about one-fifth of the orders outstanding from doctors. Technically in the list of priorities doctors, nurses, and midwives were second only to the police, but this did not work out in practice. An approach to the manufacturers was being made, and he would continue to do his best to keep in close touch with whatever seemed likely to be of help in this deplorable situation.

The motion was carried unanimously.

Dr. D. Saklatvala (West Bromwich) moved that the Government should be approached by the B.M.A. with a request that doctors should be free to use their cars without any limitations as to purpose, provided they were within a radius of 15 miles from their homes, special arrangements being made in the case of rural practitioners for a greater radius if necessary. He pointed out that members of the profession were continuously on call; they worked longer hours than other classes of the community, and their leisure time was tenuous.

Dr. Wand said that a meeting had taken place recently with the Permanent Secretary of the Ministry of Fuel and Power on this subject, and his reply was now awaited. He proceeded to argue that on this question of being at call doctors were in a completely different position from the members of any other profession or business.

The West Bromwich motion was carried unanimously, as was a further motion by Stoke-on-Trent declaring that as doctors had to maintain a twenty-four-hour service, and were on call throughout, they should be allowed to use petrol for social calls within a limited radius of their residences. Dr. Wand pointed out that in general the Ministry had agreed to the use of "E" petrol for scientific or divisional meetings.

Dr. Howie Wood (Isle of Wight) had a resolution that arrangements should be made whereby telephone messages could either be forwarded to a practitioner's deputy or suitably recorded when a practitioner's telephone was unattended. He said that a robot telephone device was offered for installation at a cost of £80 for each doctor if more than a hundred doctors agreed to take it, and he suggested that the supply of suitable apparatus might be financed through the Defence Trust. This was a matter which affected the health insurance service, and it was not reasonable to expect that, as now happened in many cases, either the doctor or his wife must constantly be available at the telephone.

Dr. Wand said that the General Practice Committee had taken up this matter, and a statement on the present position with regard to special apparatus and service would shortly appear in the *Journal*. It was possible in some areas to make arrangements locally for the taking of messages. He suggested that in all areas where it was desired to have some scheme of this kind an arrangement be made with the local post office. As for the suggestion that the National Insurance Defence Trust be asked to finance suitable apparatus, the first 5,000 applicants for the robot telephone would wipe out the Trust Fund entirely. Dr. Gregg said that it would be ridiculous to hold out any hope

of the attachment of any part of the funds of the Trust for a purpose of this kind. Dr. J. O. McDonagh thought that ill-considered, almost facetious suggestions of this kind were damaging at a time when an endeavour was being made to get contributions to the Trust Fund from backward areas.

Dr. Howie Wood withdrew the suggestion concerning the Defence Trust, and the general question of telephone service arrangements was referred to the Committee.

Dr. J. E. Darlow (Boston) moved to direct the attention of the I.A.C. to the fact that many practitioners used rented surgeries and that owing to lack of accommodation many such practitioners were threatened with considerable increases of rent. He suggested that the matter be referred to the Ministry of Health with a view to ensuring that practitioners did not suffer thereby. In one small town in his district there were ten doctors: two of them owned their own houses and practised there; one lived in a rented house where he practised, but the other seven practised in lock-up surgeries and found that rents kept going up.

Dr. W. Jope (I.A.C.) said that since the war started the capitation fee had been increased from 9s. to 15s. 6d., an increase conceded to some extent owing to the greatly increased cost of running a practice. Therefore he hoped the motion would not be accepted in its present form.

The mover withdrew the reference to the Ministry of Health, and as a reference to the I.A.C. the motion was carried.

### National Health Service Questions

A motion by Buckinghamshire was agreed to without discussion. It drew attention to the fact that the advent of penicillin and other drugs requiring frequent parenteral administration had increased the time spent by the insurance practitioner (especially the rural practitioner) in his practice, and that this should be borne in mind by representatives of the profession if and when discussions took place on the remuneration of the general practitioner in the National Health Service.

Dr. H. W. Pooler (Derbyshire) asked that in reaching agreement on the question of mileage allowance under the National Health Service the present system whereby rural practitioners are not allowed mileage for patients residing in urban districts should be abolished. A country doctor whose patient happened to reside in an urban area could not charge mileage fees, even if his residence was more than two miles from the residence of the patient, whereas an urban practitioner whose patient lived more than two miles out in the country was entitled to do so—an entirely inequitable position.

Dr. Cobb (York) said that if an urban doctor went out to a patient in the country, and that patient lived within two miles of a rural practitioner, mileage was not allowed. What was sauce for the goose was sauce for the gander. Dr. Gregg said that conditions in this respect varied in different areas.

A motion in the sense of the Derbyshire representation was agreed to, as a recommendation both to the I.A.C. and the Negotiating Committee.

### Representation on Health Committees

Dr. Talbot Rogers (I.A.C.) moved:

That in view of the desire of the Minister of Health for the close and continuous co-ordination of the local health authorities' services under Part III of the National Health Service Act, with the general medical services on the one hand and the hospital services on the other, the conference endorses the opinion that this co-ordination cannot be achieved unless the health committee includes proper representation of the medical profession in the area after consultation with the local medical committee.

He reminded the conference that it was laid down in the Act that every local health authority should establish a health committee, and that slightly more than half of its members must be members of the local authority. When these matters were under discussion before the Bill was introduced the Negotiating Committee took the matter up with the Ministry and pointed out that there had been disappointing previous experience of permissive powers given to local authorities. They were promised that, although it could not be put into an Act specifically, there would be a sufficiently strong directive from the Ministry to local authorities. The Minister of Health had carried out that part of his bargain, but his circular on the

subject had been completely ignored in many parts of the country, and health committees were being set up without any approach to anybody interested outside the membership of the council.

Dr. Gregg said that while it was true that the position was not as satisfactory as might be wished, it was better than many imagined. Out of 62 county councils, 42 had actually co-opted members of the medical profession on the health committee, and out of 83 county borough councils 55 had done so. Dr. J. A. Ireland (Shropshire) said that on his own county council there was only one medical member; she had been a member for three years, but had not yet been co-opted on the health committee. Dr. F. C. Cozens (Kent) said that his county council had prepared immunization and vaccination schemes without consultation with medical practitioners, and had been prepared to use health visitors for working the immunization scheme without any agreement with the doctors. The local medical committee should be consulted in the making of such schemes before they became public. Dr. F. H. Rose (Preston) said that some health authorities were evading their duty in this matter of co-option by offering membership of or consultation with some of their subcommittees. Such co-option should be refused unless there was co-option to the full committee. Dr. L. H. Wilson (Sheffield) and Dr. D. Saklatvala (West Bromwich) supported the motion.

Dr. Dain said that he came from a city which had completely refused to accept the Minister's directive, but a large proportion of authorities had done so, which made it the easier for the profession to insist that in the amending Act it should be made obligatory on councils to appoint medical members to their committee.

Dr. S. A. Forbes (Croydon) said that in his constituency they fought the battle ten years ago and got two members of the local profession co-opted on the local health committee. When the question arose as to medical representation on health committees under the new Act a cut-and-dried scheme was placed before the committee, which would have been accepted had it not been for the strong arguments of their representatives. The matter was referred to a subcommittee. At first it was suggested from the local authority side that there should be two medical members but with no voting power. This was argued out before the full health committee, and in the result the medical profession got three representatives on that committee, with voting power, and two representatives on every subcommittee who need not necessarily be members of the main committee. Altogether they might have a representation of ten to be chosen by the local medical committee. There was also an agreement that medical members should be appointed to every additional subcommittee, and that all schemes put forward by the local authority should be sent to the local medical committee for its observations before the local health authority considered them. (Applause.)

The Kent motion was carried unanimously, as also was a motion by Sheffield deploring the failure of many statutory authorities to appoint medical practitioners as members, and instructing negotiators to press for an amendment of the Act in this respect.

Dr. Talbot Rogers further moved that where a local health authority refused to use its powers of co-option the I.A.C. should take all practicable steps, centrally and locally, to ensure that proper medical representation was obtained. It might be suggested to the Minister that he should withdraw his approval of schemes of local authorities which were not constituted according to his directive.

Dr. J. H. E. Moore (Leeds) argued that no health authority was properly constituted unless it contained outside members. In section 19 the word "majority" was used (a majority of members of the local authority); if "majority" meant the greater part, it followed that there must be a lesser part without which the local health authority was not constituted. Dr. Talbot Rogers said that, unfortunately, "majority" might also be interpreted as 100% of the council, and councils which made no co-options were in their legal rights in so doing.

This motion also was carried unanimously.

### Purchase and Sale of Practices

On the motion of Dr. F. M. Rose (Preston) the I.A.C. asked to explore the possibility of preparing a scheme, with

thority to establish a special fund to finance the purchase and sale of practices, designed to eliminate the objections experienced in the past.

### Future of the I.A.C. and of the Conference

Asked by Burnley and Swansea about the future position of the I.A.C. and the conference in view of possible impending changes, Dr. Gregg said that such questions could be answered more or less as a matter of common sense. If it had been und necessary in National Health Insurance to have certain organizations, non-statutory but essential to the scheme, it could be found just as necessary under any extended scheme provision. He had no doubt that if the I.A.C. was replaced would be by a body of different name but composed to a great extent of the same people, elected, of course, by the whole profession. He believed that the new local medical committees could proceed to set up a body *vis-à-vis* the Ministry to look after their interests, and it would be impossible for such a body to operate successfully without something analogous to the present conference. With regard to the Defence Trust, its basis had been so framed as to be applicable to an extended service, and the same might well apply to funds accumulated by panel committees which had completed their quota and to certain benevolent trusts. The I.A.C. would make it its business to ensure a smooth transition with proper safeguards.

On a motion by Wallasey, that the Minister be asked to assure practitioners that accumulated funds in respect of insured persons under the new scheme who failed to exercise their right to select their doctor would be distributed to practitioners on a *pro rata* basis similar to that in operation under the present scheme, Dr. Gregg said that there was too much "if" in this solution. Those who did not want any private practice might ally themselves with it, but he thought he spoke for the great majority when he said they did not want private practice wiped out, and if there was to be private practice as well as public practice they must be very careful how they handled a matter of this kind.

It was agreed to pass to the next business.

### The Dain Fund

Dr. Dain expressed his pleasure at the adoption of the Dain Fund by the conference and by panel committees. A trust had been formed to help in the education of the children of doctors who were in economic difficulties owing to the death of the father or to family misfortune. Here was a form of charity which very properly belonged to them as doctors and which was worthy of extended support. Some very generous donations had been forthcoming from various areas. It had been decided that half of what was received should be spent as current income and half should go to increase the capital. During this year up to the end of September £581 had been received. He was grateful to the conference for taking it up and placing it on a bigger basis than at one time seemed possible.

The conference concluded with a vote of thanks to the chairman.

## PANEL CONFERENCE DINNER

The representatives who had attended the Panel Conference on Oct. 30 dined together the same evening at the Piccadilly Hotel, with Dr. J. A. Brown in the chair. After a day of oratory, speeches were at a minimum both in number and length. Dr. J. Beck, of Glasgow, proposed the health of the Insurance Acts Committee. Dr. E. A. Gregg's speech in response sounded rather like the swang song of the I.A.C., but in other respects it recalled the phoenix, for he was sure that the members of the new body, whatever name it might bear, would be much the same as of the old, and their spirit of devotion to the interests of the profession would be no less. Dr. S. A. Forbes proposed the health of the Chairman, and spoke of Dr. Brown's long service so quietly and effectively rendered, the soundness of his judgment, and his invariable courtesy. Dr. Brown, in reply, spoke up for that "hard-working, much abused, and grossly underpaid member of the community—the general practitioner." The general practitioner, he said, was not, as was suggested some years ago, a super-snooper for the

specialist, or the consultant's pet; he was doing a good job of work and with a great sense of responsibility. Dr. Brown mentioned some of the humours of practice—the remark, for instance, of the patient who had been listening to a radio play the night before which had a doctor as the principal character: "It was a lovely play—the doctor died." Through the enterprise of Dr. Jope a collection was taken at the tables for the Dain Fund, and realized £113—£14 more than last year. Dr. Dain thanked the members for this, a personal contribution—not from committees; and spoke again of the object of the Fund—the education of doctors' children orphaned or in reduced circumstances. The health of the Secretary and staff was toasted, and Dr. Charles Hill and Dr. Leslie Potter made suitable replies.

The evening was enlivened by the appearance of Gillie Potter, who described what they think in "Hogsnorton" of the new Health Act.

## SCOTTISH REGIONAL HOSPITAL BOARDS

The Secretary of State for Scotland announced on Oct. 30 the names of the members of Scotland's five Regional Hospital Boards. The appointments are as follows.

*Northern Regional Hospital Board.*—Mr. Donald Macpherson (chairman), who is appointed for the period ending March 31, 1951.

Appointed for the period ending March 31, 1950: Col. the Hon. I. M. Campbell, D.S.O., T.D.; Miss M. B. Clyne; Mr. Robert Gilbert; Dr. Isaac H. Maciver; Rev. Father Neil MacKellaig; Mr. D. A. Plowman.

Appointed for the period ending March 31, 1951: Mr. A. J. C. Hamilton, F.R.C.S.; Rev. Ian M. MacRury; Mrs. Macleod of Macleod; Mr. Norman Robertson; Mr. Thomas Scott.

Appointed for the period ending March 31, 1952: Dr. John R. Anderson; Mr. John S. Banks; Mr. Norman MacIver; Mr. A. Mackintosh; Dr. William McWilliam; Mr. B. Soutar Simpson, F.R.C.S.Ed.

*North-eastern Regional Hospital Board.*—Mrs. May D. Baird (chairman), who is appointed for the period ending March 31, 1951.

Appointed for the period ending March 31, 1950: Dr. A. Greig Anderson; Bailie W. J. L. Dean; Dr. D. G. Gordon; Mr. James Hay; Miss Bell Jobson; Mr. Fred Martin, C.B.E.; Mr. Robert Ollason.

Appointed for the period ending March 31, 1951: Prof. David Campbell, M.C.; Prof. John Cruickshank, C.B.E.; Rev. George A. M. Dickson; Mr. A. Fraser; Miss F. E. Kaye; Prof. D. R. MacCalman.

Appointed for the period ending March 31, 1952: Prof. R. S. Aitken; Capt. J. S. Allan, D.L.; Mr. James M. Burnett; Mr. J. Roy Campbell; Mr. Alexander Lyon, D.S.O., T.D., D.L.; Dr. Ian H. McCiure, O.B.E.; Mrs. Helen M. Taylor, M.D.

*Eastern Regional Hospital Board.*—Treasurer, Mr. William Hughes, O.B.E. (chairman), who is appointed for the period ending March 31, 1951.

Appointed for the period ending March 31, 1950: Dr. A. Allan Bell; Mr. John R. Christie; Mr. R. A. L. Duncan; Miss Ann S. Graham; Dr. James Lawson; Mrs. A. L. Matthew; Dr. J. D. Sagar.

Appointed for the period ending March 31, 1951: Provost William Coull; Mr. D. F. Craig, J.P.; Miss Margaret Fairlie, M.D.; Prof. Adam Patrick; Mr. Lewis F. Robertson, M.B.E.; Rev. A. Wylie Smith.

Appointed for the period ending March 31, 1952: Mrs. Agnes F. Allan, J.P.; Mr. T. M. Ferguson, O.B.E., J.P.; Prof. A. D. Hitchin; Mr. William O'Neill, J.P.; Mr. James E. Prain; Dr. G. Rankine; Mr. W. J. Ross.

*South-eastern Regional Hospital Board.*—Dr. James R. C. Greenlees, D.S.O. (chairman), who is appointed for the period ending on March 31, 1951.

Appointed for the period ending March 31, 1950: Mr. James Black, J.P.; Prof. J. C. Brash, M.C.; Miss J. J. Ferguson; Prof. Sir David K. Henderson; Mr. Ben McKay; Miss I. McNeill; Dr. Andrew Simpson; Miss E. Stirling; Sir Henry Wade, C.M.G., D.S.O.

Appointed for the period ending March 31, 1951: Mr. J. Allan; Bailie John G. Banks, J.P.; Dr. R. W. Craig, O.B.E.; Lady Fraser; Mr. R. K. Henderson; Prof. T. J. Mackie, C.B.E.; Miss M. C. Marshall, O.B.E.; Mr. David Martin.

Appointed for the period ending March 31, 1952: Mr. O. A. Cunningham, T.D.; Mr. W. P. Earsman, J.P.; Mr. I. Simson Hall, F.R.C.S.Ed.; Mr. W. F. T. Haulain, O.B.E., M.C., F.R.C.S.Ed.;

Sir Humphrey Broun Lindsay, D.S.O.; Mr. James McKelvie, J.P.; Prof. Sidney Smith, C.B.E.; Mr. John Sneddon; Major E. G. Thomson, M.C.

*Western Regional Hospital Board.*—Sir Alexander Macgregor, O.B.E. (chairman), who is appointed for the period ending March 31, 1951.

Appointed for the period ending March 31, 1950: Mr. J. Bruce Dewar, J.P.; Mr. James Finlay; Mr. R. McCracken; Mr. Andrew McGroarty; Miss L. D. F. McIntyre; Bailie S. P. McLaren; The Hon. Mrs. Maclean of Ardgour; Dr. Angus MacNiven; Mr. G. H. Stevenson, O.B.E.; M.C., F.R.C.S.Ed.; Mr. J. Stewart, J.P.; Dr. J. H. Wright.

Appointed for the period ending March 31, 1951: Mr. Lawrence S. Blanche; Prof. T. Ferguson; Rev. J. A. Fisher; Prof. C. F. W. Illingworth, C.B.E.; Mr. James Jack; Miss J. D. Jolly; Dr. George MacFeat, O.B.E.; Bailie A. C. Manuel, J.P.; Mr. George L. Peacock, J.P.; Mr. Joseph E. Russell.

Appointed for the period ending March 31, 1952: Mr. William Baxter; Mr. John Dunlop; Provost E. Fyfe, M.B.E.; Bailie Edward Lawson; Mr. Alex. S. MacLellan; Mr. Alexander Miller, F.R.C.S.Ed.; Provost C. Minihan; Mr. A. Moncrieff Mitchell; Mr. William Reid, J.P.; Dr. Alex. Watt; Prof. G. M. Wishart.

## MEDICINE AND THE CHURCH

### STATEMENT APPROVED BY COUNCIL

The Council has considered and discussed with representatives of the Churches' Council on Healing the relationship of doctor and priest or minister in connexion with their respective vocations and the ways in which their co-operation will be of service to the community. Leading a deputation to the Central Ethical Committee of the B.M.A., the Bishop of Croydon (now Bishop of Lincoln) gave a concise exposition of the principles and aims of the Churches' Council on Healing. He stated as a basic principle that the subject of healing should be approached from a threefold standpoint—body, mind, and spirit. These three aspects of the human being were so interdependent that successful treatment of disease in one was not possible without consideration of the others. With this conviction in mind the late Archbishop Temple set up a committee to correlate the activities of associations already in the field. The healing of "the whole man" was its main concern. The Archbishop's committee has now been established permanently as the Churches' Council on Healing. In its own words the Churches' Council on Healing "affords a recognized basis for the co-operation of doctors and clergy in the study and performance of their respective functions in the work of healing, and to promote this co-operation in thought and action throughout the country."

Inquiries have been received on the subject at B.M.A. Headquarters, particularly on the propriety of the association of doctors with clergy as unqualified persons who might be concerned with the treatment of patients. For this reason the Central Ethical Committee invited the Churches' Council on Healing to send a deputation to discuss the matter from every angle and to obtain information concerning its objects and methods. Subsequently the Central Ethical Committee met the Medical Advisory Committee of the Churches' Council.

From these discussions it has become clear that this body is doing valuable work and that there exists a field for legitimate and valuable co-operation between clergy and doctors in general and between the Churches' Council of Healing and the Association in particular. The Council of the B.M.A. is of opinion that there is no ethical reason to prevent medical practitioners from co-operating with clergy in all cases and more especially those in which the doctor in charge of the patient thinks that religious ministrations will conduce to health and peace of mind or lead to recovery. Such co-operation is often necessary and desirable and would help to prevent abuses which have arisen through the activities of irresponsible and unqualified persons. Among other reasons the Churches' Council on Healing exists to safeguard the interests of those people who might become the victims of so-called faith healers. Much harm has been done to individuals by unreasonable appeals to the emotions and by mass hysteria.

A central liaison has been established by the appointment of representatives of the Association to attend meetings of the

Churches' Council and *ex officio* to serve on its Medical Advisory Committee. It is considered that most useful work may be done by close personal contact between doctor and clergyman, with an interchange of views and active co-operation where possible. With regard to the co-operation which can be secured at a Divisional or parochial level, it is considered that arrangements can best be left to the B.M.A. Divisions acting in concert with any branch organization of the Churches' Council or similar body. Joint activities might include the appointment of and co-operation with hospital chaplains and their deputes, education of the public, and informal discussions between doctors and the clergy.

In addition to the above suggestions, which in some measure have already been the custom of doctors and clergy in different parts of the country, it would seem desirable that the whole field of medical practice in relation to the work of the Church should be explored. Moral aspects in the cause, treatment, and prevention of disease cannot be overlooked, and in this field also it is desirable that there should be fuller co-operation between Medicine and the Church working together should encourage a dynamic philosophy of health which would enable every citizen to find a way of life based on moral principle and on a sound knowledge of the factors which promote health and well-being. Health is more than a physical problem, and the patient's attitude both to illness and to other problems is an important factor in his recovery and adjustment to life. Negative forces such as fear, resentment, jealousy, indulgence, and carelessness play no small part in the level of both personal and national health. For these reasons we welcome opportunities for discussion and co-operation in the future between qualified medical practitioners and all who have a concern for the religious needs of their patients.

## Correspondence

### Working Hours in the N.H.S.

SIR,—Many letters have appeared in the *British Medical Journal* and articles in the Press about working hours in the National Health Service. They all stress the fact that the medical practitioner is grossly overworked under the present panel system, but by some strange process of reasoning the forecast regular hours, frequent week-end leave, holidays with pay, and attendance for postgraduate instruction under the National Health Service.

The average mixed general practice is composed of one-third N.H.I. patients and two-thirds private (or fee-paying) patients. When the National Health Service commences private practice will become severely restricted. All National Health Service patients will be entitled to medical advice without the payment of a fee and will consult their doctor far more often. Where there are now 30 or 40 patients in an evening surgery there will be 60 or 70. The number of visits will be greatly increased.

The medical practitioner in sheer self-defence will have to refer more patients to hospital out-patient departments, and the patients will also demand specialist opinion far more frequently. The present resources of the hospitals will be quite unable to deal with these increased numbers.

No, Sir; if the National Health Service is fully implemented in July, 1948, the result will be chaos.—I am, etc.,

Torquay.

GEORGE T. ALLINGTON.

SIR,—The recent correspondence on fixed duty hours quoted by Dr. Firman (*Supplement*, Nov. 1, p. 100) as a "flood" seems but a splash of clumsy propaganda for a full-time salaried State service with all the control and direction necessarily entailed. This writer claims that the genuine G.P.—and I understand genuine—sees relief in such arrangements from a life of slavery and believes that among the overwhelming number of representatives who voted against a motion for its introduction at the last A.R.M. there were no genuine G.P.s. Later in the letter he makes a cheap sneer by suggesting that anyway representatives could be only men with "better class" practices although perhaps I have mistaken his meaning of "better class."



As a G.P. with a large panel practice I cannot claim to have seen or to have felt a slave, unless to my own conscience, and would suggest that there is no need for slavery unless a practitioner takes on too much for his ability and fails to organize his relief through inefficiency or lack of personality. Through the last twenty years a vast number of general practitioners have organized group practice in the formation of partnerships which do not necessarily entail close financial commitments. Under such conditions the group of doctors with whom I work have managed to assure themselves of a free half-day every week, three Sundays free in every month, and a long week-end—i.e., mid-day Friday to Monday morning—at least once a month. Thus, it will be seen that small units of group practice can supply the needs of most doctors and at the same time give the patient a reasonable assurance of some degree of continuity of treatment, as members of the group soon realize the likes and dislikes of their colleagues for certain forms of treatment. The patient feels also that the visiting doctor is chosen by and is closely in contact with their own doctor and not any other doctor chosen by that remote body the "State."

Finally, let me remind Dr. Firman that no less than 17 ordinary genuine general practitioners are members of the Negotiating Body and that a special General Practitioner Subcommittee of the Negotiating Body was formed to discuss the articular problem of general practice with the Minister.—I am, etc.,

Waford, Herts.

A. STAVELEY GOUGH.

### Working Day in the Services

SIR,—Your correspondents F./O. (*Supplement*, Sept. 13, p. 66) and F./Lieut. (*Supplement*, Oct. 18, p. 92) are apparently mistaken in their conception of the duties of the Services medical officer. They are suffering from the same kind of error as a medical officer of health who, in addition to his normal duties, is charged with caring for the health of the town hall staff and who complains that looking after the health of a few hundred people does not keep him fully occupied.

It is true that they may have to see only three or four patients a day and that this will keep them occupied for only a very short time, but perhaps one may ask whether they have (a) satisfied themselves that the station water supply is pure and adequate; (b) done the same for milk and all other food supplies; (c) familiarized themselves with the job of every man on the station, and satisfied themselves that nothing can be done to improve the hygienic conditions under which it is done; (d) trained the entire station personnel in first aid; and perhaps one might venture to add (e) thoroughly trained themselves in the same subject; (f) satisfied themselves that the standard of hygiene in all cook-houses is adequate and the food cooked to the best advantage to preserve its nutritive qualities. This list could, of course, be considerably extended.

Medical officers called to the Forces, or at any rate to the R.A.F., are mostly required not to act as general practitioners but as practitioners of the allied art of keeping fit men fit. For a general practitioner to complain that his services are not fully utilized because he can only work as a general practitioner for an hour or so a day is precisely as reasonable as for a solicitor called to the Forces to complain that he has few opportunities to use his legal training.

Your correspondent F./Lieut. asks for a chance to work. I suggest that he applies himself to a few at least of the suggestions I have given or some of the many others he could certainly get from his commanding officer or his senior medical officer.—I am, etc.,

London, N.1.

R. E. W. FISHER,  
Wing Commander, R.A.F.O.

### War Service and Hospital Appointments

SIR,—I am a recently demobilized medical specialist and keenly follow the few advertised senior appointments. So I asked for the official application form for the vacant appointment of an assistant physician at a certain hospital. This is a very thorough questionnaire of two pages, asking a great many useful questions regarding day of birth, matrimonial status, whether R. practitioner, and if the present appointment is a B1 or B2 one. The appointment is a temporary one while the present holder will be away on military service. It seems, therefore, suitable to the council not to ask one question,

unimportant when filling such a vacancy: whether the applicant is an ex-Service medical officer or not.

While with the R.A.M.C. I did not regard the years spent in the Service as wasted. Even to-day, when balancing up, I feel I learnt more medicine than I forgot. I am only growing critical regarding the wisdom of having given up a safe E.M.S. appointment now, when seeing such (not by all means isolated) cases, which clearly show that war service is no additional qualification for hospital appointments. During the war we were repeatedly promised that all appointments would be filled only temporarily, thus offering at least an equal chance to serving M.O.s for the permanent appointments. We know that in too many cases that promise remained what Hitler once named a scrap of paper. But the appointment at that hospital and the conditions attached to it show too clearly the changed attitude. Not only will the job be reserved for its (probably very eminent) war-time holder, but, even when filling the temporary vacancy, war service counts for nothing.—I am, etc.,

London, N.W.11.

EX-SERVICE DOCTOR.

### 'Basic Petrol

SIR,—The letters from Dr. H. S. Pasmore (*Journal*, Oct. 18, p. 632) and Dr. C. E. Brown (*Supplement*, Oct. 18, p. 92) serve to confirm what I have suspected for some months now—that there has been something of a change of heart at the divisional petroleum offices. During the war I found the officers in charge of these establishments helpful, considerate, and sympathetically inclined towards the general practitioner. During the last three months, however, I have had two occasions to quarrel with the local office. The first was when I acquired a new car, which, like the old one, was in what we used in our ignorance and imperfect state of knowledge to call "the 8-h.p. class." Then I was informed, on applying for a transfer of the E coupons to the new car, that "as my new car was of lower h.p. than the old one" it would be necessary to reduce the allowance of "motor fuel" by some 33%. It took six weeks and three letters to make the petroleum officer understand that both cars were of the same h.p., a fact which had been stated by me at the outset.

The second occasion was at the beginning of the present ration period, when I was sent the usual circular about a 10% cut with the coupons, only to find that the amount was in the proportion of 66% of what I had applied for. Needless to say, I wrote back to the petroleum officer by return a rather strong letter, and within a week or two more coupons arrived. With these was a letter, the gist of which was that he had seen fit to increase my allowance. No apology was offered, no explanation given.

In consequence, Sir, I feel with Dr. Brown that it is now time for some kind of revolt against this dictatorship and petty bureaucracy. Perhaps the B.M.A. could collect evidence such as Dr. Brown's and my own with which to support a protest to the Ministry of Fuel and Power?—I am, etc.,

Newcastle-upon-Tyne.

L. R. ATKINSON.

SIR,—It is to be hoped that letters such as that of Dr. Charles E. Brown (*Supplement*, Oct. 18, p. 92) will provoke the B.M.A. into making a firm protest. When I applied for my current allowance, I pointed out that for the last two winters I had had to expend my basic ration on the practice in order to keep going till the end of the rationing period. No acknowledgment was received, and my allowance was cut by 33%.—I am, etc.,

Wolverhampton.

PHILIP W. G. BAXTER.

### TRADE UNION MEMBERSHIP

The following is a list of local authorities which are understood to require employees to be members of a trade union or other organization:

*County Borough Councils.*—Barnsley, Gateshead.  
*Metropolitan Borough Councils.*—Fulham, Hackney, Poplar.  
*Non-County Borough Councils.*—Dartford, Leyton, Radcliffe (limited to future appointments), Tottenham, Wallend.  
*Urban District Councils.*—Denton, Droylsden, Houghton-le-Spring, Huyton-with-Roby, Portslade, Redditch (restricted to new appointments), Stanley (Co. Durham), Tyldesley.  
*Scottish Burghs.*—Motherwell and Wishaw.

## H.M. Forces Appointments

### ARMY

Colonel R. A. Hepple, C.B.E., M.C., has retired on retired pay and has been granted the honorary rank of Brigadier.  
Lieutenant-Colonel J. W. Hyatt, from R.A.M.C., to be Colonel.

### ROYAL ARMY MEDICAL CORPS

Lieutenant-Colonel J. McP. MacKinnon has retired on retired pay and has been granted the honorary rank of Colonel.  
Major (War Substantive Lieutenant-Colonel) J. P. Douglas, O.B.E., to be Lieutenant-Colonel.

Majors H. K. G. Nash and H. Clain to be Lieutenant-Colonels.  
War Substantive Major J. G. S. Holman, M.C., to be Major.  
Captain A. C. S. Hobson, M.C., to be Major.  
Captain T. A. Groves has retired and has been granted the honorary rank of Major.

*Short Service Commission, Specialist*.—War Substantive Captain D. G. Milne, from R.A.M.C., Emergency Commission, to be Captain.

*Short Service Commission*.—Captain T. C. R. Archer has been appointed to a permanent commission.

### WOMEN'S FORCES

#### EMPLOYED WITH THE R.A.M.C.

War Substantive Captain R. Hertz has relinquished her commission and has been granted the honorary rank of Captain.

To be Lieutenants: Rebeka Hamlyn and Jean T. Smith.

### COLONIAL MEDICAL SERVICE

The following appointments have been announced: P. A. Ailsopp, M.R.C.S., L.R.C.P., Medical Officer, Malaya; D. Currie, M.B., B.Ch., Medical Officer, Tanganyika; B. C. Hillary, M.B., B.Ch., Lady Medical Officer, Malaya; J. Littlejohn, L.R.C.P.&S.Ed., Medical Officer, Kenya; J. J. O'Dwyer, Medical Officer, Nigeria; J. J. Talbot, M.B., B.Ch., Medical Officer, British Guiana; G. M. Thomson, M.C., M.D., M.R.C.P., Adviser on Venereal Disease Control, West Indies; E. J. Blackaby, M.R.C.S., L.R.C.P., Senior Medical Officer, Uganda.

## Association Notices

### Nathaniel Bishop Harman Prize

The Council of the British Medical Association is prepared to consider a first award of the Nathaniel Bishop Harman Prize in the year 1948. The value of the prize is approximately £100.

The purpose of the prize is the promotion of systematic observation and research among consultant members of the staffs of hospitals who are not attached to recognized medical schools. It will be awarded for the best essay submitted in open competition. The work submitted must include personal observations and experiences collected by the candidate in the course of his practice. A high order of excellence will be required. No study or essay that has previously been published in the medical press or elsewhere will be considered eligible for the prize.

Any registered medical practitioner who is a consultant member of the staff of a hospital in Great Britain or N. Ireland and is not attached to a recognized medical school is eligible to compete. If any question arises in reference to the eligibility of a candidate or the admissibility of his essay, the decision of the Council shall be final.

Should the Council of the Association decide that no essay submitted is of sufficient merit, the prize will not be awarded in 1948 but will be offered again the year next following this decision, and in this event the money value of the prize on the occasion in question shall be such proportion of the accumulated income as the Council shall determine.

Each essay must be typewritten or printed in the English language, must be distinguished by a motto, and must be accompanied by a sealed envelope marked with the same motto and enclosing the candidate's name and address.

The writer of the essay to whom the prize is awarded may be requested to prepare a paper on the subject for publication in the *British Medical Journal* or for presentation to the appropriate section of the Annual Meeting of the Association.

Essays must be forwarded to reach the Secretary, British Medical Association House, Tavistock Square, London, W.C.1, not later than Dec. 31, 1947. The prize will be awarded at the Annual Meeting of the Association to be held in 1948. Inquiries relative to the prize should be addressed to the Secretary.

### Sir Charles Hastings Clinical Prize

The Sir Charles Hastings Clinical Prize, which consists of certificate and a money award of fifty guineas, is again open for competition. The following are the regulations governing the award:

(1) The prize is established by the Council of the British Medical Association for the promotion of systematic observation, research and record in general practice; it includes a money award of value of fifty guineas.

(2) Any member of the Association who is engaged in general practice is eligible to compete for the prize.

(3) The work submitted must include personal observations and experiences collected by the candidate in general practice, and high order of excellence will be required. If no essay entered is of sufficient merit no award will be made. It is to be noted that candidates in their entries should confine their attention to their own observations in practice rather than to comments on previous published work on the subject, though reference to current literature should not therefore be omitted when it bears directly on the results, their interpretations, and their conclusions.

(4) Essays, or whatever form the candidate desires his work to take, must be sent to the British Medical Association House, Tavistock Square, London, W.C.1, not later than Dec. 31, 1947. The prize will be awarded at the Annual General Meeting of the Association to be held in 1948.

(5) No study or essay that has been published in the medical press or elsewhere will be considered eligible for the prize, nor a contribution offered in one year cannot be accepted in any subsequent year unless it includes evidence of further work. The prize-winner in any year is not eligible for a second award of the prize.

(6) If any question arises in reference to the eligibility of a candidate or the admissibility of his or her essay, the decision of the Council on any such point shall be final.

(7) Each essay must be typewritten or printed, must be distinguished by a motto, and must be accompanied by a sealed envelope marked with the same motto and enclosing the candidate's name and address.

(8) The writer of the essay to whom the prize is awarded must, on the initiative of the Science Committee, be requested to prepare a paper on the subject for publication in the *British Medical Journal* or for presentation to the appropriate section of the Annual Meeting of the Association.

(9) Inquiries relative to the prize should be addressed to the Secretary.

CHARLES HILL,  
Secretary.

### B.M.A. LIBRARY

The Association's Library is being transferred from its present accommodation in the main building at B.M.A. House to the first and second floors of the Garden Court wing. To facilitate the removal the Library will be closed until 9.30 a.m. on Monday, Nov. 17.

### Branch and Division Meetings to be Held

**AYRSHIRE DIVISION**.—At Heathfield Hospital, Ayr, Sunday, Nov. 10, 7 p.m. Lecture by Dr. J. H. MacDonald.

**EAST HERTS DIVISION**.—At Lister Hospital, Hitchin, Wednesday, Nov. 12, 9 p.m., joint meeting with South Bedfordshire Division. Address by Dr. P. J. W. Mills: Recent Views concerning the Treatment of Hypertension.

**REIGATE DIVISION**.—At Redhill County Hospital, Redhill, Tuesday, Nov. 11, 8.30 p.m. Mr. Dickson Wright: The Surgical Treatment of Hypertension.

At the end of July Dr. William Peach Hay celebrated the fiftieth anniversary of starting medical practice at Peterborough, the occasion being honoured when his medical colleagues entertained him to dinner on Sept. 24. A native of Arbroath, Dr. Peach Hay qualified in the University of Edinburgh in 1891, after having already been on a whaling expedition. Various postgraduate appointments were followed by a period in Lagos with the Colonial Medical Service. It was on July 31, 1897, that he started practising at Peterborough. A keen lover of the theatre, a skilled metal- and wood-worker, and an excellent shot, Dr. Peach Hay has put in much work for the Peterborough and District Memorial Hospital, was the first and only chairman of the Soke of Peterborough Insurance Committee, and has actively supported the B.M.A.

LONDON SATURDAY NOVEMBER 15 1947

## THIOURACIL IN TOXIC GOITRE

A REVIEW OF FOUR YEARS' EXPERIENCE

BY

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The widespread clinical trial of thiouracil and its derivatives in toxic goitre since 1943 has shown that they are very effective in reducing the excessive thyroid secretion of this condition. A partial answer can now be given to those questions which naturally arose as to the value of these antithyroid drugs compared with other methods of treatment. The first question was whether or not thyroid function would remain normal after the drug was discontinued, and how long it would be necessary to give the drug before it could be discontinued. Equally important were the nature and the frequency of toxic effects and how, if at all, they were to be avoided. Thirdly, were there any particular age groups or clinical types for which thiouracil was especially suitable or contraindicated? The answers to these problems would of course decide the place of thiouracil in relation to other methods of treatment, thyroidectomy in particular.

With regard to remissions, Beierwaltes and Sturgis (1946a) noted eight in 45 cases; the course of thiouracil had averaged 10½ months in the eight cases, and the duration of the remission (to date) was from 3 to 12 months. Their cases of nodular goitre were not treated by thiouracil but by thyroidectomy. Himsworth *et al.* (1947) noted 25 remissions in a total of 65 treated, lasting from 6 to 30 months and over; only two had not relapsed after a remission of 18 months or more. Nussey (1946) reported 16 patients out of 50 with remissions of 5 to 17 months, and Wilson (1946) had two patients in a series of 65 who had not relapsed after stopping thiouracil for over a year. Williams *et al.* (1947) gave details of 111 patients who had stopped thiouracil. Of these, 51 had remissions lasting from 3 to 31 months—44 for over a year and 33 for more than 18 months; of all their patients who remained well for more than a year without treatment only one had a relapse. It would appear that this series of 111 cases is about one-third of the total number of their thiouracil-treated patients.

With regard to the length of treatment, Himsworth *et al.* (1947) concluded that prolonged treatment (a year or more) was less likely to be followed by relapse than when it was short—that is, less than one year—but the cases reported by Nussey (1946) showed a longer average remission with treatment for less than six months than when it had exceeded this time. The 111 patients of Williams *et al.* (1947) received thiouracil for an average of 10 months; they did not find a close relation between the length of treatment and the length of remission.

Toxic effects occurred in about 13% in the survey of Van Winkle *et al.* (1946) covering nearly 6,000 cases. This figure is based on collected results from a large number of observers and has not the same value as personal observation. It includes many cases of leucopenia which was diagnosed when the total white count was less than 4,000, and some of these may have been normal counts for the individuals concerned. Drug fever in this series had an incidence of 2.7%; in Moore's (1946) collected cases this was about 5%. The incidence of agranulocytosis (granulocytopenia) in these two series was a little over 2% and the mortality about 0.5%. From these inquiries it did not seem that the higher doses of thiouracil were more likely to cause agranulocytosis, but the range of dosage was higher than that generally used to-day. Some skin eruptions are not infrequent, but apart from urticaria they do not usually require the permanent stoppage of the drug. The above are the common and important reactions, though there are others of less significance. Many diverse and almost solitary conditions have been reported as complications of thiouracil, not always with proof that they are not intercurrent and unconnected with the drug. So far as is known at present thiouracil and its methyl derivative are the least toxic antithyroid drugs (Morgans, 1947). Propyl thiouracil may be better, but so far there is no proof. Ergothioneine (Lawson and Rimington, 1947) is under trial.

The applicability of thiouracil to different types has to be considered. Some authors have suggested that it is less effective when the thyrotoxicosis is secondary and the goitre is nodular than when it is smooth (Grainger, Gregson, and Pemberton, 1945). There is really no sharp differentiation between these two types, one merging insensibly into the other as the goitre increases in age. The goitre which is quite smooth is relatively rare, and the great majority are more or less nodular. On the other hand, Williams *et al.* (1947) had results equally good in nodular goitres, and indirect evidence on this point is the ability of thiouracil to stop auricular fibrillation and restore normal rhythm, this arrhythmia occurring usually in the older patients with nodular goitres (Nussey, 1944; Cookson, 1945; Williams, 1946; Himsworth *et al.*, 1947; Wilson, 1946; Wilson and Goodwin, 1947). Neither iodine nor external x-ray treatment will accomplish this, and it has yet to be shown what radioactive iodine will do in this respect. In pregnancy resistance to thiouracil has been reported (Cookson, 1947) and it has been recorded that thiouracil may cause goitre

the foetus (Davis and Forbes, 1945). But it has been used successfully without detriment to the foetus (Eaton, 1945; Strouse and Drabkin, 1946; Davis and Forbes, 1945; Williams *et al.*, 1947).

When the goitre is very large or when it is producing symptoms of tracheal pressure it is generally considered that removal is indicated rather than thiouracil.

In children thiouracil might be very suitable for the treatment of toxic goitre as it is difficult to estimate the amount of thyroid tissue to leave when doing thyroidectomy. Enough must be left to meet the needs of a growing child, yet not so much as to cause persistence of hyperthyroidism. With thiouracil it should be possible to adjust the dose to meet these requirements. Beierwaltes and Sturgis (1946b) used thiouracil in the case of a 14-year-old girl and would appear to have obtained a satisfactory result in that her B.M.R. was reduced from +61% to -3%.

### Results of Thiouracil Administration

Our results of the treatment of 95 cases of toxic goitre with thiouracil or methyl thiouracil are based on observations extending from 1943 to 1947. The age and sex distribution and the numbers of smooth and nodular goitres are shown in Table I. Men accounted for only five of the

TABLE I.—Age and Sex Distribution

Age	Female	Male	Smooth Goitre	Nodular Goitre
15-19 ..	2	—	2	—
20-29 ..	9	—	4	5
30-39 ..	15	1	1	15
40-49 ..	23	1	3	21
50-59 ..	20	—	—	21
60-69 ..	16	1	—	17
70-79 ..	4	—	—	5
81 ..	1	—	—	1

eases and there were only 10 goitres which could be described as smooth. Three of the patients had hyperthyroidism, with goitre and ocular signs, after taking thyroid extract, which in two had been prescribed for obesity. Thyroidectomy had previously been carried out in seven at intervals of from 6 to 26 years before, and one other had had x-ray therapy. In eight patients, after having a course of thiouracil, thyroidectomy was done for a variety of reasons. These reasons were: toxic reaction to the drug (granulopenia) in one, tracheal pressure in two, haematoma of the thyroid in one (possibly a thiouracil effect), one with a large goitre which did not respond to thiouracil, and three chose to have operation though their response to thiouracil had been good. Death from various causes occurred in 10 cases: three from thyroid toxæmia, with heart failure, respiratory infections, and mental symptoms, within eight weeks of starting thiouracil; one after cerebral thrombosis; one from coronary thrombosis; two ambulant cases with auricular fibrillation died suddenly; one developed mental symptoms and went into coma; one died probably from agranulocytosis; and one from recurrent heart failure after showing a good response for six months.

The initial dosage of the drugs used in the first year or two of the period of investigation was 1 g. to 0.6 g. daily, but this has gradually been reduced and the initial dose is now nearly always 0.1 g. three times daily and never exceeds 0.1 g. four times daily. Once hyperthyroidism has been controlled a maintenance dose of from 0.059 g. daily to 0.1 g. three times daily is used—generally 0.1 g. daily. Resistance to thiouracil—that is, persistence of hyperthyroidism after several weeks' or months' treatment—was noted in six cases: three with very large goitres, estimated at 10 or more times the normal in size; a case of pregnancy; a woman aged 81 with auricular fibrillation and congestive

heart failure; and one case in which hyperthyroidism persisted after the administration of thyroid extract.

The periods of observation and treatment were as follows: less than 6 months, 39 cases; 6 to 12 months, 1 cases; 1 to 2 years, 17 cases; 2 to 3 years, 16 cases; over 3 years, 6 cases. In 40 patients there were remissions (periods with no signs or symptoms of hyperthyroidism) during which no thiouracil was given (Table II). In case

TABLE II.—Remissions

Duration	No.	Smooth Goitre	Nodular Goitre
2-3 months ..	8	1	7
3-6 " ..	13	2	11
6-12 " ..	8	1	7
12-18 " ..	7	4	3
18-24 " ..	1	—	1
2 years or more ..	3	1	2

where more than one remission has occurred only the longest is considered. These remissions lasted from 2 to 25 months. Relapses have occurred in 15. Of 10 patients with smooth goitres, whose average age was 29, eight had remissions lasting from 6 to 25 months, and of the two remaining one has relapsed and the other was treated by thyroidectomy after thiouracil had produced toxic effect. The 85 patients with nodular goitre, having an average age of 51, showed 31 remissions—6 (7%) of more than 1 year and 13 (14%) of more than 6 months. Of the 31 cases 1 have relapsed. Two are in excellent health, having taken no thiouracil for 2 years or more. There was no proportional relation between the occurrence or length of remissions and the duration of treatment. In 11 cases with remissions of 12 months or longer the duration of treatment averaged 8 months, with extremes of 4 and 17 months. In 29 cases with remissions lasting less than 12 months the average duration of treatment was 8 months with extremes of 2 and 25 months. During remissions the goitre has usually decreased in size and in three cases has even become impalpable. Temporary enlargement sometimes occurs early in treatment, but reduction in the dose of thiouracil relieved this. An adequate dose could be found which effectively controlled symptoms without causing further thyroid enlargement. The same result was achieved in a few by the addition of a small amount of thyroid extract—1/4 gr. to 1 gr. (16 to 65 mg.) daily—the dose of thiouracil being maintained. Whether or not this has any advantage over the simple reduction of the thiouracil dose is uncertain.

Seven patients who previously had thyroidectomy also responded rapidly and very satisfactorily to the drug, but only two have shown remissions in spite of treatment lasting on the average 18 months.

### Effects in Auricular Fibrillation

Thiouracil was used in 15 cases of thyrotoxic auricular fibrillation—14 women and 1 man, whose ages ranged from 43 to 81. In addition there were one woman who also had mitral stenosis and one case of paroxysmal fibrillation. Normal rhythm returned in 8 of 16 cases as a result of thiouracil administration lasting from 4 days to 15 weeks, with an average, excluding these two extremes, of 35 days. Four of these had congestive failure, which cleared up rapidly and in three has not returned. In the patient with paroxysms of auricular fibrillation the attacks had been frequent before treatment was begun, but thereafter she had only three attacks within the first month and none during the subsequent four months of observation. One other case, that of a woman of 72, first came under observation with toxic goitre and normal rhythm, rate about 100 per minute, and a high pulse pressure (175/0). There

was nothing in her history to indicate the occurrence of paroxysmal fibrillation, but after taking methyl thiouracil, 0.3 g. daily for 11 days, fibrillation developed. The drug was continued in the same dose, and 12 days later normal rhythm, rate 84 per minute, was recorded.

In eight cases thiouracil failed to restore normal rhythm. One of these patients was moribund when treatment was started, and death occurred on the sixth day; a second, aged 81, died after two months of thiouracil, which had not been given continuously because of toxic effects. Two ambulant patients dropped dead after two to three months of therapy, having responded fairly well apart from the persistence of the arrhythmia; one had mitral stenosis; and three had large retrosternal goitres. One patient with a large goitre who had thyroidectomy after showing resistance to thiouracil for over twelve months developed a short paroxysm of auricular fibrillation two days after the operation.

### Toxic Reactions

Symptoms or signs suggesting toxic effects were present in 26 patients, but after various steps had been taken to prove which of these symptoms were in fact due to the drug, such as a period of interruption or substitution, 12 were excluded, giving an incidence of 14 genuine reactions. In only two was it necessary to stop the drug permanently because of the reactions it produced. The incidence of reactions was about the same with thiouracil and methyl thiouracil (13% and 11% respectively). In addition there were two patients who showed adverse effects with both drugs. On the other hand, methyl thiouracil was well tolerated by four patients who had suffered ill effects from thiouracil. Of 64 cases under treatment with the thiouracils in the past 12 months only six have developed toxic reactions, and only one has been observed in the past six months.

Table III shows the nature of the toxic effects, consisting mostly of rashes, swelling of face, eyelids, and feet, sore

TABLE III.—Toxic Reactions

No.	Dosage			Preparation	Duration of Treatment at Time of Onset	Symptoms
	Initial	Total (g.)	B (g.)			
1	High	34	0.1 b.d.	T	21 weeks	Rashes; sore throats
2	"	18	0.1 b.d.	T	8 "	Swelling of eyelids
3	"	38	0.1 o.d.	T	19 "	Unsteady; dyspepsia; K incr.
4	Low	9	0.1 o.d.	M	52 "	Rash; thyroid tender
5	High	85	0.1 o.d.	T	75 "	Granulopenia 2,800 W.B.C.; drug abandoned. Thyroidectomy
6	"	58	0.1 t.i.d.	T M	64 "	Pains and tinglings in head and legs
7	Low	15	0.1 t.i.d.	M	5 "	Sore throat; dysphagia. Leucopenia 3,800
8	High	41	0.1 b.d.	T M	15 "	Rash on forearms
9	"	70	0.1 b.d.	T	87 "	Sore throat; face and neck swelled
10	Low	9	0.1 o.d.	M	10 "	Rash on legs and arms
11	High	120	0.1 b.d.	T M	30 "	Swelling feet; headache; rashes
12	Low	40	0.2 b.d.	T	30 "	Rash—disappeared when dose halved; haemorrhage into thyroid
13	High	31	0.1 t.i.d.	T	8 "	? Agranulocytosis. Died
14	High	32	0.2 o.d.	T M	9 "	initis. Drug abandoned

T = thiouracil. M = methyl thiouracil R = dose at time of reaction.

throats, and neck and head pains. The drug was given up in two cases—one because of the occurrence of iritis and one because of granulopenia. Case 13 probably had agranulocytosis—the only one in the series. In the eighth week of treatment and while taking 0.2 g. of thiouracil three times daily she developed sore throat and diarrhoea. Her own doctor saw her two days later, when she was found to have tonsillitis, pyrexia, and tachycardia, and death occurred suddenly on the fifth day of the acute illness. One further patient not included in Table III, who had a very

large goitre and was being prepared for operation, developed an upper respiratory infection. She died in the eighth week of treatment. A severe pulmonary oedema was found at necropsy, and in the absence of a cardiac lesion to explain this the possibility of its being a thiouracil effect must be considered, as Drinker (1945) has shown that a thiourea derivative is able to cause pulmonary oedema in dogs when injected intravenously.

The duration of the treatment before the occurrence of toxic reactions varied widely from 8 to 87 weeks (Table III), with total previous doses of from 9 to 120 g. Reaction came no earlier when the initial dosage had been high (over 0.5 g. daily) than when it had been low (less than 0.5 g. daily). At the time of the reaction 4 patients were taking 0.1 g. daily; the other 10 were taking 0.2 to 0.4 g. daily.

### Illustrative Cases

**Case 1.**—Mrs. B. P., born 1867. (Figs. 1 and 2.) An earlier report of this patient has been given (Cookson, 1945); before treatment in 1944, weight 70 lb. (31.75 kg.); previous weight, 140 lb. (63.5 kg.). Improved rapidly on thiouracil; has taken thiouracil up to the time of writing (July, 1947), except for several periods of two months when it was discontinued. In excellent health. Maintenance dose, 0.1 g. daily. Present weight, 109 lb. (49.5 kg.). Pulse rate, 74. The small nodular goitre originally present is no longer palpable.

**Case 2.**—Mrs. B., born 1894. First seen August, 1944; nodular goitre; tremor of hands; pulse rate, 140 regular; B.P., 160/80; B.M.R. before treatment, +51%; after four weeks' treatment, +11%; after six weeks' treatment, -6%. Symptoms disappeared on thiouracil, which was continued for ten months; weight increase of 24 lb. (10.9 kg.); pulse rate, 70 per minute; feeling very well; goitre smaller and softer. July, 1947: weight stationary; pulse rate, 64 per minute; goitre smaller; patient feels very well; no thiouracil for two years.

**Case 3.**—Mrs. C. G., born 1882. First seen March, 1945; rather large cystic goitre; auricular fibrillation, ventricular rate, 156 per minute in spite of digitalis; B.M.R. before treatment, +35%; after three weeks' treatment, +15%. On the 25th day of thiouracil administration normal rhythm returned; thiouracil continued since except for two periods of a few weeks. Condition good and cardiac rhythm normal—rate about 70 per minute; goitre smaller. Total period of thiouracil administration, 28 months.

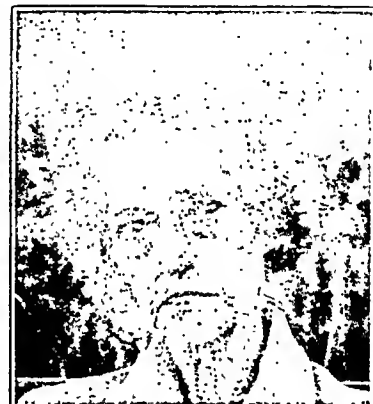


Fig. 1.—Case 1, woman aged 77. September, 1944, before treatment with thiouracil.



Fig. 2.—Same patient as Fig. 1, after 77 months almost continuously on thiouracil; aged 80; quite well and active.



### Discussion

The results show that thiouracil controlled the hyperfunction of the thyroid in all but six of 95 cases of toxic goitre. This control was maintained so long as the drug was continued. Further, in 40 cases there were remissions—that is to say, it was possible sooner or later to stop the treatment without the recurrence of symptoms over a period of two months or more. The time to stop thiouracil was judged by the response to treatment. If the dose can be progressively lessened, say, to 0.05 g. or less daily, and yet weight is still being gained and the pulse remains slow, indicating that thyroid function is on the low side of normal, the final step of discontinuing the drug may be taken. Although thiouracil was found to be effective in both the nodular and the smooth forms of toxic goitre the proportion of remissions was much higher in the smooth type. Relapses were noted in 15 of the 40 patients with remissions, but they were then readily controlled again with the drug. Later a second and even a third remission might occur in the same patient. The longest remissions observed were of a little more than two years—one in a woman with smooth goitre, and the other in a case of nodular goitre. Both are in excellent health and having no treatment whatever.

The six instances of failure of thiouracil to control thyrotoxicosis were accounted for by elderly cases with advanced cardiovascular changes and mental symptoms, by very large goitres, by one case of pregnancy, and by one patient in whom persistent hyperthyroidism appeared to have been induced by thyroid extract. Nevertheless a good result with thiouracil was seen in one patient with a very large goitre, who after two years' treatment had a remission which has now lasted 12 months.

Toxic effects were seen in 14% of cases, but in only two was it necessary to abandon the drug on this account. Agranulocytosis was almost certainly the cause of one death that must be attributed to the drug. With strict supervision, as practised now, this might have been avoided. The results showed little to choose between thiouracil and methyl thiouracil as a cause of toxic reactions, though occasionally methyl thiouracil was well tolerated after thiouracil had produced a reaction. Most toxic effects were seen when the daily dose exceeded 0.1 g. daily, and the incidence of these effects had declined in the past year or two concurrently with the use of lower doses. A further observation on thiouracil reactions was that their incidence was much higher when the drug was used in cases of slight or doubtful toxicity. None of these cases is included in this review.

Thiouracil is effective with occasional exceptions in all forms of toxic goitre, the only absolute bar to its use being the existence of tracheal pressure or any suspicion of malignant change. With a large goitre the drug may fail in its purpose, but in any case the patient with such a goitre would be well advised to have operation. In the elderly—say past 60—when toxic goitre has often produced auricular fibrillation, perhaps with cardiac failure, thiouracil was found suitable as the sole treatment. These changes must not be too advanced, however, for they are then irreversible, and there may not even be time for the drug to exert its effect. In one other group thiouracil was also particularly useful—that is, in young subjects with smooth goitres of moderate size. Here remission is probable, and this may be accompanied by the disappearance of the goitre itself.

The main handicap of this form of therapy is now not the hazard of serious toxic reaction but the length of treatment and the constant supervision which is necessary while this is in progress. This supervision is essential both for

the adjustment of the dose, which is frequently necessary, and for the recognition of any adverse effects. A term cannot yet be put to the length of treatment. In a high proportion it is a year or two and may be even more, and remissions when they occur are often of limited duration. In spite of these drawbacks, however, there is no doubt that the antithyroid drugs now available have established themselves as a most valuable addition to the methods of treatment of toxic goitre, and in certain types as the method of choice.

### Summary

The effects of thiouracil and methyl thiouracil in 95 cases of toxic goitre have been investigated over the period 1943-7. These drugs controlled the disease in all but six cases.

In 40 patients there were remissions lasting from 2 to 25 months; 15 of these have so far relapsed. A higher proportion of remissions occurred when the goitre was smooth than when it was nodular.

Toxic reactions were observed in 14 patients. Agranulocytosis was probably responsible for the death of one patient.

Thiouracil controlled the hyperthyroidism of nodular goitre, and in 8 of 15 instances of auricular fibrillation normal rhythm was restored. In one other case with paroxysms of fibrillation the attacks ceased.

Thiouracil produced its best results in toxic goitre in elderly patients and in young subjects with a smooth goitre of moderate or small size.

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Mr. J. Lyle Cameron, speaking on "The Care of the Mother" at the Royal Institute of Public Health and Hygiene on Oct. 22, said that the care of the mother really began as soon as the mother-to-be was born. A word must be said about the upbringing of the little girl—a duty which fell first and foremost upon the parents and not upon teachers or institutions. It was well to teach the naturalness of life and of all bodily functions. It was much better that the growing person should learn of such matters in a practical way from a parent than to hear them whispered archly by some older companion. Early instruction in sex matters was altogether a good thing. It should in no way run contrary to primitive modesty, which was a protective instinct and could indeed be characteristic of considerable charm. There was another point regarding health that was to be considered from a national point of view. To-day, under the stress and strain of very unsound economics, so many women were worried and suffered from anxieties. This had been very noticeable during the war, and actually seemed to be on the increase since post-war conditions had overwhelmed us. This state of affairs was quite apart from the diet and many insufficiencies in food varieties. The question might be asked: Should an expectant mother go out to work, either in a factory or other places of employment? It was quite safe, and could be in the best interests of her health, provided that the work did not entail strenuous exertion and that it provided a sufficiency of exercise. The expectant mother's home life must not be deranged or invaded by anxieties and, especially, disconcerting duties as a result of her work outside. She must be happy in her work and at the same time happy in her home.

## MALNUTRITION OF THE NERVOUS SYSTEM\*

BY

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What is meant by malnutrition of the nervous system? The most obvious example is the deficiency in the food of some substance necessary for the maintenance of normal nervous activity, and it is with this that I am here mainly concerned. But clearly malnutrition means much more than this. The food may be adequate but its absorption from the alimentary canal may be defective; or, though it is normal in amount and quality and normally absorbed, some metabolic disorder may interfere with its utilization or some local lesion may prevent it from reaching the nervous tissues. At one extreme dietary avitaminosis, at the other cerebral thrombosis, are causes of malnutrition of the nervous system, and between the two the distinction between disorders of nutrition and metabolism is by no means clear. But I am not here concerned with local lesions or metabolism, though neither must be altogether lost to sight. For the present purpose malnutrition may be defined as a failure of the nervous system to obtain substances necessary for its maintenance and activity as a result of defective diet or defective absorption from the alimentary canal.

If we list the food substances presumably necessary for the nutrition of the nervous system—proteins, fats, sugar, vitamins, and minerals—the large gaps in our knowledge at once become apparent. Concerning the need of the nervous system for proteins and amino-acids we know almost nothing, though recent work (Zimmerman and Ross, 1944; Albert and Warden, 1944; Weil-Malherbe, 1935) suggests that glutamic acid may be especially important for cerebral metabolism. In particular we do not know what part, if any, defective protein intake plays in causing deficiency syndromes. We know even less about the role of lipoids and mineral substances, though copper plays some part in the prevention of sway-back in sheep. Almost all we know is concerned with the metabolism of glucose by the nervous system and the part played in this by certain vitamins of the B group. Here it is worth remarking that man has taken over from the vegetable kingdom not only these vitamins but also their role in metabolism. Both aneurin and nicotinic acid are present throughout the vegetable kingdom, in plants, bacteria, yeasts, and fungi—aneurin being necessary for the breakdown of pyruvic acid, and nicotinic acid acting as a component of co-dehydrogenase (Schopfer, 1943). Indeed, these vitamins play so narrowly specific a part that they would be useless to us if our nervous systems did not metabolize carbohydrate in the same way as the plants. Moreover, we are doubly dependent upon the vegetable kingdom, for we consume the vitamins that the vegetables synthesize, and, in addition, bacteria in the intestine may be a substantial source of these vitamins by generating them *in situ* (*British Medical Journal*, 1945, 1, 879).

### Aneurin Deficiency Beriberi

The view that beriberi might be due to a lack of more than one factor seems to have been disposed of by experimental work and by the observation of the correlation between the incidence of beriberi and the aneurin/non-

fat-calorie ratio first noted by Williams and Spies (1938). This is well shown in the observations of Burgess (1946) upon prisoners of war. When the aneurin/non-fat-calorie ratio was above 0.3 beriberi was almost absent; when it fell below that figure the incidence of beriberi varied inversely with it (Fig. 1). But, as Walshe (1917-18) has

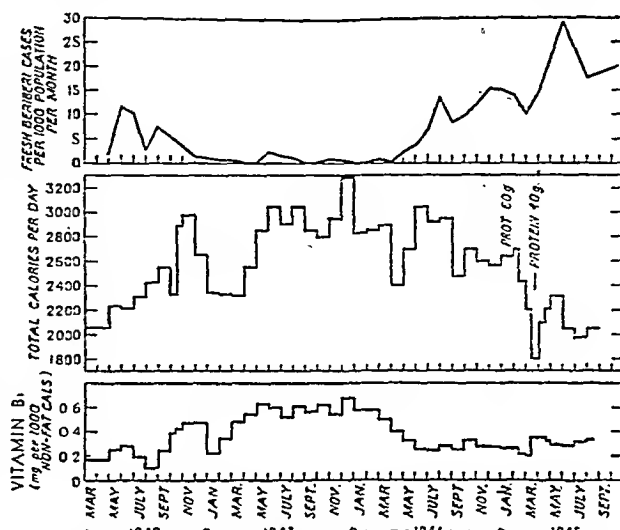


FIG. 1.—Monthly incidence of beriberi compared with estimated total calories and vitamin B<sub>1</sub>/non-fat-calorie ratio of diet at Changi Camp (Burgess, 1946).

pointed out, aneurin is not an antineuritic factor in the sense that it is necessary for the nutrition of the peripheral nerves, and all the evidence favours his view that the polyneuritis in beriberi is caused by an intoxication with pyruvic acid and allied intermediate products of sugar metabolism, which is incomplete owing to lack of aneurin. Hence the importance of the aneurin/non-fat-calorie ratio, for beriberi will not occur in the absence of sufficient carbohydrate to metabolize into pyruvic acid. It has been suggested that diabetic polyneuritis may be due to aneurin deficiency (Rudy and Epstein, 1945), but this is unlikely, for the diabetic whose tissues cannot utilize sugar normally is in the position of a patient with a high aneurin/non-fat-calorie ratio, and Lowry and Hegsted (1945) have shown that rats rendered diabetic with alloxan require less aneurin than normal animals and show no greater tendency than controls to develop symptoms of aneurin deficiency on a defective diet.

The role of aneurin deficiency in alcoholic polyneuritis is still debatable, but the observations of Brown (1941) that a group of patients given additional aneurin recovered no more quickly than a control group on a hospital diet is surely not evidence against it. Leaving on one side the question whether the two groups were comparable, there is no reason to suppose that aneurin promotes the regeneration of damaged peripheral nerves or that it can do more even in beriberi than put an end to the intoxication of a perverted sugar metabolism. The patient whose alcoholism and gastritis are treated and who is given a full and balanced diet is therefore likely to recover, even if his polyneuritis is due to aneurin deficiency, as quickly as one given excessive doses of aneurin. For somewhat similar reasons diphtherial polyneuritis fails to respond to diphtheria antitoxin. It is well known that aneurin will not lead to full recovery in chronic beriberi, probably because, as Wright (1903) showed, in severe beriberi the posterior root ganglion cells and the anterior horn cells of the spinal cord degenerate, and when this has occurred sensory and motor symptoms will be permanent. Like Walshe (1945) I have never seen

\*Introductory Paper at a discussion at the Neurological Section of the International Congress of Medicine, Sept. 9, 1947.

a patient with chronic polyneuritis from any cause benefit from aneurin, but the therapy of chronic polyneuritis is no clue to its aetiology.

#### Wernicke's Encephalopathy.

The evidence that Wernicke's encephalopathy is due purely to aneurin deficiency seems conclusive. Epidemiologically it occurs at the same time as beriberi. According to de Wardener and Lennox (1947) neuritic, cardiac, and oedematous manifestations of beriberi were present in 79% of their patients at Changi. The pathological changes in the nervous system have been produced experimentally by aneurin deficiency (Alexander *et al.*, 1938, 1941; Prados and Swank, 1942). The level of pyruvate in the blood is raised and its return to normal in response to treatment is parallel with the clinical improvement (Wortis, Bueding, Stein, and Jolliffe, 1942). Finally, aneurin is completely effective in early cases (de Wardener and Lennox, 1947).

This raises the question why some members of a population exposed to aneurin deficiency develop encephalopathy or cerebral beriberi while others show the other manifestations alone, and why Wernicke's encephalopathy ceases to occur in an exposed population though neuritic beriberi continues (Fig. 2). Does this depend upon indi-

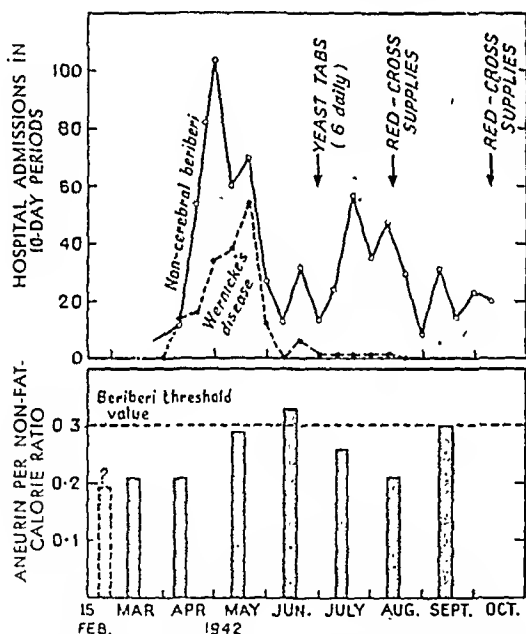


FIG. 2.—Hospital admissions of non-cerebral beriberi and Wernicke's encephalopathy, in ten-day periods, compared with aneurin/non-fat-calorie ratio of diet (mg. of aneurin per 1,000 non-fat-calories) (de Wardener and Lennox, 1947).

individual susceptibility or upon other factors, such as rate of onset, influenced, for example, by dysentery and diarrhoea, which de Wardener and Lennox found an important predisposing cause?

Though neurologists are concerned primarily with the neurological manifestations of aneurin deficiency it is well to emphasize that these are merely one by-product of disordered metabolism, which also profoundly affects the heart and blood vessels.

#### Pellagra

It is an old observation that pellagra is prone to occur in maize-eaters, and before the discovery of the B group of vitamins the cause of pellagra was thought to be an unknown toxic substance in the maize. It was then discovered that black-tongue, a disorder in dogs analogous to pellagra, could be caused by giving a diet deficient in nico-

tinic acid, and cured by giving nicotinic acid to affect animals. It seemed reasonable, therefore, to ascribe pellagra to deficiency of nicotinic acid. Later work, however, shows that this view was too simple. Krehl and his fellow workers (1945a, 1945b, 1946) have found that tryptophan relieves black-tongue produced by maize. It would seem that nicotinic acid and tryptophan or foods rich in tryptophan are to some extent interchangeable as preventives of black-tongue. It is suggested that tryptophan may lead to a change in the intestinal flora in favour of the synthesis of nicotinic acid in the alimentary canal. There is a further complication in that pyridoxin deficiency disorders the metabolism of tryptophan (Axelrod, Morgan, and Lepkovsky, 1945).

A different approach to the problem has been made by Kodicek, Carpenter, and Harris (1946), who have shown that maize has a high content of a plant hormone—indole-3-acetic acid, or hetero-auxine—which inhibits growth in rats and is again counteracted by nicotinic acid and tryptophan. This may be an important observation, since auxines are present in many foodstuffs—e.g., peas, beans, and lentils, especially when sprouting—and in cultures of yeast, moulds, and bacteria (Jensen, Avery, and Burkholder, 1936). Hence the consumption of peas, beans, and lentils with the object of increasing vitamin intake may in some respects have the opposite result, and foods contaminated with moulds may similarly counteract vitamins in the food.

All the evidence supports the view that pellagra is due to deficiency of nicotinic acid in the nervous system, but when we ask why the nervous system goes short we discover how many factors are involved. Not only must the diet contain enough nicotinic acid for the needs of the body, but it must be balanced in other respects. Too much maize counteracts the nicotinic acid either because maize is relatively deficient in tryptophan or because it contains an anti-enzyme to nicotinic acid. Maize must be balanced by nicotinic acid or tryptophan or foods rich in tryptophan. Secondary pellagra introduces additional factors, such as chronic alcoholism and diseases of the alimentary canal, which impair the synthesis of nicotinic acid in the intestine, its absorption and its storage, or operate in other ways as yet unknown.

There is still much to be learned about antivitamin B. In addition to hetero-auxine, which is an antivitamin B, there exists an antivitamin B to aneurin which causes Chastek paralysis, a disorder pathologically identical with Wernicke's encephalopathy, in foxes fed on raw maize (Green, Carlson, and Evans, 1942).

#### War Neuropathies and their Problems

It is doubtful whether the deprivations incidental to war brought to light any new deficiency syndrome, though some occurred on an unprecedentedly large scale. On the whole, disappointingly little new knowledge has been gained from this rich material, mainly because the complexity of the factors involved, together with the difficulties of the circumstances, made a clear-cut scientific approach impossible. Something has already been said about beriberi and Wernicke's encephalopathy. The other principal syndromes encountered were: (1) painful feet; (2) spinal ataxia; (3) spastic paraplegia; (4) certain cranial nerve lesions, especially retrobulbar neuritis, nerve deafness, and laryngeal palsies, which usually accompanied spinal ataxia; and lastly (5) a rare but interesting myasthenic syndrome. I shall not deal with these syndromes in detail, but will merely make some observations upon their aetiology.

(1) *Painful Feet*.—This common and comparatively simple syndrome well illustrates the difficulty of establishing the aetiology of deficiency disorders in man. The pathogenesis might have been inferred from (a) the association of the

syndrome with specific dietary deficiency, (b) the coincidence of its onset with that of other recognized deficiency syndromes in other persons, (c) its association with other syndromes in the same patient, (d) the effect of therapy. None of these has proved conclusive.

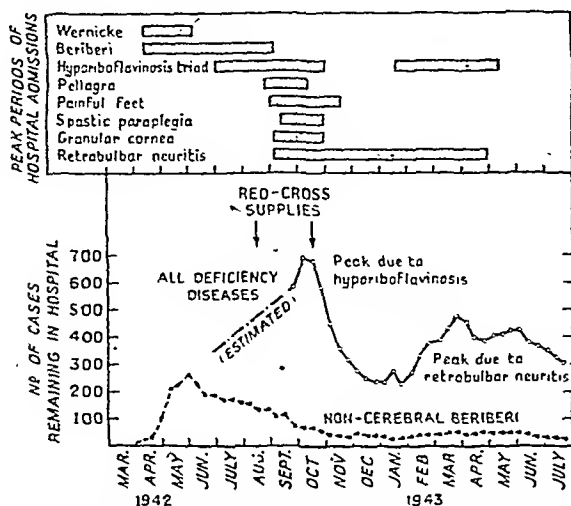


FIG. 3.—Peak periods of hospital admissions for principal deficiency diseases (de Wardener and Lennox, 1947).

(a) Dietary deficiencies were multiple, and it is difficult to select one as solely responsible, though Denny-Brown (1947) blames an exclusively cereal diet. (b) Chronologically the painful-feet syndrome occurred after the aneurin deficiency syndromes and somewhat after the onset of symptoms of hyperriboflavinosis, coinciding roughly with the peak of pellagra, spastic paraplegia, granular cornea, and the onset of retrolubar neuritis (de Wardener and Lennox, 1947) (Figs. 3 and 4). (c) Oral and scrotal symptoms of hyperriboflavinosis preceded the outbreak (Simpson, 1946) or were associated with it in about 30% of cases (Cruikshank, 1946); retrolubar neuritis was present in 10% (Simpson, 1946) and 13% (Cruikshank). Oedema and polyneuritis were rare according to Cruikshank, who found no associated disease in 42%. Raised blood pressure was found in 19% by Harrison and 30% by Cruikshank. (d) As to therapy, aneurin was ineffective; nicotinic acid or nikethamide gave the best results; foods rich in the B complex were less useful (Cruikshank). Intravenous calcium gluconate gave symptomatic relief (Harrison, 1946).

The same problems arise in connexion with the "captive cord syndromes": (2) *spinal ataxia* and (3) *spastic paraplegia*. These syndromes occurred later in time than beriberi and Wernicke's encephalopathy. Burgess (1946) groups them together with retrolubar neuritis and nerve-deafness as symptoms of hyperriboflavinosis, with the muco-cutaneous lesions of which they are associated. Denny-Brown considers that they are parts of the syndrome of pellagra, and Spillane (1947) draws attention to the resemblance between the spastic syndrome and lathyrism. Both spinal cord syndromes responded poorly to all known forms of vitamin therapy.

(4) *Cranial Nerve Palsies*.—The frequent association of two or more of these symptoms—anosmia, retrolubar neuritis, trigeminal anaesthesia, nerve-deafness, and laryngeal palsy—with or without spinal ataxia in the same patient, suggests a common cause, though the

evidence as to its nature is conflicting and inconclusive. Stannus (1944) suggests ariboflavinosis, and symptoms of riboflavin deficiency were present in Moore's (1937) patients, but these are by no means constant. Retrolubar neuritis may occur in association with beriberi, and so may laryngeal palsy, especially in infantile beriberi, but not deafness or spinal cord symptoms, and aneurin was of no value in treatment. Denny-Brown (1947) favours the view that this group of symptoms is pellagroid, but nicotinic acid proved of no benefit in treatment. Spillane and Scott (1945) incriminate lack of an undetermined element in the B complex. The cause is thus uncertain at present. As long ago as 1888, and again in 1897, Strachan (1897) described an epidemic in the West Indies of painful hands and feet, ataxia, retrolubar neuritis, deafness, and weakness of the voice, these nervous signs being associated with corneal damage and muco-cutaneous lesions of the eyelids, lips, tongue and nostrils. This fifty-year-old observation provides suggestive evidence for a common origin for this group of symptoms—and shows how little we have learned since.

### A Myasthenic Syndrome

A number of instances of a myasthenic syndrome, perhaps identical with Gerlier's disease, or kubisagari, have been observed among prisoners of war and attributed to dietary deficiency. I mention this because I have seen one patient in the convalescent phase. This man was never a prisoner,

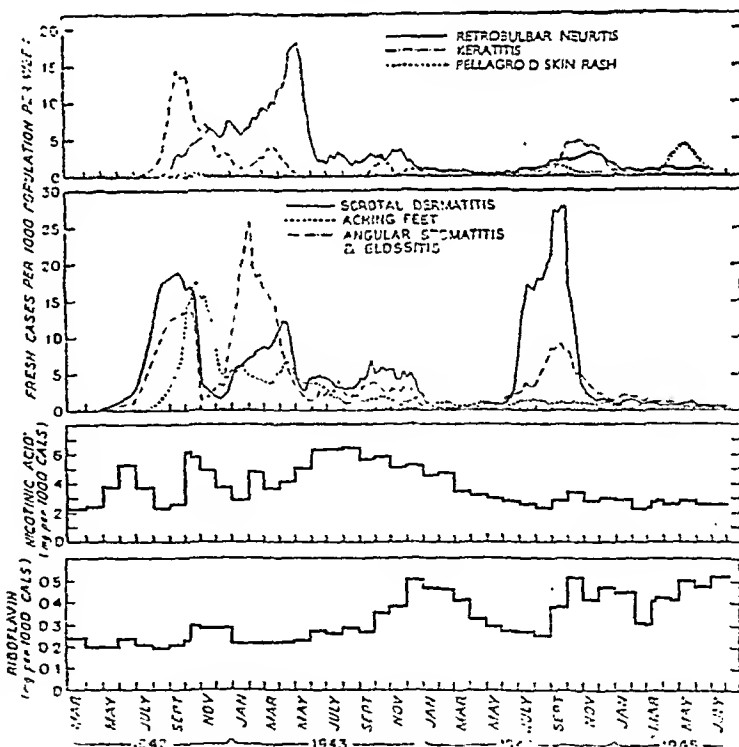


FIG. 4.—Weekly incidence of various deficiency conditions compared with nicotinic acid and riboflavin contents of diet at Changi Camp (Burgess, 1946).

but fell ill while in the Army in Malaya after the war. He was not short of food, though most of it was tinned, consisting of soya sausage, bacon, beans, cheese, and fish, such as salmon. Bread was made by the field bakery. The only fresh vegetables were a small quantity of sweet potatoes and yam beans. He ate no tapioca or other cereals. His symptoms followed an acute febrile illness, and consisted of typical myasthenia involving cranial nerves and limbs, temporarily relieved by "prostigmin." He was unable to

walk for several weeks and then slowly improved. I am not convinced that this is a deficiency syndrome. A precedent febrile illness regarded as dengue occurred in Musselman's (1945) and Katz's (1946) patients, and Katz noted that the myasthenic symptoms were in inverse relationship to the severity of the fever. In my patient an infective toxin temporarily damaging the myoneural junction seems the probable cause.

### Intoxication or Deficiency?

Examples already given show that it is often difficult to distinguish between an intoxication and a deficiency. The verbal distinction is, of course, clear enough: a toxin is a harmful extra, a deficiency a harmful lack. But as soon as we get beyond the mouth difficulties arise. Food may be contaminated with a toxin, as, for example, Abyssinian wheat with flax-darnel (Brinton, 1945-6), or the food may be modified so as to become toxic, as the protein of agenzized flour causes canine hysteria (Mellanby, 1947; Moran, 1947). Or a normal constituent of food may be toxic only in the presence of vitamin or other deficiency—e.g., maize in pellagra.

Lathyrism gives rise to a spastic paraplegia which closely resembles the spastic syndrome occasionally seen in prisoners of war. Denny-Brown believes that lathyrism has not been proved experimentally to be due to *Lathyrus sativus per se*, and suggests that flour made from this pea may be deficient in tryptophan and that this may neutralize the action of a vitamin, the consumption of lathyrus thus bearing the same causal relation to lathyrism that the consumption of maize or cassava does to pellagra.

But maize is toxic only in the sense that it leads to a tissue deficiency of nicotinic acid, and it might be thought that the crucial question is the state of the nervous system. Even here, however, the distinction between intoxication and deficiency is not clear-cut. Peters *et al.* (1945) have shown that arsenite damages the pyruvate enzyme system in the nervous system, and from this sprang the discovery of dimercaptopropanol (British anti-lewisite, BAL), which was designed to resemble the tissue thiols, to combine in their stead with trivalent arsenic and so protect them. As we have seen, aneurin deficiency also damages the pyruvate enzyme systems, and both arsenical poisoning and beriberi are accompanied by a rise in the level of blood pyruvate. Thus it would seem that arsenical poisoning may act by causing a local enzyme deficiency, and aneurin deficiency by causing a local intoxication.

In the past we have tended to think that by describing a disorder as toxic we have explained it, but it was only our ignorance of the finer processes of the metabolism of the neurone that forced us to be content with such vague conceptions as "intoxication" and "toxic polyneuritis." All that we have learned about malnutrition should teach us that whatever happens to the nervous system—not only states of avitaminosis but head injuries, infections, vascular lesions, and demyelating disorders—will need increasingly to be considered not only from the standpoint of morbid anatomy but also in terms of the chemistry of the nerve cell.

(Figs 1 and 4 are reproduced from Dr. R. C. Burgess's paper on "Deficiency Diseases in Prisoners of War at Changi" (*Lancet*, Sept. 21, 1946, p. 411), and Figs. 2 and 3 from the article on "Cerebral Beriberi" by Captain H. E. de Wardener and Dr. B. Lennox (*Lancet*, Jan. 4, 1947, p. 11).)

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## BIOCHEMICAL APPLICATIONS OF STABLE AND RADIOACTIVE ISOTOPES

BY

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With but one exception the body does not discriminate between natural elements and their stable or radioactive isotopes. In addition the stable isotopes, with the exception of deuterium, have no deleterious effects on living cells even in the highest concentrations. In the case of the radioactive ones it is possible to employ such low concentrations that most human experiments can be carried out with safety, and all animal experiments with impunity, since genetic effects of the radiations can be ignored. These simple considerations have made possible to the biochemist a new kind of experimental approach which he has not been slow to use.

### Radioactive Phosphorus

One of the earliest isotopes to become available was radioactive phosphorus ( $P^{32}$ ), and of course it was administered as sodium phosphate by various routes to animals and its excretion observed and an analysis made of the skeleton and various organs to determine where and how long it was retained. It was soon established that only a small fraction—less than 10%—is excreted twenty-four hours, and of the total amount injected only a small proportion is present in the lymph and plasma a few

\*An address delivered to a joint meeting of the Physiology and Chemistry Sections of the British Association at Dundee on Sept. 1947.



ours after injection. The remainder has disappeared into the cells of the body, especially of the skeleton, the liver, and the intestine.

Precisely how this phosphorus is taken up by the cells is a matter of some general importance. By whatever route is injected a high concentration of  $P^{32}$  occurs within a few minutes in the lymph and plasma. From the lymph the cells take up phosphate at a steady rate and discharge it back at the same rate into the same medium. There is no discrimination between ingoing and outgoing phosphate, and complete mixing takes place within the cell. The process consists, in fact, of a continuous diffusion in both directions across the cell wall, radioactive phosphate passing out of the cell long before all the inactive phosphate in it has been replaced. If the concentration of radioactive phosphate in the lymph is kept constant—and there are several experimental tricks for doing this—the conditions are simplified and it can be shown that the radioactivity per gramme of phosphate in the cell rises exponentially with time. Since the exponential curve is almost linear in the first part of its course, a simple measurement of the specific activity of cellular phosphate, after a time interval which is short in relation to the time required to replace all the phosphate, is sufficient to determine the steady rate of exchange of phosphate in the cell. For example, after four hours the activity of the phosphorus in the tibia of a rat is one six-hundredth that of the phosphate maintained constant in the lymph, and we may conclude that in four weeks an amount of phosphorus passes into and out of this bone equal to the total weight of phosphorus in it. This is called the replacement or turnover time. In a few cases where the turnover time is short it is possible to make allowances for the non-linearity of the growth curve and to obtain exact turnover values; but in general this is not possible, and the results obtained by assuming linearity are known to be of the right order only. However, to know the larger turnover times accurately and the shorter ones approximately has proved to be a matter of great importance to our understanding of the chemistry of the body.

### Phosphorus Compounds

The phosphorus taken up by the skeleton is laid down for the most part in inorganic form, but elsewhere in the body it is incorporated into a large and still expanding group of complicated organic compounds. Outstanding among these are the phospholipids which are present in the blood plasma and in all cells. By transfusing radioactive plasma phospholipids to a dog and observing their rate of disappearance from the recipient's plasma, Chaikoff and his collaborators (Fishler *et al.*, 1943) have shown that the plasma phospholipids are replaced in six to ten hours. The liver is the main site of synthesis and degradation of these substances, since removal of the liver prolongs the turnover time to 33–160 hours. Removal of the intestine, on the other hand, has no effect. Although the liver produces enough phospholipids to renew the plasma reservoir inside ten hours it requires fifty hours to renew its own phospholipids. The intestine renews its phospholipids in forty hours, but the brain, which is rich in these substances, requires four weeks for their replacement.

Another important phosphorus compound of the body is nucleic acid, of which two main types are present—one characteristic of the nuclei, and the other found in high proportion in the cytoplasm of all cells. The P in the nuclear form is exchanged very slowly—about the same as in bone—but in the cytoplasmic form it is exchanged ten times as quickly. That is the position in normal adult cells, but when the cells are dividing—e.g., in embryonic tissues,

in regenerating tissues, or in malignant growths—the position is vastly changed, the nuclear P exchange increasing ten to fifteen times. This confirms and establishes on a quantitative basis general impressions derived from the histology of the tissues; but the tracer method can go further than this—it can distinguish the rate at which nucleic acid  $P^{32}$  builds up inside a cell from that at which it disappears. In this way—and in no other—it can be shown that growth from any of the causes mentioned results not from an increased rate of synthesis of cell compounds but from a diminished rate of disintegration, so that the organism reaches maturity when it has accelerated its intracellular breakdown processes until they are as rapid as the synthetic ones.

It is clear also in all these studies that some injected phosphorus is excreted into the lower bowel, and it can be demonstrated that part of the phosphorus of our diet which is absorbed in the upper alimentary canal is re-excreted and mixed with unabsorbed phosphorus in the lower. An entirely different picture comes to light if this experiment is repeated using radioactive iron in the diet. Hahn *et al.* (1939) have shown that in a normal adult practically all the iron passes through the gut unabsorbed, but if the subject has been made anaemic new radio-iron is absorbed into the circulation. The new red cells which are produced differ from the old ones in having some of this radio-iron incorporated in the haemoglobin molecule. These radioactive cells persist in the circulation for some months, as do all red cells, and are finally destroyed in the spleen and liver, where their iron is stored. In time this iron finds its way back into the circulation for incorporation into new red cells. Here once again the tracer element is able to reveal something which could not have been discovered in any other way—namely, that the body is extremely conservative in relation to this particular constituent of the diet, endeavouring so far as possible to carry with it enough iron circulating internally to meet all its requirements. It is as conservative in relation to iron as it is liberal in relation to phosphorus. The mechanism by which the intestinal mucosa “senses” internal iron deficiency and responds by allowing some of the element to pass from the gut into the blood is not yet understood, but its beauty is impressive.

### Glycine

A few days after administering the amino-acid glycine containing  $C^{13}$  in the methyl group and  $N^{15}$  in the amino-group to rats the isotopes are found in adjacent positions in the protoporphyrin of haemoglobin. This tells us much about the manner in which the body synthesizes the five-membered pyrrole ring and at the same time provides a convenient method of labelling the red cells of the blood. If N-labelled glycine is given to a human being the isotope is detectable in the red cells at the fourth day and the concentration rises steadily over a period of twenty-five days, remaining constant for a further fifty days, and dropping slowly to zero in the next 150 days.

Shemin and Rittenberg (1946), who first observed this behaviour, were quick to note its unusual character. Normally when a tracer is injected the concentration of labelled compound in a tissue or organ rises to a maximum as synthesis proceeds and immediately thereafter declines again as the labelled molecules are metabolized. The fifty-day period of constant isotopic porphyrin concentration can be explained only in one way. The porphyrin of the newly formed red cell is excluded from the metabolic reactions of the body and enters into these again only at the end of the life-span of the red cell. Statistical analysis of the results shows that the average life of a human red cell is 127 days. This method is not the only one leading to this result, but

it is particularly elegant in involving no more disturbance to the subject than is associated with feeding labelled glycine. The method further reveals that, when the red cell finally disintegrates, the porphyrin group, unlike iron, is not further utilized in the formation of new red cells but is excreted in the bile.

The body contains three important substances—choline, creatine, and methionine—with no obvious chemical relationship to each other except that each has a methyl group linked to the rest of the molecule through sulphur or nitrogen. Deficiency symptoms due to the absence of choline from the diet can be cured by giving methionine, and the absence of both choline and methionine from the diet affects the excretion of creatine as creatinine. There is clearly, therefore, a metabolic interdependence between these three substances, and a clue to its character is found by administering one of them with deuterium in the methyl group. The isotope is subsequently found in the methyl groups of the other two and nowhere else. It seems, therefore, that a methyl group linked through sulphur or nitrogen is handled by the body quite differently from a methyl group linked through carbon. We are introduced here to the idea of a vitamin-like importance in the diet of a particular radical. In not dissimilar fashion the amino-groups of all the amino-acids of the diet are merged in a metabolic pool from which the amino-acids of the tissues are derived. This is shown by administering N-labelled glycine or ammonia and finding the isotope in all the amino-acids except lysine of the tissue proteins.

### Carbon

If carbon dioxide containing isotopic carbon is breathed in it is found that some of the carbon finds its way into glycogen in the liver and from there to other compounds of the body, thus disposing in one simple experiment of the belief that only plants and bacteria can utilize carbon in the form of carbon dioxide. Needless to say, biochemists in the last few years have investigated this phenomenon intensively, and no fewer than six distinctive chemical reactions are now known by which the body can fix carbon dioxide, the most important one being the condensation of carbon dioxide with pyruvic acid to give oxalo-acetic acid.

Arising out of this and other experiments much attention has been paid in recent years to acetic acid. In the past this has been little investigated because it is known to be present in insignificant quantities in the body and these are extremely difficult to measure precisely. With the advent of isotopes, however, an inefficient method of isolation may be made the basis of a precise method of estimation, as the following example will show. Supposing a compound containing  $C^{13}$  is given in the diet and we wish to know whether any part of this  $C^{13}$  is incorporated into acetate in the liver. A known weight of liver is mixed thoroughly with a known but excessive weight of normal acetate and the mixture is fractionated to recover a proportion of the acetate. At the same time a like proportion of labelled acetate is recovered—minute in amount but sufficient for mass spectrometric estimation. Multiplication of the result by the recovery factor tells us the weight of labelled acetate in the piece of liver. This has become an important general method of analysis known as the isotope dilution method.

When a fatty acid labelled in the carboxyl carbon is oxidized by the liver some acetate—but considerably more aceto-acetate—is found. This aceto-acetate is labelled in both carbonyl and carboxyl groups, indicating that it is formed by condensation of acetyl groups, methyl to

carboxyl. Aceto-acetate is not further utilized by the liver but is oxidized elsewhere. The kidney, among other organs, can oxidize it and is known also to take up acetate, but normally no aceto-acetate can be found there. By incubating kidney slices with labelled acetate in the presence of an excess of normal aceto-acetate and demonstrating the presence of isotopic aceto-acetate in the excess recovered Medes *et al.* (1945) have shown that the oxidation of acetate is in fact through aceto-acetate, but the latter is normally further oxidized as soon as it is formed.

An alternative tracer procedure to the above has been to feed labelled acetate and to investigate the more complicated molecules of the body to find what has happened to that part of it not immediately excreted. By this procedure the carbon skeleton of acetate has been identified in the dicarboxylic amino-acids of the tissue proteins, in the fatty acids of the liver and depot fats, in cholesterol, and in glycogen. It has been shown (Bloch and Rittenberg 1945) that although the carcass of a 100-gramme rat contains but a few milligrams of acetate, more than a gramme of acetate is produced in its liver every day.

### Conclusion

These developments, which are largely if not exclusively derived from isotopic studies, represent substantial contributions to biochemistry. They reveal numerous unsuspected metabolic pathways, and if some of these are but little used normally—as, for example, the fixation of  $CO_2$ —they may be of the greatest importance in disturbed metabolic states: e.g., in diabetes, where aceto-acetate and related ketone bodies are produced in abnormal amounts. They demonstrate that the quantity of substance in a tissue bears little if any relation to its metabolic importance, and that important intermediary metabolites may not even be present in detectable concentrations, thereby heralding a new dynamic point of view in which the body is conceived as in a state of incessant change, atoms and molecules displacing one another with surprising rapidity in every tissue. All that remains constant is the pattern into and out of which these atoms pass—a stereo-chemical relationship of atoms within molecules, and a spatial juxtaposition of molecules within tissues—which is specific for each individual and characteristic of living matter as a whole.

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The Annual Report for the year ending July 31, 1947, has been issued by the Royal College of Surgeons of England. It draws attention to the Supplemental Charter which was granted on May 20 and states that new by-laws have been submitted to the Home Office for approval. Fellows and members of the College have been co-opted to the Council in order to include various branches of practice not represented by the ordinary process of election. Arrangements have been made to hold special final Fellowship examinations in ophthalmology and otolaryngology, and the court of examiners is being enlarged to include the necessary specialists. Regulation for the Fellowship in dental surgery have been approved and the first 18 Fellows elected. The building of a residential hostel for post-graduate students is planned. During the year 158 Fellows have been admitted. After Jan. 1, 1949, candidates will not be admitted to the final Fellowship examination until three years after qualification and until they have served a period of twelve months in posts approved by the Council, six months of which must have been occupied in residence in a hospital recognized for the purpose.

## DIABETES INSIPIDUS AND UTERINE ATONY

A CASE OBSERVED OVER A PERIOD OF 26 YEARS

BY

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Only the briefest references are found to the development and social behaviour of patients with diabetes insipidus. It may not be without interest, therefore, to give a detailed clinical history of a woman suffering from this disease whom I have observed for 26 years.

### Case History

In December, 1921, a 17-year-old girl was sent to me for the first time by her doctor. There was nothing of interest in her family history. She had suffered from an occasional sore throat and migraine. Her appearance was normal except for slight oedema of the eyelids, dry skin, and slow reactions, which might have suggested some slight thyroid insufficiency. Menstruation had first appeared at the age of 15, and was irregular, with periods of amenorrhoea lasting a month or two.

Four months before coming to see me she had had a sudden immersion at the seaside, which had greatly upset her: the weather was cool and she had the sensation of having got very cold. From that day she had begun to pass water frequently and had grown considerably more thirsty, but had had no other abnormal symptoms. Of course, diabetes insipidus was diagnosed, based on the extraordinary thirst and polyuria and on the first tests made by the family doctor.

Clinical examination revealed nothing abnormal apart from the menstrual disorders. The sella turcica was normal. Examination of the eyes, carried out by Dr. Celada, revealed: "Reduction in the visual fields in the nasal and temporal halves, particularly the latter. The reduction in the superior and inferior part is equal to that of the nasal half: in the right eye, above, below, and internally, it amounts to 40 degrees; externally, to only 30 degrees; in the left eye, 30 degrees above, below, and internally, and 20 degrees externally. Disks slightly reddened, but no swelling. Visual acuity normal. No abnormality of the extrinsic or intrinsic muscles." Examination of the urine showed: 24-hour volume, 9.5 litres; specific gravity, 1.002; reaction, alkaline; chlorides, 0.6%; urea, 2.6%; uric acid less than 0.25%; no glucose or albumin; deposit, nil.

An injection of 1.5 ml. of "pituiratin" caused pallor and a sensation of coldness, together with a reduction in the polyuria and thirst which lasted for three hours. Analysis of the urine during the next 24 hours showed: volume, 8.75 litres; S.G., 1.003; reaction, alkaline; chlorides, 1.6%; urea, 1.96%; uric acid, less than 0.25%. There was some doubt about the efficiency of the pituitrin used for this test. The Wassermann reaction was negative. A full diet was recommended, and periodical injections of pituitrin and daily injections of "ovarin" and belladonna were prescribed.

April, 1922.—The patient improved considerably as a result of the first pituitrin injections, and the thirst and polyuria diminished without further trouble, other than pallor and urgency of defaecation after the injections. The tenth injection, however, produced intense dizziness and faintness. These effects were repeated and she had to give up the injections. A month later the dizziness grew less, but there remained a state of slight spasticity in the left arm and leg with coldness of the extremities, which had to be wrapped up in warm clothing. The slightest excitement produced palpitation. The thirst and polyuria had returned to their original state. A mercurial salt was prescribed, but she soon gave this up as it upset her and did not relieve the polyuria.

May, 1927.—I had not seen the patient for the last five years, during which time she had followed no treatment. The thirst and polyuria continued the same, but she had become accustomed to them. She was now suffering from severe headaches, with bright spots before the left eye. The spasticity of the limbs had disappeared. She was passing 20 litres of urine in 24 hours. The blood pressure was 140/80 and blood

chlorides 555 mg. per 100 ml. There was a considerable increase in the size of the left breast, with great enlargement of the areola and nipple and exudation of drops of a serous liquid with some admixture of blood, which issued both spontaneously and on pressure. I prescribed a weekly injection of a new posterior-pituitary preparation, and, in addition, strychnine and insulin, and a chloride-free diet.

October, 1927.—She had not been able to stand the pituitary injections after the third and fourth, and therefore gave them up as well as the rest of the treatment. The polyuria and thirst persisted. The nervous phenomena had disappeared. The breast condition had not altered.

February, 1933.—The diabetes insipidus was still the same and she followed no treatment. She had married the year before. Pregnancy began at once and she was much troubled by vomiting. Later, parturition seemed to start several times, but the pains stopped almost immediately. After five days without further pains she was delivered of a full-term female child, which was stillborn. There was no change in the polyuria and thirst during pregnancy. She now consulted me because she had had "influenza" and was left with intense headache and uncontrollable projectile vomiting. Menstruation was normal, though scanty. No abnormality was found in the nervous system. Pituiratin and a sedative for the vomiting were prescribed.

February, 1935.—She told me that the cerebral phenomena had soon ceased. Her general condition was good. Since her confinement the polyuria had dropped to about 7 litres a day, with a parallel lessening of the thirst. She followed no treatment. Menstruation was still scanty but regular. In the interval since her previous visit she had become pregnant again, having had a spontaneous miscarriage at the third month. The blood pressure was 130/60. A fresh Wassermann reaction proved negative: when the blood was taken from her for this she had a severe faint. I suggested radiotherapy of the pituitary region, but she refused.

October, 1935.—She wrote that she was pregnant again, and she had the same polyuria and much sickness. I advised cortical extract in small doses, and the necessary quantity of pituitrin at the time of parturition.

March, 1936.—The pregnancy ended happily. Her labour pains were very slight, but, as I had advised, she was given at intervals up to five injections of pituitrin, thanks to which normal delivery of a full-term child was obtained.

May, 1936.—She wrote that she was again pregnant.

April, 1947.—I saw her again after this long interval (due to the Spanish war and its consequences). The 1936 pregnancy also ended with a total cessation of the labour pains almost as soon as they had started. Owing to the abnormal circumstances in which she found herself she was unable to obtain pituitrin, and three days after the cessation of the labour pains a dead foetus was removed. The patient is now 43 years old. She lives with her daughter—her only living child—who is completely normal. The mother also appears normal. She still has to drink a great deal—three litres more or less during the night alone—and micturition is proportionately abundant; but she feels well and has become accustomed to so much drinking and passing of water. She leads a normal life. Her periods are regular and the flow very scanty. A year ago the dizziness reappeared and she also has sensations of cold in the limbs on the left side. Analysis of urine showed: volume, 11 litres; S.G., 1.006; no abnormal constituents. Blood sodium, 284 mg. per 100 ml.; blood calcium, 4.08 mg. per 100 ml. The blood pressure was 170/90. There was slight accentuation of the aortic second sound. A radiograph of the cranium was normal except for slight frontal hyperostosis. A preparation of folliculin was prescribed with "euphyllin" and phenobarbitone occasionally.

### Comment on the Case

The diabetes insipidus in this case is of the kind called "essential," though mistakenly, since present-day anatomical and experimental data enable us to assert that there is always a disturbance of the hypothalamic-pituitary mechanism in these essential cases as well as in the "symptomatic" ones, the only difference being that in the

latter the neoplastic, syphilitic, traumatic, or other lesion can be diagnosed, whereas in the former it cannot. The distinction between essential and symptomatic diabetes insipidus still found in books as up to date as Duncan's (1946) and others must be abandoned.

A curious factor in the case is the aetiology and particularly the sudden immersion, which the patient points to as the starting-point of her polyuria. I believe I was the first (Marañón, 1920)—and I may have been the only one—to call attention to this type of aetiology by publishing illustrative cases. The important subject of emotion in the aetiology of endocrine disturbances has again become topical on account of the increased interest in psychosomatic medicine. There is no doubt that the endocrine glands, owing to their dependence on the vegetative hypothalamic centres, play a constant and essential part in the physical changes of emotion, and it may be supposed that if there is previously a state of unstable equilibrium in the function of one of these glands, due to congenital weakness or to a latent lesion, such emotional changes may be enough to upset the balance and give rise to the clinical syndrome. Immersion, which is generally accompanied by an impression of sudden terror, might by this mechanism—i.e., by acting on an unstable hypothalamic-pituitary system—cause the clinical appearance of diabetes insipidus. It is observed that a passing polyuria is a habitual consequence of immersion in cold water; therefore diabetes insipidus might be the pathological prolongation of a physiological occurrence.

In the long course of the patient's illness I have never been able to assert the existence of any pituitary, midbrain, or other localized lesion. Yet it must be remembered that on several occasions she has had severe attacks of headache, some with vomiting, scintillating scotoma, and spasticity and paraesthesiae localized to the limbs of the left side. These phenomena have usually appeared after the injection of pituitrin. In my experience intolerance of pituitrin is very common in cases of basal cerebral lesions. Remember, too, the spontaneous unilateral hypertrophy of one of the breasts, with a serous secretion, which phenomenon also occurs in cases of neoplastic lesions of the hypothalamic-pituitary mechanism. Therefore, we may be dealing with a non-malignant non-progressive lesion of small size: this would explain the absence of permanent focal symptoms. There was never any possibility of confirming this supposition by the normal methods of investigation.

### Discussion

Authors refer in vague terms to the "course" of diabetes insipidus. This varies very much from one case to another. In 1920 I wrote that in the course of diabetes insipidus "the usual thing is variety." In general it is accepted that the course depends on the lesion causing the condition, and cases can accordingly be classified under three headings: (a) *Cases with a rapid course*—those produced by malignant tumours of the pituitary or the hypothalamic region; (b) *Cases with a medium course*—those produced by lesions capable of cure spontaneously or by treatment, or which cause death after a period of chronicity, such as traumatic haemorrhages and syphilitic or tuberculous lesions; and (c) *Cases with a very prolonged course*—those in the *essential* group—i.e., without discoverable lesions; according to the various authors the average duration of these cases is from twenty to thirty years. One of Weil's patients had had the disease from childhood and lived to be 80. But I have not come across any case under one single observer with such a long history as the present one.

It should be noted that in my case, as in others among those published, the patient finally gave up treatment with

posterior-pituitary extract injections. This often occurs when there are symptoms of intolerance. But after some time the system becomes adapted to the pathological thirst and polyuria. These patients end by arranging their life to fit in with this need of water and their need to micturate doing so automatically and in a way compatible with normal existence. They even spend good nights, drink and passing water in a manner compatible with sleep. A patient was in despair at first because of her polyuria, now she is quite untroubled by it.

What I particularly want to emphasize is the *behaviour of the patient's reproductive function*. On this point authorities are extremely vague. Yet it is known that some women with diabetes insipidus have been able to have children, although it is true that they sometimes pass the disease on to their offspring with a dominant Mendelian character. A family described by Weil is always mentioned: in 11 generations there were 220 members and 35 cases of diabetes insipidus (see Marx, 1945). I have seen only one hereditary case (Marañón and Bonilla, 1925)—a mother with diabetes insipidus which appeared and disappeared spontaneously whose child had severe diabetes insipidus from the age of five months. The majority of diabetic women either do not marry or are sterile.

In the present case the syndrome of uterine atony is very curious, occurring as it did in all her confinements. The role of the oxytocic hormone, or oxytocin (produced in the posterior lobe of the pituitary), in the mechanism of normal parturition is not yet clearly understood, nor is it universally accepted. If this action is admitted—and I am one of those who do admit it—we have also to admit that deficiency of the hormone may produce a deficiency in the uterine contractions and, therefore, abnormal parturition. Physiologists are usually very reserved in this respect, basing their ideas on the fact that in animals extirpation of the posterior lobe does not prevent pregnancy or parturition (Houssay and others, 1946). But, as Houssay recognizes these experiments are worthless, since it is known that an extirpation of the posterior lobe there are left in the pituitary stalk and tuber the remains of posterior pituitary tissue capable of fulfilling the functions of the latter. On the other hand it has been proved that electrical stimulation of the pituitary body precipitates and intensifies uterine contractions in pregnant rabbits, just as would occur if oxytocic hormone were injected (Haterius and Ferguson, 1938). It has also been proved that experimental section of the supra-optic-hypophysial tract, which joins the hypothalamus to the posterior pituitary, in pregnant females results in a prolonged labour with incomplete expulsion or even non-expulsion of the foetus and sometimes a concomitant polyuria (Fisher, Ingram, and Ranson, 1939).

Physiologists have failed to note some facts in clinical knowledge which confirm these experimental findings. I refer to the observations published by Cushing (1932) by myself and Richet (1940) of repeated uterine atony due to lesions of the posterior lobe of the pituitary. As I have repeatedly commented on such cases elsewhere, I cannot myself here to recalling them. Cushing's case was that of a woman with intractable uterine atony who later showed signs of a basal tumour; at operation a tumour destroying the posterior lobe was found. My case was that of a woman in whom, following an attack of epidemic encephalitis, there appeared a severe syndrome of posterior pituitary insufficiency with repeated and intractable uterine atony. It is true that such cases of uterine atony due to posterior-pituitary lesions are very rare, but this can be explained by the fact that women with such lesions seldom become pregnant. But the published cases are suggestive, and the present case furnishes further evidence.

## Summary

Personal observation of a woman suffering from diabetes insipidus over a period of 26 years has enabled me to ascertain the complete adaptation of such a patient to a normal life when the lesion is not fatal. It has also enabled me to study one more case of uterine atony undoubtedly related to hypothalamic-posterior-pituitary insufficiency.

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## NEPHRITIS IN TEXTILE WORKERS

BY

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On May 24, 1947, in a leading article in the *British Medical Journal* (p. 727) on the subject of oxygen poisoning, the statement is made that "the inhalation of textile dusts is a steady source of death from nephritis and a group of conditions whose common factor is hyperpiesia."

It is the purpose of this paper to examine the evidence on which this statement is based. The information is obtained from the Registrar-General's Decennial Supplement for 1931, which shows a considerably increased mortality due to nephritis in certain groups of textile workers. In this fascinating document the causes of death are compiled from death certificates in the years 1930-2. I do not happen to have a textbook of medicine of that date readily available, but the fifth edition of Price's *Medicine*, published in 1937, still describes chronic interstitial nephritis as an entity and does not mention malignant hypertension at all. We must therefore from the outset be on guard against the assumption that nephritis appearing on a death certificate in 1931 bears any relationship to nephritis as commonly understood among physicians in 1947. Fortunately we can investigate this initial difficulty fairly easily.

The age incidence of deaths from nephritis and similar causes in 161 cases of which I have personal records is shown in Table I. From this it is quite clear that the main

TABLE I.—Deaths from Renal Disease: Author's Cases

Age (years):	0-14	15-24	25-34	35-44	45-54	55-64	65-69	70+
Nephritis, type I (Ellis)	7	17	15	6	5	0	0	0
"  type II (..)	8	14	5	5	4	3	0	0
Renal dwarfism type ..	1	5	2	0	0	0	0	0
Polycystic kidney ..	0	0	1	0	1	0	0	0
Chronic pyelonephritis ..	0	3	4	10	1	1	1	1
Amyloid kidney ..	0	0	0	4	0	0	0	0
Pregnancy kidney ..	0	1	1	2	1	0	0	0
Diabetic kidney ..	0	0	1	1	3	5	0	0
Miscellaneous renal deaths (nephritis nodosa, renal Tb., hydronephrosis, etc.)	0	5	2	4	4	6	2	0
Total renal diseases ..	16	45	31	32	18	15	3	1
Malignant hypertension ..	0	0	0	12	25	8	0	0

The above figures do not include non-renal deaths from essential hypertension or deaths from prostatic obstruction.

incidence of death from nephritis is under the age of 45. Only when deaths from malignant hypertension are added does mortality become considerable at 45 to 55 years of age.

The Registrar-General's figures for the age incidence of death from nephritis are totally different, as shown in Table II, where it will be seen that the main mortality is

TABLE II.—Deaths from Nephritis (Registrar-General, 1930-2; Death Rate per 100,000)

Age (years):	16-24	25-34	35-44	45-54	55-64	65-69	70+
Males ..	15	9	18	49	108	219	389
Married women ..	11	9	18	40	86	160	239
Single women ..	15	9	17	36	74	128	247
Total ..	41	27	53	125	268	507	875

over the age of 45 and must largely consist of deaths from hypertension. It is my experience in consulting practice that many cases of hypertensive heart failure with albuminuria are diagnosed by their doctors as chronic interstitial nephritis. There is a slight difference in age distribution between the various social classes, in that the lowest class has a rather higher percentage of deaths in younger persons; these are probably deaths from true nephritis related to infections.

The mortality from so-called nephritis for the combined social classes III and IV (into which the textile workers fall) is shown in Table III, and in Table IV are listed the deaths from nephritis in those groups of textile workers in which the mortality from this complaint is said to be excessive.\* It will be seen that the increased mortality

TABLE III.—Deaths from Nephritis in Social Classes III and IV combined (Registrar-General, 1931)

Age (years):	16-	20-	25-	35-	45-	55-	65-	75+
Total ..	166	272	573	858	1,940	3,134	4,070	2,417
Percentage ..	1.2	2.0	4.3	6.4	14.5	23.4	30.4	18.0

TABLE IV.—Textile Workers with Excessive Incidence of Deaths from Nephritis (Registrar-General, 1931)

Age (years):	16-	20-	25-	35-	45-	55-	65-	75+
Group 29 (textile spinners—cotton)	3	2	3	5	17	19	39	15
.. 30 (textile spinners—wool worsted, etc.)	0	1	2	2	3	3	4	3
.. 32 (textile weavers—wool worsted, etc.)	0	0	2	1	11	6	11	7
.. 33 (textile strippers and grinders—cotton)	0	0	1	0	5	5	0	0
.. 34 (textile dyers)	0	2	2	2	11	19	19	6
Totals ..	3	5	10	10	47	52	73	31
Percentage ..	1.3	2.2	4.3	4.3	20.3	22.5	31.6	13.4

occurs between 45 and 55, the age of essential hypertension, not that of nephritis.

If it is in fact hypertension which causes excessive mortality from "nephritis" in cotton workers one would expect an increased incidence of other effects of hypertensive disease. The standardized mortality ratio (S.M.R.) of cerebral vascular lesions, compared with that of nephritis for the occupational groups concerned, is therefore shown in Table V, and it is clear that mortality from cerebrovascular disease is about as much in excess of normal as that from so-called nephritis.

At this stage the impatient reader might remark that whatever name is given to the disease there is an increased

\* Analysis of Tables III and IV by the  $\chi^2$  test shows  $P > 0.9$ . The differences in age incidence of nephritis in textile workers and in the population from which they come is therefore not significant.



TABLE V.—Standardized Mortality Ratio at Ages 20-65  
(normal 100)

Group		From Nephritis	From Cerebral Vascular Lesions
29	Cotton spinners .. ..	135	151
	Wives .. ..	136	131
33	Cotton strippers and grinders ..	220	217
	Wives .. ..	233	175
34	Textile dyers .. ..	171	170
	Wives .. ..	93	144
174	Cotton blow-room workers ..	300	200
	Wives .. ..	200	33

The figures in italics are not statistically significant owing to the small numbers of certified deaths concerned.

mortality among certain trades from some condition certified by doctors in 1930-2 as nephritis, and it is not a matter of first importance what nomenclature is used to describe it. But there is a fundamental difference in aetiology between nephritis and essential hypertension in that the one is, so far as we know, largely the result of environmental factors (reaction to infection), whereas in the other the main and overriding factor in aetiology is heredity (Weitz, 1923; Hines, 1937-8; Platt, 1947). In other words, one would look first for environmental factors such as humidity, conditions of work, nutrition, and liability to infection if true nephritis were proved to be common in a certain group of work-people, but one would look first for evidence of inbreeding if one were investigating essential hypertension. This does not mean that the liability to death from essential hypertension cannot be influenced by environment; it is merely a matter of the most likely major influence at work, for in general it will save time and mistakes to examine that first. It will be seen from Table IV that the wool workers (groups 30 and 32) together contribute less than a quarter of the deaths from nephritis to the total for the three years in question, and we will therefore confine our remarks to the cotton industry.

Inbreeding, of course, is well known to occur in cotton towns, and to a large extent we are dealing with hereditary trades. If hereditary influences are at work in a disease like hypertension with a roughly even sex distribution we should expect the wives of workers in the affected groups to be affected. That this is the case is also shown in Table V, and it is interesting to contrast these figures with those for paperhangers and painters, in which the possibility of lead poisoning arises. In these trades the high S.M.R. for nephritis (131) and cerebrovascular lesions (151) in the men is not shown among their wives, for whom the figures are 86 and 82 respectively. Before accepting this very striking demonstration as proof against an industrial cause of nephritis in the textile trades, however, it must be admitted (as indeed it is noted by the Registrar-General) that many of the married women are also engaged in the cotton trade and so may be exposed to the same influences as their husbands.

If heredity is at work one might expect some increase of hypertensive disease in the surrounding population. This is in fact the case, for the S.M.R. in the region North IV (Lancashire and Cheshire) in 1931 was 122 for nephritis and 119 for cerebrovascular lesions (normal 100). These are considerable increases, having regard to the size and heterogeneity of the population.

The percentage of persons suffering from any hereditary disease in a population will tend to remain stationary under conditions of random mating, so that communities relatively isolated and inbred may for a long while show a tendency to suffer more from a particular inherited trait than the population at large.

A difficulty arises over occupational group 31 (textile weavers—cotton), in which the mortality from nephritis

is not excessive (S.M.R., 84). There are two reasons for not accepting this discrepancy as weighing heavily in favour of an occupational factor, however. The first is that the figure of 84 is not statistically significant, the numbers of deaths being too small; and the second is that the mortality from nephritis in the 1921-3 report was actually a high one—i.e., the cotton weavers in previous years suffered the same mortality from so-called nephritis as their workmates in other branches of the trade. The mortality for wives in this group is unfortunately not stated.

In Table VI an estimate of deaths from degenerative cardiovascular diseases in various occupational groups has been made by combining deaths (at ages 35 to 70) shown as cerebrovascular lesions, myocarditis, angina pectoris and nephritis. It is seen that group 70 (clergy) actually have the highest incidence because of a likelihood of dying from angina pectoris. The second column of figures shows the deaths from cardiovascular degenerative diseases, omitting angina. This table merely illustrates how occupational groups differ with regard to degenerative diseases in general. If these figures do not prove that angina among clergymen is due to the inhalation of incense they also fail to prove that nephritis in cotton workers is due to the inhalation of textile dusts.

TABLE VI.—Percentages of Occupational Groups dying of Degenerative Cardiovascular Disease at Ages 35 to 70

	Deaths	The Same Without Angina
Group 31: Textile weavers—cotton (no abnormal mortality from nephritis; S.M.R., 94)	29.1%	27.4%
.. 34: Textile dyers (nephritis S.M.R., 171; total S.M.R., 123)	30.9%	28.7%
.. 35: Makers of textile goods, etc. (mortality generally normal; S.M.R., 93)	26.6%	22.6%
.. 70: Anglican clergy (S.M.R., 69)	35.4%	25.3%
.. 81: Draughtsmen, costing clerks, etc. (very healthy; S.M.R., 65)	23.5%	19.7%

Knowledge advances and fashions in certification change. The accuracy of all statistics is dependent upon the accuracy of the data from which they are compiled. Owing to the war the next decennial report will presumably be based on the 1951 census (1941 being omitted). I venture to predict that by that time there will be a sharp decline in nephritis among older persons and a corresponding increase in deaths from hypertension and hypertensive heart failure.

In certain textile trades there may be influences at work whose effect is to hasten or even to initiate cardiovascular and "renal" disease. This investigation of the evidence does not disprove such a possibility, but it suggests that before setting out on a laborious, time-consuming, and expensive investigation into the cause and prevention of nephritis in textile workers we should need more evidence that it exists. In particular we would require evidence that there is a renal syndrome among textile workers which is in some way different in its incidence, symptomatology, or course from hypertensive disease in the general population.

### Conclusions

This paper proves nothing. It suggests that the deaths from so-called nephritis in textile workers are in all probability due to hypertension, and can be as easily explained by natural variations in the genetic constitution of an inbred population as they can by environmental influences.

This should be borne in mind before making the assumption that such deaths are due to "the inhalation of textile dusts."

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## Medical Memoranda

### Volvulus in a 48-hour-old Baby: Operation: Recovery

The "acute abdomen" in a baby 48 hours old is very rare indeed. Volvulus due to some developmental defect is perhaps the commonest cause in the newborn. The general symptoms of intestinal obstruction given by Zachary Cope (1946)—shock, vomiting, constipation, distension, and visible peristalsis—were all present in the following case, but were difficult to interpret.

#### CASE REPORT

The patient was a male first child of a mother aged 29 and a father aged 32. The mother showed a renal glycosuria from the fifth month of pregnancy and a mild thyroid deficiency. The presentation was occipito-posterior, and rotation was spontaneous. The child was born at 12 noon on June 18, 1947, after twelve hours' labour, delivery being normal. Vernix caseosa was rather more than usual. The child weighed 8 lb. (3.6 kg.).

About four hours after birth the child began to vomit yellow fluid, followed later by bile-stained fluid. He vomited and cried intermittently through the whole of the following night, and next morning was put on glucose-saline, which he returned immediately. He refused the breast and cried after the glucose-saline feeds. No meconium had been passed since birth. Abdominal distension was not detected, but I made a provisional diagnosis of stenosis of the duodenum. The father informed me that he had noticed a small amount of bright red blood in the vomit.

On the morning of the 20th the child looked thin, dehydrated, grey, and shocked, and on being put to the mother's breast he vomited a large amount of altered blood-stained fluid. Dr. Morton-Stewart was called in consultation, and the case was considered to be haemorrhagic disease of the newborn. The child was given 10 ml. of the father's blood intramuscularly and an injection of "kapilon." I saw the child again six hours later, when a glycerin enema was given without result. Faecal vomiting very similar to that of an adult began and the abdomen was noticed to be distended. Visible peristalsis was observed. Dr. Morton-Stewart was again seen in consultation, when the diagnosis of intestinal obstruction was made. Mr. Young was also called in consultation. A catheter was passed down the oesophagus to investigate whether the abdominal distension was from stomach or bowel. The child then had a bulky faecal vomit and passed meconium for the first time. The result of the test was therefore inconclusive.

The gravity of the situation was explained to the parents and immediate operation advised, the diagnosis being intestinal obstruction due to a developmental defect.

**Operation.**—At 11.45 p.m. on June 20 the operation was performed under open ether by Mr. Young, with Dr. Divine as anaesthetist. A right paramedian incision was made, and some free fluid was found in the peritoneal cavity. The duodenum and upper part of the small intestine were very dilated and engorged. Evisceration of the small gut showed that the small intestine was twisted in a clockwise direction owing to non-descent of the caecum. The bowel was rotated anticlockwise for two and a half turns, and the abdomen was closed in layers.

During the operation, which lasted twenty-five minutes, the child regurgitated faecal fluid and gave the anaesthetist cause for anxiety. The patient was put on intravenous drip saline and placed in an oxygen tent.

Apart from widespread oedema the child made an uneventful recovery and was given breast milk, obtained from the mother, after two days, being put to the breast after a further seven days. At three weeks the baby was only 1 lb. (450 g.) below birth weight. The oedema gradually disappeared, being probably due to the drip saline.

#### COMMENT

The diagnosis was not easy, especially in view of the vomiting of blood. Thompson (1940) in the description of a very similar case draws attention to the association of volvulus in the newborn with gross haemorrhage from the intestinal tract, leading to the belief that his case was one of haemorrhagic disease of the newborn. It was, however, successfully operated upon on the ninth day.

Buckley and Wells (1944) record five fatal cases in which the predominant symptoms were vomiting, visible peristalsis, and a bloody motion. They emphasize that "in a newborn infant where vomiting cannot be explained on the basis of cerebral haemorrhage or infection, torsion of the intestine must be con-

sidered seriously." They also mention that evisceration of the small intestine is essential to avoid missing the diagnosis and for the proper reduction of the volvulus.

Borow and Borow (1937) reported a similar case in a baby 4 days old, which they believed to be the first to be operated on successfully. The predominant symptoms were vomiting, the passage of mucus and blood, and distension.

The occurrence of persistent vomiting in the newborn in association with the passage of blood in the motion or blood by the mouth with or without visible peristalsis or abdominal distension should make the diagnosis of torsion of the intestine a big probability. Absolute constipation must not be depended upon. Abdominal distension and visible peristalsis are late although helpful symptoms.

I wish to express my indebtedness to Dr. Morton-Stewart, to Mr. Young, who performed the operation, and to Dr. Divine, the anaesthetist.

R. D. J. B. WRIGHT, M.B., Ch.B.

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### The Use and Value of BAL in Gold Dermatitis

The drug BAL (2,3-dimercaptopropanol, British Anti-Lewisite) has been applied to the treatment of acute arsenical poisoning (*Journal*, Oct. 4, 1947, pp. 520, 536), and its use as a remedy for gold dermatitis has recently been reported in America (Cohen *et al.*, 1947; Regan and Boots, 1947). In all, ten cases of the latter were treated, nine successfully. The following is a brief record of a case of gold dermatitis, the successful treatment of which appears to be due to the use of BAL.

#### CASE REPORT

A woman aged 55, with a three-years history of rheumatoid arthritis, received a course of "myocrysin" (total of 1 g.) over a period of ten weeks, finishing on June 2, 1947. On June 6 there was slight generalized irritation of the skin. One month later an exfoliative dermatitis started on the face, and subsequently spread to the neck, scalp, forearms, hands, and feet; there was also a stomatitis with marked buccal ulceration. The rash was still spreading when she was admitted on Aug. 11. On Aug. 14 she was given intramuscularly, four-hourly for four doses, 2 ml. of 5% BAL dissolved in arachis oil containing 10% benzyl benzoate, and the following day 2 ml. morning and evening. On the evening of Aug. 15 her temperature rose to 100° F. (37.8° C.), and although she showed no other signs of intolerance it was thought safer to discontinue the BAL. The rash stopped spreading after the second day, and thereafter steady improvement took place. She was discharged on Aug. 25, with the buccal ulceration healed and the skin practically clear. Some pigmentation of the skin of the face was still present when she was seen in October.

Obviously no definite conclusion can be drawn from this case, but it is suggested that the use of BAL in the treatment of gold dermatitis is worthy of further trial.

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Physician, Royal Hospital, Richmond.

ALISON D. McDONALD, M.B., D.C.H.

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- Cohen, A., Goldman, J., and Dubbs, A. W. (1947). *J. Amer. med. Ass.*, 133, 749.  
Regan, C., and Boots, R. H. (1947). *Ibid.*, 133, 752.

A new pest in houses is reported by H. E. Hinton and A. W. McKenny-Hughes in the October *Monthly Bulletin* of the Ministry of Health and Public Health Laboratory Service. It is the New Zealand weevil, *Euophrys confinis* Broun, which was first found in this country in 1937. It has now established itself "in a number of localities in houses as well as out of doors." The weevil leaves a thin outer layer of the wood intact except for exit holes. The interior of the wood is filled with a series of intercommunicating more or less parallel galleries, which are partly choked with dry powder consisting of the granular faeces of the larvae. The damage is remarkably like that done by *Lyctus*. The larvae seem to feed only in dead wood that is attacked by fungi.

## Reviews

### VASCULAR DISORDERS

*Peripheral Vascular Diseases.* By Edgar V. Allen, M.D., M.S., F.A.C.P., Nelson W. Barker, M.D., M.S., F.A.C.P., Edgar A. Hines, Jr., M.D., M.S., F.A.C.P., with Associates in the Mayo Clinic and Mayo Foundation. (Pp. 871; 386 illustrations, 7 in colour. 50s.) London: W. B. Saunders Company. 1946.

The authors of this magnificent study of peripheral vascular disease dedicate it to George Elgie Brown and in doing so pay a glowing tribute to his memory. Between 1921 and his untimely death in 1935 George Brown carried out pioneer work on vascular disease at the Mayo Clinic; he had planned this book as a record of his experience, and his friends have completed the work in a manner that must have satisfied even his high standards. The book is an excellent guide to the literature of peripheral vascular disease, for it is clear that the authors have taken great care in every section to collect the relevant facts about the history of the subject and to summarize the development of the opinions on pathology and treatment that are commonly accepted at present. But its usefulness is much enhanced by the numerous references to what has been learnt by experience at the Mayo Clinic. In short, it is a comprehensive work of reference enriched by the personal opinions of an experienced group of workers who have had access to a very large amount of clinical material. Brief biographical notes, with portraits, adorn the appropriate chapter-headings in homage to the pioneers in this field—Raynaud, Jonathan Hutchinson, Thomas Lewis, Weir Mitchell, Virchow, Matas, Buerger, Halsted, and Welch.

It is so long since attention was first drawn to many of these diseases that it seems remarkable that we should have had to wait till comparatively recently for any substantial advance in knowledge of their nature and treatment. On the other hand, perusal of this book makes it only too clear that there are still great tracts of unknown territory to be explored. There are full accounts in the early chapters of the special methods used to investigate vascular disease, and the authors add brief comments upon whether they have found the tests to be helpful or not in their own hands. It is interesting, for example, and rather surprising, to read that they have found oscillometry to be of little use—certainly of much less assistance than to several investigators in Britain. The authors describe diseases of the arteries in great detail, and refer to many instances of rare conditions which have occurred among the large numbers of patients attending the Clinic. We are interested to learn that diseases which we see quite often are rarities to them—namely, primary thrombosis of the popliteal artery in young patients with otherwise healthy arteries, and erythrocytosis frigida, which to them is so unimportant that it is grouped with other manifestations of pernio. It is strange to find that they classify erythema nodosum, erythema induratum, and disseminated lupus erythematosus as forms of arteritis, and it is not quite clear why they do so.

There is a masterly analysis of the whole problem of thrombophlebitis, with special reference to post-operative venous thrombosis; this section in itself makes the book a desirable acquisition for every general surgeon's library. The authors describe the rational basis for anticoagulant therapy in full, but condemn the ligation of veins for thrombophlebitis. In spite of intensive study no simple method has been discovered of successfully treating the oedematous ulcerated leg following deep thrombophlebitis. The volume ends with a comprehensive review of the inflammatory and non-inflammatory forms of lymphoedema, with experimental observations and clinical and pathological findings, as well as a brief but adequate and well-illustrated section on the operative surgery of peripheral vascular disease.

There is no doubt that this will be regarded as the standard book of reference on diseases of the peripheral blood and lymph vessels, and the authors are to be congratulated upon a production which is both a worthy memorial to George Brown and a credit to the present staff of the Mayo Clinic.

J. PATERSON ROSS.

### SURGERY OF SOFT TISSUES

*Surgical Treatment of the Soft Tissues.* Supervising Editor: Frederic W. Baneroff, M.D., F.A.C.S. Associate Editor: George H. Humphreys, II, M.D., Sc.D., F.A.C.S. (Pp. 526. 244 illustrations. £4 10s.) Philadelphia and London: J. Lippincott Company.

Any work published under the supervision of a surgeon of F. Baneroff's standing is bound to be interesting. Any surgeon could read this work with interest and occasional profit, but it is difficult to understand what place it is intended to fill or what class of reader it is intended to appeal. The appearance of the cover suggests that it is one of a series on the whole surgical treatment, but the selection of subjects in this volume is eclectic rather than comprehensive.

The book discusses cancer of the skin and breast at length but not the surgery of sarcoma or the block dissection of glands in the neck. It describes the excision of branchial cysts and fistulae, but does not mention the thyroid gland. The book is chiefly on operative surgery, but there is a dissertation on chemotherapy which, though good in itself, is more suitable for a journal and already out of date. It should appeal to the postgraduate and experienced surgeon; but information on many of the more intricate operations on which they really need help is incorrect or incomplete. In the section on arteries, for instance, it discusses the technique of arterial suture without aid of a number of pretty but quite misleading pictures, nowhere do the illustrations or the author reveal or even suggest that the key to arterial surgery is eversion of the intima. Indeed, some figures, if enlarged, might illustrate intestinal suture, and the author makes the remarkable statement that a Connell (inverting) suture can be used for arterial anastomosis. The section on ligation of arteries contains all the old textbook exposures and none of those of Fiole and Delmas for the deeper vessels, on which every postgraduate would wish to be informed, while the advice to approach the innominate, subclavian, and vertebral arteries from the inner border of the sternomastoid without dislocating the clavicle or even dividing the scalenus anticus is positively dangerous. Like the current dogma, the book is excellent in parts.

HENEAGE OGILVIE.

### NAILING BONES

*L'Ostéosynthèse au Clou.* By R. Socur. (Pp. 132; 134 figures. 325 francs.) Paris: Masson et Cie. 1946.

Intramedullary fixation of fractures of the shafts of long bones is not a new procedure. It has been practised sporadically since the early years of this century, but its value was limited because biologically inert metals such as are now available for internal splinting had not reached a satisfactory stage of development. During the recent war Küntscher in Germany, and to a lesser extent Lambrinudi and Burns in Britain, practised this method and it now has an established, if limited, place in orthopaedic surgery.

In his monograph on the internal fixation of bones by nailing Dr. Socur gives a full account of the present state of development of this method of fracture treatment, based on an experience of 74 cases. In the first half of the book he describes the indications for and technique of medullary nailing as applied to each of the principal long bones, and discusses its advantages and disadvantages in each case. The material in this section is well arranged; there is much of interest and much that will be new to many readers. The impression is inescapable, however, that the author's vigorous enthusiasm for the method has sometimes influenced his judgment when defining its indication and scope. Thus, he claims that intramedullary nailing is superior to other forms of internal fixation—and often to more conservative methods of treatment—for almost all the diaphyseal fractures of the long bones. There will be disagreement here. Many readers will think that some at least of the cases which are described could have been treated as effectively, and possibly more simply, by other methods—sometimes even by non-operative methods. It is a dangerous policy (though one that is becoming too prevalent) to argue that a shortening of the stay in hospital or the achievement of earlier ambulation is in itself sufficient ground for advising operative treatment of fractures.

In the second part of the book the author discusses fractures of the neck of the femur, and he attempts to analyse the causes of non-union of intracapsular fractures. This problem has baffled surgeons and pathologists for many years and any new explanation must be seriously considered. Dr. Soeur's explanation, though of interest, is not at first sight convincing, and much further evidence is required before it can be completely accepted. It certainly does not justify his scathing and rather harsh denunciation of Pauwel's theories. Nevertheless, the book is well worth reading both for the information it contains and for the stimulus of the author's vigorously expressed ideas.

H. OSMOND CLARKE.

## CHEST DISEASE

*Diseases of the Chest. Diagnosis and Treatment.* By Archibald Reynolds Judd, M.D., F.A.C.S. (Pp. 638; 140 illustrations, 1 in colour. \$9.00.) Philadelphia: F. A. Davis Company (1914-16, Cherry Street). 1947.

Although this book purports to be a systematic manual of diseases of the chest there are some strange omissions from the list of contents. After 60 pages on the anatomy of the thorax and the physiology of respiration the author devotes 220 to pulmonary tuberculosis; of these, 66 are on diagnosis and pathology and the rest on treatment. The only sort of pneumonia that he discusses is the tularaemic variety. He does not mention asthma, and the discussion of pulmonary abscess and of bronchiectasis is sketchy. The standard of accuracy may be judged by the following quotation:

"Although the ductus arteriosus generally becomes obliterated after birth, it occasionally remains patent with the result that there is an excessive admixture of arterial and venous blood. The body becomes markedly cyanotic and life is threatened. The patient generally dies in infancy" (p. 31).

This error is repeated on p. 44, where the causes of anoxaemia are discussed as follows:

"They include inadequate ventilation of the lungs, insufficient available pulmonary parenchyma, reduced oxygen tension of the inspired air, or the blood may not be presented to the lungs for oxygenation as in patent ductus arteriosus."

Other examples of inaccurate or misleading statements are:

"Intrathoracic Pressures: Intrathoracic pressures refer generally to the pressure existing between the chest wall and the lungs, in other words to the intrapleural pressure, which is 4.5 to 5.0 mm. of Hg on expiration and 8.5 to 10 mm. of Hg on inspiration" (p. 45).

"Hydrogen Ion Concentration: Extensive experimentation has shown that there is a sensitivity of the breathing apparatus to changes in the pH of the blood. Increase in breathing rate may occur in the presence of either a shift to the acid or alkaline side of the normal pH level (pH=7.35 to 9.35)" (p. 54).

Similar inaccuracies continue throughout the book. The literary style may be judged from the following quotation:

"The physiology of respiration and allied studies has been the subject of intensive study and research since thoracic surgery had its inception" (p. 39).

In a discussion of the technique of artificial pneumothorax induction:

"The site of the initial injection of air, if located over an area of normal lung, will aid in preventing the development of an empyema in the event that the visceral pleura is damaged" (p. 190).

"The treatment of bronchiectasis by active surgical methods, including phrenic nerve interruption, pneumothorax, oleothorax, thoracoplasty, and lobectomy, has been discarded with the exception of lobectomy" (p. 323).

On p. 440, in the course of a discussion of fungus diseases of the lung, a condensed classification of all plants from algae to flowering plants is labelled, "Table XIII. Outline of Phyla Group of Fungi," with the preamble:

"The following outline shows more clearly the intimate relationship between the forms in which we are chiefly interested."

The reviewer feels that these quotations will indicate his views on the book more clearly than any explicit statement that he would care to make.

J. G. SCADDING.

## BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

*Standard Methods of the Division of Laboratories and Research of the New York State Department of Health.* By A. B. Wadsworth, M.D. 3rd ed. (Pp. 993. 55s.) London: Baillière, Tindall and Cox. 1947.

A detailed description of laboratory techniques for the examination of pathological materials, preparation of vaccines and sera, and laboratory administration.

*Office Treatment of the Eye.* By Elias Selinger, M.D. (Pp. 542. 43s.) Chicago: The Year Book Publishers, Inc. London: H. K. Lewis and Co. 1947.

An account of ophthalmological conditions that may be treated in the home, consulting room, or hospital out-patient department.

*Annual Review of Biochemistry.* Vol. XVI. Edited by J. Murray Luck et al. (Pp. 740. 36s.) California: Annual Reviews, Inc. London: H. K. Lewis and Co. 1947.

Includes papers on the metabolism of proteins and amino-acids, the chemistry of the hormones, on folic acid, and on antimalarial drugs.

*Aids to the Diagnosis and Treatment of Diseases of Children.* By F. M. B. Allen, M.D., F.R.C.P. 8th ed. (Pp. 268. 6s.) London: Baillière, Tindall and Cox. 1947.

Includes new material on erythroblastosis, the sulphonamides, and penicillin.

*Old People's Welfare.* Published for the National Old People's Welfare Committee. 2nd ed. (Pp. 72. 1s. 6d.) London: The National Council of Social Service. 1947.

A guide to clubs, hobbies, housing schemes, and social services for the welfare of the old.

*When You Are Old.* Published by the B.M.A. (Pp. 33. 1s.) London. 1947.

An illustrated pamphlet for the layman based on the report entitled "The Care and Treatment of the Elderly and Infirm" by the special committee of the B.M.A.

*Germany Revisited.* By Victor Gollancz. (Pp. 39. 9d.) London: Victor Gollancz, Ltd. 1947.

An account of the author's visit to Germany in August of this year.

*Surgery: A Textbook for Students.* By C. A. Pannett, B.Sc., M.D., F.R.C.S. 2nd ed. (Pp. 769. 27s. 6d.) London: Holder and Stoughton. 1947.

A short textbook of general surgery for medical students.

*Headache.* By L. G. Moench, M.D. (Pp. 207. 53.50 or 19s. 6d.) Chicago: The Year Book Publishers, Inc. London: H. K. Lewis and Co. 1947.

An account of the various causes of headache, and their treatment.

*With Cradle and Clock.* By Knud Stowman. (Pp. 224. 9s. 6d.) London: Hurst and Blackett. 1947.

A novel about an obstetrician in 18th century New York.

*Experimental Physiology for Medical Students.* By D. T. Harris, M.D., D.Sc., F.Inst.P. 4th ed. (Pp. 299. 18s.) London: J. and A. Churchill. 1947.

Describes simple laboratory experiments for students; many illustrations.

*Guide to the Study of the Anatomy of the Shark, Necturus, and the Cat.* By S. Eddy, C. P. Oliver, and J. P. Turner. 2nd ed. (Pp. 115. 12s.) New York: John Wiley and Sons, Inc. London: Chapman and Hall, Ltd. 1947.

A guide to the dissection of the dogfish shark, the mud puppy, and the cat.

*Atlas of Outline Drawings for Vertebrate Anatomy.* By S. Eddy, C. P. Oliver, and J. P. Turner. (102 plates. 12s.) New York: John Wiley and Sons, Inc. London: Chapman and Hall, Ltd. 1947.

An anatomical atlas to be used with the preceding book.

*Recent Advances in Pathology.* By Geoffrey Hadfield, M.D., F.R.C.P., and Lawrence P. Garrod, M.A., M.D., B.Ch., F.R.C.P. 5th ed. (Pp. 763. 21s.) London: J. and A. Churchill. 1947.

Includes new material on epidemic hepatitis, nephritis, experimental cancer research, antibody formation, and silicosis.



The Royal Family and Lieutenant Philip Mountbatten, R.N.

(Dorothy Wilding)

## THE LOYAL ADDRESS OF THE BRITISH MEDICAL ASSOCIATION

*We print below the loyal address of the British Medical Association to His Majesty the King on the occasion of the marriage of Her Royal Highness Princess Elizabeth to Lieutenant Philip Mountbatten, R.N., on November 20, 1947.*

To the King's Most Excellent Majesty:

The Humble Address of the President and Members of the British Medical Association.

May It Please Your Majesty.

We, Your Majesty's dutiful and loyal subjects, the members of the British Medical Association distributed throughout Your Majesty's Commonwealth and Empire, humbly tender to Your Majesty, and to Her Most Gracious Majesty the Queen, Congratulations upon the Marriage of Her Royal Highness the Princess Elizabeth with Lieutenant Philip Mountbatten, R.N., which we fervently hope may be attended with every happiness.

We desire also to give expression to our fidelity and loyalty to the Throne and our hope that Your Majesty's beneficent reign may long continue.

Signed on behalf of the British Medical Association:

HUGH LETT, *President.*

H. GUY DAIN, *Chairman of Council.*

J. B. MILLER, *Chairman of Representative Body.*

JOHN W. BONE, *Treasurer.*

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## BRITISH MEDICAL JOURNAL

LONDON

SATURDAY NOVEMBER 15 1947

## THE ROYAL WEDDING

The medical profession has always been stoutly loyal to the Throne, a loyalty that was exemplified by the greatest of all British medical men, William Harvey, who remained with Charles I when he was besieged at Oxford. The Throne has responded to this feeling of loyalty by taking through the centuries a close concern in the problems and work of the medical profession. Henry VIII played a notable part in regulating the practice of medicine, in founding the Royal College of Physicians, and in bringing the Barbers and Surgeons together in one corporation. In recent history the Throne has endeared itself to medical men and women through more personal acts and trials. Queen Victoria set a courageous example when she received at the hands of John Snow chloroform during the birth of two of her children. Her son, Edward VII, uttered his famous aphorism about the prevention of tuberculosis, and his interest in medical work is commemorated in the King Edward VII Welsh National Memorial Association (for tuberculosis) and the King Edward's Hospital Fund. Perhaps, on its part, the medical profession has rarely felt more closely attached to the Throne than during the long and grave illness of King George V, cared for by a team of medical men working under that devoted and great doctor the late Viscount Dawson of Penn.

So it is with more than ordinary feelings of patriotism and loyalty that the medical profession of Great Britain and Northern Ireland now extend their respectful greetings to the heiress-presumptive to the Throne. Her Royal Highness Princess Elizabeth, on the occasion of her marriage to Lieutenant Philip Mountbatten, R.N.

The British Medical Association has presented to its Royal Patron, His Majesty the King, a loyal address in commemoration of the marriage of his daughter. The wording of the address is printed opposite this page. The address itself is illuminated

on five pages of hand-made paper in full colours and gold, with the monogram of Princess Elizabeth and Lieutenant Philip Mountbatten and the device of the British Medical Association on the first two pages. The address is bound in padded blue Levant morocco bearing the device of the British Medical Association tooled in gold. The members of the British Medical Association are distributed throughout the Commonwealth and Empire, and so the Loyal Address thus humbly presented has more than a local and national significance. To the Nation's wishes for the happiness of the Royal couple we would add the special wish of the medical profession that they may long enjoy years of good health.

## THE MINISTER POSTPONES DISCUSSION

After the *Journal* had gone to press last week the Negotiating Committee was informed that the Minister wished to postpone to Dec. 2 and 3 the meeting with it which he had agreed should be on Nov. 11 and 12. A printed slip conveying this information was inserted into copies of the *Journal* circulated in Britain. While we may understand that the Minister needs more time to consider the very many points that have been discussed with the officers of the Ministry by the various subcommittees of the Negotiating Committee the postponement will disappoint the medical profession, which, it is clear from our correspondence columns, is anxiously awaiting the results of the deliberations and is uneasy at the silence prevailing during the past few months. A small point, but perhaps not negligible, is the fact that, the date of the meeting having been agreed by the Minister of Health, the members of the Negotiating Committee, who come from different parts of the country, had already made arrangements for their work to be done this week so that they could attend the meeting in London. The points brought forward for discussion by the six subcommittees of the Negotiating Committee have ranged over a wide field, and the Minister has presumably been kept informed by his officers of the nature of these discussions during the past few months. In order to avoid any ambiguity in the matter the Negotiating Committee drew up a carefully considered statement on the discussions so that the Minister could have this as well as the account provided by his own officers. The Negotiating Committee's statement and the Minister's reply will be published in the *Journal* as soon as the latter is received.

Dr. H. Guy Dain, Chairman of Council of the B.M.A., made a short but important statement at the meeting of the Panel Conference on Oct. 30, which was reported in the Supplement of the *Journal* of Nov. 8. In this speech he drew attention to some of the matters to which the Negotiating Committee had given much thought. He pointed out that the Minister had accepted the terms upon which it had been agreed to enter discussions—namely, that

the possibility of an amending Act should not be ruled out. Dr. Dain referred in particular to the obscurities of Section 35 of the Act relating to partnership agreements. In his own words "Section 35 of the Act is entirely unworkable." The Minister may agree that this Section can be made workable only by amendment. Another matter referred to by Dr. Dain was the buying and selling of practices, and the fact that he referred in particular to this problem suggests that the interpretation of the Act in relation to this is one which offers some difficulty to the Ministry of Health as well as much concern to the medical profession. Another matter of grave concern to general practitioners is the method of remuneration in the new National Health Service. Is this to be by capitation fee alone, or by capitation fee plus basic salary? This question is itself linked with the buying and selling of practices and the method of securing an even distribution of medical skill throughout the country. With this, too, is bound up the question of what is euphemistically described as negative direction.

Dr. Dain concluded his speech by assuring the Panel Conference that there had been no departure from the principles for which they stood. He referred to the forbearance of the profession in the months during which they had been unable to receive any information. The silent period is now coming to an end, and the next phase of events will soon be upon us. If the Minister of Health finds it impossible to reach a compromise on matters which the medical profession considers to be fundamental, then by further discussion and plebiscite medical men and women will have to decide what action to take. The plea for unity has been made often enough in these columns, but even though the plea now tends to become commonplace we would make it once more, because if the profession is divided against itself then the Minister of Health will have his way. But if the medical profession can sink what are in effect small, but at times irritating, differences of opinion, and can be united in its adherence to those principles which it knows are fundamental to the good of the profession and so to the good of the public, then the final outcome cannot remain in doubt.

## RISKS OF RADIOACTIVE ISOTOPES

Probably the most important influence that the recent developments in nuclear physics will ultimately have on medicine will result from using isotopic tracers, both radioactive and non-radioactive, in research. The first occasion when radioactive isotopic indicators were used in medicine appears to have been the investigation, published in 1924 by Christiansen and others,<sup>1</sup> into the absorption, distribution, and excretion of bismuth in the treatment of syphilis. Informative accounts of the use of radioactive and stable tracers were published in 1946 by Hevesy<sup>2</sup> and by Rittenberg and Shemin.<sup>3</sup> Dr. A. S. McFarlane in an interesting review in this week's *Journal*

(p. 766) calls attention to two important facts about the use of tracers in clinical investigations—namely, the plethoric safety of non-radioactive tracers and the need for caution in the use of radioactive tracers. However, says, "in the case of the radioactive tracers it is possible to employ such low concentrations that most of the experiments can be carried out with safety."

The risks of administering internally any radioactive substance must be carefully studied and estimated in each case, especially in connexion with the therapeutic applications of isotopes such as radiophosphorus and radioiodine. Mitchell has recently reviewed<sup>4</sup> the possible use of radiophosphorus in treatment. In a subsequent review the same writer emphasized the importance of avoiding the possible danger of carcinogenesis which might result from the introduction of radioactive materials, including radioiodine, into the body. During the last year it has become possible to estimate provisionally the therapeutic value of the few radioactive isotopes whose use depends upon their being selectively concentrated by the malignant cells, which are killed or damaged by the radiation. It is now evident, mainly from American work, that radiophosphorus,<sup>5-9</sup> and to less extent the radioiodine, may justifiably be given internally as therapeutic agents in suitable cases.

Radiophosphorus ( $P^{32}$ ) has a half-life of 14.3 days; it emits only beta particles, whose average energy is approximately 0.70 mev. It is usually administered intravenously in the form of isotonic  $Na_2HPO_4$  solution containing initially about 300 microcuries of  $P^{32}$  in 15–18 ml. of anhydrous  $Na_2HPO_4$  per ml. It can also be given by mouth, and it is then often assumed that 75% is absorbed. The clinical dosage of  $P^{32}$  has necessarily been decided on empirical grounds, and it is desirable to correlate it with the roentgen unit. It has been shown that 1 microcurie of  $P^{32}$  per gramme of tissue delivers a dose of 43–24 hours.<sup>10</sup> It is also important to know the differential absorption ratio—that is, the ratio of the concentration of the isotope in a particular tissue to the average concentration in the body as a whole.

Radiophosphorus has been used in the treatment of patients since 1936. The only disease in which it has yet been found to give better results than x-ray treatment is polycythaemia vera; it is probably the best therapeutic agent available for this condition, though general measures must not be omitted. In chronic myeloid leukaemia and chronic lymphatic leukaemia its effects and its limitations are probably similar to those of x-ray therapy. In cases of lymphosarcoma radiophosphorus is probably

<sup>1</sup> *British Medical Journal*, 1927, 1, 250.

<sup>2</sup> *Brit. J. Cancer*, 1947, 1, 1.

<sup>3</sup> Low-Beer, B. V. A., Lawrence, J. H., and Stone, R. S., *Radiology* 59, 573.

<sup>4</sup> Kenney, J. M., *Cancer Res.*, 1942, 2, 130.

<sup>5</sup> Reinhard, E. H., et al., *J. Lab. clin. Med.*, 1946, 31, 107.

<sup>6</sup> Doan, C. A., et al., *ibid.*, 1947, 32, 943.

<sup>7</sup> Chapman, E. M., and Evans, R. D., *J. Amer. med. Ass.*, 1946, 131, 1.

<sup>8</sup> Hertz, S., and Roberts, A., *ibid.*, 131, 81.

<sup>9</sup> Leucutia, T., *Amer. J. Roentgen*, 1946, 56, 90.

<sup>10</sup> Seidlin, S. M., Marinelli, L. D., and Oshry, E., *J. Amer. med. Ass.* 132, 838.

<sup>11</sup> Leiter, L., Seidlin, S. M., Marinelli, L. D., and Baumann, E. J., *Endocrinol.*, 1946, 6, 247.

<sup>12</sup> Means, J. H., *Ann. Intern. Med.*, 1946, 25, 403.

<sup>13</sup> Marinelli, L. D., *Amer. J. Roentgen*, 1942, 47, 219 (cp. Marinelli, D. Brinckerhoff, R. F., and Hine, G. J., *Rev. Mod. Phys.*, 1947, 19, 23, for calculations for other isotopes).

<sup>1</sup> *C. r. Acad. Sci., Paris*, 1924, 173, 1324; *ibid.*, 179, 241; quoted by G. de Hevesy, Nobel Lecture, 1946, Norstedt, Stockholm.

<sup>2</sup> Nobel Lecture, 1946, Norstedt, Stockholm.

<sup>3</sup> "Isotope Technique in the Study of Intermediary Metabolism," in *Currents in Biochemical Research*, edited by D. E. Green, New York, 1946.

beneficial than x rays. It is useless in acute leukaemias, Hodgkin's disease, and cancers generally. Whenever radiophosphorus is administered internally as inorganic phosphate its effects on the normal tissues must be considered, especially on the reproductive organs, the bone-marrow, the lymphoid tissue, and, when the expectation of life is considerable, the kidneys. It must be emphasized that all proliferating cells, both normal and malignant, concentrate the radiophosphorus by utilizing it as inorganic phosphate in the synthesis of complex compounds, including ribonucleic and thymonucleic acids.

These dangers are not hypothetical. Recently Platt, of St. Louis, has described<sup>17</sup> the histological changes produced in the organs of patients treated with radiophosphorus. In this series of 43 cases the diagnoses were: acute leukaemia, 4; chronic leukaemia, 21; leukosarcoma, 9; aleukaemic leukaemia, 1; Hodgkin's disease, 2; multiple myeloma, 3; lymphosarcoma, 1; melanoma, 1; and Ewing's tumour of bone, 1. In general the histological changes were similar to those caused by external radiation. Striking changes were of course found in the bone-marrow, lymph nodes, and spleen, although this organ was never reduced in size. Significant renal changes were observed and "can probably be attributed to the concentration that occurs in the nephron during the process of filtration and reabsorption." Minor histological changes that were probably radiation effects were also described in the brain, skin, oesophagus, gastro-intestinal tract, pituitary gland, adrenal cortex, lungs, and bones. "Finally, serious consideration must be given to the changes in the testes and ovaries of patients who are in the reproductive period of life. Observation of these organs confirms the possibility that spermatogenesis and oogenesis may decrease or disappear, with development of sterility in young persons given radiophosphorus."

In addition, as Dr. R. McWhirter points out (see p. 783), the question whether genes may be altered by radiophosphorus used in treating patients during the reproductive period of life must be considered. There is unfortunately little evidence on this subject. While it is possible to calculate the dosage of radiophosphorus which can be expected to deliver to the testis or ovary a dose of radiation not exceeding the "tolerance dose" of 0.1 r. (or, probably better, 0.05 r.) per day, it must be emphasized that there is almost no direct evidence from biological experiments with which to support such calculations. Another risk that may arise from the use of radiophosphorus in patients with a long expectation of life is that of late carcinogenesis—that is, the induction of leukaemias and bone sarcomas after a latent period of at least five years and probably much longer. We have no evidence on this subject, and clinical trials of P<sup>32</sup> have almost certainly not been carried out for long enough to reveal whether this occurs or not. Nevertheless, we may expect radiophosphorus to have a weak carcinogenic action. We conclude that in the present state of knowledge it is in general unwise to use radiophosphorus to treat patients who are in the reproductive period of life or who have an expectation of life of five years or more.

## PRICKLY HEAT AND TROPICAL ASTHENIA

Prickly heat or miliaria is a perpetual source of irritation and annoyance to the white man in tropical climates, and among the many remedies recommended there are none that receive much praise. Prickly heat presents a fine, superficial, vesicular eruption and erythema related to the sweat ducts, is readily evoked by exercise, and is associated with intense itching. It affects especially those parts of the skin which are normally covered, is aggravated by friction, and may last from a few days to a few weeks according to the severity of the attack. Numerous theories relating to diet, salt and water metabolism, and infection have been put forward to explain the disease, but none has proved satisfactory or established a basis for treatment. The late E. C. Smith,<sup>1</sup> of Lagos, cultured a monilia from the skin of patients suffering from prickly heat and claimed to have reproduced the disease in normal subjects by inoculation with these cultures.

Recently J. P. O'Brien<sup>2</sup> has made an exhaustive histological study of the disease and brings forward strong evidence to support the view that it results from the degreasing effects of the "civilized toilet" of the white man in relation to clothes, washing, the use of soaps, powders, and lotions, and the application of alcohol to harden and protect the skin from bites. The effect is to deprive the skin of its sebaceous secretion, with the result that a keratin ring closes the orifice of the sweat duct and a vesicle of sweat collects in the upper epidermis and provokes a secondary reaction. If an area of skin is smeared with anhydrous lanolin this horny occlusion is prevented, and exercise will now provoke profuse sweating over this area but no vesicular eruption; O'Brien calls this "the lipoid response." He suggests that a similar procedure in relation to the pilo-sebaceous orifices is responsible for acne and folliculitis, which are so often aggravated in the Tropics. In prickly heat a secondary parakeratotic reaction and plug-formation occurs beneath the vesicle and causes disintegration of the duct with obstruction to the flow of sweat, which then permeates into the tissues and may give rise to a vesicular reaction deeper than that of prickly heat and not accompanied by itching. This accounts for the persistent tropical anidrosis which follows prickly heat and may be associated with eczematous and sometimes exfoliative dermatitis due to the irritation of the extravasated sweat. Involvement of half the sweat glands of the body will impair adaptation to tropical conditions; involvement of two-thirds of the glands, O'Brien suggests, leads to severe impairment and asthenia. The asthenia is caused partly by pyrexia from interference with heat loss by sweat evaporation, and partly by the metabolic effects of the reabsorption of extravasated sweat.

O'Brien's histological studies and the results of his experimental investigation of 20 normal subjects appear to confirm his hypothesis. It should be easy to conduct a clinical experiment over a wide field and confirm or refute his findings. Natural cure results from exfoliation of the keratin plugs, and painting with 10% salicylic acid in alcohol for two to four days will cause effective peeling; the subsequent use of lanolin prevents relapses. For prophylaxis he advises loose, brief clothing washed daily, and inunction of the body with lanolin once a week. Soap should be used only once a day, hot water should be avoided, and powders should be applied only to the axillae, groins, and feet.

<sup>1</sup> *Atlas of Skin Diseases in the Tropics*, 1932. London: Bale. (Plates XXV to XXVIII.)

<sup>2</sup> *Brit. J. Derm.*, 1947, 59, 125.

### "VISCOSE" HAZARDS

Since the first artificial silk fibres were made from nitro-cellulose by Chardonnet in 1890 the world's production has assumed a formidable tonnage, more than 65,000 tons in Great Britain and 334,000 in the United States in 1944. Of the various processes in operation, the "viscose" method is still the most widely used, accounting in 1941 for 89% of the world production, though the nylon process has rapidly become popular, especially in America, since 1939.

The health hazards associated with the manufacture of artificial fibre are greatest in the viscose process, owing chiefly to the use of carbon disulphide as the agent for transforming alkalized wood-cellulose into cellulose xanthate. This orange, syrupy, xanthate solution is "viscose," which after maturation and filtration is forced through spinnerets into an acid-saline coagulating bath from which emerge the precipitated filaments. During the spinning operation both  $\text{CS}_2$  and  $\text{H}_2\text{S}$  are liberated, and the higher the temperature of the spinning bath the higher the concentration in the air around the spin packages and the more important the ventilation of the machine.<sup>1</sup> Severe symptoms may follow continuous exposure to 30 to 40 parts per million of  $\text{CS}_2$  in the atmosphere, and the American Standards Association in 1941 set the maximum allowable concentration at 20 parts per million for a daily exposure of eight hours.

The provision and maintenance of efficient general ventilation of the workrooms is required in this country by the 1937 Factories Act, and the dangers of poisoning from inhalation and of the vesicant action of  $\text{CS}_2$  on the skin have to some extent been overcome by complete enclosure—in a closed circuit—of those operations in which  $\text{CS}_2$  is used.

In France<sup>2</sup> there has been a steady fall in the number of cases of fatal  $\text{CS}_2$  poisoning from 252 in 1942, and 166 in 1943, to 66 in 1944 and 62 in 1945, with a corresponding decrease in the number of serious though not fatal cases. Severe cases do still occur, however, and the most serious of all manifestations of poisoning—psychosis—was shown by six out of 100 cases reported in Italy<sup>3</sup> in 1946. In severe chronic poisoning, Parkinsonism, multiple sclerosis, polyneuritis, and muscular atrophy are some of the results of the toxic action of carbon disulphide on all nervous structures. Eye lesions due to affection of the optic nerve, papilla, and the retina, and also kerato-conjunctivitis, constitute a considerable problem; 600 cases were served in France in 1945. The prevention of all these toxic effects involves not only the engineering and hygienic measures already legally enforceable, but also the constant medical supervision and selection of workers in the artificial textile industry, and insistence that they take advantage of the protective clothing and equipment placed at their disposal.

### LIVER FUNCTION AND THYROTOXICOSIS

During recent years it has been increasingly recognized that in thyrotoxicosis, and more particularly in diffuse toxic goitre, the functions of the liver are frequently impaired. The hippuric-acid excretion and galactose tolerance tests are often abnormal in this condition, so that apart from its action in antagonizing the effects of the thyroid hormone the use of insulin with glucose in Graves's disease is further

indicated because of its therapeutic effect on the live A. W. Elmer<sup>1</sup> considers that the liver plays an important part in destroying the thyroid hormone, and that conditions in which there is increased thyroid secretion are aggravated by the decreased detoxication of thyroxine associated with liver damage. It does seem probable that many of the apparent anomalies of sugar metabolism and gastrointestinal function commonly met with in cases of thyrotoxicosis should be ascribed to a disordered liver rather than directly to thyroid dysfunction.

A recent paper by Eli Moschowitz<sup>2</sup> throws further light on the mechanism of these changes in the live. Moschowitz does not accept the view of F. H. Mills<sup>3</sup> or others that focal necrosis is a common finding, but he does agree that the formation of blood lakes is the primary histological disturbance. In his opinion these focal haemorrhages lead to fibrotic changes in the interlobular or portal spaces. While distinguishing the final picture from Laennec's cirrhosis and from changes due to bar pressure, he puts forward the suggestion that thyrotoxic cirrhosis, like that found in cardiac disorders, is due primarily to a circulatory upset. His contention, borne out by experimental evidence and excellent slides and diagrams, is that in hyperthyroidism the increased blood volume and the greater velocity of the blood flow through the hepatic artery cause a breakdown in the normal mechanism whereby the systemic pressure is adjusted to the lower pressure in the portal veins. Decompensation results in the formation of static blood lakes leading to fibrosis and finally to a fully established cirrhosis.

The analogy between this condition and that of chronic hepatic venous congestion is obvious, but the latter is to be regarded as an engorgement due to backward failure while cirrhosis in a case of diffuse toxic goitre is the consequence of forward failure. In the cirrhosis of cardiac failure the sclerotic changes are seen around the central hepatic vein; in the case of toxic goitre they are found in the interlobular area and more markedly in the subcapsular zone.

Moschowitz does not accept the idea of a common toxic factor attacking both liver and thyroid. Alterations of similar type can be produced in the liver in experimental hyperthyroidism, where no toxin is involved, so his contention that the pathology rests on changes in haemodynamics appears to be reasonable. This is a most interesting paper with numerous references and a good historical survey, and since it would seem possible that similar vascular disturbances may play a part in some forms of renal and pulmonary disease the theory put forward merits careful consideration. Purely from the clinical standpoint it serves as yet another reminder that in treating cases of diffuse toxic goitre the state of the liver should always receive due consideration.

### BRUCELLA INFECTION IN LABORATORY WORKERS

*Brucella melitensis* is a dangerous organism to handle in the laboratory. Early reports of infections in England and Malta directly traced to routine work or research with organisms of the brucella group were followed by accounts of similar accidents in many laboratories in Continental countries, and recently Meyer and Eddie<sup>4</sup> collected details of 74 cases from 17 institutions in the U.S.A. The victim

<sup>1</sup> Cook, W. H., *Industr. Med.*, 1945, 14, 935.

<sup>2</sup> Aubert, J., *Arch. Mal. Prof.*, 1946, 7, 181.

<sup>3</sup> Vigliani, E. C., *Med. d. Lavoro*, 1946, 37, 165.

<sup>1</sup> *New Engl. J. Med.*, 1939, 221, 927.

<sup>2</sup> *Arch. Intern. Med.*, 1936, 78, 477.

<sup>3</sup> *Med. J. Austral.*, 1942, 1, 195.

<sup>4</sup> *J. Infect. Dis.*, 1941, 62, 24.

are usually bacteriologists, pathologists, or technicians handling specimens or cultures, but the list includes animal caretakers, persons cleaning glassware, porters, and maintenance staff. Infection is usually due to some failure of technique, and one of the greatest dangers is thought to be the preparation of bacterial suspensions, an opinion which can readily be believed by those who have seen the high-speed flash photographs by Johansson and Ferris<sup>5</sup> of droplet-sprays produced by pipetting operations. Faulty methods for dealing with discarded cultures may be a source of danger, and the possibility of dust-borne infection must not be overlooked.

A recent description by Howe<sup>6</sup> and his colleagues of the occurrence of laboratory infections in seventeen young research workers at Camp Detrick, Maryland, is of considerable interest because of the unusual opportunities of obtaining data before infection and during the course of illness. The types of disease produced by the two infecting organisms, *Br. melitensis* and *Br. suis*, were not clinically distinguishable. It is likely that the risk of serious infection with *Br. abortus* is rather less than with the other species.

The constant features of the illness, which became established after a prodromal period of less than a week, were acute, moderately severe fever of irregularly intermittent type, marked fatigue, headache, and dull intermittent pains in the muscles and joints. Rigors, gastro-intestinal disturbance, and photophobia were not infrequent. The febrile episodes ranged from one to five, with two as the most usual number. There were no useful physical signs, and diagnosis was made by blood culture and the agglutination test. A curious observation was the frequent occurrence, some time after the onset, of erythema and oedema at the site of previous brucella skin tests and vaccinations. Illness was usually followed by a long period of lassitude and incapacity, of the same order as that reported by Meyer and Eddie, whose figures show a duration of over three months in half of their cases and of two to ten years in six cases. Treatment with sulphadiazine (alone and with penicillin) and with streptomycin produced little or no clinical evidence of benefit.

A safe and effective immunizing agent would be of great value. In view of veterinary experience it is not to be expected that brucella vaccines killed by heat or chemicals would be efficacious, and attempts to protect monkeys against *Br. melitensis* by live vaccines of *Br. abortus* have not met with success. All the patients in the Camp Detrick series had previously received a brucella vaccine the nature of which is not stated. In our present state of knowledge measures for prevention of these laboratory infections, which carry such a risk of physical and economic disability, must comprise the use of rubber gloves, scrupulous attention to technique, and measures for the control of dust-borne and droplet infection, including masks and possibly special inoculating boxes such as have been used for work with rickettsiae.

### SUBNORMAL INTELLIGENCE

Follow-up studies are perhaps one of the most valuable methods of investigation we have, although in the realm of child psychiatry they are all too few. It is unusual for the child psychiatrist to see his patients again after they reach the age of sixteen, so that in the ordinary course of his practice he does not learn the significance for adult life of the psychological deviations of childhood. For this reason an investigation in Stockholm of the after-history

of children educated in special schools for the retarded is of unusual interest.

Dr. Ramer<sup>1</sup> began with 389 boys and 237 girls, born between 1905 and 1917, who received special education of this type. They were compared with an almost equal number of boys and girls, born during the same years who had been taught in normal classes. By using every form of social agency he was able to follow their careers up to the ages of 26-35. The special-class students had an average intelligence quotient of 78 for the males and 77 for the females. Those who could be retested in adult life showed no change in their intelligence. This finding emphasizes the empty optimism of the term "mental retardation." In this section of the population—estimated to be 2-3% of the whole—the growth of intelligence is not so much "retarded" as limited from the beginning. The parents of the special-class pupils were of a lower occupational standard than those of the control group, and financial standards were also lower. In these children focal abnormalities were common: defective sight was present in 13%, defective hearing in 12%, and there were other neurological signs in 6%. Even at these early ages in the males mortality was higher than in the control group. Sexual adjustment also differed; at the time of the inquiry 50% of the special group were married, as against 64% of the control group, and the divorce rate was two-and-a-half times as great. Significantly fewer of the special group were employed on skilled work.

Figures relating to the receipt of public relief are also interesting. In the special group nearly two-fifths of the males and one-third of the females had been in receipt of relief, as against one-fifth of the males and one-eighth of the females in the control group. The rates for admission to mental hospitals were considerably higher in the special than in the control group, but the difference is almost exclusively made up by admissions for imbecility: there was also a somewhat higher incidence of schizophrenia, but the numbers are small. There is no strong evidence that the subnormal in intelligence are specially liable to the psychoses. Neither, surprisingly, do they seem to be specially liable to convictions for crime, vagrancy, and inebriety. The chances of being sentenced for a criminal offence before the age of 35 were exactly the same in the two groups. Nevertheless, those of the special-class students who had been marked by their teachers as "moody," and still more those who had a school record of truancy or pilfering, had criminal records, respectively, twice and four times as high as in the control group. There was no difference in the types of crime, and crimes of violence were rare in both groups.

These findings are of considerable interest, and to some extent run counter to those of previous workers. They suggest that the defects of the intellectually subnormal are largely limited to the field of intelligence, and that they should not be regarded as necessarily inferior in temperament and character.

Dr. E. R. Boland, F.R.C.P., will deliver the Croonian Lectures on "The Administration of Medicine" before the Royal College of Physicians of London (Pall Mall East, S.W.) on Tuesday, Nov. 18, and Thursday, Nov. 20, at 5 p.m.

The next session of the General Medical Council will open on Tuesday, Nov. 25, at 2 p.m., when the President, Sir Herbert Lightfoot Eason, will take the chair.

<sup>5</sup> *Lancet*, Dec. 1, 1946, 78, 216.  
<sup>6</sup> *New Engl. J. Med.*, 1947, 232, 741.

<sup>1</sup> Ramer, T., *Acta psych. Scand.*, 1946, Suppl. 41.



## THE HEALTH OF AUTHORS

### THE LLOYD ROBERTS LECTURE

Before the Royal College of Physicians on Nov. 11 Mr. Harold Nicolson gave the Lloyd Roberts Lecture for 1947 on the health of authors. In this lecture, he said, he would be more concerned with the mental health of authors and with that form of nervous activity which enabled its possessor to receive "intimation" and "inspiration." He restricted himself to those writers who could justly be called creative.

#### Bodily Health

Mr. Nicolson dealt with the popular fallacy that creative writers, and especially poets, were of weak bodily constitution and as such liable to premature death. He admitted that in the 19th century a high proportion of creative geniuses succumbed to tuberculosis, and mentioned the names of Keats and the Brontës. Yet examination of the mortality statistics of eminent writers did not show that their bodily, as distinct from their mental, health was any less than that of their illiterate contemporaries. The thirty-two most famous British poets who flourished between the middle of the 14th century and the end of the 19th century were remarkable for their longevity. Of these thirty-two, ten lived beyond the age of 70, nine died between the ages of 60 and 70, seven between the ages of 50 and 60, two between the ages of 40 and 50, and four under the age of 40. Many of these great poets did not take that care of their health recommended by their medical advisers. Ben Jonson and Michael Drayton were of a convivial disposition, yet the former lived to the age of 65, and the latter to the age of 68. "Herrick and Marvell were not particularly austere, yet each of them lived to over 70. Swift and Dr. Johnson during their lifetime were tortured with the dread of premature decay, yet Swift retained his bodily health at least until the age of 77, and Johnson was 75 at the time of his death. Tennyson again, who during his middle life was a confirmed hypochondriac, lived to the venerable age of 83; and Swinburne, whose early manhood was not distinguished by any pronounced asceticism, lingered on at Putney until his 74th year." Of the "four mighty poets" who suffered an untimely death, Keats died of consumption in Rome at the age of 26, but the deaths of Marlowe and Shelley were due to accident. The fourth of these poets, Byron, died from an accident at the age of 36. Mr. Nicolson dealt with the allegation that Byron might have survived to old age had it not been for the incompetence of the local doctors at Missolonghi. According to the accepted story Byron died of rheumatic fever brought on by rowing in an open boat across the lagoon after being heated by riding and drenched by a thunderstorm. His doctors were accused of failing to diagnose the illness, and of having bled him to death. Mr. Nicolson said he had made a special study of Byron's last illness, and, according to the experts he had consulted, Byron's final illness must have been either typhoid or "pernicious malaria."

Mr. Nicolson concluded that the bodily health of authors is as sound as that of any other calling.

#### Mental Health of Authors

There was, he continued, a theory that there was some special connexion between literary genius and mental derangement. It was true that a few creative writers had in their later years become demonstrably insane "... but it is not in the least true that all creative writers have been mad all the time." As authorities for "this distressing theory" Mr. Nicolson quoted Plato, Burton, Shakespeare, Dryden, Macaulay, and Lamartine, who spoke of "that mental malady which men call genius." Writers were themselves largely to blame if the general public regarded them as unbalanced. "In their lack of reticence, in their self-conscious habit of examining their nerves in public, it is they, rather than the outsiders, who have created the legend of their instability." As an example of the length to which a legend could be pushed Mr. Nicolson referred to Mr. J. F. Nisbet's book entitled *The Insanity of Genius* published in 1891, and he quoted this passage from it: "Genius, insanity, idiocy, scrofula, rickets, gout, consumption, and other members of the neuropathetic family of disorders, are so many different expressions of a common evil—an instability, or want of equilibrium, in the nervous system."

Mr. Nicolson then went on to examine the evidence. Of the thirty-two famous British poets whose longevity he had commended only two became demonstrably insane. Swift, he said, was haunted by the spectre of insanity all his life; yet in fact he lived to the age of 77, and it was only in the last three years of his life that his intellect became clouded. William Cowper was the subject of recurrent fits of melancholia and suicidal mania from his 21st year; but he enjoyed long interludes of perfect sanity. Dr. Johnson, Mr. Nicolson observed, might be regarded as a borderline case. He suffered at times from auditory hallucinations, and had a dread of insanity. "He entrusted his secret to Mrs. Thrale, and whenever he felt that madness was approaching, he would persuade her to lock him in his room and it seems to place gyves upon his legs, and even to whip him with a rod." Johnson died of asthma and dropsy at the age of 75. As another case Mr. Nicolson instanced that of Southey, whose mind became clouded in his 70th year, twelve months before his death.

#### Eccentricity

Mr. Nicolson concluded, then, that the legend of mental illness among creative writers was to a large extent the fault of the writers themselves. "All writers, and especially all poets, feel it dull to be thought completely normal. They thus divulge and even display their eccentricities." He gave Shelley as an example and described him "as on the whole a sane and normal person." The eccentricity of Shelley took two forms. "In the first place he was a hypochondriac. All creative writers are hypochondriacs, since those of them who do not worry about the state of their bodies are certain to worry about the state of their minds." Mr. Nicolson described how on one occasion Shelley found himself in a crowded stage-coach opposite a lady with unusually distended legs. He had just been reading a book in which there was a description of elephantiasis. Shelley concluded that the disease must be contagious and that he had caught it from the lady in the coach, a delusion which persisted for several weeks. Shelley's other eccentricity was that of "spectral and auditory hallucinations." On one occasion he saw a baby rise from the sea and clap his hands at him. One could account for these departures from reality, Mr. Nicolson said, only by considering in what manner creative writers were inspired. "Inspiration is a sudden flash or fusion between sense and fantasy, between reason and imagination." The illusions or hallucinations of creative writers were merely the tricks which a strong imagination was all too apt to play.

#### Temperament

It would be an error to regard all authors or even all creative writers as constituting a uniform category or type. They displayed an astonishing diversity, even in their methods, their hours of work, and their habits. Some writers, such as Wordsworth, could only bring their work to completion "by agonized plodding along a single road." Others preferred a variation of theme. Jane Austen, for example, kept *Sense and Sensibility*, *Pride and Prejudice*, and *Mansfield Park* in various stages of completion and would pass from one to the other. Thackeray found that his ideas flowed more freely in the "congested, if somnolent, atmosphere of the Athenaeum Club." Byron could work well only at night. Voltaire did most of his dictating from his bed. Victor Hugo composed some of his loveliest lyrics when sitting on top of a bus. Milton said that he could write really well only between October and March. Tennyson was more often inspired during the spring and summer. "Schiller found it necessary to stimulate his unconscious by keeping rotten apples in the drawer of his writing-table." Mr. Nicolson quoted these divergences to indicate that if there was such a thing as the literary temperament it assumed the most diverse forms.

#### Inspiration

If there were divergences in the practice of writing, there was general agreement among authors on the nature of inspiration. "Almost all writers who have ventured to express views upon this intricate matter are agreed that inspiration is an event which has no apparent connexion with conscious thought." "It comes," said Thomas Gray, "as the maggot bites." Inspiration was not only extraneous to the person, but was irresistible. "Almost universal also," Mr. Nicolson said, "is the sense of loneliness, abandonment, failure, and pathetic

incompetence which assails creative writers when the fleeting intimation has passed by." And so some of them to recapture inspiration resorted to stimulants, opiates, or narcotics. Others relied upon what Mr. Graham Wallas had called "unconscious cerebration." Mr. Nicolson said that it was doubtless with the idea of the value of unconscious cerebration that the late Lord Balfour used to recommend to those of his staff suffering from overwork a three-days course of detective novels and champagne.

#### Conclusion

Mr. Nicolson therefore concluded that so far as bodily health was concerned the author was neither more nor less healthy than any other sedentary individual. The creative writer, however, possessed "a certain special nervous sensibility." Genius was neither "a great aptitude for patience" nor "a transcendent capacity for taking trouble." Genius, said Mr. Nicolson, was "a spontaneous activity of the cells and fibres of the brain whereby new combinations of impressions are constantly being formed." Yet there was during moments of inspiration "some flooding of the conscious by the subconscious, and therefore some dissociation from reality." All authors were not of the same value or endowed with comparable talents. At the bottom of the scale there were those who with a certain capacity for observation and narration could notice and annotate the world around them. "Such writers are as happy and unperturbed as water-beetles jerking with long prehensile legs along the surface of the village pond"; and of those in the higher scale Mr. Nicolson said this: "Raised above all others, living in a rarefied ether of their own, confused by the eternal dissonance between the ideal and the real, the mighty poets are a race apart. For them imagination is no happy mood but a superb and agonized bewilderment. Not for them are the tiny pleasures, the small disappointments, the trivial success and failure, of the lesser breeds. The God visits them, not amicably, but in a flash of flame and fire; and in the after vacaney they know that they have caught but a momentary glimpse of intimation; their triumph is clouded by the knowledge that their illumination has been so narrow and so short."

## CHLOROFORM ANAESTHESIA

### EDINBURGH CENTENARY CELEBRATIONS

To commemorate the centenary of Sir James Young Simpson's discovery of chloroform anaesthesia celebration ceremonies were arranged on Nov. 4 by the University of Edinburgh.

At a scientific session in the morning Dr. D. S. Middleton (Edinburgh) said that there was still a place for chloroform in special circumstances. As officer in charge of anaesthetics when a prisoner of war in Singapore, he had found that chloroform, used extensively and in difficult circumstances, was a safe agent within reasonable limits and if administered according to proper instructions. Points to note were the use of pre-operative atropine, the maintenance of a clear airway, adequate oxygenation, and avoidance of sudden changes in concentration. The depth of anaesthesia and the dosage required should depend on clinical appreciation and not on dials. Considering the appalling conditions of malnutrition and disease the fact that hundreds of operations were performed under chloroform anaesthesia alone, with very few fatalities, was a tribute to the safety of the drug in careful hands.

Prof. R. R. Macintosh (Oxford), in a paper on dosimetric apparatus for the administration of chloroform, reviewed the physical principles involved in the design of an inhaler to deliver a known concentration of chloroform vapour. Illustrated by lantern slides, the designs of various inhalers were discussed, ranging through the century from those of Snow, Clover, Waller, Goodman Levy, Marston, and Vernon Harcourt to the modern "E.S.O." (Epstein, Suffolk, Oxford) produced during the war for use by paratroops to supplement thiopentone. This apparatus was of strong compact design, constructed to deliver a known concentration of chloroform vapour at any temperature, whether in the Arctic or the Tropics. Although the use of chloroform was now limited, in special circumstances, as in a London "blitz," it was invaluable. For the future assessment of an anaesthetic the dosage and vapour concentration must be accurately known; too often a drug was blamed for failure, and not careless or inept administration.

Dr. John Gillies (Edinburgh) presented a statistical analysis of the present-day use of chloroform, based on replies to a questionnaire sent to a large number of general practitioners in Scotland (all qualified at least seven years), and to specialist anaesthetists in this country and abroad. There were still a number of adherents to chloroform as an anaesthetic in general practice, particularly in obstetrics. Of 865 replies received from practitioners 94% favoured chloroform during labour. One point of interest noted was that, of the fatalities attributed to chloroform, twice as many were in those receiving atropine as premedication. In lighter vein, a series of amusing slides drawn by a colleague illustrated some of the reasons given for preferring chloroform: "less explosion risk," "more relaxation," "teaching purposes," and "surgeon's expressed wish." Summing up, it was recommended that as there was still a place for chloroform, particularly in general practice, its proper use should be taught to students, but as there was little opportunity for this in the modern anaesthetic technique used in surgical practice the proper place for such instruction was in the obstetric departments.

At a laureation ceremony to mark the centenary, Principal Sir John Fraser, Vice-Chancellor of the University of Edinburgh, said that the University was proud to honour the memory of Sir James Y. Simpson and his work for the benefit of medicine and humanity. The honorary degree of Doctor of Laws was conferred upon Dr. Henry Walter Featherstone, of Birmingham, founder-president of the Association of Anaesthetists of Great Britain, and upon Sheriff Thomas Blantyre Simpson, K.C., grand-nephew of the discoverer of chloroform anaesthesia.

In the afternoon a reception was held in the Upper Library of the University Old College, when Dr. Douglas Guthrie gave a brief and interesting address on the life and work of Sir James Simpson, and some personal relics were shown, together with items of historical and technical interest in connexion with the development of anaesthetics.

The social functions included a luncheon in the Senate Hall, and at night a dinner brought to an end the celebration of this centenary.

## LIVING CRYSTALS

The first of a series of open lectures arranged by the Edinburgh Postgraduate Board for Medicine was delivered at the Edinburgh Royal Infirmary on Oct. 14 by Dr. R. McWhirter, who in his paper on "Living Crystals" briefly described the nature of the structures acting as the carriers or vehicles of life.

In radiotherapy, he said, malignant cells were destroyed by the changes produced in those structures responsible for the maintenance of cell life, and a knowledge of the nature of those structures was essential to understanding the action of radiations. The simplest organism to study was the fertilized ovum, where the plan of each individual part of the adult organism was written in the genes. In the fertilized ovum of man there were 48 chromosomes, each containing approximately 1,000 genes, both chromosomes and genes being paired, each pair having a maternal and a paternal derivation. The combined action of a pair of genes determined a feature of the offspring. If a particular gene was damaged, that would result in a particular abnormality of the new individual. The permanence of gene structure must be inferred to account for the maintenance of the identity of race and species and for the expression of inherited characters in the adult organism, which was the product of 50 or 60 divisions of the original fertilized ovum. A gene was about 4 to 8  $m\mu$  in size, with a volume equivalent to about 1,000 atoms, and only by chemical combination of the atoms to form a molecule could permanency of structure be obtained. A gene was therefore a single protein molecule of about 1,000 atoms with the peculiar ability to reproduce itself exactly (each different gene forming a different molecule of constant structure).

The arrangement of atoms within molecules was constant, as was the position of each atom in a crystal. A molecule was the smallest possible crystal of a substance. A crystal increased in size by one molecule adhering to another, and the growth of crystals was not unlike a living process. The study of viruses had shown that they were similar in size to genes. A virus was a vehicle or carrier of life and could

reproduce itself exactly; it might therefore be described as a "naked gene." From pure cultures of viruses in solution crystals might be obtained, and several viruses had now been obtained in pure crystallized form (hence "living crystals"). It was conceivable that if genes could be obtained in pure form they too would be crystalline.

Genes had an effect on morphology and function, for they were not only able to reproduce themselves exactly but they could also act as models for the formation of allied molecules—i.e., enzymes or ferments, which were similar to hormones (produced outside the cell) and to vitamins (produced outside the body). These substances acted as catalysts and promoted the chemical changes which occurred within a cell. If gene structure was different, then the enzyme patterned on it would be different and new chemical substances would be produced—for example, in the colouring of hair. In phenylketonuria the genes which should produce the enzymes that oxidized para-hydroxyphenylpyruvic acid were absent, and the acid was not oxidized to a harmless substance but accumulated in the blood and cerebrospinal fluid, interfering with function and producing mental deficiency.

### Mutation

Changes in gene structure were rare. In any given gene one mutation in a million individuals was the approximate average mutation rate. X rays under favourable circumstances could increase this 150-fold. Unfortunately mutations were nearly always harmful and rarely beneficial to the organism, and, being commonly recessive, might not be detected until after several generations. So-called spontaneous mutations might be due to natural radioactivity or cosmic rays or to the disorderly action of heat in the tissues.

As radioactivity might produce mutations in gene structure, it was possible that the widespread use of radioactive isotopes without adequate care might cause considerable damage and pollution of the genes of a large section of the population. The effects produced would vary according to the damage done, and might produce sterility, abortions, stillbirths, and deaths in infancy. Diseases of genetic origin might also be increased, such as haemophilia, amaurotic familial idiocy, deaf-mutism, congenital cataract, and retinitis pigmentosa. Radioactive strontium could produce bone sarcomata, which had also been produced by radium and thorium. The difficulty was not overcome by using substances with a short period of radioactivity, for mutation was a single event and might be produced by radioactivity of short duration. Those were points of great importance to consider in the use of radioactive substances as tracers or in the treatment of diseases not commonly fatal, such as hyperthyroidism.

Radiology had made considerable contributions to the study of non-living material, where it had been possible to show the structure of atoms and of their nuclei. Further contributions to the elucidation of the problem of life might be as great. Atomic research had produced the deadliest of all weapons, the atomic bomb and its side-products, the radioactive isotopes. The damage done by the indiscriminate use of the latter might be less dramatic than that at Hiroshima, but it might be as disastrous.

## Nova et Vetera

### THE MEDICAL HISTORY OF EXETER

In the preface to his most interesting little book, *The Population and Epidemics of Exeter in Pre-Census Times* (James Townsend and Sons, Little Queen Street, Exeter), Mr. Ransom Pickard tells us that a mathematical Nobel Prizeman said the problem was very easy: "One had to find the number of births and deaths, the numbers going in and coming out, and the rest was a matter of addition and subtraction." In the ideal universe of the pure mathematician it would be easy, but that is not the world of the vital statistician. The master criminal in Mr. A. E. W. Mason's tale, *They wouldn't be Chessmen*, was foiled by the neglect of his subordinates to behave like chessmen: had our ancestors obeyed the orders of their rulers, if parish registers of christenings and burials had been complete and

enumerations of immigrants and emigrants been made, they reconstruct the population of any city at any time after masterful Tudors had ordered records to be kept would be a matter of addition and subtraction. Actually the records were incomplete. One large source of error was due to schism: many dissenters were not buried, or of course christened, clergy of the established Church; finally, no serious statistics of internal migration are available.

Statisticians from Rickman to Mr. Pickard have availed themselves of the fact that census-taking began nearly forty years before civil registration, so that over that period the record christenings, marriages, and burials kept by the Anglican clergy are printed in the census reports. Various ways of using the records were tried (the best account of these is that by the late Dr. J. Brownlee, published in the June and July issues of *Public Health* for 1916). If, for instance, one knows by enumeration the population of a town at the census of 1801 and again at the census of 1831, then, if there were no migration, the population in 1801 ought to be equal to that of 1831 plus the deaths in thirty years less the births. But the baptisms understate births and the burials understate the deaths, so each must be multiplied by an appropriate factor. Brownlee concluded when not a particular town but the whole country was in question the factor for burials was 1.2 and for baptisms 1.243. A still simpler method, favoured by Mr. Pickard, is to take the ratio of enumerated population to baptisms (corrected for omissions) for the census years 1801-41, and to use this as a multiplier for pre-census years. Two assumptions are involved—that neither the fertility rate nor the age and sex constitution of the population changed materially over the period under study. Migration, of course, is a complication. Working these lines, Mr. Pickard concludes that the population of Exeter in 1670 was between 18,500 and 14,400; his estimate, based on the mean values of the ratios of known census population to baptisms, is 16,100. If one applies the method of addition and subtraction to his means (his Table V) one reaches a somewhat larger figure. The lowest estimate by this method is a good deal larger than Macaulay's estimate of 10,000 (Macaulay does not mention his source) or that based on hearth tax records of a modern writer, Dr. Hoskins, who estimated the number of households in 1671-2 as 2,368 and the population as 11,200, i.e., used a multiplier of 4.74. Mr. Pickard rejects this multiplier as "obviously" too low; I am not sure about the "obviousness" of the multiplier, but it is rather larger than Gregory King (1648-1703) used for provincial towns, and Mr. Pickard's argument that *servants* had no *hearth* is not, I think, conclusive. The tax was levied on what we should call separate occupations or households: I suppose there might be occupants of rooms with no hearth who would escape notice, but hardly enough to bring the average size of a household from 4.74 to 6.8. But certainly 6.8 is not an impossible figure. John Graunt thought an average household in the City of London (within the liberties—i.e., the most densely populated area) had 8 members—husband, wife with three children and three servants or lodgers. However this may be, Mr. Pickard uses some of the hearth data skilfully. In four of the Exeter parishes—St. Davids, Sidwells, St. Mary Major, and Holy Trinity—in 1671-2 the mean number of hearths per family was 2.11, in 16 of the parishes 2.67. The first four parishes were, however, the most populous and their inhabitants poorer than elsewhere, as appears from other evidence. In his historical study of epidemics Mr. Pickard shows that the mortality rates of four parishes, on any reasonable assumption, must have been much higher than in the rest of the city, and he provides another example of social-economic contrasts. The decade 1741-50 was a grim one, particularly the year 1741, which followed two bad harvests.

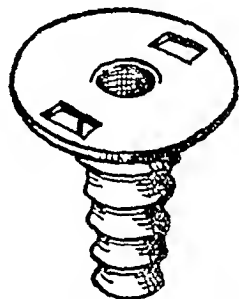
Most of us know that smallpox was a deadly disease in the first half of the eighteenth century; it seems to have been particularly severe in Exeter. A citizen, John Score, who was sheriff in 1736, kept a diary and recorded in it illnesses in his family. Between 1711 and 1732, eight of his children had smallpox and one died of it. In 1729, when three of his children had smallpox, he notes: "The Small Pox was very fatal to us." Mr. Vivian lost all his children, being four sons. It is a combination of careful arithmetic with personal records which makes Mr. Pickard's monograph particularly attractive.

MAJOR GREENWOOD

## Preparations and Appliances

### AN ENDOTRACHEAL FLANGE

Dr. JOHN GORDON, Esher, Surrey, writes: It is a common procedure in anaesthetic practice to have an indwelling endotracheal tube in position under the face-piece. The usual precaution taken to prevent the tube slipping into the lung is to fit a Rowbotham's angle-piece, but this has definite disadvantages. The end of the angle-piece may impinge against the side of the mask and become obstructed, or the exhaled gases may be directed over an eye, should these accidentally be included inside the mask. The practice of using a safety-pin damages the rubber tube, and the Woodfield-Davies tubes with the built-in rubber flange are not always to hand.



A set of four flanges has been constructed for me, one of which is here shown. In construction the flange consists of a circular metal plate,  $1\frac{1}{2}$  in. in diameter, perforated in the centre and fitted to a tapered corrugated tube. The plate has two small holes at opposite sides.

The advantage of these flanges is that they will fit any rubber endotracheal tube and are suitable for both oral and nasal intubation. They will not impinge against the face-piece and therefore do not become obstructed. The absence of any angle eliminates turbulent flow, and thus there is no additional resistance to respiration. The two holes serve as a guide to the position of the tip of the endotracheal tube in nasal intubation if the flange is fitted with the holes in line with the curve of the tube, and in oral intubation are used for the passage of tape, which is tied behind the head to anchor the tube.

These flanges have been made for me by Medical and Industrial Equipment, Ltd., of 12, New Cavendish Street, London, W. 1.

## Reports of Societies

### EPIDEMIOLOGY OF CHOLERA

At a meeting of the Section of Epidemiology and State Medicine of the Royal Society of Medicine on Nov. 3 the problems of cholera control were discussed. Dr. W. S. C. COPEMAN, the president, said that on Sept. 22 it became known that five people in an Egyptian village had been admitted to hospital for what was taken to be food-poisoning. Within not much more than a month there had been several thousands of deaths from cholera in Egypt. This might prove to be one of the historic epidemics of the world. Two of the speakers in the discussion, Major-General Sir John Taylor, late of the Kassauli Institute, who had had vast experience of cholera in India, and Mr. P. Bruce-White, who had conducted bacteriological research in the subject, would within twelve hours be on their way to Egypt to endeavour to assist the authorities.

#### Problems of Cholera Control

Sir JOHN TAYLOR said that in India alone 200,000 deaths in a year from cholera had been recorded. So long as conditions continued as they were in the East there was always risk of spread to the West. In view of the control which it was now possible to impose, however, the danger of spread to this country was greatly minimized. The basic problem of cholera concerned the endemic centres; but for their existence cholera would die out. No full explanation of the special localization of cholera had as yet been given. A region might be said to be endemic when month by month and year by year over long periods deaths from cholera were reported. Such continuity was shown in Lower Bengal, where, in the 32 years for which figures were available, less than 30 months had been free from reported deaths. There was here a continuously

low level of incidence with, occasionally, a rise to epidemic level. In some areas where extremes of climate were considerable there were favourable seasons during which the disease appeared to die out, but here during such seasons cases were liable to be imported and the infection was carried over to the subsequent high incidence period. Some areas showed cyclical recurrences. Infection was maintained by a chain of human cases, convalescents or close contacts. The existence of an endemic centre was a source of danger to neighbouring areas. The obvious policy to adopt was to concentrate measures of control in the area in which infection was maintained. The matter was one which might well come within the purview of the World Health Organization with a view to co-ordinating measures where help was required. There was no short cut in dealing with this situation. There must be continuous improvement in general sanitation and water supply, and the difficulties of securing this could only be appreciated by those who had actually seen the conditions in the endemic areas.

Three main routes of extension from India had been recognized: (1) the long land route through Afghanistan and Iran; (2) the route by the Persian Gulf to Irak and on to Syria, Turkey, and the Mediterranean; (3) the Red Sea route to Egypt. Infection had not been carried to Europe by the first of these routes for many years, and the route did not at present constitute a major danger. The short sea journey from India was most serious in introducing these infections into Irak. That the disease should have been so introduced on eight occasions since the present century was sufficient to illustrate the danger. The danger of the Red Sea route arose from the multitude of pilgrims. A severe epidemic due to conveyance by this route occurred in 1902, with 34,000 deaths. He thought, however, that confidence might be felt in the quarantine measures now imposed on that route. An important point was the detention of pilgrims at the port of embarkation in India for five days before going on board ship, and the call at a port in the Red Sea. This had removed one of the greatest dangers of spread to Egypt and Europe.

On the question of the cholera carrier numerous observations had been recorded concerning the isolation of the vibrio from the stools of convalescents and contacts. Some of the earlier workers had reported intermittent isolation for several weeks or even months; but the question of the reliability of the serological diagnosis arose. The carrier problem in cholera had not the gravity which it possessed in, say, typhoid, and in practice infection from possible contacts or convalescents would appear to be small. Air travel, of course, introduced new complications. It was possible to travel by air from a centre where cholera was epidemic or endemic to almost any part of the world within the five days' incubation period, though as yet there was no confirmed evidence of cholera having been carried in this way. Air travel, as every passenger by an aeroplane knew, was by no means casual; it was surrounded by many formalities, and, moreover, it was possible to trace the movements of passengers. He concluded with a word of appreciation concerning the inoculation measures. Certain Indian statistics which he had seen but which were as yet unpublished confirmed the efficacy of inoculation.

#### Bacteriological Investigations

Mr. P. BRUCE-WHITE said that the problem of arriving at tests for invariably detecting cholera infection was twofold—namely, to devise means of identification of the cholera vibrio and other vibrios, and to find the organism responsible for cholera. The first was a laboratory problem; the second was only to be approached in close association with field studies. It could happen that the techniques with diagnostic sera in different laboratories applied to a single series of strains gave results widely at variance. It was these variations which led in the 'thirties to an international reinvestigation of the vibrio, its serology and relation to cholera. He summarized the work with which Gardner and he were associated in 1934-5. The vibrio, said Mr. Bruce-White, was a "sport." It kept to itself, through many tests, the secret of its pathogenicity. Even with the classical vibrio, the evidence of its prime role in cholera was circumstantial. After much work on the subject he came to the conclusion that in the field it might have some property lacking in the laboratory; but when visiting cholera wards in

Calcutta during the spring epidemic, when every bed was occupied, and when it was even said that the vibrio could be isolated from the saline transfusions, he inquired into ward infection among sweepers, ward attendants, and nurses, and was assured that there was none. Therefore his belief in a virulence factor which was lost in culture but present in the field was somewhat shaken. He could only conclude that the cholera vibrio as the primary cause of cholera did not hold good in quite 100% of cases.

Dr. ROSEMARY JACKSON gave the results of a small survey she had carried out on the distribution of vibrios in natural waters in this country. During the period October, 1945, to July, 1946, she examined over 40 samples from various sources, such as ponds, streams, natural lakes, and Thames waters, and succeeded in isolating vibrios from 75% of them. She thought that there was little doubt that if examinations were made at frequent intervals all such waters would be found to contain vibrios. From 30% of the positive samples more than one type of vibrio was isolated. Biochemical and serological tests were carried out on some 50 vibrios, and comparisons were made with the Indian and Far Eastern strains. The main biochemical points of interest which came out were that only three indigenous strains gave a positive cholera-red reaction; that 64% were of the Heiberg type; and that 50% were haemolytic, and the haemolysin was found to be both filtrable and antigenic. Serologically the vibrios were found to be heterogeneous in type and not related to Indian and Far Eastern non-cholera strains. One strain possessed the H antigen for *V. cholerae* and was also cholera-red positive, demonstrating once again the dangers inherent in using diagnostic cholera serum prepared against the whole organism.

#### Cholera Outbreaks in Great Britain

Dr. E. ASHWORTH UNDERWOOD gave a brief history of cholera outbreaks in this country. Asiatic cholera did not visit this island until 1831. Cholera reached Europe in 1829, and during the two following years it was widespread in the central part of the continent. In Britain much anxiety was felt. Indigenous cholera in this country, known as *cholera nostras*, resembled in certain features Asiatic cholera, and the question arose how medical men were to decide true cholera if and when it arrived. The Central Board of Health arranged for consultations with medical men who had had experience of the East. When Asiatic cholera did arrive, however, no one was left in any doubt. The first death occurred in Sunderland in October, 1831, and by the following Jan. 9 there had been 215 deaths from cholera in that town. Cholera next appeared in Newcastle in December, 1831, and spread to Gateshead and other Tyneside towns by Christmas. Middlesbrough suffered a devastating attack, and several other towns were stricken. The outbreak seemed to have exhausted itself in the early summer of 1832, but later it revived. In Glasgow there were over 3,000 deaths. The epidemic started in London in February, 1832, and dragged on until the end of the year. Three noteworthy outbreaks, either because of the havoc they brought or because they happened to have been well described, were at Exeter, where there were 1,100 cholera cases in a population of 28,000; Bilston, Staffordshire, where within a week of the outbreak, which lasted seven weeks, there were 150 cases; and at Dumfries in October, where there were 630 deaths in six weeks. The total number of deaths in the epidemic of 1831-2 was 21,000 in England and Wales and 9,000 in Scotland. There was a recrudescence in 1833 in London, but it died down, and cholera was seen no more in this country until 1848-9, when again many towns were heavily attacked. There were further epidemics in 1853-4, 1866, 1873 (only a few cases), and 1893, which was the last occasion when cholera obtained a foothold in Great Britain. Dr. Underwood mentioned that one result of the epidemic in 1848-9 was the foundation of the Prudential Assurance Company, as the result of some efforts by a Lambeth clergyman to insure his parishioners against the disease.

#### National and International Measures

Dr. MELVILLE MACKENZIE said that in this country the risk of an epidemic of cholera was generally very small, but there was always the possibility of an individual being flown from

Egypt and going to some village in England where perhaps the local practitioner had never even seen cholera and where the water supply was not satisfactory. No restrictions had as yet been put upon air traffic from Egypt. Inoculation had not been required, and reliance was placed entirely on the cards given out on arrival at the airport; but in view of one or two occurrences it was proposed to institute immediately a surveillance of all individuals who during the five previous days had spent one or more nights in Egypt. Another difficulty concerned various importations from Egypt, such as cotton and fruit, but the length of travel time by land and sea made most of the commodities safe.

In international work the World Health Organization had offered to buy cholera vaccine from different countries. An emergency meeting of the expert committee on quarantine had been held, at which an excellent statement was made on the position in Egypt and appreciation was expressed of the thoroughness with which the Egyptians were combating the epidemic. The Quarantine Committee had made a number of recommendations covering such questions as testing of vaccines and disinfection of aeroplanes. That week-end alone £5,000-worth of medical supplies and stores were being flown to Egypt; this included 3,000 syringes, in addition to a million doses of cholera vaccine. The difficulty was the lack of standardization of vaccine, a matter which the Quarantine Committee had referred to the Biological Standards Committee for consideration at its next meeting. Further epidemiological investigation was needed into the viability of cholera vibrios in sewage and also in fresh fruit and other commodities.

Sir LEONARD ROGERS, with the aid of maps, traced the course of various waves of cholera across India to other countries and also discussed the seasonal incidence. In the Punjab an epidemic resulting in 1,000 deaths might take place in October and die down in November, disappearing completely in subsequent months, but appearing again later. He described the Punjab areas as the real danger. General Sir JAMES HANCOCK said that he supposed the same principles governed anti-cholera work in Egypt as elsewhere, namely, disinfection of water supplies, attention to environmental hygiene, and inoculation. For his own part he had never had any doubt of the value of inoculation against cholera.

#### BRITISH FOOD RESOURCES AND REQUIREMENTS

A conference arranged by the Nutrition Society on "British Needs and Resources of Calories, Proteins, and Calcium" was held at the London School of Hygiene and Tropical Medicine on Oct. 25, with Mr. WALTER ELLIOT, M.P., as chairman.

#### Food Consumption

Mrs. M. C. BOWLEY, Dr. R. E. BRANSBY, Dr. H. E. MALTBY and Miss B. R. STANTON said that in calculating the national requirements for various foods their first step was to frame diets for representative individuals of the various groups arranged according to age, sex, and condition. These diets were planned to conform with British habits of eating when unhindered by rationing. At the same time they contributed sufficient calories, protein, calcium, and other nutrients to satisfy the recommendations of the Technical Commission of the League of Nations. The diets were based on conventional meal patterns and covered all food in natural or processed form eaten in the home or outside. Meat, fish, bacon, eggs, and cheese were included in amounts sufficient to provide a main dish in each of the three main daily meals throughout the week; milk and fruit were also to be provided in liberal amounts. The next step was to consult statistics on the proportions of the various groups in our total population and so to calculate the national requirements. The conclusion was reached that the fulfilment of the nation's demands would require a 48% increase in milk and its products above pre-war consumption, 56% in potatoes, and 27% in vegetables. Against these increases could be set a 14% decline in sugar, 5% in meat, and 6% in grain. By 1964 our needs for a



foods would presumably have increased considerably, with the demand for meat 50% and for potatoes 60% above the pre-war levels. The main difference between the present recommendations and those recently put forward by Leitch lay in the provision of larger amounts of meat, fish, eggs, potatoes, and fruit.

Mr. F. LE GROS CLARK commended the proposed diet for its variety and palatability, but questioned whether such a high allowance of animal protein was physiologically necessary. The food pattern chosen, moreover, differed from that adopted by the bulk of our population, particularly in regard to the evening meals. If rationing were stopped an increased consumption of sugar might be expected, while the sale of meat and other expensive foods would probably be related to prevailing economic conditions.

Prof. J. BEATTIE pointed out the difficulty of estimating the calorie requirements of adult subjects. In carefully controlled experiments in a German prison he had observed the effects of subsistence for four months on a diet which provided only 1,750 calories daily. The subjects, who did not work, all lost weight at first. Later, however, their weight became constant, with the return of a positive nitrogen balance and a considerable fall in the basal metabolic rate. Some of the prisoners were then given another 500 calories daily in order to find out whether this extra allowance would enable them to perform forestry work. The main effect of the supplement was to raise the B.M.R., and the men remained incapable of doing manual work.

Dr. E. C. OWEN remarked that the estimate of 1 g. daily for the calcium requirement, quoted by Dr. Magee and his colleagues, was substantially greater than estimates of 0.29 to 0.67 g. made by other workers. Age influenced the calcium requirement; the highest incidence of skeletal fractures occurred at ages 10-15 years. Another important factor was the vitamin D intake; in a well-known boarding school the incidence of fractures was greatly increased during the years 1918-22, when unvitaminized margarine was substituted for butter. In regard to animal proteins he suggested that their great biological value might be due mainly to a high content of lysine.

Dr. I. LEITCH observed that in comparing her estimate of the nation's food requirements with his own Dr. Magee had not made adequate allowance for the unaccountable discrepancy between estimates of food supplied and food consumed. With most foods the gap was about 10%, but there was too much variation for the same correction to be applied indiscriminately to all foods. Prof. J. R. MARRACK considered that agreement within 10% of estimates of food supplied and consumed was as good as could be expected in view of the low degree of accuracy of dietary surveys.

Dr. E. C. WOON said there seemed to be some danger of confusing the amounts of food necessary to conform to a conventional dietary pattern with those actually necessary to satisfy physiological demands. The national food requirements could be calculated in three distinct ways as: (1) the minimum amounts of each type of food necessary on a strictly physiological basis to maintain health; (2) the amounts of food which would be necessary to conform to some standardized food pattern; (3) the amounts which would be consumed if the whole population could choose and eat all foods freely, without being deterred by the need for payment.

#### Food Production

Dr. E. T. JONES, in a paper read by Dr. G. Bourne, discussed the production of cereals and root crops. While our home production of potatoes sufficed for human requirements, we grew sugar beet and wheat only sufficient for about one-third of our requirements. By more intensive cultivation the yield per acre of all these crops might be increased, and by diverting ground now used for potatoes to wheat or beet a greater contribution to our total calorie requirement might be obtained.

Prof. H. D. KAY dealt with milk production. The present output in this country corresponded to 0.62 pint (352 ml.) per head per day, whereas 0.77 pint (437 ml.) would be necessary to meet Dr. Magee's estimate of our requirements. In order to increase milk production the main essential was to provide more food, such as grain, bean meal, or oil cake, for

our present herds. More use should be made of artificial insemination by selected bulls to produce cows capable of a high milk yield. Such animals, however, required more food and more attention than ordinary cows.

Dr. J. HAMMOND told how the production of meat in Britain had declined in recent years. In 1932 we produced 30 lb. (13.6 kg.) of carcass weight of bovines per head of the population with 15 lb. (6.8 kg.) of sheep and 20 lb. (9 kg.) of pig—a total of 65 lb. (29.4 kg.). For 1946 the corresponding figures were 24 lb. (10.9 kg.), 8 lb. (3.6 kg.), and 6 lb. (2.7 kg.)—total 38 lb. (17.2 kg.). In order to produce more meat as a contribution to Dr. Magee's total demand of 146 lb. (65.7 kg.) per year it would be necessary to import more animal food-stuffs. One economical way of producing beef was to fatten the animals on the summer flush of grass, and then keep the meat in cold storage until required. Our sheep population was reduced from 26 millions to 18 millions as the result of the wartime agricultural policy, and a further 4 millions were lost in the blizzard early this year. In breeding sheep the Border Leicester, and other types which had a high incidence of twin lambs, should be encouraged. A few pigs should be kept on every farm to use up odd scraps of food.

Drs. R. J. H. BEVERTON and G. C. TROUT, discussing fish, said that before the war a typical annual catch was about 500,000 tons, including 137,000 tons of cod, 74,000 tons of haddock, 40,000 tons of hake, 33,000 tons of plaice, 10,000 tons of crabs, lobsters, and mussels, and the remainder mainly as herrings. In some instances these hauls were more than the fishing-grounds could sustain, and in the North Sea area in particular fish became scarce and small. Vast numbers of cod, however, were always available in the Arctic waters around Bear Island, and conditions nearer home had improved as the result of the interference with fishing during the war. The herring, which was of special value as a source of calories on account of its high fat content, had shown no signs of being over-fished, even in the North Sea. The main difficulty in taking full advantage of herring catches lay in the perishable nature of this fish, which should be consumed or preserved within 36 hours of catching. By greater exploitation of the herring and Arctic cod and with enlarged fishing fleets it should be possible to increase the total catch by 40% of the pre-war level, with a resulting contribution of over 6 g. of protein per head per day to the national diet.

Mr. E. T. HALNAN calculated that to satisfy Dr. Magee's estimate of our food requirements it would be necessary to provide 203 eggs per head of the population each year. The consumption for 1946, including dried eggs, was 180 per head, which meant that we were actually eating more eggs than before the war. Only about 80 of these eggs, however, were home-produced. There would be no difficulty in building up stocks of hens in this country if sufficient food could be obtained. Possibly some home-grown wheat and barley might be spared for poultry feeding. Plenty of wheat offals would, of course, be available for chickens if the extraction rate of flour were to be reduced to its pre-war level of 70%.

#### Discussion

Dr. W. K. SLATER expressed doubts as to the feasibility of increasing agricultural production to the extent advocated. Any further land put under cultivation must necessarily be of poor quality. Unduly intensive cultivation would lead to competition for materials and labour. Thus an increase in the sugar beet crop would demand additional labour besides capital expenditure in the erection of more factories. It would, moreover, be difficult to educate 300,000 farmers in the methods necessary for intensified cultivation.

Dr. NORMAN WRIGHT, who was recently appointed as Scientific Adviser to the Ministry of Food, spoke on the relations between overseas supplies and the home production of food, and emphasized the need to prevent waste. Dr. W. R. WOOLDRIDGE pleaded for more efficient action in preventing diseases in farm animals, and condemned the action of the Ministry of Food in importing the infected carcasses which gave rise to the present outbreak of fowl pest.

Prof. A. W. ASHBY, in a general survey of the day's proceedings, regretted that the activities of the Scientific Food Policy

Committee had been discontinued. He saw an urgent need for consultation between those who had given papers in deciding on the dietary standards which were necessary for adequate nutrition of the human subject. It was equally essential to discriminate between the rival claims of the various farm animals to share in such foodstuffs as were available.

### LUNG ABSCESS

At a meeting of the Manchester Medical Society on Oct. 1 Mr. W. F. NICHOLSON, reading a paper on this subject, said that bronchial obstruction with secondary infection was the common cause of lung abscess. In normal health the cilia lining the bronchial tree kept the air passages free from organisms and debris. When ciliary action was impaired by trauma, infection, or growth, coughing was effective in preventing bronchial obstruction. When coughing was embarrassed by pain or anaesthesia or tenacious secretion, bronchial obstruction might occur.

An abscess due to bronchial embolism was peripheral in the lung, though it might not present on the costal surface. Because the subapical segment of the upper lobe and the apical segment of the lower lobe contained the most dependent bronchi in the lateral and supine positions respectively, these segments were most frequently affected, and consequently most inhalation abscesses presented on the costal surface of the lung corresponding to these segments. The upper-lobe abscess was common after operations on the upper respiratory tract, in which a lateral position was usually employed in the immediate post-operative period. Lower-lobe abscess was often due to abdominal operations, which were associated with a supine or Fowler's position. A putrid lung abscess was frequently undiagnosed because it was still not widely known that such an abscess could exist without foul sputum. When the abscess ruptured into the bronchial tree sputum would be present; but even before this happened there might be fetid breath.

Treatment was by drainage, either bronchial (postural) or external (by operation). In either case location of the lesion must be exact if treatment was to be rational. The responsibility of the physician in these cases was heavy. If he delayed external drainage, in many cases the disease spread to a diffuse suppurative pneumonia of a lobe, which would eventually require a lobectomy. Moreover, the immediate mortality of conservative treatment was considerable. Only by sharing the responsibility with a surgeon from the beginning could drainage be instituted promptly in cases which did not respond to medical measures. Chemotherapy and antibiotics were of value, but did not replace drainage. Bronchoscopy was of value in locating the broncho-pulmonary segment of the abscess, in improving bronchial drainage, and in excluding a foreign body or growth; as a curative measure it was of little more value than postural drainage. Surgical drainage would decrease mortality and morbidity.

At a meeting of the Liverpool Medical Institution on Oct. 23, with the president, Dr. H. Wallace-Jones, in the chair, Dr. R. Lipman read a case history illustrating psychogenic factors in dysmenorrhoea, menorrhagia, and *Mittelschmerz*. Mr. Barry McMurray reviewed the various lesions which may occur in sprained ankles.

The autumn number of *Biology and Human Affairs* (obtainable from the British Social Hygiene Council, Tavistock House North, Tavistock Square, London, W.C.1, 2s. 6d.) contains an interesting article by Prof. J. M. Mackintosh on "The Contribution of Science to Comfort in the Home." He comments on the delay between the discovery of knowledge and its application in the home—a popular topic of conversation among housewives after reading articles on the contributions that science could make to their comfort. He attributes it partly to the conservatism of builders, and to those people, often elderly, who choose designs for new houses for working people—"the cold, dead hand of a passing age presses too hard on an art that is coming to birth."

## Correspondence

### Anaesthesia for Head and Neck Surgery

SIR.—The article by Dr. J. G. Bourne (Oct. 25, p. 654) on the subject of thiopentone-nitrous-oxide-oxygen anaesthesia with curare for head and neck surgery will have been read with interest by all. May I trespass on your columns to say that my reaction was one of admiration for the obvious skill of the author? Following hard on this, however, I found myself asking, does this method in fact promote the well-being of the patient and constitute an advance in the degree of safety afforded to him, or does it rather represent an advance in the technical skill of the author? (For these two virtues, though usually so, are not invariably synonymous.) My doubts were increased when I saw that, in the five instances in which the advantages of the new method or the objections to the old were enumerated, on every occasion the time factor was given pride of place. The factors such as the degree of safety and the comfort or discomfort of the patient followed in (presumably) their due order. One cannot but gain the impression that the speed of the method constitutes its chief attraction in the author's estimate.

I also find it rather hard to agree with the statement that for procuring the initial relaxation for intubation there is no agent as safe as curare. I have yet to see the figures that will convince me that the dangers of a few ounces of ether are greater than those of 20 mg. of curare. The amount of ether required for a blind intubation (and in the majority of head and neck cases a nasal tube is as good as an oral) is not very large. If the head is not moved, anaesthesia can be maintained with a minimum trickle; and if it is possible to turn off the ether 10–15 minutes before the end, then the degree of post-operative nausea is but reasonably transient in most cases. That the degree of relaxation afforded by this method should be cited as one of its virtues caused me a mild degree of surprise, for I have worked with Continental as well as English surgeons (through circumstance rather than choice), and have never been asked, during a head-and-neck operation, for a degree of relaxation that would necessitate the giving of 20 mg. of curare.

Surely one of the advantages of curare is that it provides where needed a degree of relaxation that could otherwise only be brought about by some form of nerve block or the use of toxic amounts of the inhalational agents. Is, then, the method described by the author a logical outcome of this; or is it a very skilled demonstration of cracking a medium-sized walnut with an out-size sledge-hammer?—I am, etc.,

London, W.8.

G. C. STIRRI.

SIR.—I read with interest Dr. J. G. Bourne's article (Oct. 25, p. 654), and my purpose in commenting is to inquire rather than to criticize. Under "Method" the sequence enumerated appears to me to be capable of improvement both in the safety factor and in time. Would it not be better to adopt the technique for curare advised by Dr. Gray, of Liverpool, and to give the injections in the following order? (1) Test injection of "tubarine," 5 mg. (one-third average induction dose); (2) wait for four minutes to observe its effect, from which to judge the total injection dosage advisable, and then inject this—say, a further 10 mg.; (3) immediately give in a separate vein an intravenous barbiturate in adequate dosage.

By this time the patient will be ready for laryngoscopy, "cocainization," and intubation. Then N<sub>2</sub>O—O<sub>2</sub> may be continued, with a further relay of barbiturate if necessary at a later stage. By this there is not only a safer control of curare but also a saving of time, as the effect of both the tubarine and barbiturate synchronize.—I am, etc.,

Barton-on-Sea, Hants.

HAROLD C. J. BULL.

### All the Vitamins

SIR.—When you published Dr. Leslie J. Harris's article (Nov. 1, p. 681) in reply to a simply worded request in "Are Questions?" one expected a simple reply, giving the answer in words which the average doctor could understand. I wonder if the reader who sent that question is satisfied by Dr. Harris's

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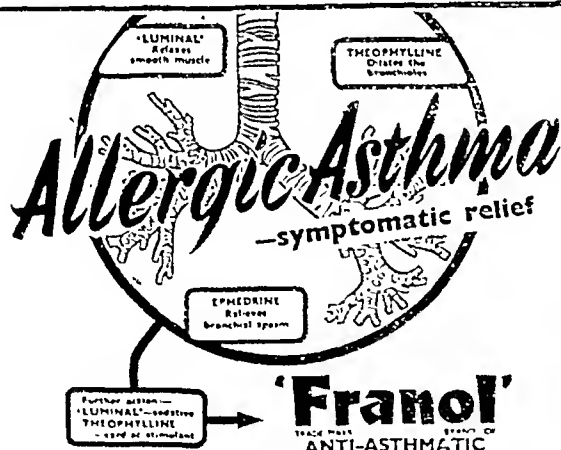
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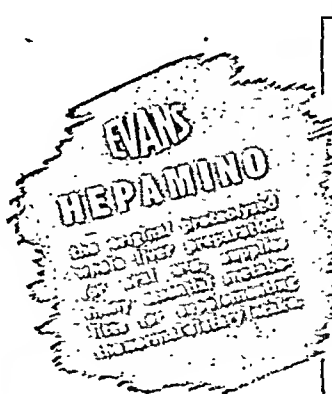
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article. Is he interested to know that  $\alpha$  and  $\beta$  carotene, kryptoxanthine, lepronene, echinenone, and myxoxanthine, etc., serve as provitamins for vitamin A? Does he find it easy to learn the eye changes of A deficiency when he reads that xerotic changes, Bitot's spots, xerophthalmia, and keratomalacia occur, or would he prefer to have a description of the appearance of the eye in less technical terms such as dry or scaly? Similarly with nicotinamide. Does it convey anything to the average reader to learn that it is a component of coenzyme I or "Euler's cozymase" diphosphopyridine nucleotide, and also of coenzyme II or Warburg's enzyme triphosphopyridine nucleotide? If the space taken by those words had described what the mental changes of pellagra are (we are told there are mental changes, but whether mania, depression, dementia, or hallucinations is not stated), would that have been more helpful?

No doubt the article is full of accurate and scholarly information to the advanced biochemist and nutritional research worker, but such persons have their special books on the subject and do not need to read it in the *B.M.J.* Surely your job as editor is to see that information and fact rather than incomprehensible words are dispensed to your readers. There is no mention of the fact that the teeth become loose and fall out in scurvy (though we are told the reversibly oxidized derivative dehydroascorbic acid is active in treating it), and nothing is said of the occurrence of the signs of riboflavin deficiency in the common iron-deficiency anaemia of women, though the occurrence of riboflavin as iso-alloxazine-adenine-dinucleotide is mentioned. One could go on indefinitely. Under vitamin D we do not learn whether it helps children to grow better teeth or not, but are enlightened about vitamin D, being irradiated 7-dehydrocholesterol (cholestadien-3-ol).

I am not criticizing the article itself, only your policy in printing it. If I am wrong in believing that less than 2% of your readers understand most of the technical terms, I apologize for unfair criticism, but if I am right, I suggest that you owe it to your subscribers to give them useful, understandable, and practical knowledge instead of allotof-words-2-obscure-4-any 1 2 succidin-understanding them.—I am, etc.,

London, N.W.10.

RICHARD ASHER.

\* The question asked was as follows: Q.—Please give a list of vitamins with all their different names and with notes on the signs and symptoms of deficiency [our italics]. It was assumed that medical men know the meaning of medical technical words such as xerophthalmia.—Ed., *B.M.J.*

SIR.—Those who have to keep pace with the literature on vitamins will best appreciate Dr. Leslie J. Harris's difficulty in attempting to compress even into three pages of the *Journal* the answer to the question about vitamins which a correspondent expected to appear as a brief reply in "Any Questions?" There are nevertheless one or two points in Dr. Harris's article which should, I feel, be slightly amplified. For example, Dr. Harris includes para-aminobenzoic acid ("paba") in his least significant group—viz., those vitamins needed by animals but whose significance for humans is uncertain. It has, however, been shown in several series of clinical trials<sup>1-4</sup> that paba in pharmacological dosage has a pronounced effect in the treatment of the rickettsial infections in man. The vitamin is listed in Appendix B in an M.R.C. report<sup>5</sup> among substances showing no activity in a 20-mg. dose given to a 15-g. mouse, but no human test on it is recorded in the report.

A further point which often arises occurs in connexion with the value of vitamin E in human abortion. As long ago as 1940 Bacharach demonstrated mathematically<sup>6</sup> that the probability of the results obtained with it in the treatment of a series of 42 patients, who had had four or more abortions, having been obtained by chance was one in 10<sup>10</sup>, a degree of probability excelled or equalled by very few clinical trials indeed. In connexion with the value of certain members of the B complex for the human, there appears to be a slight inconsistency between the editorial advice<sup>7</sup> to take "supplements . . . of yeast or wheat-germ preparations . . . rather than preparations of isolated vitamins" (on the grounds that it is implied by M. Richards's work<sup>8</sup> that "ingestion of large amounts of one member of the B group . . . may induce signs of deficiency of . . . other members") and Dr. Harris's relegation of pyridoxin to this third (i.e., least significant) group, since Richards's work was concerned particularly with pyridoxin deficiency. Subject to a further

point to which I refer below, one cannot but agree with the editorial recommendation, but it is a fact that Richards's work was concerned with induced pyridoxin lack. If we accept the transference to man of the implications of Richards's work as in your leading article, we can no longer logically regard pyridoxin as of doubtful physiological significance in nutrition.

My reservation in connexion with your editorial advice relates to the recommendation of "yeast . . . preparations," and is twofold. First, the comparatively large amount of yeast which a patient must consume is not generally appreciated. While there are, of course, some highly potent strains, at least an ounce of a normal yeast must be eaten to provide even a prophylactic dose of vitamin B<sub>1</sub>. Having regard to the flavour of yeast, this is rarely practicable—least of all, as a rule, for those whose need is greatest. Secondly, it is essential that every precaution should be taken by the maker or the user to destroy all viable cells in the yeast. It has been shown repeatedly<sup>9-14</sup> that yeasts cannot all be relied upon as sources of vitamin B<sub>1</sub>, and that yeasts may be used in the human as negative sources of the vitamin. Indeed certain yeasts are actually recommended by Kingsley and Parsons<sup>15</sup> as offering a convenient and rapid means of depleting human subjects of B<sub>1</sub> without the need of using unpalatable "deficient" diets. This fact has been widely overlooked, and both in this country and in the U.S.A. the "liveness" of certain yeasts has actually been adduced as a recommendation for their use.

In conclusion I should like to refer to two questions of dosage or standard requirements. It is now becoming clear (and Dr. Harris, in citing the L. of N. standard for vitamin A—3,000 i.u. as carotene, equivalent to 1,000 to 1,500 i.u. as preformed "animal" A—gives tacit approval to this viewpoint) that the human requirement is nowhere near the figure of 4,000 i.u. included in such prophylactic preparations as vitamin A and D capsules, N.W.F., still less the 4,500 i.u. included in "pluravit," N.W.F.

It does appear, therefore, that in the present state of world shortage of vitamin A more general acceptance of the lower figures—fairly conclusively established since the L. of N. standards were evolved, by the Accessory Food Factors Committee of the M.R.C.<sup>16</sup>—could result both in substantial financial economies in this country without the slightest risk of prejudice to health and, what is much more important, in the freeing of material for those in need who cannot at present be supplied.

My other point is in the reverse direction. Dr. Harris suggests (and few nutritionists would disagree) a daily prophylactic requirement of 1–2 mg. riboflavin. Why, then, does the formula for pluravit, N.W.F., provide only 0.05 mg.?<sup>17</sup>—a quantity which is so inadequate in relation to needs that a food manufacturer claiming riboflavin activity on the label of a foodstuff providing in normal daily usage even as much as four times the pluravit-content figure would still contravene the Ministry of Food's directive relating to the administration of the Labelling of Foods Order, and would also render himself liable to prosecution under the relevant Defence Regulation for misleading the purchaser.

These various points relating to requirements of vitamin A, therapeutic usefulness of para-aminobenzoic acid and vitamin E, precautions in the choice of yeast preparations, and the token riboflavin content of pluravit are all worthy of note by those prescribing vitamin preparations.—I am, etc.,

The Research Laboratories, Vitamins Ltd.,  
London W.6.

M. D. WRIGHT.

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- <sup>7</sup> *Ibid.*, 1947, 2, 695.
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- <sup>9</sup> Walker and Nelson, *Amer. J. Physiol.*, 1933, 103, 25.
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#### Vitamin-C Content of Fruit-squash Concentrates

SIR.—Your question and answer on this subject in "Any Questions?" (Aug. 23, p. 318) has come to our notice. In our view both the question and the answer are couched in terms which may give rise to some misconception regarding the true position. It is an accepted fact that fruit squashes made from citrus fruits retain no appreciable quantities of ascorbic acid,



even though they do contain 25% of fruit juices, and contain (generally) sulphur dioxide, which acts as a preservative of vitamin C.

Fruit squashes are almost entirely produced from juices imported into this country in concentrated or unconcentrated forms, and the retention of ascorbic acid is extremely variable. It is a fact that as yet no claims are being made for vitamin-C contents in any squashes, and the relationship suggested in your answer—i.e., that the fruit-squash concentrate should contain one-quarter of the ascorbic acid in the fresh juice—cannot be upheld.

The use of the term "concentrates" in connexion with these squashes is open to objection. Under the existing S.D.I. regulations fruit squashes are placed in the category of "concentrated beverages," but this term possesses no significance to the general public. On the other hand we have the Ministry of Food welfare orange juice, which is in fact a concentrated juice, and national rose-hip syrup, which is similarly a product which has been concentrated from the raw juice or extract. In this case the concentrated product contains many times more vitamin C than the fresh juice. In a further category we have black-currant syrup and purée, which contain less ascorbic acid than the straight juice or pulp, but in which the vitamin C is remarkably stable.

As a means of comparing these figures the following table may be of use :

Substance	Ascorbic Acid in 1 oz. (28.4 ml.)
Ministry of Food welfare orange juice .. .. .	57 mg.
National rose-hip syrup .. .. .	57 mg.
Black-currant syrup .. .. .	20 mg.
Black-currant purée .. .. .	20 mg.

It is probably wise to regard only those products whose labels indicate a definite guaranteed ascorbic-acid content as having any appreciable vitamin-C potency.—I am, etc.,

Bristol.

VERNON L. S. CHARLEY.

### Penicillin for Infected Hands

SIR.—The article by Mr. Frank d'Abreu, Surgeon Lieutenant Charles M. Flood, and Dr. Harold B. Hewitt on penicillin for the treatment of infected hands (Oct. 18, p. 603) should be publicized widely if only to cut the rate of absenteeism in these critical days. The letter by Dr. John P. Raw (Nov. 1, p. 707) on the local application of penicillin should also be noted for economical and very valuable method. It was one that I deduced to the 84th General Hospital in October, 1944, using 0.000-unit tablet of calcium penicillin because of its slower rate of absorption.

My method was to introduce 1 or 2 tablets into the abscess cavity and occlude the wound wherever it was possible with elastic adhesive bandage, leaving it unattended for 24–48 hours. A second application of the tablets was sometimes necessary. Even after the first dressing it was remarkable to note the diminution in inflammation and induration around the lesion. The method was very valuable in the case of carbuncles and solitary boils. Quite often the central slough in a carbuncle would come away with removal of the first dressing.

I agree with Dr. Raw that the surrounding inflammation and induration seem to form a barrier to blood-borne penicillin and that the local application is much more effective.

Since my return to civilian practice I have continued to use this method and have only found it necessary to use parenteral penicillin in those cases where the abscess, boil, or carbuncle is in its very early stages—that is, before the barrier effect is set up.—I am, etc.,

London, E.4

H. WINCH.

SIR.—I read with much interest the method of local penicillin treatment as described by Dr. John P. Raw (Nov. 1, p. 707). I have used this method extensively for the past three years with outstanding results. I first treated cases of R.N. personnel with the 10,000-unit tablets as issued to the Services. Hand and foot infections were successfully treated with a minimum of incision. The treatment of tendon-sheath infection was very satisfactory. In most cases pus formation had ceased in 72 hours and healing and function were complete in about 16 days.

The most outstanding case, however, was that of a farmer with a deep palmar infection. The hand had the colour and contour of a boxing glove, with severe lymphangitis and oedema extending to the axilla. Four 10,000-unit tablets were inserted deep in the slough situated in the centre of the palm, and a small gauze dressing covered with G.P. tissue was applied. Within 12 hours serum and lymph were pouring from the slough area, and the slough came away the following day. The contours of the hand and arm were restored in 24 hours. In 72 hours active movements of the fingers were encouraged. With difficulty I restrained him from resuming full duty on the seventh day.

To facilitate the introduction of the tablet I thrust a grooved director deep into the septic area, place the tablet on edge in the groove, and push it on with a probe. The point of the director is depressed and the tablet runs over the end and remains. The director and probe are then withdrawn. The method is very useful in the treatment of breast abscess, and the size of the incision can be greatly reduced. In some cases of breast abscess I have combined local treatment as described with twice-daily doses of 300,000 units. I am not yet satisfied that the results are an improvement on the local method alone.—I am, etc.,

Alexandria, Dumbartonshire.

WILLIAM SCOTT.

### Road Accidents

SIR.—Dr. E. Granger (Nov. 1, p. 709) appears perhaps to confuse the activities of the tongue and of the mind. High output of the one is not always accepted as evidence of good functioning of the other, and the mind of the silent driver may be better occupied than by trivial conversation. Does Dr. Granger feel less safe when in public-service vehicles than when driven by his garrulous acquaintances, and would he advocate, for safety reasons, that the drivers of buses and coaches should sit with the passengers, in order to enjoy the benefit of distracting conversation?

The apparent attempt to discredit the saying, "Don't speak to the man at the wheel," which of course goes back long before motor-car days, is a poor contribution to make to road safety. If, as your leading article suggested, medical men in general are seriously perturbed about road accidents, they may be interested to know that they can make some positive contribution by joining, for a very modest subscription, an association which neither supports nor is supported by any sectional interest, but which exists solely for the quite praiseworthy motive of the promotion of safety and the preservation of life on the roads.—I am, etc.,

London, N.W.8.

R. J. CLAUSEN.

### B.C.G. Vaccination under the Red Cross

SIR.—With more than half a year's experience of B.C.G. vaccination in several European countries the Danish Red Cross is now in a position to give a fairly detailed account of its work in this field. Starting with Poland it has extended its work to Yugoslavia, Hungary, Austria, and the American and British zones in Germany. The sum allotted to this work is 3.5 million Danish crowns, and it is actively supported by the Danish Government and the State Serum Institute, whose chief, Dr. Ørskov, has published a commendatory article on B.C.G. vaccination in the September number of the *Journal of the Danish Red Cross*.

The work has hitherto been carried out by 15 teams, each composed of one doctor and two nurses, but the ultimate target is 60 such teams. Denmark cannot alone supply as many as 60 doctors trained in B.C.G. work, and such experts are therefore being recruited in Norway and by sending doctors from various other European countries to Denmark, where they are initiated into the technicalities of this work. In principle everyone from the age of 0 to 80 is eligible for B.C.G. vaccination provided he or she is tuberculin negative, but as—in Poland, at any rate—practically everyone over the age of 25 is tuberculin-positive it is under this age that this work is confined in practice. This vaccination costs only about sixpence per head.

In order to provide an adequate supply of fresh vaccine the Danish Red Cross has purchased three aeroplanes to carry it to different parts of Europe. In Yugoslavia the Danes have handed over their work to the Yugoslav Government after

working in this country for nine months. In the *Journal of the Danish Red Cross* for October Dr. Henningsen points out that in the past half-year the Danish Red Cross has examined about half a million persons, each of whom was dealt with three times. Tuberculin-testing is so well organized that 1,000 persons can be tested by the same nurse on the same day. Between 1,500 and 2,000 persons have been examined every day by each team, and in a recent interview in *Morgenbladet* for Oct. 28 the President of the Danish Red Cross, Kai Hammerich, refers hopefully to the prospect of vaccinating a million persons every month.

So we see that after twenty years of research and mass experiment the Danes have not only made out a very convincing case for B.C.G. vaccination but have also made it an article for export. What of the attitude of my fellow countrymen in England to B.C.G.? Masterly inactivity verging on the sublime? Or on the dodgery?—I am, etc.,

Sunnfjord, Norway.

CLAUDE LILLINGSTON.

### Intravenous Procaine

SIR.—Dr. Peter Parry (Oct. 25, p. 669) refers to intravenous injections of procaine, saying that "the recommended dose of 10 ml. of 1% solution can be much exceeded with apparently complete safety." It should be realized that it is not the total dose which matters but the rate of injection. Procaine is rapidly broken down in the blood stream by the enzyme procaine esterase into diethyl-amino-ethanol and *p*-aminobenzoic acid. If the rate of injection is greater than the rate of hydrolysis, the concentration of procaine in the blood stream will rise and cause toxic symptoms in the following order: tachycardia, muscular twitching, convulsions, respiratory failure, death.

In the average fit adult tachycardia usually appears if the rate of injection exceeds 20 mg. per minute, and as a general rule this should not be exceeded. If an overdose has inadvertently been given, the intravenous injection of a short-acting barbiturate such as soluble thiopentone is the best treatment. The barbiturates not only act as anticonvulsants but appear to have a true antagonistic action to the analgesics containing the *p*-aminobenzoic-acid grouping.—I am, etc.,

St. Albans, Herts.

C. LANGTON HEWER.

### Peptic Ulceration

SIR.—The annotation (Oct. 18, p. 621) on the findings of Gibbs perpetuates two widespread fallacies to which grave exception must be taken. (1) Radiographic "evidence" of healing. Nothing is more illustrative of the divorce of radiography, indeed of clinical medicine, from morbid anatomy than the belief that if x-ray evidence of ulcer disappears the ulcer is healed. In the case of gastric ulceration, endoscopy will show unhealed ulceration six or twelve months after x-ray signs have disappeared. Morbid anatomists of the living—surgeons—confirm this also in the case of the duodenum. The pertinent question is raised, "What is the basis (a) of the x-ray appearances of ulceration and (b) of the symptoms?" The classic symptom-free intermissions with a persistently unhealed ulcer are interrupted by periods of "activity." In what does this consist? Extension of the ulcer? No, a symptom-free ulcer of the stomach may slowly extend to an enormous size. The answer is simple: both symptoms and almost entirely the x-ray signs are produced by periodic flares of circum-ulcerous cellulitis.

The genesis of pain by the resultant interference with the musculature and gastric tension surely has been adequately established by numerous clinical workers such as Hurst, Ryle, Douthwaite, and others, though the idea of hyperchlorhydria burning the sore in the stomach seems ineradicably widespread still. The gastroscope establishes beyond doubt the source of occult blood as the swollen inflamed mucosa around the ulcer, though the common belief is an origin in bleeding granulations not shown endoscopically. Indeed the only symptoms arising from the ulcer itself are massive haemorrhage from erosion of large arteries and acute peritonitis from perforation. The oedema of mucosa and musculature together with muscular contracture exaggerate enormously the x-ray crater. Careful examination of the lesser-curve outline shows that the exere-

science is in reality largely an appearance produced by a filling defect due to oedematous mucosa. With the subsidence of the oedema symptoms rapidly disappear; next the occult blood ceases; finally the x-ray crater, with all attendant rigidity spasm, etc.

The gastroscope, however, tells a most disillusioning tale. Healing of the flat area of epithelial deficiency, now symptomless and signless, may take a further six, nine, or more months before safe epithelialization is attained, even with the most stringent and irksome medical treatment. These facts are readily proved in cases of gastric ulceration; there is no reason for doubting that they apply equally to the duodenum. All, therefore, that can be claimed for radiography is the demonstration of increase or recession of circum-ulcerous inflammation. The definition of "activity" of an ulcer might be stretched to include this most characteristic phase of the condition, but the claim to demonstrate "healing" must be emphatically rejected.

(2) The other objection one must raise is in a large part conceded by your review—that the test-meal by any technique gives anything resembling a realistic demonstration of gastric secretion. How indeed can it when it concerns itself solely with hydrochloric acid? It may be that this secretion is to some extent parallel with that of the enzyme, but it is a very unsafe assumption. The reverse of this assumption leads to one of the pathetic illusions of medicine (like the instantaneous sterilization of the skin by a dab of antiseptic before a hypodermic injection). The patient has achlorhydria: all that is necessary to restore gastric function is to administer a few minims of dilute hydrochloric acid at intervals throughout the day. Pepsinogen *here*, it is presumed, is secreted normally. Admittedly more difficult and tedious, the estimation of peptic activity of gastric secretion is surely the truly relevant factor, for which one will search in vain for attention in the consideration of peptic ulceration; instead of which general attention is universally directed to neutralizing an acid which one presumes eats holes in the stomach and duodenum. The statement is made that concentration of HCl above 0.08% produces no increase in peptic activity. What then becomes of the simple faith in hyperchlorhydria? Until attention is turned from acid-and-alkali-test-tube theory and practice in peptic ulceration to some real indication of secretion it is not to be hoped that much advance can be made in either.—I am, etc.,

London, W.1.

C. JENNINGS MARSHALL.

### Education for General Practice

SIR.—Dr. James M. Taylor (Nov. 1, p. 706) makes a plea for the medical student to be employed as a nursing orderly at the same time as he is engaged in dissecting the cadaver. It is as well to recollect that the appalling mortality from puerperal sepsis persisted unabated in the lying-in wards of the Vienna hospitals until Semmelweis put a stop to this route of cross-infection. Until the student has thoroughly appreciated in his surgical training the need for rigid asepsis, he is safer out of the surgical wards. In any event the study of anatomy is a full-time task and will not be made less burdensome by devoting precious time to sweeping floors and emptying bedpans.—I am, etc.,

Southsea, Hants.

J. A. SEYMOUR-JONES.

### The G.M.C. and Medical Education

SIR.—Dr. C. E. S. Flemming (Oct. 25, p. 669) says my letter on radical revision of the curriculum "lands us in a quandary." Patients whose rectal cancers are examined too late in the disease are in a much worse one. Such are common under the present education. My gravamen is that the student of medical science is *not* taught "those things that he *will want to know*," and that the art of medicine, which is half of general practice, needs unfolding in the impressionable years in hospital. The letter of Dr. James Taylor (Nov. 1, p. 706) gives cogent support to my plea for educational reform, and offers an admirable practical suggestion. A panel of G.P. tutors would, he claims, be mutually beneficial to student and teacher. It would counteract the degradation of the family doctor which he so poignantly describes.

Dr. Flemming asks whether the young doctor would find effective help at a health centre. No, the name is a misnomer

for a fortuitous collection of doctors having no intentional physiological bond. It will reduce, not raise, the prospects of the average patient. If a doctor is any good, his patients want him, having chosen him and put their faith in him. If patients cannot do this last, then half his healing power vanishes. When a doctor takes a pride in his practice he will not welcome patients being banded about from one to another. Undivided loyalty is part of the good doctor-patient relationship.

The student needs a practical training to cope with common disease and to lead his flock in the cult of health. The complexity of modern medicine points to a partnership for the average young doctor and urban practice. This includes the incentive of owning the practice, and some degree of competition helps to "ginger up" effort. Conditions of pay, etc., must encourage *quality*, not mere *quantity*, of work.—I am, etc.,

Bristol

A. WILFRID ADAMS.

### Belladonna Poisoning

SIR,—In their article (Oct. 18, p. 611) on this subject Flight Lieutenants M. Hamilton and A. B. Sclare quote Glaister (1944) as stating that cases of accidental poisoning by belladonna preparations are comparatively rare. A brief record of four cases that have come to my notice may therefore be of interest.

#### CASE REPORTS

A woman aged 30, soon after taking her usual drink of herb tea, became strange in manner, rambling and talking to herself, and fumbling aimlessly with the buttons of her clothes. She was found to be suffering from belladonna poisoning, the deadly nightshade having evidently been accidentally included among the herbs. Although there was no alarm as regards this patient's life, she was badly shaken for a week or two and never quite regained her previous health.

A man aged 62 was in the habit of treating attacks of gout affecting his great toe by rubbing in the liniment of belladonna. One day he rubbed in linimentum A.B.C. (alcohol, belladonna, and chloroform) in addition. This apparently increased the absorption, as on the following morning he had the typical low muttering of belladonna poisoning. He had no recurrence and no ill effects.

A man was about to have a lipoma removed by a relatively inexperienced operator. I looked in to supervise just after the injection had been given, and found the patient a trifle fidgety and muttering to himself. The pupil was seen to be dilated. The solution that had been injected was inspected, and it was found that by mistake an eye lotion containing atropine had been used. Within a few hours this man had a temperature of 106° F. (41.1° C.). He made a rapid recovery.

A consulting physician informed me that he had been called in a case of pneumonia as the patient had become delirious. The type of delirium suggested belladonna poisoning, and he found that the medicine which was being given contained belladonna. This was stopped and the patient recovered.

These cases all occurred during the six years 1911 to 1917, and I have not seen a case since then. The symptoms are so characteristic that the condition can be recognized at a glance; they are clearly described in Hamilton and Sclare's article.—I am, etc.,

Bradford

PETER MCEWAN.

SIR,—When I was R.M.O. at what is now called the Princess Beatrice Hospital two boys about 15 came into casualty. One was continuously talking quite incoherently; the other knew nothing of the patient but was doing the good Samaritan by taking him to hospital. The patient's pupils were noticed to be extremely dilated. He was treated for belladonna poisoning and quickly recovered. It turned out that he was a chemist's boy whose job it was to wash bottles, and he tasted some sticky black stuff that looked like liquorice and tasted sweet (? belladonna and glycerine).

During the last war when M.O. of a tube shelter I was called to an old lady who was talking incoherently, and it was suggested that drink might be the cause. Thinking of a possible central nervous disturbance I looked at the pupils, which were much dilated but equal. I thought of belladonna poisoning, and her pockets were searched for medicines or tablets. Eventually she was found wearing belladonna plasters on ulcerated varicose veins.

It might seem to be advisable to tighten up the regulations for the sale and dispensing of belladonna. Our friends the

Russians have set us an example in this direction. In Archangel in 1916 one of our party had lumbago and we thought of an application of belladonna. A fellow M.O. and I hunted the chemists' shops exhibiting our passports, red crosses, etc., but to no avail. Regulations were regulations, and only a Russian doctor's prescription would be recognized. The last chemist we went to was a friendly soul who asked us whether we really wanted belladonna, and we replied in the affirmative. He advised us to go to the beauty and cosmetic shop round the corner, where, he said, we could get a pound without any permit at all. We took his advice and carried off the goods.—I am, etc.,

London, N.1.

LINA M. POTTER.

### Genetics and Science in the U.S.S.R.

SIR,—The leading article on the Lysenko controversy (Oct. 18, p. 616) contradicts itself to its own destruction as follows. In the fifth column of the article Darlington is commended for putting on record the "facts" of the liquidation of certain Soviet biologists and scientists since 1928, when "Marxist orthodoxy began its ideological incursions into the domain of science," Lysenko being the "new genetic prophet." At the bottom of the third column the article states that "the Lysenko school has many opponents" (meaning Soviet opponents). Therefore either the liquidation was ludicrously inefficient, or else it never happened. Further, how can one have both a "iron curtain" and also the detailed knowledge of Soviet affairs claimed by such as Darlington? These aspects of the and similar matters are irreconcilable.

The whole matter has recently been discussed in three articles in *Modern Quarterly* of Autumn, 1947, in which reference is made to an earlier article of Darlington's in *Discovery*, 1947. He is quoted as saying: "These are no longer questions which can be argued about in Russia. All those who have been prepared to argue have been put away." Yet "the Lysenko school has many opponents"!

I conclude that the *B.M.J.* article is simply another set-piece of anti-Soviet pyrotechnics. Fireworks make much noise, but have little effect on any structure of solidity. And one looks foolish (at best) in praising Hudson and Richens for being "clear, temperate, and impartial" and then falling so obviously short of that standard oneself.—I am, etc.,

London, N.W.11.

R. R. WILSON.

SIR,—In the issue of Aug. 30 (p. 339) the editorial policy of the *British Medical Journal* was stated to be governed by "a sincere desire to inform British readers of the advances and contributions of Russian medicine." As one who deplores the scarcity of news of these matters in the British Press, I heartily welcome this declaration, and it was with keen anticipation that I hastened to read in the *Journal* of Oct. 18 (p. 616) your leading article devoted to the important genetics controversy in the U.S.S.R.

I found, however, that the article omitted to mention the continued official recognition and encouragement of orthodox Mendelian genetics in the Soviet Union. Furthermore, it was rounded off by an acclamation, as a great service to truth, of the wild charges of Darlington published in such a periodical as the *Nineteenth Century*. Thereby, in my view, the editorial deserted the field of objective scientific criticism and entered that of political aggression against an allied nation. It may be helpful to those who wish to study this important subject objectively to mention the valuable series of articles contained in the current issue of *Modern Quarterly*. In one of these there is stressed, with evident pertinence, the importance of reading the original work of Hudson and Richens.—I am, etc.,

Crossnac, Glam.

J. B. ATENS.

SIR,—The core of the article "Genetics and Science in the U.S.S.R." (Oct. 18, p. 616) is a quotation of the assertion by C. D. Darlington that Vavilov and others were imprisoned and murdered because of their scientific views. Hudson and Richens in their monograph, which is mentioned in the article as "clear, temperate, and impartial," could find no evidence that this was so, and surely the only verdict that a reasonable man can pronounce at the present time is one of "not proven."

The weaknesses of Lysenko's *New Genetics* and the inadequacy of the scanty experimental results on which it is based cannot be disputed. It is understandable, however, that the prestige of such a man, whose earlier work was so brilliant and achieved substantial practical success, should be great, and that he should have a considerable following among lesser biologists and agriculturists. We have had a somewhat parallel case in this country in MacBride, who held equally heterodox genetical views based on equally unsound experimental data, but who retained his chair and published books on the subject until his death. The non-scientific taunts that have been hurled by each side can also be paralleled in previous scientific controversies in other countries. Until Darlington produces his "sufficient documentary authority," or further evidence is forthcoming from other sources regarding the death of Vavilov, the only scientific attitude one can adopt is an open mind on the matter.—I am, etc.,

Orpington, Kent.

F. H. BRIGHTMAN.

SIR.—There are a number of controversial statements in the leading article (Oct. 18, p. 616) on the above subject. I would like to refer to one general question, but I hope that the other points will be taken up by the experts in the different fields concerned. The statement which I would question is the one in which you attribute a comparatively recent growth to an alleged state of philosophic calm on the part of scientific investigators. Surely it was only in times before the introduction of the scientific method that the investigator was able to isolate himself in an atmosphere of "philosophic calm." Such a calm could only be derived from seclusion from the outside world and could only result in the elaboration of an idealist philosophy and dogmatic teaching. As a result of their energetic turning back to reality and their iconoclastic attitude to dogma, revolutionaries such as Newton and Darwin were able to dispel the philosophic calm of the armchair "investigator." From then on, to borrow your own phrase, idealism could only be preserved for scientific workers by an "alogical" process—a divorce between religious views on the one hand and the practical results of their own investigations on the other.

It was by an application of the scientific method to political economy, similar to that which Newton and Darwin had achieved in physics and biology, that Marx and Engels were able to dispel the philosophic calm of the pre-Marxist economists. The essence of their teaching was a refusal to recognize the immutability of the present structure of human society, just as Darwin refused to recognize that the world had been created precisely as he found it in the 19th century. Dialectical materialism has often been dismissed by those who do not understand it, or who find it inconvenient, as a "new religion." There is no doubt that the introduction of the use of meteorology in the countries of the Middle East and India to regulate crop sowings in lieu of reference to the priest is regarded by some as the substitution of one religion for another, since to the uninitiated it is just another mystery. I do not think, however, that this should be regarded as a valid reason for classifying meteorology with alchemy and Zoroastrianism rather than with geology and botany.

You state that doubtless a Communist (among others) tacitly accepts some form of realist or material philosophy. Surely, however, it is evident that, whereas this acceptance may be tacit in the case of a professed idealist—e.g., Oliver Lodge—in the case of a Communist scientist—e.g., J. B. S. Haldane or Joliot Curie—this acceptance is by no means tacit. On the contrary, it is clearly and explicitly expressed by the mere fact that the scientist in question professes himself a Communist and thus declares publicly that he has accepted a materialist outlook.

The recent discoveries in atomic physics and spheres of dynamic biology such as genetics have made the mechanical materialism of the scientists of the last century appear inadequate. This has resulted in a turning back towards idealism, as evidenced by the popularity of neo-mystical writers such as Jung. For those, however, who wish to continue to rely on the experimental and scientific method rather than to seek to explain the natural phenomena of psychology and sociology by some hypothetical "Einsicht," dialectical materialism offers a satisfactory method of arranging the facts resulting from

experimental work, a method which, by seeking to expose the contradictory forces operating in a natural process, reveals its dynamic nature. Thus the attention of the dialectical materialist is focused, not upon the ideological conflict between the protagonists of "nature" and "nurture," but upon the organism itself as the seat of the interaction of these material forces.

It is one of the essentials of dialectical materialism as stated by Marx, Lenin, or any other of its main exponents that no theory can be wholly adequate to its purpose and that it will need revision or perhaps complete replacement as new facts are discovered. This applies equally to the theories which Lysenko uses to explain his results and for which no permanent validity can be claimed. The best method of assessing the work of such scientists is, surely, not to accuse them without adducing any material evidence of liquidating their opponents, but rather to point to the successes which have been achieved by the use of their methods in acclimatizing useful plants to the wastes of the Arctic or of the Kara Kum and in evolving new strains of domestic plants which will help to banish for ever the spectre of famine which has haunted mankind for so long.—I am, etc.,

St. Mary Cray, Kent.

BRIAN H. KIRMAN.

### The Extent of Neurosis

SIR.—Was there really so little neurosis in the Victorian age as Dr. H. Crichton-Miller (Oct. 25, p. 669) tells us? And has fear, economic and social, really been gradually "eliminated"? and also the response of effort to the fear motive? If developments, as visualized by Dr. Crichton-Miller, should have reduced the extent of neurosis, why have they not?

The replacement of individual anxiety by passive solidarity with the group, and of individual effort by "talk of strikes," could not have led to increased anxiety and conflict unless the individual would subconsciously recognize that his striving for collective security through constitutional channels is either wicked or unwise. Do the working people really suffer from this conflict?—I am, etc.,

London, N.W.11.

B. SAALER.

### Treatment of Varicose Veins

SIR.—I have read with much interest the article by Prof. A. M. Boyd and Mr. D. J. Robertson (Sept. 20, p. 452) on the passage of sclerosing fluid through communicating veins of the thigh and leg when injections are made into varicose veins. But I do not think that sclerosis of a deep vein ever occurs in consequence, and it has not occurred in over 20,000 injections that I myself have given. Oedema of the lower leg may occur, but this is due to lymphatic block caused by periphlebitis. Even this will not occur if the leg is firmly strapped up with "flexoplast," which has been my invariable practice for many years now after injecting all but the very smallest leg veins. In fact I consider that it is an essential part of the treatment.

The two main communicating veins are at the junction of the middle and lower thirds of the thigh and at the junction of the middle and lower thirds of the leg for the internal saphenous vein. Of these, the latter is the more important and the more difficult to sclerose. It is usually below this that ulcers and other complications usually occur. If I find it patent after the injection of the main trunk, I inject it directly with 2 ml. quinine and urethane with the leg in a horizontal position, and after pressing on the vein for some minutes I apply strapping to the whole leg. This is usually sufficient to sclerose the communicating vein and the trunk below it, but on occasions I have had to resort to a "twin" injection of "lithocaine," 5 ml., and quinine and urethane, 3 ml., and even this massive and powerful injection has failed to produce any sclerosis in the deep veins, though the local result has been excellent. A running stream will not freeze as readily as the stagnant ditch near it, and it is probable that the increased flow in the deep vein quickly dilutes the sclerosing fluid and renders it innocuous.

I agree with much that Mr. Harold Dodd (Nov. 1, p. 708) writes, especially when he stresses the importance of varicose veins. But I fail to understand his objection to clinics. We who work in them probably see ten times as many cases of varicose veins and their complications as come to a hospital surgeon's out-patient clinic. I once had to deal with 104 in one afternoon, and I rarely see fewer than 40. A considerable amount of experience is thus built up.

I find that injection treatment properly performed will give as good results as ligation with injection and better than ligation alone. Many of the cases that come to me have scars of operations—in

one case five—and are in a worse condition than they were before their operations. Moreover, operation is not without its danger to life and limb, and many fatal results have been reported. In seventeen years that I have been doing injections I have had no fatality nor lost a limb. Injection therapy is so simple and safe that scarifying the intima, as described by Mr Riddock, seems to be unnecessary and even barbarous, though it may give excellent results when performed by his skilled hands. Nor is it necessary to pass a long catheter down a vein to enable a sclerosing fluid to reach its furthest point. If the injection is made into the highest part of the vein, simple massage will drive a wave of fluid down the main trunk, its branches, and also into the communicating veins. In this way the complete internal saphenous system can be soundly and lastingly sclerosed from the groin to the ankle.

But I will admit that in a small minority of cases injections seem to have little or no effect. These unfortunate people must submit to operation or wear stockings for the rest of their lives.—I am, etc.,

London, S.W.7,

R. SIMPSON HARVEY.

### Balantidiasis

SIR,—I have read with considerable interest Dr. M. Shun-Shin's article on "Balantidial Dysentery in Rodriguez and its Treatment with Mercury Biniode" (Sept. 13, p. 417). I should like to associate myself with the suggestion of Dr. Shun-Shin, and the following case report would not be out of place.

A Hindu male aged 40 consulted me on Oct. 9, 1947, for an attack of intractable diarrhoea of three months' duration, the number of motions being 20-30 per day. Stool examination revealed *Balantidium coli* and giardia cysts. He was put on emetine injections 1 gr. (65 mg.) daily, methylene blue 2 gr. (0.13 g.) in capsules twice a day, and mepacrine tablets, one tablet thrice daily for five days. With this treatment, though the giardia cysts disappeared, the balantidia continued to be present in highly motile forms. Then on the suggestion of Dr. Shun-Shin I gave an intramuscular injection of 1/6 gr. (11 mg.) of biniode of mercury, and stool examination four days later revealed complete absence of the ciliates. In spite of negative stool findings another injection was repeated, and two subsequent stool examinations on different dates failed to show the balantidia. The patient at the time of reporting had been passing 2-3 normal motions per day and was feeling very well.

The application of hydrarg. biniode in the treatment of balantidiasis has opened up new prospects of cure and eradication of an otherwise very intractable and persistent infection, and further reports in support from members of the profession would be welcome.—I am, etc.,

Saahpur, West Bengal.

S. PRAMANIK.

### Anticoagulants in Coronary Thrombosis

SIR,—The annotation on dicoumarol (Oct. 25, p. 662) and John T. MacLachlan's letter on heparin for coronary thrombosis (Nov. 1, p. 709) will, I fear, raise hopes which are doomed to bitter disillusionment. I have nothing but praise for the action of dicoumarol in peripheral phlebotrombosis and thrombophlebitis. Not one of my cases has developed an embolism, and I have a strong impression that the local manifestations subside more rapidly. Although there has been an alarming drop in the prothrombin index in one or two cases, there have been no untoward results.

With this experience of dicoumarol it was with high hopes that I commenced to use it in cases of coronary thrombosis a few months ago. The first two cases in which I used it had each had more than one lung infarct before treatment was started, and each had phlebotrombosis in one leg. Despite a satisfactory drop in the prothrombin index both patients developed further lung infarcts. One occurred when the index was 54%, the second while the index was rising over a period of three days from 43% to 74%. In each case the illness ran a particularly stormy course, and occasioned greater anxiety than the average patient with coronary thrombosis and lung infarction. In addition to these two cases two patients with hypertensive heart failure and lung infarct were given dicoumarol. One of them had two further infarcts during the treatment, the first on the day when his prothrombin index stood at 76%, the other with a prothrombin index of 43%. The second patient had an extension of thrombophlebitis during an intermission in her treatment, and had another lung infarct after the treatment was resumed.

The fifth patient to receive this drug completed my discomfiture and disillusionment. A woman aged 57 who suffered from hypertension with angina of effort was admitted to the ward for thiocyanate treatment. On the fourth day, when her blood pressure had fallen

from 220/110 to 180/94, she developed a severe attack of coronary thrombosis. Within half an hour of the onset of her pain she had profuse haemoptysis, attributed at the time to pulmonary infarct though necropsy subsequently showed that it was due to pulmonary congestion. Thiocyanate was immediately discontinued and dicoumarol was started two days later. On the eighth day after her attack (sixth day of dicoumarol treatment) she seemed to be progressing satisfactorily, and her prothrombin index stood at 38% when she suddenly had another attack of coronary thrombosis and died after a few hours. Necropsy showed the original thromb in a coronary artery with widespread recent extension, which according to the pathologist, had taken place a few hours before death.

This last case makes it clear that the blood coagulability is not the only factor which influences extension of a coronary thrombosis, perhaps not even the most important factor. Figures which I hope to publish in due course, from a series of 242 cases, indicate that the mortality from all causes within the first three months is closely related to the degree of shock accompanying the attack itself. In 154 cases there was no shock, though pain in many was severe; the mortality in the first month was nil and in the first three months was only 2.4%. In 88 cases with shock the mortality was 27% in the first month (29% at ages below 50, 19% at age 50 to 59, and 48% at ages over 60).

It would seem, therefore, that the most hopeful line of attack lies in the early and effective treatment of the initial shock. I am experimenting along these lines, making use of a slow intravenous glucose-saline drip to which an ampoule of "cardophyllin" (0.48 g.) is added by injection into the rubber tubing. Treatment has so far been confined to seriously shocked patients, and they have been given morphine when required for pain. While it is too early as yet to make any claims, the results so far are highly encouraging. There have been two dramatic recoveries in patients whom I regarded as moribund, and a third striking recovery in one whom I thought seriously ill though not hopeless. One of these three patients later developed an embolism at bifurcation of abdominal aorta.—I am, etc.,

Glasgow.

ALBERT A. FITZGERALD PEEL.

### Knee-jerk Examination

SIR,—I have been using a simple method of eliciting the knee jerk during the last few years. Recently other colleagues to whom I have demonstrated it have shown interest. Their interest has prompted me to describe it. In this method no percussion hammer is required.

The middle finger of the left hand is placed carefully over the patella tendon, and then the middle finger of the opposite hand is brought sharply down on to the dorsum of the left middle finger as in percussion elsewhere. A positive response is felt by a tightening of the tendon under the examining finger.—I am, etc.,

London, W.5.

J. J. SHIPMAN.

### Yeast Extracts and Fat Absorption in Sprue

SIR,—I was interested to see the conclusions of Drs. D. A. K. Black and L. P. R. Fourman (Oct. 25, p. 645) regarding the effect of yeast extracts on fat absorption in sprue. Cases such as they referred to were in the Sprue Research Unit at Poona, where their fat balances and treatment were carried out under my direction. The biochemical estimations were performed by Drs. Black and Fourman as described by them. In a group of cases treated by yeast extract, examined statistically by Mr. Dilwater, the period of treatment was shown to coincide with improvement in fat absorption. These cases had been previously treated by parenteral liver extract in large doses, parenteral nicotinic acid, and riboflavin shortly before yeast extract was used. In my view this finding showed that the whole pattern of therapy may have decreased fat excretion, not the yeast extract alone, as has been concluded. For example, the possible necessity for previous or coincidental liver therapy for the reduction of fat excretion on yeast extract is not considered by them in their article.

The issue could be easily settled by the use of yeast extract alone. I would like to ask if Drs. Black and Fourman have investigated cases other than those on the Sprue Research Unit, as yeast extract alone was never used on these cases. I think it



relevant to point out that yeast extract was not used on patients in the relapse phase of the disease, and that careful clinical observation revealed no beneficial effects from it during remission.—I am, etc.,

Staines, Middlesex.

K. D. KEELE.

### Hospital Treatment of School-children in Shropshire

SIR.—I wish to bring to the notice of the profession at large a situation which has recently developed in Shropshire, which this Branch regards as one of the utmost gravity in its bearing on the everyday work of the general practitioners of the area, and the implications of which are widespread and ominous. The Education Act, 1944, imposes on local education authorities "the duty to make such arrangements for securing the provision of free medical treatment for pupils in attendance at any school or county college maintained by them as are necessary for securing that comprehensive facilities for free medical treatment are available to them."

The Education Committee of the Shropshire County Council, in drawing up its scheme, has decided that all hospitals with which it proposes to enter into arrangements for the treatment of school-children shall comply with the following conditions:

"(1) There shall be on the staff of the hospital a resident medical or surgical officer, or both, according to the type of case to be dealt with.

"(2) Treatment for eye, ear, nose, and throat conditions shall only be carried out by, or under the supervision of, a specialist in the appropriate condition, who shall be of consultant status.

"(3) Surgical cases of all categories, whether requiring operative treatment or not, shall only be treated by, or under the supervision of, a Fellow of the Royal College of Surgeons of consultant status, who will himself be expected to carry out any operative treatment required unless it is of a very minor nature.

"(4) Medical cases shall only be treated by, or under the supervision of, a physician of consultant status."

It will be plain to all that the application of these conditions results in the complete elimination of the general practitioner from any part in the treatment of such children, which now may only be carried out in such hospitals as have an active staff of consultant status. In Shropshire this has resulted in a remarkable state of affairs. The county is a large one, covering an area of 1,346 square miles, and having a population of 262,000. Within its borders there is only one hospital available for general medical and surgical cases which fulfils the conditions laid down. It contains 280 beds, is already hard pressed for accommodation, and has long lists of patients awaiting admission—nearly 500 in fact.

On the other hand Shropshire is fortunate in having no less than eleven smaller hospitals of the "cottage hospital" type, widely distributed over the county, with a total of about 250 beds, staffed by the general practitioners residing in their vicinity, and in a high state of efficiency, with consultants available when expert assistance is required. In these hospitals much excellent work of an unspectacular nature has been and is being carried out to the satisfaction of the public, the convenience of patients and their relatives, and, not least, to the relief of the major hospital.

As a result of what I can only describe as the deplorable decision of the local education authority, taken without any approach having been made even to the authorities of the main hospital, these 250 beds will no longer be available to children of school age, since the edict has gone forth that none may treat them who is not of consultant status.

I ask you, Sir, is not this an outstanding example of planning gone mad? And I believe that when the matter is raised at the Representative Meeting it will be dealt with in such a way as to convince those concerned and any others—if such there be—of a like mind that the profession will not submit to such treatment.—I am, etc.,

H. W. BANBRIDGE.

Wellington, Salop.

President, Shropshire and Mid-Wales Branch.

### Fowl Paralysis and Poliomyelitis

SIR.—I was most interested to read Dr. J. A. Goodfellow's account of his experiments on fowl paralysis (Oct. 11, p. 586). In 1937 I saw a child with poliomyelitis on an isolated farm in Herefordshire and was surprised to find a hen lying paralysed in the farmyard at the same time. There were no other cases of

infantile paralysis notified in the district and no more chicken paralysis on the farm. I removed the brain and spinal cord from the hen and sent these to the National Hospital for Diseases of the Nervous System, Queen Square, for histological examination. It was reported that no abnormality could be found.

No doubt the simultaneous occurrence of the two diseases was a pure coincidence, especially as fowl paralysis is not an uncommon disease, but it would be interesting to hear from county doctors whether such a phenomenon is often observed.—I am, etc.,

London, S.W.1.

F. L. KING-LEWIS.

### Homosexuality and "Sexual Trauma"

SIR.—Those who are concerned with the social and clinical problems of homosexuality will welcome Mr. D. Stanley-Jones's able refutation (Oct. 25, p. 671) of the theory that seduction in childhood or early adolescence is an important aetiological factor in these cases. In addition to his cogent reminder of the frequent occurrence of homosexual experiences amounting to "seduction" in the early life-history of many well-adjusted heterosexual adults it is possible to adduce further evidence in support of the view that the "traumatic" significance of sexual seduction or assault in childhood has been greatly over-emphasized. The usual tendency has been to argue *a priori* on the basis of certain subjective ethical and moral concepts that, because such assaults are deemed to be morally "wrong," therefore they cannot fail to produce disastrous effects on their victims.

(1) As A. J. Rosanoff<sup>1</sup> has stated, "such evidence as is available would seem to indicate that such seduction can only be of lasting effect, if its direction corresponds with the inherent sexual tendencies of the subject"—i.e., psychiatric investigations tend to show that any "lasting effect" is produced, not by the seduction, but by (a) constitutional and endocrine factors, (b) psychosexual immaturity resulting from disturbances in the child-parent relationship in early childhood, or (c) more probably (in the light of contemporary research into psychosomatic interrelationship) a combination of both factors.<sup>2</sup> In all true adult homosexuals who have been thoroughly investigated there has been some indication that one or both of these factors have long been present *prior* to any seduction or assault. Furthermore, psychiatric experience shows that many true homosexuals have never been subjected to seduction in childhood and, indeed, have never had any physical relationship whatsoever.

(2) Psychiatric investigations have established beyond doubt that, in very many cases of childhood "seduction," it is the so-called "victim" who is in fact the seducer, and that the sexual act with the adult may be actively sought by the child as an expression of the latter's unconscious impulses and fantasies<sup>3</sup>—i.e., that a predisposition in the child may not infrequently be the cause of the alleged seduction. K. Friedlander<sup>4</sup> states that "it is very rare for boys who do not already display homosexual tendencies to be exploited in this way. . . . More often than not, young boys will offer themselves, if not in words then by gestures, to older men."

(3) There is considerable evidence that the large majority of children and young adolescents who have been seduced or assaulted, either by adults or by other children, and whether the act be homosexual or heterosexual, show in adult life no sign whatsoever of sexual or psychological maladjustment or abnormality. Doshay<sup>5</sup> found that, among 108 unselected cases who between the ages of 7 and 16 had been involved in sexual delinquencies, there was "not a single instance of a known sex violation in adult life"; and of 148 additional cases, all of whom at the same age had been involved in both sexual and other offences, only 8 committed known sexual offences (of a minor type) in adult life, whereas no less than 25% committed further non-sexual delinquencies. Doshay states that the most frequent sexual offence (in over 40% of his cases) involved sodomy with adult men, older and younger boys, or with girls, and observes that "these practices . . . ought not, when occurring among juveniles, to be regarded in too morbid a light, nor should the boys be considered 'perverts' or 'homosexuals,' as noted in some of the texts. The vast majority of offenders engage once or a few times in these unwholesome affairs and turn from them spontaneously with disgust, shame, or fear of

exposure. . . . Of 256 cases, only two . . . revealed such deep interest in and craving for homosexual practices as to warrant the designation of 'homosexual' (and, one may add, the assumption of a fixed inherent predisposition). These findings are largely confirmed by the very thorough investigations of Bender and Blau,<sup>4</sup> and Rasmussen (in girls).<sup>7</sup>

(4) Finally, in attempting to evaluate, in adult homosexuals, the aetiological significance of alleged early seduction or assault (particularly where the history is based on relatives' accounts or official records of the patient's evidence as a child), it is necessary to bear in mind the notorious unreliability of children's evidence, especially with regard to sexual matters, which has long been stressed by many medico-legal authors.<sup>8, 9, 10</sup> The child is frequently incapable of differentiating reality from fantasy (and this may equally apply to the adult's "reminiscences"). Furthermore, the relatives of an adult homosexual who is involved in legal action may be very ready to assert, in reply to legal or medical inquiries, that such a "sexual trauma" was responsible for his present predicament, just as others may, with equal force, proffer "evidence" of physical trauma as the alleged cause of cancer or of mental illness.—I am, etc.,

R. H. AHRENFELDT.

London, S.W.3.

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#### The Bedtime Meal

SIR,—“Milk and biscuits at bedtime are the cause of tonsils and adenoids”—is there any truth in so extreme a statement? A bedtime meal is followed, like any other, by the gastro-colic reflex. That in its turn is followed shortly by the filling of the rectum. But, except in infants, there the sequence ends. The final event, evacuation, is discouraged in early childhood and its inhibition becomes habitual. The rectum remains full all night, as is now usual, instead of empty, as is normal. Thus the astringent functions of the lower bowel are in play for some hours. Nothing more happens until, after breakfast, the rectum is filled still further and the sequence terminates in the ordinary way with the morning action. But the unduly firm consistency of the stool calls for a lubricant, which is supplied. The call for mucus is responded to—in the rectum, where it is needed—but the response to that call does not discriminate accurately between the sites needing supply. The nose and throat are apt to receive mucus at the same time as the rectum.

If the only result of the twelve-hour constipation were an occasional sneeze or a brief rhinorrhoea, the penalty might be thought negligible. But the constantly recurring exudation of a little mucus makes the nasopharynx more liable to receive and harbour infective organisms. That chronic catarrh should result and the tonsils enlarge, as armament factories do in war-time, is to be expected—in the way of attack and defence.

To enucleate the tonsils because they have responded to the call is nowadays seen to be bad practice; for, intact, they protect the child—against infantile paralysis certainly and, likely, against a host of other pathogens. Removal is reserved for any that are overwhelmed and stuffed with pus or “cheese” and for those few that are seriously obstructive. But *caveat sanitatis custos*. I have removed, thinking them guilty, tonsils which have proved innocent, and felt shame to take the county council's guinea. I tried to find consolation in Sir Thomas Browne: “Where I do him no good methinks it is scarce honest gain, though I confess 'tis but the worthy salary of our well-intended endeavours.”

How come the children to tolerate the twelve-hour constipation? It is certainly because their food is denatured. From the wheat destined for bread half the offals are taken. That is 15% of the weight of the grist. From that destined for manu-

facturing flour all the offals are still taken, just as they were for the pre-war flour. All the crease-dirt is removed from both. “Offals” and “crease-dirt” are opprobrious words for items of our optimum diet. In the first are the cellulose, some of the semolina, and all the vitamins. The second consists of the minerals the plant has sucked from the soil and stored under the crease in the seed. Deprived of these the gut is languid. That answers the question.

If the child's supper were prepared from the whole grain, ground finely if you will, and made into any chosen form—bread, biscuits, wheaten porridge (though for that it should be merely broken into rather large fragments), or creed and made into frumenty, which is good but forgotten—and if before bed the final reflex of the digestive sequence, the action, were completed, all would be well. For this to happen there must be some interval. Theseus (*A Midsummer Night's Dream*) asked:

“What dances shall we have  
To wear away the long age of three hours  
Between our after-supper and bed-time?”

That is too long, but Shakespeare's hint deserves attention in the nursery.—I am, etc.,

Holmes Chapel, Cheshire.

LIONEL JAS. PICTON.

#### R.M.B.F. Christmas Appeal

SIR,—I gratefully acknowledge many generous contributions towards this year's Christmas Gift Fund, but we are still far short of the sum needed to ensure that all of our regular beneficiaries are remembered. May I make a further appeal to those readers who are in sympathy with our work and who have not yet sent a contribution to forward their donations to: Royal Medical Benevolent Fund, Christmas Gifts, 1, Balliol House, Manor Fields, Putney, London, S.W.15, as soon as possible, as the distribution of gifts is made some days before Christmas.—I am, etc.,

ALFRED WEBB-JOINSON.

President, Royal Medical Benevolent Fund

#### The Lazy Eye

SIR,—May I venture to suggest that the wider implications of the discussion as to the value of occlusion in the treatment of “amblyopia” in children merit further study. Recent surveys of recruits called up under the national service scheme show that 6–8% manifest defects of sight as gauged by (uncorrected) visual acuity of not higher than 6/18 (Snellens) in one eye. Thus, after elimination of congenital and other factors, some 5% of the young male population have by the age of 18 incurred an “amblyopia” associated with squint or high refractive error.

A large proportion of these men state that either they have never had their eyes “tested” or else that they have joyfully discarded their glasses at the first opportunity. The recent discussion held at Leeds by the School Health Service Group of the Society of Medical Officers of Health concerning “Ascertainment of Visual Defect in Children” (*Public Health*, 1947, 60, 215) would indicate some of the ways to tackle this very real problem.—I am, etc.,

London, S.W.1.

G. C. DANSEY-BROWNING.

#### Ourselves and the Russians

SIR,—You published (Aug. 30, p. 339) a leading article entitled “Ourselves and the Russians” in which you criticized an article in the Soviet periodical *Meditsinsky Rabotnik* of July 3, 1947. In the Soviet article Dr. Radbil had castigated the *B.M.J.* for what he described as its “sham political neutrality.” At the time I was impressed by the spirited reply of the Editor of the *B.M.J.*, though the sneering manner in which Dr. Radbil was referred to personally made me wonder how the quotations from his article would have sounded in their original context. Unfortunately the *Meditsinsky Rabotnik* cannot easily be referred to in this country, and it was finally only owing to the courtesy of the Editor of the *B.M.J.* that I was able to see the Soviet article.

I have no desire now to open a discussion of the merits (or demerits) of either article, and, indeed, having read both articles, I would be perfectly prepared to defend either—

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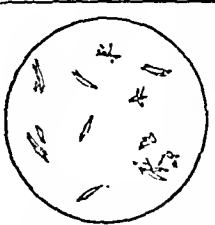
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L.A.B.

rather would have been until I opened the *B.M.J.* of Oct. 18 and read the leading article on "Genetics and Science in the U.S.S.R." (p. 616). This is an important subject, and Hudson and Richens have, as you say, performed a useful service in expounding the views of the opposing schools in their book *The New Genetics of the Soviet Union*. Dealt with in this "temperate and impartial" way, it would seem clear that Lysenko and his followers have allowed their enthusiasm for a new idea to outstrip the conclusions that can reasonably be drawn from their experiments. Dealt with in the manner of your leading article the only effect is to take the *B.M.J.* out of the class of scientific periodicals and align it with that section of the Press which is devoting itself to spreading international hatred.

What exactly did you wish to say? That Vavilov, Levitsky, etc., were sentenced for their scientific beliefs? If this was your intention, it is odd that you should choose as your witness Dr. Darlington, whose partiality is evidenced by his statement in *Discovery* of February, 1947, that "the leading Russian geneticists" . . . have been liquidated in the course of this long political intrigue. These are no longer questions which can be argued about in Russia. For all those who have been prepared to argue have been put away." Hudson and Richens (whose book you praise) point out that Zhebrak and Serebrovski have been "consistent and fearless critics" of Lysenko and that many others, whom they name, have frequently published papers expressing the views generally accepted elsewhere. No, presumably your intention was the more generous one of providing stronger evidence for Dr. Radbil's next article.—I am, etc.,

London, W.1.

RICHARD DOLL.

### Medical Photography

SIR,—The letter from the Deputy Chairman of the Medical Group of the Royal Photographic Society (Nov. 1, p. 710) referred to the excellent reproductions in the photogravure plate in the *Journal* of Sept. 27, and made a plea for individual acknowledgment of the medical photographer. The gastroscopic pictures included in the plate were photographs made from paintings by Miss D. Barber, and unfortunately her name was omitted during the photographic process. I am glad of this opportunity to apologize for the omission, and I wish to support their request for encouragement of medical photographs—and for medical artists too. There is a real need for developing this ancillary service for hospitals, not only for illustrating publications and clinical meetings but also for aiding the long-term study of the natural history of disease. It is hoped that other county authorities will follow the example of the Middlesex County Council in appointing whole-time artists and photographers.—I am, etc.,

London, N.W.10.

F. AVERY JONES.

### POINTS FROM LETTERS

#### Edible Fungi

Major-Gen. A. H. HARRY (Bombay) writes: I read with interest the article in the *Journal* of Aug. 23 (p. 304) "Some Edible Fungi," by Dr. John Ramsbottom. . . . I remember reading some years ago in, I think, a popular magazine that if all the following points are satisfied the mushroom is certainly edible: (1) It must be gathered in open spaces—e.g., a wind-swept meadow; (2) the skin must peel readily from the cap; (3) the stalk must be solid and not hollow; (4) the gills must not touch the stalk—i.e., there must be a complete circular space, however narrow, between gills and stalk. I have myself eaten fungi which satisfy all these points, but have often felt, while discarding others that failed to do so, that I was being overcautious. Will Dr. Ramsbottom be pleased to give us some practical working rules, and to confirm or refute the four tests given above?

#### The Last Straw—Unholy Smokes

Dr. IAN N. SAMUEL (London, S.W.11) writes: Perhaps Dr. Stokes's (Nov. 1, p. 710) patients find solace in smoking to make up for their irritation in seeing his door covered with notices. Although I agree that it is an imposition to expect medical men to sign such forms as the pensioners' tobacco form, it is obvious that a refusal to sign hurts only the applicant: the bureaucrat remains unscathed. The other named persons empowered to sign the form are generally out of reach for the patient. I know the police won't sign, on the grounds that they have no personal knowledge of the applicant. . . .

## Obituary

### SIR ARTHUR STANLEY, G.C.V.O.

The Hon. Sir Arthur Stanley, G.C.V.O., G.B.E., C.B., died at his home in Eastbourne on Nov. 4 at the age of 77. He had been closely associated with St. Thomas's Hospital for twenty-six years and for an even longer period with the British Red Cross Society and the King Edward's Hospital Fund for London. His death brings to an end a long-sustained and unselfish devotion over many years to the welfare of the wounded and the sick.

The Hon. Arthur Stanley, third son of the sixteenth Earl of Derby, was educated at Wellington and began his career in the Diplomatic Service. He left the service for a short time to become private secretary to Mr. Balfour, but by 1895 he was third secretary in Cairo under Lord Cromer. In 1898 he was elected to Parliament by the Ormskirk Division of Lancashire, which he continued to represent until his resignation in 1918. His connexion with the King Edward's Hospital Fund for London began in 1908. He was made chairman of the British Red Cross Society in 1914, and two years later he was elected the first chairman of the Royal College of Nursing. When in 1917 he also became Treasurer of St. Thomas's Hospital he decided to leave Parliament and to devote his energies entirely to the care of the sick and of those wounded during the 1914-18 war. His services were recognized by a presentation in 1919, when Princess Christian paid tribute to his chairmanship during the war years of the joint council of the British Red Cross Society and the Order of St. John of Jerusalem. Edinburgh made him an honorary F.R.C.P. and Leeds awarded him its honorary LL.D. His devoted work for St. Thomas's Hospital and for the British Red Cross Society came to an end only in 1943, when failing health compelled his retirement.

### W. H. KAUNTZE, C.M.G., M.D., F.R.C.P.

#### Chief Medical Adviser, Colonial Office

Dr. William Henry Kauntze died at Woking on Nov. 4 at the age of 60 after a painful illness courageously borne. Educated at Victoria University, Manchester, and London University, he graduated in 1911 and after holding resident appointments at the Manchester Royal Infirmary and in Salford he joined the West African medical staff in Nigeria in 1912. In the war of 1914-18 he served in both the West and East African Forces. In 1919 he was appointed senior bacteriologist and deputy director of laboratory services in Kenya Colony and remained there until 1932, when he was promoted to be director of medical services, Uganda. He had proceeded M.D. in 1921 and he was elected F.R.C.P. in 1945. In 1941 he was appointed assistant medical adviser to the Colonial Office and in 1944 became chief medical adviser. He was awarded the M.B.E. in 1918 and the C.M.G. in 1937. He was also a Knight of the Order of St. John of Jerusalem. As chief medical adviser to the Colonial Office he was *ex officio* chairman of the Honorary Managing Committee of the Bureau of Hygiene and Tropical Diseases from 1945 onwards, and in this capacity he was concerned with the publication of the *Bulletin of Hygiene*, the *Tropical Diseases Bulletin*, and the *Bulletin of War Medicine*.

Kauntze was a man with the highest ideals who never spared himself in the work of the service which he loved and to which he subordinated all things. After his appointment in London he travelled widely in the colonies, visiting Africa, the West Indies, and the Far East to see for himself conditions in these places and to discuss possible improvements. His capacity for work was very great and he drove himself relentlessly. His last tour in the Far East undoubtedly precipitated his final illness, and, although he was aware of this probability, his high sense of duty compelled him to carry it out. As a result of his journeys and his studies he was convinced that in the application of the principles of social medicine lay the solution of the tropical problem, and even at the end in periods when free from pain he strove to further this policy. With his deep insight into colonial problems he realized that for real success the co-operation of the local people was essential,



and he was a strong advocate for higher education in colonies and insistent that the standard be the highest attainable. He had no use for second bests. Convinced of the necessity of international action in matters of health, he was keenly interested in the building up of the World Health Organization and was a member of the British delegation at all meetings of the Interim Commission. Setting before himself only the highest standards, he expected the same lofty ideals from others, and it was a privilege and inspiration to work with him.—A.M.W.R.

#### FRÉDÉRIC F. BURGHARD, C.B., M.D., M.S., F.R.C.S.

Mr. Frédéric F. Burghard died in Cambridge on Oct. 31 at the age of 83. He had been on the staff of King's College Hospital from 1889 until his retirement in 1923, when he was appointed consulting surgeon to the hospital and emeritus lecturer in clinical surgery in the medical school.

Frédéric François Burghard was born on Feb. 27, 1864, and educated at Christ's College, Finchley, and at Guy's Hospital, where he was awarded the Treasurer's Gold Medal in surgery. He graduated with first-class honours in 1886, and took the London M.S. in 1887 and the F.R.C.S. in 1888, a year before he proceeded M.D. At Guy's Hospital he was resident obstetrical assistant, house-surgeon, and in 1888 surgical registrar. He was appointed assistant surgeon to King's College Hospital in 1890. It will be recalled that Sir Joseph Lister only retired finally from King's College at the end of the summer session in 1893. Mr. Burghard was promoted surgeon to the hospital in 1898, and in 1902 became teacher of operative surgery in King's College. He was actively concerned in the movement which led to the transfer of the hospital from Portugal Street, and in 1904 represented the Watching Committee of the Medical Board on the Building Committee of the new hospital at Denmark Hill. It was mainly due to his efforts that the various clubs and societies of King's College Hospital were amalgamated to form the Clubs and Societies Union of King's College Medical School. He was elected first president of the Union and held that office until his retirement. For many years also he was president of the hospital rugby football club. In his student days he had played for the Guy's Hospital XV.

During the 1914-18 war he was a colonel in the A.M.S., and consulting surgeon to the B.E.F. from 1914-16. In 1919 he became senior surgeon to King's College Hospital and lecturer in clinical surgery; three years later he was made director of surgical studies. At this time, too, he served on the committee of management of the hospital. Mr. Burghard was a member of the council of the Royal College of Surgeons of England from 1915 to 1923 and was for some years a member of the Court of Examiners. For many years he was one of the examiners in surgery at Cambridge and at London University. With Sir Watson Cheyne, Burghard wrote a *Manual of Surgical Treatment* and he also edited a *System of Operative Surgery*. He had been elected a Fellow of King's College in 1909, and on his retirement in 1923 he was appointed consulting surgeon and emeritus lecturer in clinical surgery. On retiring from practice he went to live at Rolleston, Burton-on-Trent, where he became consulting surgeon to the Burton-on-Trent General Infirmary.

#### A. M. WEBBER, M.S., F.R.C.S.

Mr. Alexander Moxon Webber, for a number of years one of Nottingham's most eminent surgeons, died at his home in Sandown, Isle of Wight, on Oct. 26. He retired and went to live there in December, 1945, but before then he had been in failing health for some time. He was born in South Africa, and he came to England and received his medical education at Guy's Hospital. He graduated M.B., B.S. in 1903, and two years later he took the London M.S., and in 1906 the F.R.C.S. The following year he settled in Nottingham in partnership with Mr. Chicken, who was one of the surgeons at the General Hospital. At Guy's Hospital Mr. Webber had held the post of house-surgeon and obstetric resident. He was also clinical assistant at Great Ormond Street for a short period.

After settling in Nottingham he rapidly became well known and was appointed in succession assistant surgeon to the Children's Hospital, to the Nottingham General Hospital, and

to the Women's Hospital, and later on he rose to the full staff. In the first world war he served abroad with the R.A.M.C., principally in East Africa, with the rank of major. Mr. Webber was always an active member of the British Medical Association. He was secretary of the Nottingham Division from 1922 to 1925, and chairman in 1931-2. He had been a member of the Council, and had served on a number of central committees. He was also a representative at the A.R.M. for ten successive years from 1919-28.

R.G.H. writes: My closest association with Mr. Webber was, of course, when he acted as secretary for the Annual Meeting in Nottingham and I was president. Nobody could have had a better secretary. He was a born administrator, and in addition to that he never quarrelled with anyone, so that at the Nottingham meeting we never had any dispute before or during the meeting and everything went smoothly and well. All this was due to Mr. Webber, and he was most ably supported by a very clever, capable, and devoted wife, who survives him. As a medical colleague he was always understanding and very human. He had a most retiring nature and never pushed himself forward. I never heard him say an unkind thing about anyone, and I have never known a surgeon who was better liked by his patients. In Nottingham he is greatly missed and will be long remembered.

#### JOHN CHARLES, M.D.

Dr. John Charles, who died suddenly on Oct. 15 at the age of 83, was born in Elgin. In 1888 he graduated M.B., C.M. at the University of Glasgow, and proceeded to the doctorate in 1895, with commendation. After qualifying, he took an assistantship in Sunderland before starting in general practice at what was then just a small colliery village at Stanley, in Durham, and there he lived and worked for the remaining fifty-two years of his life. During that time he saw the place grow from a collection of houses round the colliery until it became one of the twelve largest urban areas in the county. For years Dr. Charles's partner was his brother-in-law, Dr. Dewar. It was a typical colliery practice, but of rather a new type. For many years the medical work in the colliery districts in Durham and Northumberland had been carried on largely by unqualified assistants who lived in the hamlets round about the collieries while the principal, who might employ several of these assistants, would reside in the older, well-established villages or small townships. But just about the time that Charles started in practice one of the Medical Acts had brought that system to an end, and the opportunity was provided for a new and better arrangement. The miners were not slow to appreciate the advantages of the change, and from the outset Charles set out to give them a first-rate service. An early event after his arrival in Stanley was a dispute between the colliery doctors and the miners regarding the amount of the fortnightly subscription to the medical fund. The contribution, which was deducted at the colliery offices from the men's pay, was 6d., which, as a result of prolonged and tedious negotiations, was eventually raised to 9d. The dispute affected considerable areas of the northern coalfield.

The cause of the colliery doctors was loyally championed by Rutherford Morison, who was then rapidly becoming the leading surgeon in the North and with whom Charles was closely associated as secretary of the Colliery Practitioners' Association. A great deal of work was involved and many meetings were arranged and attended up and down both counties. At that time there was no easy transport by motor-car, and local train services were poor, so that many of the journeys had to be made by bicycle, which was no easy task in the hilly parts of County Durham. Morison and Charles formed a good combination, and their work was appreciated.

Dr. Charles was devoted to his professional work and carried out his duties as a colliery doctor conscientiously and systematically. He was one of those who kept in touch with the work at the old Infirmary in Newcastle and used often to come in to see his patients. Over the years Charles acquired an intimate insight into the miner's mind based on a close knowledge of his way of life with its difficulties and dangers. Strikes, lock-outs, and political upheavals deeply affected the colliery doctor, and the calm, steadying effect of men like Charles was

then invaluable. Whenever problems had to be adjusted in the relationship of doctor and miner he was called in as consultant, adviser, and mediator. One particular hazard of the miner's life was experienced in February, 1909, when an explosion at the West Stanley Colliery resulted in the loss of the lives of 168 men and boys. Charles took part in the grim work of rescue, descending the pit at an early stage after the explosion and remaining underground as long as there was a glimmer of hope that any of the victims might be found alive.

Early in his career Dr. Charles began an association with the Consett Division of the B.M.A., for which he acted as honorary secretary for a quarter of a century. All the honours of the Division and of the North of England Branch eventually came to him, and he was President of the Branch in 1923-4.

Although Charles was mild and not in the least aggressive, he was a man of sterling courage and was always prepared to back up his own opinion when he felt he was in the right. When the National Health Insurance scheme was first under discussion there was a great deal of opposition in the North, but at a large and obviously hostile meeting Charles had the courage to get up and make a speech in support of what he conceived were some valuable features in what was then a novel scheme. About 1904 he began to interest himself in local government and served on the district council for some nine years. He was also for some years chairman of the local municipal association. In 1923 he was made a justice of the peace, and he took a great interest in his magisterial duties until well on in his seventies. He was also one of the originators and, for the long period of 44 years, the founder-chairman of the local building society.

He married the sister of his future partner in 1892, and his widow survives him. His family consists of two sons and a daughter. The sons both followed his profession, but the younger predeceased him in 1937; the elder took up a public health career, and is now in the Ministry of Health. Until a few months ago Dr. Charles enjoyed wonderful health and was able to carry on many of his activities. His death came suddenly and unexpectedly, and was a severe blow to the neighbourhood, where he was so well known, respected, and beloved.—G. G. T.

Dr. HERBERT HENRY WARREN died on Oct. 11 at the age of 67. A son of W. H. Warren, professor of engineering in the University of Sydney, he graduated at Birmingham in 1907, and after a period as resident medical assistant at Jaffray Hospital he settled in Portsmouth in 1909 in partnership with the late Dr. Marwood. During the 1914-18 war he served in the R.A.M.C. with the rank of major and was mentioned in dispatches. He had a lifelong connexion with the St. John Ambulance Association, and became county surgeon in 1942, being made an officer of the Order of St. John of Jerusalem only a few months ago. He had been secretary of the Portsmouth Division of the British Medical Association from 1925-7 and chairman from 1929-30. He was president of the Southern Branch in 1944-5, and on seven occasions had been a representative at annual meetings.

Dr. A. Brownlee writes: By the death of Mr. J. W. GEARY GRANT there has passed away one of the ablest surgeons associated with Cardiff. Geary, as we affectionately knew him, retired from active practice about a year ago to live in Weymouth. His health was failing when he left Cardiff. He began to get heart attacks, and it was obvious to his intimate friends that he could not go on for very long. The end came suddenly on Oct. 23, with symptoms of cerebral haemorrhage and cardiac failure. On his professional attainments I do not intend to dwell; these speak for themselves. He came to Cardiff Royal Infirmary in 1900 as resident medical officer. After a year's residency he went into general practice in Llanwrtyd-Wells for some years. Returning to Cardiff about 1909, he became assistant surgeon and later surgeon to the infirmary. He held many other appointments, including those of surgeon to Porth Hospital, Glan Ely Hospital, and several others. But it was of his private life that I wish to speak. Geary Grant was one of the straightest men I ever knew and was utterly incapable of performing a mean action of any kind. He will be sadly missed by his widow and daughters, to whom the deepest sympathy is extended in their loss.

## Medico-Legal

### CERTAINTY IN SURVIVORSHIP

[FROM OUR MEDICO-LEGAL CORRESPONDENT]

Since the new property legislation of 1925, where two or more persons die in circumstances which make it uncertain which of them survived the other or others, the deaths are presumed to have taken place in order of seniority and the court supposes, for the purpose of distributing the estate, that the younger survived the elder. The working of the rule was illustrated by the well-known cases in which a number of persons died in the same bomb explosion, and the House of Lords delivered a set of lengthy, highly involved, and conflicting judgments on whether two deaths can at law ever be simultaneous.<sup>1</sup> A recent case concerning not air-raid deaths but a double gas-poisoning dealt with the evidence required to prove certainty or uncertainty.<sup>2</sup>

An old couple were found by a neighbour dead in their kitchen, with the tap of the gas-oven slightly turned on and a cooked joint in the oven. The medical evidence was conflicting. Dr. John Taylor said that the blood of the husband, aged 83, was 57% saturated. He was healthy except for some cerebral atheroma. The wife, aged 75, was healthy except for granular kidneys, and her blood was 47% saturated. The witness therefore concluded that she had died first. The concentration of carbon monoxide in the blood tended to rise with the length of exposure and after death no more gas was absorbed; therefore, when two people were exposed to the same concentration, it was reasonable to suppose that the person with the higher concentration died later than the other. Dr. R. D. Teare said that errors might arise before a sample of blood reached the laboratory: the gas in the blood escaped, and so the analysis revealed a lower figure than it would have given at the time of death. The error varied with the amount of air left in the bottle, the degree of shaking of the bottle in transport, and the time intervals between death, the taking of the specimen, and the analysis. The concentration generally accepted as lethal was between 60 and 80%—much higher than that in either sample. He therefore said that Dr. Taylor's figures could not represent the concentrations in the bodies of the deceased persons at the time of death, that gas had been lost from both specimens, and that the figures were no guide to which of the two had died first.

Sir Bernard Spilsbury confirmed that 57% was a low saturation in a fatal case, and said he was very doubtful whether 42% saturation could cause death. The low concentrations raised a suspicion of a loss of gas from the samples before they were tested. This, he said, occurred readily unless the samples were collected with great care. Like Dr. Teare, he did not regard the tests as a reliable indication of which of the two died first: nor did he find any medical facts to indicate which would be likely to die before the other, except the greater age of the man. Dr. Taylor, in reply, testified that some gas might well have been lost during the two days between the taking and the testing of the samples. In any event, however, it was reasonable to suppose that both samples were affected to the same extent. The considerable difference between the two could not have been accounted for by anything that had happened after the death. He added that once the brain cells had been sufficiently damaged by the effect of the gas, death could occur even after all traces of gas had been removed from the blood. The degree of damage would depend on the period of exposure as well as on the concentration. For this reason the percentages of saturation were relatively significant and, apart from any other circumstances, indicated a strong probability that the wife died first.

The learned judge, Mr. Justice Jenkins, quoted some of the opinions of the Law Lords on the nature of "uncertainty" within the meaning of the section. Lord Simon had said that it was an uncertainty not removed by evidence leading to a definite and warranted conclusion. Lord Macmillan had said it denoted a reasonable element of doubt. The judge thought

<sup>1</sup> *Hickman v. Plessery*, 1945 A.C. 304.  
<sup>2</sup> *Re Bate*, 1947 2 All E.R. 418.

that, to come to a definite conclusion that the husband survived his wife, it was not enough for him merely to find that that was the more reasonable conclusion. He must come to a conclusion of fact on grounds that so far outweighed any grounds for a contrary conclusion that this could be ignored. He could not do so on the present evidence with its conflict of medical opinion. As there was no reliable ground on which he could find that either died before the other, the presumption must prevail that the younger, the wife, survived the elder, her husband.

## Medical Notes in Parliament

### Medical Organization in the Services

On Nov. 5 Dr. SEGAL asked when the Minister of Defence would institute a unified medical organization for the three Defence Services, in order to economize in manpower and medical supplies. Mr. ALEXANDER replied that, as he had said on July 9, it had not yet been established that the institution of a unified medical service was to be preferred to the maximum degree of co-ordination between the existing Services.

Sir HENRY MORRIS-JONES said officers of the R.A.F. and the Army wrote to the medical journals week by week to say they had nothing to do. (Under the heading "Working Day in the Services," letters have appeared in the *Supplement* of Oct. 18, p. 93; Nov. 1, p. 101; and Nov. 8, p. 113.)

Mr. ALEXANDER said he had seen such comments, but they did not agree with the advice given by the senior professional advisers. He added that steps were already being taken to co-ordinate the specialist services of the three Defence Forces.

**Release of Medical Officers.**—Col. STODDARD-SCOTT asked on Nov. 4 whether in view of the Government's decision to reduce the size of the Services Mr. Bevan would reduce the age limit of medical and graded specialists now liable to be conscripted up to the age of 40, in view of the shortage of specialists in civil life. He further asked Mr. Bevan if he would accelerate the release of doctors and dentists now serving with the Forces; and if he would assure the House that there was a proportionate reduction in the number of those now conscripted in view of the shortage of doctors and dentists in civilian practice. Mr. JOHN EDWARDS replied that Mr. Bevan was advised on the recruitment and release of doctors by the Medical Priority Committee under the Chairmanship of Dr. Haden Guest. He awaited its advice on the effect of the recently announced reductions in the size of the Forces.

**Veneral Disease.**—Dr. SEGAL on Nov. 4 asked for figures for the incidence of venereal disease among Army personnel in the United Kingdom and the various theatres overseas for each of the first three quarters of 1947. Mr. SHINWELL, in reply, circulated this table:

JANUARY-JUNE, 1947  
(Quarterly Rates per 1,000 Strength)

	1st Quarter	2nd Quarter
United Kingdom .. ..	5.2	5.5
Germany .. ..	36.4	34.8
Italy .. ..	23.7	34.1
Austria .. ..	36.8	34.7
Middle East .. ..	6.7	27.7
Far East .. ..	32.6	46.8
Japan .. ..	61.2	

Figures for the third quarter are not yet available. As a result of administrative changes, Middle East includes Malta and East Africa as from April 1, 1947. The sharp fall in the second quarter is at least partly attributable to a reduction in the number of troops in Greece, where the rate of venereal disease was high. The number of troops in Japan is small and sharp fluctuations are therefore to be expected.

**Calories.**—The most recent dietetic survey results (July, 1947) show an average intake of 2,287 calories for working class households from food eaten at home. The figure for July, 1946, was 2,282 calories.

**Calories Again.**—Dr. EDITH SUMMERSKILL said on Nov. 3 that the estimated national average calorie intake from all foods, rationed and unrationed, was 2,870 per head per day. Consumption by individuals within this total differed widely. To calculate the average daily calorie intake of rationed and points goods, and hence that of unrationed foods, would involve lengthy calculations which she did not think would be justified, since the result would have no relation to individual cases.

## Universities and Colleges

### UNIVERSITY OF OXFORD

In a Congregation held on Oct. 16 the following degrees were conferred:

B.M.—W. L. Gordon, G. E. Mann, N. C. Hughes Jones, O. M. Wong, Mrs. Mercy I. Healey, D. C. Bernstein (in absence).

### UNIVERSITY OF LONDON

The following awards have been made to students of the course for the Academic Diploma in Public Health at the London School of Hygiene and Tropical Medicine during the session 1946-7: *Chadwick Prize*, Dr. J. H. F. Brotherston; *Association of Industrial Medical Officers' Prize*, Dr. J. N. Morris; *Hecht Prize*, Dr. M. E. R. Balfour and Dr. T. McL. Galloway.

### UNIVERSITY OF EDINBURGH

At a Graduation Ceremony on Oct. 25 the degree of Ph.D. (in the Faculty of Medicine) was conferred on Y. Y. Akrawi, M.B., Ch.B., and the degree of B.Sc. in Pathology (in the Department of Pure Science) on G. M. Wilson, M.B., Ch.B. (with first-class honours) G. A. C. Summers, M.B., Ch.B., B.Sc., has been admitted to second-class honours in pathology, after graduation.

The following diplomas were granted:

D.P.H.—K. A. Brahmabhatt, \*V. D. R. Martin, \*J. A. Miller.  
DIPLOMA IN MEDICAL RADIOLOGY.—\*T. A. B. Mason.

\*In absentia.

### ROYAL COLLEGE OF SURGEONS OF ENGLAND

A series of lectures on anatomy, applied physiology, and pathology will be delivered at the College (Lincoln's Inn Fields, London, W.C.2) on Mondays to Fridays from Nov. 24 to Dec. 19, both dates inclusive, at 3.45 p.m. and 5 p.m. each day. The fee for the course is £10 10s.; but Fellows and Members of the College and Licentiates in Dental Surgery will be admitted for £8 8s. Admission cards may be obtained from the secretary of the Postgraduate Education Committee of the College.

A series of lectures in ophthalmology will be delivered daily at the College from Monday, Dec. 29, to Tuesday, January 13, 1948, at 5 p.m. (both dates inclusive, but Saturdays and Sundays excepted). The fee for the whole course is £5 5s. (single lecture, 10s.), but Fellows and Members of the College and Licentiates in Dental Surgery will be admitted for £3 3s. (single lecture, 7s. 6d.). Applications should be sent to the Secretary of the Postgraduate Education Committee of the College.

The Council of the College invites applications by Dec. 31 for the Sir William H. Collins Professorship of Human and Comparative Pathology, at a salary of not less than £2,000 per annum. Particulars and terms of appointment may be obtained from the Secretary of the College.

The Museum of the College in Lincoln's Inn Fields, London, W.C.2, is again available for the use of medical practitioners, medical students, etc. It is open daily from 10 a.m. to 5 p.m. (1 p.m. on Saturdays), but visitors are warned that on account of shortage of accommodation the Anatomy Museum is sometimes in use during parts of the afternoon for lectures or meetings. Revised catalogues are in course of preparation and in the meanwhile specimens are marked with descriptive labels.

The collections are still much depleted by enemy action, but the following series are sufficiently complete for exhibition: *Anatomy*.—On the ground floor in Room I specimens illustrating the nervous system and integument are arranged and labelled. (In the galleries of this room specimens illustrating other systems are available for study but are not yet permanently arranged or labelled.) *Pathology*.—Diseases of the skeleton; diseases of the nervous system; diseases of the alimentary system; teratology; a special group of selected Hunterian specimens. Other series are still so fragmentary that they are of little value to students.

### ROYAL COLLEGE OF PHYSICIANS OF LONDON

At a quarterly comitia of the College, held on Oct. 30, with the President, Lord Moran, in the chair, Prof. F. J. Nattrass, Dr. W. Russell Brain, and Dr. R. D. Curran were elected Councillors. The following were elected representatives of the College: Sir Adolphe Abrahams on the committee of management of the Conjoint Board; Dr. F. S. Langmead on the Central Midwives Board; Dr. G. President, Sir Leonard Parsons, Dr. H. E. A. Boldero, Dr. W. G. Barnard, and Sir Allen Daley on the standing joint committee of the three Royal Colleges; Dr. C. M. Hinds Howell, Dr. M. F. Shaw, Dr. J. B. Harman, and Dr. J. C. Hawksley on the Committee

of Reference; Dr. C. M. Hinds Howell and Dr. J. B. Harman on the Central Medical War Committee; Sir Arthur MacNalty on the Aliens Committee of the Central Medical War Committee (in succession to Sir Robert Hutchison who had resigned); and Dr. J. Hay (re-elected) on the court of governors of the University of Liverpool.

Dr. Marc Daniels was appointed Milroy Lecturer for 1949, his subject being "Tuberculosis in Post-war Europe."

The President announced that the Gilbert Blane Gold Medal for 1947 had been awarded to Surgeon Commander G. H. G. Southwell-Sander, R.N., and the Jenks Memorial Scholarship to M. B. Watts, late of Epsom College.

#### Memberships

The following candidates, having satisfied the Censors' Board, were elected Members of the College:

E. B. Adams, M.B.; G. F. Adams, M.D.; H. St. C. C. Addis, M.B.; K. D. Allanby, M.B.; H. Angelman, M.B.; R. C. Angove, M.B.; J. W. Beattie, M.D.; G. A. Bedwell, M.B.; R. B. Blacket, M.B.; P. J. A. Blaney, M.B.; J. J. Bourke, M.B.; W. H. Bradley, D.M.; J. F. Buchan, M.B.; G. MacG. Bull, M.D.; W. E. Church, M.B.; J. A. K. Cunningham, M.B.; G. R. Davies, M.B.; E. G. Donovan, M.B.; L. Eales, M.B.; V. Edmunds, M.B.; C. H. Edwards, L.R.C.P.; C. G. Fagg, M.B.; Elizabeth de C. Falle, M.B.; H. G. Farquhar, M.D.; E. Fletcher, M.D.; J. O. Forfar, M.B.; T. G. Fox, M.B.; P. Frankel, M.B.; E. S. Frazer, M.B.; A. Freedman, M.B.; O. Garrod, M.B.; J. W. Genard, B.M.; F. S. Gorrill, M.D.; H. J. Hambling, M.B.; H. C. Hamilton, M.B.; G. F. Harrison, M.B., Lieut.-Col., R.A.M.C.; M. F. Hart, M.B.; M. A. Hassanein, M.B.; Hung-chiu Ho, M.B.; Q. J. G. Hobson, B.M.; A. Hollman, M.B.; S. Hunter, M.B.; J. Jacobs, M.D.; D. Jamieson, M.B.; J. M. Jefferson, B.M.; P. B. Kunkler, M.B.; D. N. Lawson, M.B.; D. N. Leeming, L.R.C.P.; J. Lister, M.B.; K. R. Llewellyn, M.B.; P. M. Lohar, M.B.; B. McConkey, B.M.; J. P. McGladdery, M.D.; I. C. K. Mackenzie, M.B.; J. G. Millicap, M.B.; G. E. Milne, B.M.; J. N. Milnes, M.B.; C. H. Naik, M.B.; Catherine A. Neill, M.B.; S. G. Nelson, M.B.; M. H. Oelbaum, M.B.; J. F. Pantridge, M.D.; J. C. S. Paterson, M.B.; Florence R. Pillman, M.B.; J. B. Randall, M.B.; P. C. Reynell, B.M.; J. A. Robertson, M.B.; C. A. Rumball, L.R.C.P.; V. E. Sampson, M.B.; C. G. R. Sell, M.B.; M. L. Sharma, M.B.; J. R. Simpson, M.B.; J. F. P. Skrimshire, M.B.; J. S. Staffurth, M.B.; S. W. Stanbury, M.B.; I. McD. G. Stewart, M.B.; P. E. Sundi, L.R.C.P.; J. Sutcliffe, M.B.; P. H. Sulton, M.D.; R. D. Sweet, M.B.; B. Fitz A. Swynnerton, B.M.; P. E. D. S. Wilkinson, M.B.; I. P. Williams, M.B.; J. M. G. Wilson, M.B.; R. B. Wilson, M.B.; Joan D. Wrigley, M.B.; J. B. Wyon, M.B.; Judith C. M. Yuill, M.B.

#### Licences

Licences to practise were conferred upon 129 candidates (including 30 women) who have passed the final examination in Medicine, Surgery, and Midwifery of the Conjoint Board and who have complied with the by-laws of the College:

K. J. Adams, B. P. Appleby, D. E. Argent, E. M. P. Ball, T. W. Barnes, A. F. Barnett, D. W. G. Bartlett, R. W. A. C. Barton, Barbara Baxter, Kathleen M. Beth, A. Beck, Audrey Beder, Evelyn M. P. Bedwell, J. Bendas, Nancy L. C. Berry, J. B. Binks, T. D. Breninall, D. J. Brewer, Margaret L. M. Bridges, G. B. Brown, G. B. Burchell, Evangeline Burgess, A. R. P. Calder, Emily M. Collingridge, S. Compton, E. P. Cooke, M. H. D. Cooper, D. J. Cowan, I. W. Crown, D. M. Curtis, Phyllis Dagnall, E. T. Dakin, D. W. Davies, A. M. Dickinson, A. E. Dossetor, Evelyn S. Elliott, J. Elstrib, H. R. Erskine, E. J. Fairlie, G. F. Faulkner, R. A. W. Feakes, Rosalind Fellows, Margaret M. F. Fitzpatrick, Mary E. Forester, R. French, P. S. Gardner, F. P. A. Garton, J. Gay, M. Ghousuddin, N. M. Gibbs, Elizabeth M. Gost, D. B. Goss, G. Hacking, Jean Hansell, J. L. Hardman, M. A. Hassman, A. G. Henderson, Mary M. Herley, Miriam Hirtzel, Eleanor M. Hoole, J. B. Howard, Jean A. Infield, L. J. Ison, W. B. James, A. L. Jeanes, J. G. Jeffs, M. S. Johnson, C. Jones-Morgan, Ruth V. Kemp, D. W. Kennard, J. V. Kilby, Alwin C. B. Latham, W. C. Lathbury, R. H. N. Long, D. Lonsdale, Mary A. J. Lourie, K. N. H. Low, W. E. MacBean, D. Y. Mackenzie, D. L. M. McNeill, R. I. Maitland, D. N. Mitchell, D. C. Morley, Sybil M. Murray, Hannah Mushin, Selty S. Natayana, J. E. Noble, H. R. Odlum, E. G. Old, Barbara Oldham, J. H. H. Oliver, R. L. Osmond, R. D. Pearce, Eileen M. Pearson, L. Phillips, B. G. Pickles, A. Pilling, J. S. Porterfield, F. Rassim, W. H. Rees, M. C. T. Reilly, Doreen M. Reside, P. W. H. Robinson, D. J. H. Rogers, J. R. Scholey, B. K. Scott, Margot Shiner, Elisabeth Shoenberg, R. Sloman, R. I. L. Smallwood, C. W. Smith, P. H. A. Sneath, D. J. R. Snow, W. Spector, H. B. Stafford-Kemp, D. P. P. Thomas, B. Towers, E. J. Trimmer, D. K. Tucker, Betty M. L. Underhill, J. H. B. Urmonst, C. W. J. Usher, J. K. Walker, A. L. Farlow, B. M. Watney, F. E. Weale, J. S. Weiner, A. W. Weller, H. D. Yauner.

#### Diplomas

The following diplomas were conferred jointly with the Royal College of Surgeons of England:

DIPLOMA IN CHILD HEALTH.—Isabella M. Almond, L. Apter, M. W. Arthurton, N. C. Begg, Marjorie Bell, P. C. Bhattacharjee, Evelyn L. Billings, Ruth Blackwood, M. P. Bourke, Phyllis E. M. Bowen, Rosemary R. M. Brawmore, Lilian M. Burdiche, Angela E. D. Burns, Mary W. Coxon, D. G. Crawshaw, Agnes A. Crone, D. E. Cullington, Enid Curran, J. E. A. David, Gwendoline E. Davidson, G. K. Dharwal, E. M. Dimock, D. Eglin, H. H. A. Elder, Norah C. Elphinstone, B. E. G. In, H. C. Falcke, O. D. Fisher, S. Ghosh, Mary E. Goodson, R. R. Gordon, Muriel D. Graham, J. Griffith, D. Hilson, Helen C. Humphreys, S. Hunter, A. F. Huston, Margaret Inglish, H. Isenberg, I. P. Jaffe, R. T. Jenkins, S. T. H. Jenkins, G. G. Jones, Megan P. Jones, R. S. Jones, Amy K. Jungswalla, S. E. Keldan, J. J. Kempton, I. Kessel, Beryl E. Lewis, Joyce R. Lewis, J. M. Librach, D. Macaulay, Grace E. McClafferty, W. E. MacLean, R. F. Mages, Margaret D. C. Martin, J. D. H. Matthews, W. R. May, Kate Menashe, J. A. W. Miller, W. J. Moffett, N. G. Mojmudat, I. Morris, Sheila M. Murray, T. N. Nauth-Muir, Sheila M. Niall, L. Pannall, Diana G. Paradise, C. V. Patel, I. E. Phelps, Rosa M. Pigott, J. N. A. Pritchard, H. S. Provis, Margaret Readman, P. A. H. Rivett, Cecilia M. Robinson, Sheenah J. McK. Russell, E. Sanders, M. J. A. Sandström, S. S. Schmulian, Elizabeth M. Sefton, J. Shein, S. C. Sherif, Rosemary J. S. Siegel, J. C. Simson, Margaret Slater, Evelyn A. Souter, M. Stein, J. MacP. Stuart, J. H. Tan, Sheila R. Tange, W. F. J. M. Thom, P. A. Thorp, R. B. Tull, G. S. Udall, Elizabeth G. Vaughan, C. K. J. Vautier, Glenys J. Wade, B. D. R. Wilson, Lydia A. Wilson, E. R. Winton, B. Wolman, L. G. Woods, Marjorie Wright, T. Wright.

DIPLOMA IN OPHTHALMIC MEDICINE AND SURGERY.—E. Heffernan, J. McClelland, and those whose names were printed in the *Journal* of Oct. 11 (p. 593).

DIPLOMA IN TROPICAL MEDICINE AND HYGIENE.—The names of the successful candidates for this diploma were published in the *Journal* of Aug. 23 (p. 313) and Oct. 11 (p. 593).

DIPLOMA IN MEDICAL RADIO-DIAGNOSIS.—I. Ap Thomas, E. Batley, J. L. Boldero, J. S. Campbell, P. S. G. Campbell, A. F. Crick, C. G. Edwards, J. B. Fawcitt, D. Hector-Jones, A. K. Lamballe, M. W. H. Mackay, Elsie L. Mettam, W. R. Parker, J. N. Pattinson, E. N. Pearlman, S. P. Rawson, D. Sutton, B. W. Thomas, J. M. W. Wells, C. G. Whiteside.

DIPLOMA IN MEDICAL RADIOLOGY.—K. W. Beetham, D. G. Bratherton, E. C. Easson, J. M. W. Gibson, H. Holden, K. S. Khambata, N. S. Lockyer, J. Li. E. Millen, T. K. Morgan, B. A. Stoll.

DIPLOMA IN PUBLIC HEALTH.—A. MacFarlane.

DIPLOMA IN LARYNGOLOGY AND OTOTOLOGY.—B. Cohen.

DIPLOMA IN PHYSICAL MEDICINE.—A. C. Boyle, M. C. Woodhouse, A. Zinovieff.

#### ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW

Prof. John Morley, F.R.C.S., will deliver the Dr. John Burns Lecture in the Hall of the Faculty (242, St. Vincent Street, Glasgow) on Wednesday, Nov. 19, at 5 p.m. His subject is "Abdominal Pain as an Aid to Diagnosis in Abdominal Disease."

At the annual meeting of the Faculty the following officers were elected for the ensuing year: *President*, Dr. Geoffrey B. Fleming; *Visitor*, Dr. William R. Snodgrass; *Honorary Treasurer*, Mr. Walter W. Galbraith; *Honorary Librarian*, Dr. Archibald L. Goodall; *Representative on General Medical Council*, Mr. Andrew Allison.

#### EPIDEMIOLOGICAL NOTES

##### Poliomyelitis

The decline in notifications continued, and in the week ended Nov. 1 there were 221 (251) cases of poliomyelitis and 22 (29) cases of polio-encephalitis. It now seems probable that incidence will remain at a much higher level than is usual in winter for the remainder of the year, as the decline in prevalence is considerably less steep than was the rise.

In the week ended Oct. 25 no large variation from the preceding week was recorded in individual areas; the largest decline was 11 in Lancashire. The largest returns were those of the county boroughs of Birmingham 9, Salford 7, Manchester 4, Northampton 4, and Croydon 4. Four cases of polio-encephalitis were notified from Gloucestershire, Lydney R.D.

##### Cholera in Egypt

The cholera epidemic which began at El Kurein, a village in Sharkya Province, on Sept. 22 appears to have passed its peak. There are now fewer than 150 deaths and 300 new cases reported daily, as against 400 deaths and 800 cases a few weeks ago.

The present epidemic and the steps taken to control it are reviewed in the *Chronicle of the World Health Organization* (October, p. 141). Energetic measures taken by the Egyptian Government, summarized under 28 headings, and the co-operation of other governments confined the epidemic during its first weeks to a relatively small area in the Nile Delta. Not till Oct. 16 and 17 were cases reported from Kena and Beni Suef (Upper Egypt). The total cases and deaths notified provisionally were:

Week Ending	Cases	Deaths
Sept. 29 .. .. .	523 .. .. .	156 .. .. .
Oct. 6 .. .. .	859 .. .. .	378 .. .. .
Oct. 13 .. .. .	1,303 .. .. .	551 .. .. .
Oct. 20 .. .. .	4,566 .. .. .	2,075 .. .. .
	7,281 .. .. .	3,160 .. .. .

The meeting of the Expert Committee on Quarantine of W.H.O. was held during Oct. 13-16 instead of on Nov. 24 so that problems arising from the cholera epidemic might be discussed. The question of an international certificate to avoid revaccination of a traveller and quarantine restrictions were discussed and a formula agreed upon. The committee were opposed to the issue for persons travelling on urgent business of the wartime "Provisional International Certificate," since this might break down the international system of quarantine protection. Quarantine procedure and the health regulations governing air travel were described by R. H. Barrett in our issue of Nov. 8 (p. 741). A discussion on the epidemiology of cholera is reported elsewhere in this issue (p. 785).

So far 1,400,000 doses of cholera vaccine have been sent from this country to Egypt, most of it manufactured in September and October. The War Office supplied 25,000 ml. to the Egyptian Air Force; 220,000 ml. were sent to G.H.Q., Middle East, and to the Embassy in Cairo for inoculating members of the Forces and British civilians. The balance

was supplied by British firms to the order of the Egyptian Government.

There have been no cases of cholera among British troops in Egypt, but there have been two cases among native African troops under British command.

A report that a case of cholera has been diagnosed at Dubai Air Station on the Persian Gulf has not yet been confirmed.

### Typhoid at Harrow

On Sept. 10 one child fell ill in a Harrow nursery which houses 25 children, all under 5, and all the sons and daughters of European refugees. The nursery is a building not properly adapted for its purpose. On Sept. 20 the child was admitted to hospital, and on Sept. 23 the diagnosis of typhoid fever was confirmed bacteriologically. All admissions to the nursery were stopped, and 13 children and two members of the staff were admitted to hospital for investigation. There were some cases of gastro-enteritis, and altogether 4 cases of typhoid. The source of the infection is believed to have been the mother of a child who was not affected. The mother works at a convalescent home outside Harrow, and Vi-phage type F1 bacilli were found in her case, as in the 4 patients, though in one child only the sixth examination of the stools proved positive.

### Influenza Control in U.S. Army

Vaccination of all U.S. Army personnel began last month, and those entering the service before April, 1948, will receive influenza vaccine along with their initial immunizations. Precautions will be taken to avoid administering influenza vaccine to men with a history of egg allergy. Suspected outbreaks of the disease occurring in a military installation or command are to be reported to the Surgeon General. Laboratory tests will be made in the field on early cases. In addition to the A and B viruses the vaccine contains an A-variant cultured from the distinctive type of influenza that occurred at Fort Monmouth, New Jersey, last year. It is possible that other new strains may be demonstrated this year.

### Discussion of Table

In *England and Wales* an increase was reported in the incidence of dysentery 294, measles 184, scarlet fever 100, and diphtheria 36. There were decreases in the number of notifications of acute pneumonia 49, poliomyelitis 25, paratyphoid fever 13, and cerebrospinal fever 10.

The large rise in the notifications of dysentery was due to an outbreak involving 260 persons in Berkshire, Wallingford R.D. The other large returns for dysentery were Surrey 15, Lancashire 16 (Liverpool C.B. 13), and Yorkshire West Riding 12 (Aireborough U.D. 8).

The only large rises in the incidence of measles were those in Northamptonshire 42, and Yorkshire West Riding 36. Little change occurred in the local incidence of scarlet fever. The only fluctuation of any size was an increase of 44 in Lancashire. The returns for diphtheria were the largest for 30 weeks: the largest increases during the week were Durham 14, and Middlesex 11. Notifications of whooping-cough remained practically unchanged, except for a decrease of 33 in Essex.

In *Scotland* decreases were recorded in the incidence of dysentery 17, diphtheria 15, and cerebrospinal fever 5, while increases were reported for acute primary pneumonia 54, scarlet fever 41, whooping-cough 26, and measles 21. Five further cases of dysentery were notified from the outbreak in Aberdeen county, where 22 cases were reported in the preceding week. The largest return for dysentery during the week was Edinburgh 13. The fall in the incidence of diphtheria was in the Western area. The increase in cases of scarlet fever and acute primary pneumonia was mainly due to the experience of the city of Glasgow. An outbreak of whooping-cough in the city of Dundee accounted for the increase in this disease.

In *Eire* an increase was recorded in the notifications of measles 21 and typhoid fever 14, and a decrease for diarrhoea and enteritis 17. A small rise in the notifications of measles was general throughout the country districts. Of the 17 cases of typhoid fever 6 were notified in Monaghan, Castletown R.D.

In *Northern Ireland* the only variation of any size in the returns of infectious diseases was a decrease of 9 for measles.

### Week Ending November 1

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,529, whooping-cough 1,037, diphtheria 178, measles 2,052, acute pneumonia 502, cerebrospinal fever 39, acute poliomyelitis 221, acute poliomyelitis 22, dysentery 126, paratyphoid 15, and typhoid 4.

## INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Oct. 25

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included), (b) London (administrative county), (c) Scotland, (d) Eire, (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London), (b) London (administrative county), (c) The 16 principal towns in Scotland, (d) The 13 principal towns in Eire, (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1947					1946 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever .. ..	34	1	19	—	1	28	1	18	1	—
Deaths .. ..	—	—	1	—	—	—	—	—	—	—
Diphtheria .. ..	238	24	49	13	4	314	16	92	36	1
Deaths .. ..	3	1	—	—	—	3	—	1	2	—
Dysentery .. ..	340	3	30	—	1	59	18	32	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Encephalitis lethargica, acute .. ..	—	—	2	—	—	1	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Erysipelas .. ..	—	—	32	12	3	—	—	32	1	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Infective enteritis or diarrhoea under 2 years .. ..	—	—	—	84	—	—	—	—	52	—
Deaths .. ..	69	7	13	12	4	36	4	12	3	—
Measles* .. ..	1,981	41	105	213	2	2,884	105	162	69	—
Deaths .. ..	—	—	—	—	—	2	—	1	—	—
Ophthalmia neonatorum .. ..	53	7	13	1	—	68	5	20	2	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Paratyphoid fever .. ..	3	—	1 (B)	—	—	89	1	—	—	1 (B)
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenza .. ..	482	33	5	2	2	436	32	6	1	—
Deaths (from influenza)† .. ..	12	2	1	—	—	13	1	2	—	—
Pneumonia, primary .. ..	—	—	238	21	—	—	—	190	17	—
Deaths .. ..	—	30	7	6	—	—	22	—	—	13
Polio-encephalitis, acute .. ..	29	4	—	—	—	2	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Poliomyelitis, acute .. ..	251	23	54	6	7	31	3	5	8	1
Deaths .. ..	—	2	—	—	—	—	—	—	—	—
Puerperal fever .. ..	—	2	16	—	—	—	4	19	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Puerperal pyrexia‡ .. ..	125	12	3	2	1	160	11	10	2	2
Deaths .. ..	—	1	—	—	—	—	—	—	—	—
Relapsing fever .. ..	—	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Scarlet fever .. ..	1,452	132	308	73	58	1,209	103	262	45	45
Deaths .. ..	—	—	—	1	—	—	—	—	—	—
Smallpox .. ..	—	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Typhoid fever .. ..	4	—	2	17	—	9	1	2	2	12
Deaths .. ..	1	—	—	1	—	1	—	—	—	—
Typhus fever .. ..	—	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Whooping-cough* .. ..	1,003	78	54	30	1	1,499	94	143	37	47
Deaths .. ..	1	1	—	3	—	4	—	—	—	—
Deaths (0-1 year) .. ..	354	39	61	35	15	391	45	57	19	15
Infant mortality rate (per 1,000 live births) .. ..	—	—	—	—	—	—	—	—	—	—
Deaths (excluding stillbirths) .. ..	4,364	729	578	177	93	4,157	604	591	165	125
Annual death rate (per 1,000 persons living) .. ..	—	—	12.0	11.2	—	—	—	13.0	—	—
Live births .. ..	7,765	1290	1018	429	237	8,883	1403	1097	324	211
Annual rate per 1,000 persons living .. ..	—	—	20.5	27.1	—	—	—	22.1	—	—
Stillbirths .. ..	254	32	24	—	—	265	26	24	—	—
Rate per 1,000 total births (including stillborn) .. ..	—	—	23	—	—	—	—	23	—	—

\* Measles and whooping-cough are not notifiable in Scotland, and the figures are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire



## Medical News

### National Insurance for the Self-employed

Speaking at the London Rotary Club on Nov. 5, Mr. James Griffiths, Minister of National Insurance, said that in the great majority of cases self-employed men would be coming into national insurance for the first time. The scheme would come into force next July, and, unlike the present unemployment, health, and pensions schemes, would cover everyone, whether working for an employer or not. There would be three classes: (1) those employed under a contract of service—no matter how high their salaries; (2) those gainfully occupied on their own account—the self-employed; and (3) those who are not gainfully occupied in any way. For each class there would be different contributions and benefits. The self-employed included street hawkers, small shop keepers, some independent artisans, many of the professional classes, the heads of businesses, and partners in businesses.

Everyone who was not already insured under either the health, pensions, or unemployment schemes would have to register early next year. The self-employed man would get his contribution card, and when the scheme started in July he would have to stamp that card each week. That weekly stamp was his contribution to the scheme. The Class 2 contributions were 6s. 2d. for a man and 5s. 1d. for a woman each week. Now what would the self-employed man or woman get in return for these contributions? The bare list was: sickness benefit, maternity benefit for his wife, benefit for his widow if he died, guardian's allowance for his children if both parents died, retirement pension in old age, and death grant to help with the funeral expenses. The right to benefit of course depended on his having fulfilled the contribution conditions for each benefit.

### Award for B.C.G. Research

Dr. Joseph Aronson, of the U.S. Bureau of Indian Affairs, has been awarded the Alvarenga prize by the College of Physicians of Philadelphia for his studies on the evaluation of B.C.G. vaccine in the control of tuberculosis. Pedro Francisco da Costa Alvarenga, of Lisbon, an associate fellow of the College, made arrangements in his will for the prize "to be awarded annually by the College of Physicians on each anniversary of the death of the testator, July 14, 1883."

### Fuel Allowance for Tuberculous

The Joint Tuberculosis Council has adopted a resolution asking the Minister of Health to reconsider as a matter of urgency the fuel allowance for the families of tuberculous persons in view of the steep rise in fuel prices since the original scale was fixed.

### Supply of Penicillin

Until recently about 40% of the penicillin produced in this country was exported, but owing to the fact that complaints of shortages have been received exports are now restricted to 30% of production. The amount of penicillin manufactured continues to increase, and was in August 409,000 mega units, as compared with 344,000 in March. Owing to the increasing demand for larger vials, distributors of penicillin have found difficulty in complying with orders from hospitals, and the Ministry of Health requests, therefore, that if only the smaller sizes are available they should be used. Only a small proportion of the penicillin being produced at the moment is white (or crystalline), and, since it is much more expensive than the yellow variety, the Ministry suggests that it should be reserved for intrathecal, ventricular, and subconjunctival administration.

### Storage of Penicillin

The useful life of dry penicillin will probably exceed the expiry date shown on the package if the instructions for storage are complied with. Solutions should be kept in a refrigerator. It is destroyed by acids and alkalis; by metals such as zinc, lead, copper, and aluminium. It is inactivated by the primary alcohols, and by oxidizing agents such as hydrogen peroxide and potassium permanganate. Prolonged boiling destroys it, but it is not affected by heating to 60° or 70° C. for several minutes.

### Bristol's Old People

A conference on the care of old people, arranged by the Bristol and District Divisional Hospitals Council and the Bristol Council of Social Service, was held at Bristol University on Oct. 29. It was resolved that the Council of Social Service should investigate the conditions under which the aged and infirm are living in the city, and what might be done to improve them, and that the Divisional Hospitals Council should discuss with the University the possibility of their undertaking a survey to measure the size of the problem.

### International Pharmacopoeia

Arrangements for an international pharmacopoeia have been made at a Geneva meeting of the World Health Organization of the United Nations, states Dr. C. H. Hampshire, secretary of the Pharmacopoeia Commission.

### Inquiry into Hospital

The Minister of Health has appointed Mr. V. Zachary Cope and Miss M. F. Dykes, S.R.N., to hear the appeal announced in Parliament and reported in this *Journal* on Nov. 8 (p. 752) by the London County Council against the decision of the General Nursing Council to withdraw recognition of St. Leonard's Hospital, Shoreditch, as a nurses' training school. The appeal will be heard on Nov. 18 at the Ministry of Health.

### Public Health in Russia

The public health authorities in Moscow claim that prophylactic measures have rendered typhus extremely rare and smallpox non-existent in Russia. A network of air-ambulance services is being extended even to remote villages, and special attention is being given to the public health problems found in rural districts.

### Wills

Dr. John Thomson MacCurdy, lecturer in psychopathology in the University of Cambridge, left £30,557. Dr. Henry Litherland, formerly of Wigan, left £4,249. Dr. Harold Edwards Flint, for many years a C.M.S. medical missionary, left £54,410. Dr. James Harrison, of North Shields, an alderman of the Tynemouth Council, left £36,968. Dr. Edgar Alfred Field, for many years in practice in Darwen, Lancs, left £494. Dr. Henry Carter, late of Ripon, left £69,997.

## COMING EVENTS

### Ernest Jones Lecture

The British Psycho-Analytical Society invites all members of the medical profession to attend the annual Ernest Jones lecture entitled "Science and Belief" which will be given by kind permission of the Royal Society of Medicine in the Barnes Hall at 1, Wimpole Street, London, W., on Wednesday, Nov. 19, at 8 p.m., by Prof. C. H. Waddington, F.R.S.

### London Association of M.W.F.

The annual general meeting of the London Association of the Medical Women's Federation will be held at the Royal Free Hospital School of Medicine, 8, Hunter Street, London, W.C., to-day (Saturday, Nov. 15), at 3 p.m.

### Royal Microscopical Society

A meeting of the Royal Microscopical Society, which will be devoted to communications on "Electron Microscope Studies of Tissues from High- and Low-breast Cancer Strains of Mice," will be held at B.M.A. House, Tavistock Square, London, W.C., on Wednesday, Nov. 19, at 5 p.m. for 5.30 p.m. Prof. R. D. Passey, M.D., will present a general introduction to the subject and will be followed by Dr. L. Dmochowski, Prof. W. T. Astbury, Sc.D., F.R.S., and Dr. R. Reed.

### Radiological Meetings in London

A meeting of the Therapy Section of the Faculty of Radiologists will be held at the Royal College of Surgeons of England (Lincoln's Inn Fields, London, W.C.) on Friday, Nov. 21, at 2.15 p.m., when there will be a discussion on "Carcinoma of the Vulva," to be opened by Prof. E. Berven (Stockholm), Miss M. C. Tod, and Dr. Frank Ellis. The Radiological Section of the Royal Society of Medicine will meet at 1, Wimpole Street, London, W., on the same day at 8.30 p.m., when Prof. Berven will discuss "Methods and Results in the Radiological Treatment of Malignant Tumours in the Radiumhemmet, Stockholm."

### Royal Sanitary Institute

A sessional meeting of the Royal Sanitary Institute will be held at Dewsbury Town Hall on Saturday, Nov. 22, at 10.15 a.m., when Dr. E. D. Irvine will read a paper on "The Local Authority and the Promotion of Health."

### Middlesex County Medical Society

The next general meeting of the Middlesex County Medical Society will be held at the Royal National Orthopaedic Hospital, Stanmore, on Friday, Nov. 28, when there will be visits to the hospital school, cripples' workshops, and a demonstration of physiotherapeutic apparatus. Short papers will be read by Mr. John A. Cholmeley, medical superintendent of the Hospital's Country Branch, on "The Management of Anterior Poliomyelitis—Early and Late," and by Dr. J. O. F. Davies on "Epidemiology of Anterior Poliomyelitis."

## SOCIETIES AND LECTURES

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East, S.W.—Tuesday, Nov. 18, and Thursday, Nov. 20, 5 p.m. Croonian Lectures by Dr. E. R. Boland: The Administration of Medicine.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, London, W.C.—Friday, Nov. 21, 5 p.m. Thomas Vicary Lecture by Dr. I. Harvey Flack: Lawson Tait.

## ROYAL SOCIETY OF MEDICINE

General Meeting of Fellows.—Tuesday, Nov. 18, 5.30 p.m. Ballot for election to the Fellowship.

Section of Pathology.—Tuesday, Nov. 18, 8 for 8.30 p.m. Laboratory Meeting at the Royal Army Medical College, Johnslip Street, Millbank, S.W.—Demonstrations by Lieutenant-Colonel J. T. L. Archer: 1. Typhoid Vi Phage; 2. Action of Polyvalent Dysentery Phage Correlated with Agglutination Tests as a Diagnostic Stile; 3. Preservation of Phage by Chemical Agents. Major A. C. Cunliffe: Plate Methods of Demonstrating Bacterial Proteolysis. Lieutenant-Colonel J. A. Manifold: Tropical Anaemias. Lieutenant-Colonel E. W. Hall: The Manufacture of Alcoholized T.A.B. Vaccines. Major K. B. Rogers: An Explanation of Some Discrepancies in "Sedimentation Rates." Major G. B. S. Roberts: Cerebral Tumours and Brain Injuries. Mr. Leach: Malaria Demonstration, Helminthology Demonstration, Visual Aids in Teaching. Major A. R. T. Lundie: "Quiz." Mr. J. H. Grundy: Arthropoda and Other Animals of Medical Importance and Visual Aids in Entomological Teaching.

Section of Dermatology.—Thursday, Nov. 20, 5 p.m. (Cases at 4 p.m.)

Section of Obstetrics.—Friday, Nov. 21, 8 p.m. Short Paper by Prof. James Miller and Prof. Chassar Moir: A Note on the Centenary of the Use of Anaesthesia in Obstetric Practice by J. Y. Simpson. Communications by Dr. J. Dumoulin: Cervical Proliferation in Pregnancy Resembling Carcinoma; Dr. Magnus Haines: Pregnancy and Adenomyoma; Mr. Ian Jackson: Two Cases of Carcinoma of the Bartholin's Glands; Dr. D. Jeffries: A Practical Problem in the Differential Diagnosis of Endometriosis; Dr. T. L. T. Lewis: Pregnancy and Colostomy; Dr. D. S. Matthews: Case of Intestinal Obstruction in Pregnancy; Dr. P. Mitchell: Case of Fibroma and Granulosa-cell Tumours Occurring in the Same Ovary; Mr. John Thurston: A Bacteriological Symphony; and Dr. S. H. Ritterband: Unusual Case of Dermoid Cyst in Puerperium.

Section of Radiology.—Friday, Nov. 21, 8.30 p.m. Paper by Dr. Elis Berven (Stockholm): Methods and Results in the Radiological Treatment of Malignant Tumours in Radiumhemmet.

BRISTOL UNIVERSITY.—At Large Physics Lecture Theatre (Royal Fort), Bristol University, Tuesday, Nov. 18, 8.15 p.m. XXXVI Long Fox Memorial Lecture by Prof. G. Hadfield: Subacute Bacterial Endocarditis. Admission to the lecture is free.

BRITISH INSTITUTE OF PHILOSOPHY.—At Eugenics Theatre, University College, Gower Street, London, W.C., Friday, Nov. 21, 7.30 p.m. Prof. E. A. Milne: The Present Outlook in the Astronomical Universe.

EUGENICS SOCIETY.—At Royal Society's Rooms, Burlington House, Piccadilly, London, W., Tuesday, Nov. 18, 5.30 p.m. G. C. L. Bertram, M.A., Ph.D.: Eugenics, Population Trends, and the World's Resources.

HUNTERIAN SOCIETY.—At Apothecaries' Hall, Black Friars Lane, Queen Victoria Street, London, E.C., Monday, Nov. 17, 8.30 p.m. Motion: That Our Present Diet is Undermining the Health of the Nation. Proposed by Drs. Franklin Bicknell and Kenneth McFadyean; opposed by Sir Jack Drummond and Mr. Magnus Pyke.

INSTITUTE OF DERMATOLOGY, 5, Lisle Street, Leicester Square, London, W.C.—Tuesday, Nov. 18, 5 p.m. Dr. M. Sydney Thomson: Parasitic Affections—Animal and Vegetable. Wednesday, Nov. 19, 5 p.m. Dr. C. W. McKenny: X-ray Technique.

LEEDS AND WEST RIDING MEDICO-CHIRURGICAL SOCIETY.—At Leeds General Infirmary, Friday, Nov. 21, 8.30 p.m. Prof. H. J. Seddon: A History of Scrofula.

LONDON: UNIVERSITY COLLEGE, Gower Street, W.C.—Tuesday, Nov. 18, 5.15 p.m. Dr. Bernard Katz: Transmission of Impulses from Nerve to Muscle.

ROYAL INSTITUTE OF PUBLIC HEALTH AND HYGIENE, 28, Portland Place, W.—Wednesday, Nov. 19, 3.30 p.m. Mr. L. Z. Cosin: Modern Methods in the Care of the Aged (illustrated).

ROYAL MEDICAL SOCIETY, 7, Melbourne Place, Edinburgh.—Friday, Nov. 21, 8 p.m. Dissertation by Mr. C. W. M. Wilson: Ancient and Modern Views on Water Metabolism.

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE.—At London School of Hygiene and Tropical Medicine, Keppel Street, W., Thursday, Nov. 20, 7.30 p.m. Laboratory meeting: Demonstrations.

## POSTGRADUATE DIARY

EDINBURGH ROYAL INFIRMARY.—Thursday, Nov. 20, 4.30 p.m. Honyman Gillespie Lecture by Mr. J. N. J. Hartley: The Story of a Museum

INSTITUTE OF LARYNGOLOGY AND OTOLGY, 330-332, Gray's Inn Road, London, W.C.—Tuesday, Nov. 18, 2.15 p.m. Dr. E. H. R. Harnes: Respiratory Tract in Infectious Diseases.

LONDON CHEST HOSPITAL, Victoria Park, E.—Friday, Nov. 21, 5 p.m. Mr. V. C. Thompson: Mediastinal Tumours.

ROYAL COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS, 58, Queen Anne Street, W.—Monday, Nov. 17, 5 p.m., Dr. K. V. Ball: Treatment of Prolapse in the Child-bearing Age; Tuesday, Nov. 18, 5 p.m., Prof. R. J. Kellar, Toxaemia of Pregnancy; Wednesday, Nov. 19, 5 p.m., Mr. C. D. Read, Choice of Treatment in Carcinoma of the Cervix; Thursday, Nov. 20, 5 p.m., Prof. H. Sheehan, Pathology of Obstetric Shock; Friday, Nov. 21, 5 p.m., Dr. G. Marshall, Survey of Pregnancy Associated with Pulmonary Tuberculosis. Admission to lectures by ticket only. Fees: 10 lectures, £2 2s.; single lecture, 10s. 6d.

## APPOINTMENTS

Dr. D. Campbell has been elected vice-chairman of the St. Helens Executive Council and, for the thirteenth consecutive year, chairman of the St. Helens (National Health) Insurance Committee.

CANT, WILLIAM H. P., M.B., B.S., M.R.C.P., Physician to Out-patients Children's Hospital, Birmingham.

CONNOLLY, EUGENE V., M.B., B.Ch., D.P.H., D.C.H., Medical Officer Health, Borough of Oldbury, Worcestershire.

LONDON COUNTY COUNCIL.—The following appointments have been made to the Council's mental health services at the hospitals indicated in parentheses: Senior Registrar, F. Kraupl, M.D., D.P.M., and J. H. Rey, M.B., B.S. (Maudsley Assistant Pathologist, C. K. McDonald, M.B., Ch.B., D.P.H. (Epsom Pathology Laboratory); Assistant Physician, F. Post, M.B., B.S., M.R.C.P., D.P. (Maudsley). The following appointments have been made in the London School Health Service: Assistant Medical Officer, C. B. Grimaldi, B.M., B.Ch.; Part-time Consultant Psychiatrist, W. Lindesay Neustatter, M.D., M.R.C.P.

MIDDLESEX HOSPITAL, W.—Professional Medical Unit: First Assistant, J. Paulley, M.D., M.R.C.P.; Second Assistant, R. Semple, M.B., Ch.B., M.R.C. Professional Surgical Unit: First Assistant, R. S. Lawrie, M.D., F.R.C. Second Assistant, L. P. Le Quesne, B.M., B.Ch., F.R.C.S. Senior Assistant Department of Thoracic Surgery, G. C. L. Pile, M.S., F.R.C.S.

PHILPS, A. SEYMOUR, F.R.C.S., Assistant Ophthalmic Surgeon, St. Bartholomew's Hospital, London, E.C.

ROTH, M., M.D., M.R.C.P., Senior Psychiatrist, Crichton Royal Mental Hospital, Dumfries.

WHELTON, W. F., M.Ch., N.U.I., F.R.C.S. (Ed.), Honorary Surgeon to Eye Department, North Infirmary, Cork.

## BIRTHS, MARRIAGES, AND DEATHS

## BIRTHS

DERRETT.—On Oct. 16, 1947, at Fernwood House, to Pearl (née Penith), M.B.S., wife of Rev. L. J. Derritt, a son.

GERRIE.—On Nov. 2, 1947, at Rubislaw Nursing Home, Aberdeen, to Mr. Mrs. John Gerrie, twins—a son and daughter.

McGOWAN.—On Nov. 4, 1947, at St. Brenda's Nursing Home, Bristol, Dr. Rosalind S. McGowan (née Barclay), wife of Dr. G. K. McGowan, daughter.

## MARRIAGE

DENT—TEMPLETON.—On Nov. 1, 1947, at Aberdeen, Ronald V. Dent, M.M.R.C.P., to Maty A. Templeton, M.B.

## DEATHS

BARNES.—On Nov. 1, 1947, at Greentree, Collyton, Devon, Henry John Barnes, M.R.C.S., Lieutenant-Colonel, R.A.M.C. (retired).

BIRKETT.—On Oct. 28, 1947, at The Ghyll, Grange-over-Sands, George Thomas Birkett, L.R.C.P., L.R.C.S. (Ed.).

BRAMWELL.—On Oct. 30, 1947, at Richmond, Yorkshire, Dan Cunningham Byrom Bramwell, M.B., Ch.B., aged 30.

BURGHARD.—On Oct. 31, 1947, at 7, Causewayside, Cambridge, Frédéric Henri Burghard, C.B., M.D., F.R.C.S., Colonel, R.A.M.C., aged 83.

DOWDING.—On Nov. 7, 1947, at 17, Westex Gardens, London, N.W., Frederick Charles Dowding, M.R.C.S., late Major, R.A.M.C., aged 73.

DURRANT.—On Oct. 30, 1947, at Walmer, Norbert Sidney Durrant, L.R.C.P. (A). Goble.—On Nov. 1, 1947, at Chidham Cottage, Hayling Island, First George Goble, M.R.C.S., L.R.C.P., Surgeon-Captain, R.N. (retired).

GREEN.—On Oct. 31, 1947, Edgar Francis Stephen Green, M.B., Ch.B. GREGORY.—On Oct. 31, 1947, in Woodleigh, Bramhall, Cheshire, Arnold Gregory, M.R.C.S., L.R.C.P., aged 68.

HAIO.—On Nov. 2, 1947, at Crieff, William Haio, T.D., D.S.O., M.B., C.M. HOWKINS.—On Oct. 30, 1947, Cyril Henry Howkins, C.B.E., D.S.O., M.R.C.L.R.C.P.

HUNTER.—On Nov. 7, 1947, at Thirladene, Bridge of Allan, Walter King Hunter, M.D., D.Sc., LL.D., Emeritus Professor of Medicine, Glasgow University.

KAUNTZE.—On Nov. 4, 1947, at Woking, William Henry Kauntze, C.M. M.B.E., M.D., F.R.C.P.

McCULLOCH.—On Oct. 26, 1947, at South Park, Hexham, Colin McCulloch, L.R.C.P., L.R.C.S. (Ed.), L.R.F.P.S. Glas.

MALLETT.—On Oct. 29, 1947, at The Gables, Minchinhampton, Street, G. Sir Frederic Rowland Mallett, M.D., aged 78.

NEWTON.—On Oct. 29, 1947, at South Broomhill, Morpeith, Duncan G. Newton, F.R.C.S. (Ed.).

ROBERTS.—On Nov. 7, 1947, at 28, Radnor Park Road, Folkestone, H. Trehanne Llewellyn Roberts, L.R.C.P., L.R.C.S. (Ed.), aged 69.

STRICKLAND.—On Nov. 3, 1947, at Roqueville, Mont Cantel, St. Helier, J. Cyril Strickland, M.D., aged 66.

VOST.—On Nov. 2, 1947, at 22, Manor Way, South Croydon, William V. M.B., C.M., Lieutenant-Colonel, I.M.S. (retired).

WHITE.—On Nov. 9, 1947, John Richard White, L.R.C.P., L.R.C.S. (Ed.), aged 71.

WILLIAMS.—On Oct. 29, 1947, at Mount Auburn, Killybeg, Herbert Arthur Williams, D.S.O., M.B., B.Ch., Lieutenant-Colonel, I.M.S. (retired).

YOUNG.—On Nov. 5, 1947, at Edinburgh, William Allan Young, D.S.O., M.

## Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

### Prevention of Colds

**Q.**—Patients often ask about the efficacy of inoculations to prevent colds. Can you recommend any preparation suitable for administration to a number of people?

**A.**—Various controlled trials in the use of "anti-catarhal" stock bacterial vaccines for the prevention of the common cold have shown that such vaccines are not to be relied on as a prophylactic measure. It is now generally accepted that the common cold is due to a virus or a number of viruses, and a bacterial vaccine containing organisms like the pneumococcus, streptococcus, and influenza bacillus could obviously not prevent the primary attack. Whether such a vaccine could prevent or modify secondary bacterial infection due to these organisms is also debatable, since there is great variety in the types of pneumococcus and streptococcus which might be involved. However, practitioners claim that they have seen good effects from the prophylactic use of anti-catarhal vaccines which are available from a number of commercial firms.

### Aspirin and Cerebral Congestion

**Q.**—Is there any evidence to show that aspirin and related drugs may increase cerebral congestion? Has any simple correlation been established between increased intracranial and intraocular tension, and is there any known correlation between variations of these pressures and changes in barometric pressure, is a matter of normal physiology?

**A.**—Aspirin and related drugs do not increase cerebral congestion. There is no simple correlation between intracranial and intraocular tension, nor is there any known connexion between barometric and intracranial pressures.

### Mortality Statistics of Pneumonia

**Q.**—Could you either give me statistics showing the mortality from lobar pneumonia and bronchopneumonia in children under 2 years before and after the introduction of antibiotics, or let me know where I might obtain such information?

**A.**—Mortality statistics are published in quinquennial age groups, and it is not possible to obtain figures for children under 2 years of age. Deaths from lobar pneumonia and bronchopneumonia in the following age groups—under 1, 1-5, 5-10, 0-15, etc.—are published in Table 21 of the Registrar-General's Statistical Review. The continuity of these statistics has been broken by a change in classification in 1940, when, in the case of multiple causes of death, the physician's choice was accepted in place of set procedure. The Registrar-General has given a factor to convert to the recent classification.

### Mixed Feeding for Babies

**Q.**—Is it now considered wise to introduce patent cereals, craped carrot, sieved vegetables, and purées, including prune purée, with visible roughage, into National dried milk or other milk foods for babies under 8 months? Unchanged particles of these extra foods can be recognized in the stools of babies, who are often restless and sleep badly.

**A.**—Mixed feeding can safely be started long before 8 months of age; some authorities suggest about 4 months, and certainly most of the items mentioned could be started at 6 months. They should not be put "into" the milk feeds used (except cereals made with milk) but gradually utilized as steps towards a full mixed diet. The stools will, of course, change in character when articles other than milk are given, and cellulose material will appear more or less unchanged. But this is a normal state of affairs, and possibly teething is a more likely explanation of the restlessness and poor sleep of babies at this age.

### Trilene in Obstetrics

**Q.**—What are the latest views on trilene in obstetrical practice?

**A.**—Trilene administered with a well-constructed inhaler gives very satisfactory results as an analgesic in obstetrical practice. It must, however, be administered under the supervision of a medical practitioner; midwives are not allowed to use it on their own. The inhaler, of which there are now several patterns, limits the strength of trilene vapour inhaled, so that no more than analgesia is produced. Trilene should never be used in a carbon-dioxide absorber, for in the presence of alkali very toxic breakdown products may be formed. The simple inhalers used for obstetric analgesia do not employ soda lime and therefore this danger does not exist.

### Removal of Superfluous Hair

**Q.**—What would you recommend to young women for removing hairs on the chin and upper lip? Are there improvements on electrolysis, removal by wax, or simply pulling them out? If removed by electrolysis do the hairs recur? If hairs are repeatedly pulled out, do they become stiff and short like a man's beard? Is the belief fallacious that the pulling out of hairs causes an increased number to grow?

**A.**—If the patient does not approve of the electric razor, which is probably the best treatment, the other measures enumerated are satisfactory. None of these measures increases the number or calibre of the hairs. There is no new treatment for simple hirsuties.

### D.D.T. as an Anthelmintic

**Q.**—The usual anthelmintics (santonin, diphenan, and gentian violet) do not always cure and are valueless in preventing reinfection. It occurred to me that in the latter case D.D.T. might be more satisfactory than smearing the anus with ointment—if the theory is correct that the female worm emerges at night to lay eggs. The worm is certainly susceptible to D.D.T., as I proved by exposing a faecal mass swarming with worms to D.D.T. solution: all were killed. I suggest powdering the anal fold at night with D.D.T., which I have carried out without any irritant effect on the skin. The next step is obviously the internal use of D.D.T., but I hesitate to carry this out experimentally in children. Are there any findings available regarding the toxicity of D.D.T.? Has it been used for this purpose, and, if so, what dosage is recommended?

**A.**—The questioner does not state what parasite he is attempting to eradicate, but it seems likely that *Enterobius vermicularis* is concerned. There do not appear to be any data regarding the toxicity of D.D.T. to nematodes. One would hesitate to conclude that powdered D.D.T. was toxic to worms because they were killed by a solution of the chemical, unless it had been shown that the solvent itself was innocuous. Certainly by analogy with insecticidal work D.D.T. is unlikely to affect the eggs. Powdering the anal fold with D.D.T., suitably diluted, is unlikely to be harmful, though perhaps of doubtful efficacy. D.D.T. should not be used internally. A good review of the toxicity of D.D.T., by F. M. G. Stammers and F. G. S. Whitfield, will be found in the *Bulletin of Entomological Research* (1947, 38, 1).

### Food Value of Gelatin

**Q.**—Am I right in thinking that gelatin, though absorbed, has no food value, and that consequently bone broth is not nutritious?

**A.**—Gelatin, a degradation product of the animal protein collage, is inadequate by itself as a source of the nine or ten amino-acids essential for the normal nitrogen metabolism of man and other animals. It can, however, exercise a "sparing" action on the use of biologically adequate protein, for it is a fair source of arginine and lysine, besides being rich in certain non-essential amino-acids—namely, glycine, proline, and oxyproline. Its content of essential amino-acids, moreover, is such that it can show "supplementary" action with certain vegetable proteins also not able by themselves to satisfy nitrogen requirements.

## Onychia

**Q.**—In a case of onychia, removal of the finger-nail with antiseptic treatment of the nail-bed and several courses of x-ray therapy has been ineffective. What further treatment do you suggest?

**A.**—It is presumed that coecal or monilial or ringworm infection of nail, nail-bed, and perionychial spaces is implied by this question. A general overhaul of the patient and of his skin for other sites of disease or infection may be fruitful. For coecal infections general treatment with penicillin and sulphonamides is indicated, and locally dry heat, short-wave diathermy, or fractional doses (120 r.) of unfiltered x rays and painting with spirituous solutions of the dyes. Lotions, ointments, and water should be avoided. For fungous disease removal of the nail and subsequent irradiation with unfiltered x rays in fractional dosage at monthly intervals offers most hope, provided there is continuous treatment with effective fungicides. Alternating the following in weekly periods is suggested:

R Ung. dithranol. B.P.

R Ung. iodi denigrescens B.P.

R

Benzoic acid	..	..	..	..	24 gr. (1.6 g.)
Salicylic acid	..	..	..	..	30 gr. (2 g.)
Soft paraffin	..	..	..	..	1 dr. (4 g.)
Coconut oil	..	..	..	..	to 1 oz. (31 g.)

Make into an ointment

R

Mercury perchloride	..	..	..	..	1/2 %
Brilliant green	..	..	..	..	1/2 %
Industrial spirit	..	..	..	..	to 100 %

Make into a paint

## Loss of Finger

**Q.**—A man aged 25, a handyman-mechanic, recently had the distal and middle phalanges of the middle finger of the right hand removed at operation. He has a satisfactory stump with good movement. The other fingers are normal. What is his disability, and is he entitled to claim workmen's compensation? Could you recommend a book dealing with this subject?

**A.**—Loss of the middle and distal phalanges of the right middle finger would constitute a permanent partial disability of the order of approximately 5 to 8% as compared with a normal working man. Disability would be increased by undue tenderness of the stump or by its "getting in his way" at work. If the loss was sustained as the result of an accident occurring in the course of his work he should be entitled to a claim for workmen's compensation. An authoritative account of industrial medicine, disability, and compensation is contained in *Occupational Diseases*, by R. T. Johnstone (W. B. Saunders Company).

## Resection of Small Intestine

**Q.**—What is the present surgical opinion as to the largest amount of small intestine that can safely be removed, leaving reasonably normal digestive and absorptive functions? What is the best diet once the patient has got over the operation?

**A.**—Without knowing more details of the particular operation it is not easy to answer this question categorically. Most surgeons would probably agree that the loss of more than 10 to 12 feet (3 to 3.6 m.) of small intestine makes a reasonable post-operative metabolic life difficult; but this statement must be qualified to some extent by the portion of small gut concerned, massive excisions of jejunum being more detrimental than those of ileum. During the war a number of cases were reported where greater lengths than those quoted above were removed and the patient survived. The problem of feeding in such cases is undoubtedly a difficult one; they are relatively so few in number that it cannot be said any general agreement has been reached on the quantity of or form in which amino-acids, predigested fats, and vitamins (all of which are necessary) should be supplied. Some help may be obtained from a recent article by H. W. Meyer on "Recovery Following Extensive Resection of Small and Large Intestine" (*Arch. Surg.*, 1946, 53, 298).

## NOTES AND COMMENTS

**Bates on Better Eyesight.**—Dr. RONALD KERR (London, N.W.) writes: As one who has in the past made a serious effort to practice Bates's eye treatment, may I comment on the answer on this subject (Nov. 1, p. 717)? I agree entirely that it is not possible to alter refractive errors in adults. In cases of the larger errors with defective vision, Bates's treatment often enables patients to see better without their glasses than they did before, but normal vision is not attained, and the improvement is presumably due to an increased ability to interpret blurred images, and is not due to any decrease in the refractive error. Though Bates's claim is quite untenable, that once "strain is relieved" refractive errors disappear, nevertheless he did produce something of value, and that is the idea that there is a right and a wrong way of using the eyes. The right way of looking, according to Bates, is (1) to avoid making effort, peering, staring, and straining to see; (2) to pay attention only to that part of the image which falls on the macula; and (3), which is a corollary of (2), to shift the attention rapidly about from point to point of the object regarded.

Lack of space forbids further discussion of this idea, but I should like to record that I believe it is physiologically sound, that bad habits of staring, not blinking, and not "shifting" can and do produce symptoms of ocular discomfort, and that the benefit which patients often get from being taught good habits is not entirely due to suggestion. In cases where patients complain of discomfort rather than defective vision there appear to be three factors concerned: (1) the refractive error; (2) the presence or absence of adequate convergence power; (3) the way in which the eyes are used. Oculists have paid much attention to refractive errors, and are now beginning to realize the importance of convergence deficiency. They have not yet recognized the existence of bad habits. In these cases treatment of convergence and/or the inculcation of good habits usually relieve the symptoms completely. The small refractive error remains, but by itself produces no symptoms, and can be ignored. These are the cases in which the Bates practitioners get their undoubted successes. Patients are enabled, without recurrence of symptoms, to discard the glasses which have been unnecessarily prescribed by those who are not familiar with the alternative treatment.

In cases of presbyopia and moderate degrees of hypermetropia the need for glasses can be postponed by compelling the ciliary muscle to go on working. If the convergence is good and the habits right, it can be done without undue symptoms with the aid of some of the Bates "exercises." Whether it is worth the effort is another matter, but to show what can be done I will cite the case of a Bates practitioner whom I have refracted. She has no appreciable error, and at the age of 60 has never had glasses. She can read ordinary print comfortably in a good light, and in fact read a great deal, though poor print in a poor light defeats her.

**Confidence Trick.**—A consultant in Liverpool received a letter from a Mr. Andrew M. Hadjipavlis, of Famagusta, Cyprus, who asked a number of questions about a patient said to have syphilis. The consultant replied that he could give no advice on a patient whom he had not seen and who was under the care of another doctor. He quite properly went on to make some general remarks about the treatment of syphilis. He then received a letter from Mr. Hadjipavlis, who apologized for not informing the consultant in the first place that he was "a Press Correspondent, and that there was no any patient in reality." Mr. Hadjipavlis said that although the consultant's letter was very brief there was something in it which he might use in his papers. "My intention," he added, "was to run a campaign in the local and Middle East newspapers toward the treatment which is being carried out by Government Hospitals." We are indebted to the consultant in question and the Medical Defence Union for allowing us to put these details on record so that they may serve as a warning to other practitioners.

All communications with regard to editorial business should be addressed to the EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: BRITMEDJ, LONDON, W.C.1. ORIGINAL ARTICLES AND LETTERS for consideration for publication are understood to be offered to the British Medical Journal unless the contrary be stated.

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B.M.A. SCOTTISH OFFICE: 7, Drumheugh Gardens, Edinburgh.

# SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY NOVEMBER 15 1947

## STATE MEDICINE IN EIRE

The Department of Health of the Government of Eire has issued a White Paper<sup>1</sup> entitled "Outline of Proposals for the Improvement of the Health Services." It states that the proposals have been approved in principle by the Government and are in accordance with the undertakings given by Mr. De Valera to Parliament. They are put forward for public information and discussion. The first reaction of the *Journal of the Medical Association of Eire* is that, although the Government has refrained from introducing a universal free medical service, the proposals are too much in the direction of State paternalism.

### Present Health Services

The White Paper begins by tracing the evolution of health services from the setting up of local health authorities, called Boards of Health, in 1818, to the establishment last year of a Government Department under a Minister of Health. It then proceeds to a review of the present health services available. The local authority services consist of a general-practitioner or dispensary service administered by public-assistance authorities; county, district, and fever hospitals also administered mainly by such authorities; a mental-hospitals service; and the usual public-health organization for the control of infectious disease, the school medical service, and anti-tuberculosis measures. Medical assistance provided by the public-assistance authorities employs 646 general practitioners, and the service, which is free to all those who cannot afford to provide for such medical care out of their own resources, is regarded as covering about one-third of the population. Participation in the benefits of this service is subject to a means test, though this is not rigidly applied.

With regard to the services other than those of the local authorities, including the work carried on by voluntary hospitals and other voluntary agencies, it is stated in the White Paper that the sphere of voluntary treatment and private practice is being progressively invaded by the official services. Voluntary hospitals and nursing associations are being increasingly associated with schemes which are subject to official supervision. Many private practitioners seek part-time employment under local authorities to supplement their income from private practice. Thus the scope of voluntary and private activity tends to be circumscribed by the normal growth of public services. It should be explained that in Eire general-practitioner treatment for insured persons is not one of the statutory benefits of the Insurance Acts, though other forms of medical care are provided through a scheme of additional benefits. At the same time the White Paper acknowledges many gaps and shortcomings in the public services and points out the need for a new approach to health problems in view of the present high mortality in the younger age groups of the population and the economic waste involved in illness and disability.

### The Health Act, 1947

This year a new Health Act has been passed in Eire. Its aim is not to deal with the question of a comprehensive State service, which may come later, but to simplify and improve the present preventive measures, such as the infectious-diseases service and the supervision and standardization of food supplies. The most contentious part of the measure is the establishment of a comprehensive health service for mothers and children. The Act provides that a health authority—that is, a council of a county or a corporation of a county borough—

shall make arrangements for safeguarding the health of women in respect of motherhood and generally shall provide attendance for children, a child being defined for the purposes of the Act as a person who is less than 16 years of age. Apparently this service is to be entirely free irrespective of income level. The primary responsibility for inspection and treatment will rest with the district medical officer in each dispensary district.

It is understood that the details of the operation of this service will not be finally settled until representatives of the medical profession and other interested bodies have been consulted. But the opinion of the medical profession, as given in the source quoted at the beginning of this article, is that the arrangement appears to deny the principle of free choice. Parents should have the right to decide who is the most suitable doctor to have supervision and control of the health of their children. Why should the principle of payment for private attendance in this sphere be abolished? The dispensary health services were originally set up for the poor, who were unfairly and invidiously denied free choice of doctor if a member of their household became ill, and now it appears that the arrangement is being enlarged to include more and more of the population; and even the service of the voluntary hospitals is threatened by the same sort of regimentation.

### Proposals for a Comprehensive Service

The universal mother-and-child service under the new Health Act is only a foretaste of further proposals, an outline of which is given in the final section of the White Paper. These are proposals for a reorganization and extension of health services generally. It is admitted that from the point of view of affording optimum benefit the simplest solution of the problem of a comprehensive medical service and its finance would be to make the service available to all citizens free of charge. The Government, however, stops short of this and acknowledges that many persons who are able to meet the cost of providing medical care for themselves would prefer not to participate in the scheme, and that some members of the medical profession would prefer to remain independent. "Generally, therefore, it appears desirable in existing circumstances that a certain upper-income field should be left for private practice."

It is considered imperative, however, that a full range of medical care should be made available to a very greatly extended proportion of the population. Those who choose to have a private general practitioner to attend them will be responsible for his fee, but the practitioner will be able to obtain for them free access to the specialist, hospital, and other facilities provided under the scheme.

The points in the scheme recommended for discussion are as follows:

- (1) Local health administration to be conducted in each county or larger unit by a specially constituted local health authority.
- (2) Existing health services to be extended and supplemented and the improved services to be co-ordinated.
- (3) All personal services dealing with prevention and treatment of infectious disease and the mother-and-child service to be provided free of direct charge to individuals of all classes.
- (4) The entire range of medical care under the scheme to be made available to all recipients of home assistance, unemployment assistance, pensions under social-assistance schemes, and similar classes of the population.
- (5) General-practitioner service by district medical officers, together with institutional care and specialist advice and treatment, to be available free in cases in which the annual income does not exceed £250.

<sup>1</sup>The Stationery Office, Dublin. 1s.



(6) Institutional care and specialist advice and treatment (but not general-practitioner service) to be available in cases where the annual income exceeds £250 but does not exceed £500.

### County and Regional Administration

It is proposed to develop the health services in two main sections. The county service will be based on the district medical officer and administered under the control of the local health council. Each county will be divided into a number of district health units based on available personnel and organization and built up gradually to optimum requirements. The old dispensary districts would be adopted first, but more suitable boundaries might presently be determined. The normal health unit would provide for a health clinic with doctor, nurse, and midwife. The district medical officers will find their duties altered and enlarged, and an increase in their remuneration will be necessary. Private practice will be allowed, but the prior claim of the public service on the medical officer's time must be recognized. Private practitioners outside the service may avail themselves of the specialist, hospital, and laboratory facilities provided under the scheme on behalf of their patients who are entitled to such services free, and higher-income patients may also participate in them, through their general practitioner, on payment of appropriate fees. The number of persons for whom a district medical officer is responsible will be so adjusted as to take account of his extended duties, which will include a general-practitioner service for eligible classes, a maternity service, and such preventive work as immunization measures and case-finding of infectious diseases.

County and district hospitals will provide the general medical, surgical, and obstetrical service for each local area, but the specialist and regional hospital services will be on a wide basis and will be generally associated with the university medical schools. As conditions permit, regional hospitals will be provided at Cork and Galway, and an auxiliary regional hospital at Limerick; while at Dublin, it is hoped, with the co-operation of the teaching and voluntary hospitals, special co-ordinated arrangements for regional hospital services will be made. It is expected that there will be, on a regional basis, sanatoria, laboratory services, a public-health institute, facilities for the early diagnosis of cancer, and centres for the investigation and treatment of rheumatism. For Dublin city and county a unified health service is proposed which will link together the health services at present carried on by the health authorities, the private-practitioner groups, and the voluntary hospitals and other agencies. Health clinics are projected to provide a general-practitioner service and the maternity-and-child service. Each clinic will have the daily services up to an agreed hour in the afternoon of a district medical officer, and, with an assistant medical staff, a round-the-clock service will be given. Larger consultative centres for difficult cases are also envisaged. The local health councils and regional health boards will have a majority of direct representatives of the authorities, but there will be co-optation of other persons knowledgeable and interested. The cost of the service will be met equally from the rates and from State grants. It is expected that at the end of the first ten-year period it will amount to £9,000,000 a year.

The comment of the *Journal of the Medical Association of Eire* is that there is neither rhyme nor reason in making the maternity and child health services free to all.

"We fear that in its anxiety to expand the public health services the Government is attempting to train a generation accustomed to State paternalism from its very cradle. The purpose should be the health of the population, not the policy of nationalization and regimentation."

But in Eire, as in this country, the scheme cannot be fully implemented for some years to come because of the demands of the building programme. To meet the capital cost of institutional construction the authorities are hoping for an increase in the annual amounts derived from sweepstakes.

A circular from the Ministry of Health to port health authorities and riparian authorities reminds them of their powers under the Public Health (Imported Food) Regulations, 1937, to appoint, with the consent of the Minister, an assistant officer to work under the direction of the medical officer of health.

## THE DAIN FUND

### REPORT OF THE TRUSTEES

During the past year the work of the Dain Fund has been continued and increased. Many inquiries have been received and advice has been given and in certain cases assistance has been arranged through other funds, such as the Medical Welfare Relief Fund and the Royal Medical Benevolent Fund and Royal Medical Foundation of Epsom College.

Five new applications have been considered by the Trustees and in each case it has been possible to give financial help. In so many cases, the same story is told: the prolonged illness or sudden death of the practitioner leaves his widow in great financial difficulties.

*Case 1.*—The sudden death of the practitioner forced his widow to apply for help for her daughter, who had one year to complete at college. Although the mother was trying to obtain employment at a school or hotel, the girl's career would have had to be abandoned unless help was forthcoming. In this case the Trustees decided on a grant of £195, of which £45 has been paid.

*Case 2.*—Application was made by the mother of a fifth-year medical student for assistance to enable her son to complete his training. For four years since the death of his father, a general practitioner, the applicant had struggled to maintain the boy, and during the last year some help had been given by other bodies. A sum of £50 was required to meet the financial position until the date of qualification in 1948. The Trustees gladly granted this sum.

*Case 3.*—A medical practitioner, who had been ill for many months, applied for assistance in the education of his son aged 11 years. The applicant died suddenly and the application was renewed by his widow. A sum of £45 was required for school fees. The local panel committee made a grant of £25, the Trustees of the Dain Fund agreeing to make up the balance of £20. The Trustees also intimated that they would be prepared to consider a further application for the continuation of the grant in 1948 should it be necessary.

*Case 4.*—In 1941 a medical practitioner died leaving his widow with four children. The widow joined the A.T.S. and by a great effort has been able to provide for the three elder children. The youngest child was 12 at the date of the application for £100. By arrangement with the local panel committee, which most generously offered to help, this sum was divided—£50 being given by the panel committee and £50 by the Dain Fund. The Trustees have recently reconsidered this case and a further grant of £50 has been made for the school year beginning September, 1947.

*Case 5.*—An application was received from the wife of a medical practitioner who is now unable to work owing to illness for financial assistance for her son, a medical student who has passed his 1st M.B. and is about to enter a London medical school. The application was for a considerable sum of money to cover all expenses. The Trustees felt unable to provide the whole sum; a grant of £40, however, was allowed subject to his acceptance by the medical school—the grant to be continued if necessary during his training, subject to a satisfactory report from the dean of the medical school.

In addition to the cases listed above the Trustees have been able to continue assistance to three cases who have received help in previous years. These three children have all done well. To one, a girl, a grant of £50 has been given for two years (1946 and 1947). She has taken her School Certificate and intends to make medicine her career. The second case is of a boy who has been helped by a grant of £50 per annum for five years during his school career. He has done well, passing London matriculation and gaining his Higher School Certificate. He is now hoping to obtain admission to a medical school if not called up for military service. The third case of this group is of interest. The Trustees have allowed £100 per annum to the son of a deceased doctor to assist in the fees for his dental training, subject to satisfactory reports from the dean. Up to the present time this boy's progress and work have been very satisfactory.

From the above report it will be seen that £565 has been given in grants of varying sums during the year (October, 1946–September, 1947). This has been possible by the continued support of both individual members of the profession and panel committees. Following the successful negotiations with regard to the capitation fee, the Bristol Panel Committee in a letter to the *British Medical Journal*, which was also sent to all panel committees, suggested that panel committees might wish to express their satisfaction by giving financial support to the Dain Fund. A number of committees responded to this suggestion. The Trustees, in considering the financial position of the Fund

agreed that in future, of all sums received for the Dain Fund, 50% should be invested, the remainder being placed in the current account.

The Trustees would like to take this opportunity of thanking all who have been so generous in the past. They are satisfied that the cases quoted show beyond doubt the need for the Fund, and they must ensure that this support will be continued and extended in order that in the future no suitable application for assistance need be refused for lack of funds.

September, 1947.

## THE UNATTENDED TELEPHONE

The Association, conscious of the difficulties which doctors experience in securing adequate domestic help, has for some time been exploring various facilities that are claimed to solve the problem of the unattended telephone. Members will therefore be interested to learn of the various services that have been brought to the notice of the Association. The facilities in question fall into two main groups—namely, direct recording instruments and message-taking bureaux; the former being equally effective in any part of the country, the latter, because of possible delays in the trunk- and toll-telephone systems, being effective only in the immediate area of the bureau.

### Direct Recording Apparatus

A description of the robot telephone has already been published in the *Supplement* (Aug. 23, p. 57), and it is sufficient to add that this apparatus was demonstrated at a recent meeting of the General Practice Committee, when the impression was gained that it is a very effective message recorder, amply justifying the claims made on its behalf.

As with all inventions, the initial cost of putting the apparatus on the market is not inconsiderable. The manufacturers have indicated, therefore, that in the first instance they would be prepared to manufacture 100 of the instruments if they could be assured of this number of purchasers. Up to the present time only some 30 to 40 practitioners have signified their interest in the apparatus, and the Secretary would be pleased to hear of any other interested practitioners. As soon as the list of probable purchasers reaches 100 it is proposed to pass the names to the manufacturers, who will then make direct contact with the practitioners concerned. The price of the instrument is £80, plus a small charge for installation.

A very compact and portable dictaphone, manufactured by Miles Aircraft, Ltd., is also available. While this instrument does not solve the problem of the unattended telephone, it is possible that it might be adapted later for the purpose. Apart from this, the ease with which this dictaphone can be carried around makes it an ideal instrument for the busy practitioner who finds it difficult to set aside the time for dictating correspondence.

### Message-taking Bureaux

There are in the London area a number of bureaux which claim to offer an efficient service for the reception and re-transmission of telephone messages. Although each of the organizations mentioned below differs in detail, the main principle is the same. The doctor notifies his patients that, if they are unable to obtain a reply to a telephone-call to his house or surgery, they should ring an alternative number—i.e., the number of the service. Messages will there be recorded and relayed back to the doctor at his request. Each of the organizations provides a 24-hour service, and in cases where the practitioner contemplates being absent from his surgery for a period of not less than 24 hours the G.P.O. will, at his request, automatically intercept calls and pass them to the alternative number. (Presumably this applies only in the case of manual exchanges.)

Interested members are advised to address their individual inquiries to the organizations concerned, from whom full details are available; and it is suggested that they should at the same time inquire whether the service has obtained from the Postmaster General a licence to operate.

Finders, Ltd., 77, Dean Street, W.1. Tel., Gerard 9050 (20 lines). Subscription (special service) £12 12s. per annum, plus the cost of calls incurred on the subscriber's behalf.

Per-Call Service, Ltd., 387, London Road, Mitcham. Tel., Balham 3331 (5 lines). Subscription £5 5s. per annum, cover-

ing 150 1d. calls within the Metropolitan area or their equivalent in trunk or toll calls.

Telasco, Ltd., 20, Queen Street, W.1. Tel., Mayfair 5401. Subscription £18 18s. per annum, plus the cost of trunk and toll calls incurred, and 1s. for each four local calls over 30 per month.

## TRADE UNION MEMBERSHIP

The following is a list of local authorities which are understood to require employees to be members of a trade union or other organization:

*County Borough Councils.*—Barnsley, Gateshead.

*Metropolitan Borough Councils.*—Fulham, Hackney, Poplar.

*Non-County Borough Councils.*—Dartford, Leyton, Radcliffe (limited to future appointments), Tottenham, Wallsend.

*Urban District Councils.*—Denton, Droylsden, Houghton-le-Spring, Huyton-with-Roby, Portslade, Redditch (restricted to new appointments), Stanley (Co. Durham), Tyldesley.

*Scottish Burghs.*—Motherwell and Wishaw.

## Correspondence

### Working Hours in the N.H.S.

SIR,—My friend Stanley Turner (Oct. 18, p. 92) has done the profession a useful service in pointing out the probability that the normal work of the doctor in the new Health Service will be enormously increased. When the insured person discovers, as he must do before long, that he is in fact paying, through the compulsory insurance, a levy at the rate of from 12s. to ultimately 17s. a week per person, he will undoubtedly and rightly do his best to get his money's worth by increased demands upon the doctor.

I have endeavoured, without success, to get a reply from the Minister to Parliamentary questions asking him for estimates as to the number of registered medical practitioners which his Act will require. Similar estimates as regards teachers were readily forthcoming from the Minister of Education, but not from the Minister of Health. But there are some pointers which may make possible an approximate estimate of this requirement. A 24-hour medical service is promised by the Act to include specialist and institutional service as well as the general practitioner service supplied by the old N.H.I. Act. The Socialist Medical Association (S.M.A.) has justifiably claimed that its advice has been largely instrumental in moulding the Act. The 5-day 40-hour week is an essential plank in the Socialist programme, and concrete proposals were actually made by the S.M.A. that the medical day of 24 hours should be worked by three 8-hour shifts. It is to be noted that this does not meet the week-end demand, and in the experiment in New Zealand, where the 5-day 40-hour week is generally imposed, it has been observed that "it is extremely difficult for the public to secure medical attendance in New Zealand over the week-end."

Turner mentions that there are 70,000 names on the *Medical Register*, but an authoritative estimate places the number of doctors in *active practice* at approximately 50,000. With a day divided into three shifts, and taking into consideration the increased demand on the doctors' services, I submit that an estimate which places the total medical personnel required by the Act at three times the present number in active practice errs on the side of moderation. If the Minister succeeds in roping in the whole existing body in active practice, he will on this basis still need a further 100,000 doctors to implement the promises of the Act.

My estimate that the present active strength of the medical profession would have to be trebled to meet the needs of the Act receives an independent corroboration. Lord Teviot, who was for two and a half years chairman of the Inter-Departmental Committee on Dentistry, declared that an authoritative estimate to meet the new Act maintained that the intake of dentists would have to be three times as great as at present (*Lords Hansard*, Oct. 8, 1946, column 45).—I am, etc.,

House of Commons.

E. GRAHAM-LITTLE.

## National Health Service

SIR,—I, like many others, feel that the sands are running out in connexion with the nationalization of the medical profession. At the moment all is apparently quiet on the horizon. The Minister of Health is being entertained by certain of the royal medical societies and all is peaceful. But one morning we shall wake up to find the profession in the position of a third-rate Civil Service, and all is lost. The Socialist Medical Society is working quietly but effectively in spreading their propaganda in town and country, and unless we rouse ourselves we shall find ourselves "too late"—as Carlyle remarked, "the two saddest words in the English language." May I suggest, that, as the vast majority of the profession in the British Isles oppose the nationalization of the profession, it is a duty incumbent upon all of us, to the public and to ourselves, to inform the public upon every possible occasion of the position of affairs. Many opportunities occur—to the general practitioner especially—in the course of casual conversation after purely medical questions are settled. The public are intensely interested in all matters associated with illness and the cure and care of the sick, especially women, and naturally so.

Having been qualified just on fifty years, I can definitely say that I have never personally known a medical man put his comfort or self-interest before that of his patient, and I believe the public have that same point of view. The influence of the medical profession in this country is enormous, and should now be used to further the best interests of both the public and the profession, which are identical.—I am, etc.,

Burwash, E. Sussex.

HOWARD M. STRATFORD.

SIR,—May I request a little space in which to take up one or two points raised by Dr. C. Grantham-Hill and Dr. A. E. Moore (Oct. 25, p. 97), the more so since circumstances have prevented my seeing the earlier letters to which they refer and I may therefore hope to be unprejudiced in comment on theirs? Although I cannot claim Dr. Grantham-Hill's length of experience in a Government medical service I can claim half that length much more recently—in the R.A.M.C. during the last war, following six years' general practice, which followed nine years' mixed experience of hospital and general work. I have not yet, even in the orderly medical officer system of the Army, or in co-operation with others in practice, found a rota system in which the man on duty was not glad to have his duty taken for him; and more than once found it was becoming customary to ask officers known to be accommodating to "hold on," with the sanction (verbal and easily obtained) of higher authority, for periods of a few minutes to hours or even to a complete exchange of duty. On occasion reciprocal courtesy was asked and received.

I am, if I may say so, entirely at one with Dr. Grantham-Hill's argument and attitude, but I cannot share his fears that any system, if introduced, will not prove as flexible. I would suggest that the trivial cases, after trying to get their money's worth, will—also because they are human—revert to waiting till they know their own doctor is available instead of calling in a stranger, that it will not do the rota doctor any harm to find out what is wrong with the borderline cases, and that he will have enough common sense and courtesy to pass on the serious case immediately he knows it belongs to a man who wishes to see such cases for himself, on or off duty.

Nor can I, wrong though I may be, easily visualize even the camarilla of Dr. Moore's nightmare attempting to interfere with reasonable flexibility of a rota system or anything else tending to improve the efficiency of the service. Except for the self-seeking politicians whose colour is not quite clear, all these bogies belong to the party which will, by the patients who are electors, be judged responsible for the Service. Hardly anything could contribute to the downfall of the present Government more certainly than a breakdown of a service they claim as peculiarly theirs—which it is therefore to be presumed they would wish to avoid. And a politician who from a place of power in any other party sought to destroy it by undue interference after it was working well would clearly be courting too much unpopularity to be anything but quixotic. Nor, whether Dr. Moore is right or wrong as to the result of the Government becoming the owner of all private practice in England, can that

come about under the present or, one may say, any foreseeable future Act. It is, I understand, anticipated in the present Act that everyone will continue private practice among people who do not wish to take advantage of the Act; and it is, I find, also thought that some practitioners will desire to stay outside it altogether, which it leaves them open to do.

A man who really believes that he surrenders professional independence by joining any service will probably receive the reward of his convictions by finding a competence outside it. I can well remember as a boy being told by a very senior practitioner that his son, then in practice, would of course not touch the panel and therefore had no need of the expense of a car. For Government to become the owner of all private practice in England a directly confiscatory Act like that concerning the railways would be necessary, with, in our case, prohibition of practice outside the Service, with about as much result as any prohibitive legislation there may now be against faith healing or herbalists.—I am, etc.,

Bristol.

C. T. NORRIS.

SIR,—The time is now approaching when we have to make up our minds whether we are prepared to serve in the new Health Service. I understand that when the N.H.I. Act was brought into force a number of those who had been most vociferous in opposing the Act were the first to join up, and I consider it most important that such a fiasco should not occur again. I therefore suggest that each vote against accepting service should be accompanied by a legal agreement binding the voter to pay a substantial sum to the defence fund in the event of his accepting service without the consent of the B.M.A. or a further plebiscite. The amount should be at least one year's emoluments under the new Service or the compensation value of his practice, whichever is the greater, and he should agree to pay over 25% of each panel cheque until the whole sum has been paid.

If such a guarantee were given against the breaking of one's pledge it would make each signatory much safer, and further it would enormously enhance the value of the plebiscite, for in the event of a substantial majority against acceptance it would show that the profession really meant business. I for one do not intend to bind myself to stop out of the Service unless I can be sure that others will not vote "No" and then later sign up. This time it is a question not only of the loss of large numbers of patients but also the loss of compensation for our practices.—I am, etc.,

Birmingham.

C. H. HEATON.

## Association Notices

AREAS OF MID-ESSEX AND SOUTH-EAST ESSEX  
DIVISIONS

Notice is hereby given by the Council to all concerned that the urban district of Burnham-on-Crouch and the rural districts of Southminster and Bradwell-on-Sea have been transferred from the South-east Essex Division to the Mid-Essex Division.

CHARLES HULL.

Secretary.

## Branch and Division Meetings to be Held

GREENWICH AND DEPTFORD DIVISION.—At Seamen's Hospital, Greenwich, S.E., Wednesday, Nov. 19, 8.30 p.m. Clinical meeting.

NORTH OF ENGLAND BRANCH.—At Royal Victoria Infirmary, Newcastle-upon-Tyne, Thursday, Nov. 20, 7.15 p.m. Clinical Demonstration in the Dental Hospital by Prof. J. Boyes: Diseases of the Oral Mucosa; 8.45 p.m., Address by Mr. R. C. L. Batchelor: The Role of Penicillin in the Treatment of Venereal Diseases.

SUNDERLAND DIVISION.—At Sunderland Royal Infirmary, Thursday, Nov. 20, 3.30 p.m. Annual Address by Prof. Sydney Smith: Alcohol and Behaviour. 7.30 p.m. Annual Dinner.

Correction.—In our report of the Annual Panel Conference (Supplement, Nov. 8, p. 106) Dr. F. E. Gould was incorrectly said to be representing Wolverhampton. The city should of course have been Birmingham.

LONDON SATURDAY NOVEMBER 22 1947

## SHERRINGTON'S IMPACT ON NEUROPHYSIOLOGY\*

BY

JOHN F. FULTON, M.D.

Professor of Physiology, Yale University

It has been said that *The Integrative Action of the Nervous System* ranks in importance with Harvey's *De Motu Cordis*, for it, like the classic on the circulation, marked a turning-point in the history of physiological thought.

The new printing of Sherrington's great monograph, which appeared earlier this year at the time of the Seventeenth International Physiological Congress, has served to remind the physiological world not only that Sir Charles is still following the main currents in the field—as is brilliantly indicated in his foreword to the new printing—but that he has retained his youthful outlook and the crisp critique which his friends and admirers have always learned to expect from his pen.

### His Early Work

An appraisal of his many contributions to neurophysiology and his position in the history of the subject is no easy task, for Sherrington has touched upon so many of its important phases. He began to publish in his late twenties. His first paper, which was issued in conjunction with J. N. Langley in 1884, had to do with the degenerations in the medulla oblongata and the spinal cord of one of the decorticate dogs which had been exhibited by Goltz

at the International Medical Congress of 1881. Thereafter, and until the beginning of the Second World War in 1939, he continued to publish papers and books, his titles averaging from one to fifteen a year. There are

few parallels in the history of medical literature to such sustained productivity. His output appeared to drop off during the war years, when he was engaged on two monumental works of scholarship—*Man on His Nature* and the biography of the sixteenth-century French physiologist and physician Jean Fernel which was issued by the Cambridge University Press in 1946—works that have brought him widespread acclaim.

Although his first paper had to do with the nervous system, Sherrington did not immediately confine his attention to this field. In 1885 he accompanied C. S. Roy and J. Graham Brown to Spain to observe an epidemic of Asiatic cholera. The following year he went to Italy on a similar mission and took the necropsy material to Berlin, where he began to cut the sections in Virchow's

laboratory. After two unsatisfactory months Virchow, who was then chiefly interested in politics, looked into Sherrington's work and sent him to the laboratory of Robert Koch, where he took the prescribed six-weeks preliminary course in technique and eventually stayed with Koch for nearly a year (1887). During this time he attended Waldeyer's lectures in histology. On these various trips to the



Portrait of Sir Charles Sherrington, O.M., in the possession of the Royal Society. Sir Charles Sherrington is 90 on Thursday, Nov. 27.

\*The first of three invited contributions to celebrate the ninetieth birthday of Sir Charles Sherrington on Nov. 27.

The portrait, painted by the late Mr. R. G. Eves, R.A., is reproduced by the kind permission of the Council of the Royal Society

Continent he also worked under Goltz at Strasbourg in 1885 and again in 1895, and he spent a month with Pflüger at Bonn.

Sherrington's clinical work had been done at St. Thomas's Hospital, where he was appointed Lecturer in Physiology. In order to support himself, however, he became, in 1891, professor and superintendent at the Brown Institution, a veterinary hospital of the University of London financed by those concerned with the prevention of cruelty to animals. Sherrington believed that when an animal had mercifully to be put away it might serve the interests of its fellow creatures if observations could be made upon its basic physiological functions while under terminal anaesthesia. Such was his tact in persuasion and such was the confidence he inspired that he was permitted to conduct the affairs of the experimental laboratory almost completely unmolested. Here it was that he began his classic studies on motor and sensory segmentation. In analysing the distribution of the ventral nerve roots he laboriously stimulated each ventral root from the first cervical down to the last sacral and recorded which muscles were thrown into action. Although begun on cats and dogs, this work was later extended to the monkey; and the observations on the monkey were found closely applicable to the human subject. The sensory dermatomes were similarly mapped by studying the "area of remaining sensibility" when three dorsal roots above and three below the dermatome under study were severed. Once again he included all dermatomes from the high cervical to the sacral, and the sensory maps that resulted have proved the basis of all later work on sensory levels, both of man and of animals.

### A Classic of Modern Physiology

It was while engaged in these studies that Sherrington became interested in the sensory nerves to muscle, and in a paper published in 1894, "On the Anatomical Constitution of Skeletal Muscles," he laid the foundation of our knowledge of what he later termed the "proprioceptive" system. Prior to 1894 anatomical textbooks had tacitly assumed that all nerves going to muscle were motor nerves. With his characteristic habit of studying anatomical relations first (and then attempting to turn his anatomical facts into physiological language), Sherrington found that when dorsal root ganglia supplying nerves passing to a given muscle were removed a large proportion of the nerve fibres of the muscle nerve in question degenerated. He concluded that one-third to one-half of the nerve fibres passing to skeletal muscle nerves are sensory in character. What then, he asked, are the functions of the afferent fibres originating in skeletal muscle?

At that time it had not been established that the various highly differentiated endings, such as the muscle spindles and the other end-organs described by Ruffini and Golgi, were actually sensory in nature. Sherrington severed the ventral nerve roots supplying a particular muscle and reported: "In muscles from which all motor fibres have been entirely removed by degeneration I have never in a single instance failed to find every spindle met with in the muscle still possessed of perfectly sound myelinate nerve fibres. These myelinate fibres are traceable from sensory roots, and penetrate into the spindles and terminate within them." On the other hand, when he deganglionated the dorsal roots at corresponding levels all muscle spindles and Golgi tendon organs degenerated and disappeared.

This paper, as does that on decerebrate rigidity which appeared in 1898, stands as one of the classics of modern physiology. It led Sherrington at once to study the effects in animals of severing the dorsal nerve roots. He found

that the cutaneous nerves of a cat's paw could be completely severed and the animal would suffer no locomotor deficit. Indeed, the cat could walk up the rungs of a sloping ladder and drink a bowl of milk at the top of it without experiencing any difficulty; even though its paws were completely numb. If, on the other hand, the extremities were de-afferented by dorsal root section, the animal, although still possessing motor power, was ataxic in the extreme and was quite unable to negotiate the sloping ladder. Study of the animal's behaviour made clear that it had lost all awareness of the position of the extremities in space. Further examination revealed that tendon reflexes, such as the knee-jerk, were lost, and this incidentally served to establish the fact that the knee-jerk was a true reflex. These studies also shed important light on the clinical condition of tabes dorsalis, in which ataxia develops as a result of impairment of sensory pathways at the dorsal root level.

While the work on the dermatomes and sensory nerves to muscle was progressing Sherrington was also studying the reflexes observable in the spinal and also in the decerebrate state. The celebrated series of papers on reciprocal innervation of antagonistic muscles began to appear in 1893 and continued until after the turn of the century. It was the analysis of the reflex behaviour of antagonistic muscles that led him to the concept of integration. By 1895 his papers had attracted such wide attention that he was called in that year to the Chair of Physiology at Liverpool, where he remained for eighteen years until he went to Oxford in 1913. Before leaving the Brown Institution he had begun to study the motor cortex of monkeys, but since his observations were in rather sharp disagreement with those recorded a few years earlier by Sir Victor Horsley he at first published them only in preliminary form. Sherrington's painstaking map of the motor area had indicated sharp restriction of the motor foci to the precentral convolution, and only when very strong stimuli were used could responses be obtained from the postcentral convolution. The more diffuse maps which Horsley had published Sherrington believed to be due to spread of stimulating current.

### His Silliman Lectures

These early phases of Sherrington's work culminated in his Silliman Lectures at Yale University, delivered in 1904 and issued in 1906 under the title already mentioned, *The Integrative Action of the Nervous System*. Here we find a host of new terms and phrases that have become household words in modern neurophysiology. He had introduced the term "synapse" when writing for Sir Michael Foster's *Text-Book of Physiology* in 1897, but the word did not really take hold until the Silliman Lectures had been published. The term "proprioceptive" was also given general currency in the Silliman Lectures, as was the related term "noeceptive." The cerebellum he described as the "head ganglion of the proprioceptive system."

The influence of *The Integrative Action* proved to be far-reaching in many spheres. The chapter on the motor cortex contained the first general summary of Sherrington's studies on stimulation and ablation of discrete areas. He pointed out that in chimpanzees, oranges, and gorillas the foci of motor representation were arranged in accordance with a definite pattern and that the same general pattern must obtain in the human being. He stressed the fact that the finer movements of the digits had a greater area of representation than the coarser movements such as the hip flexion; and by the same token that lesions of the motor area caused greater deficit for finer movement patterns of the digits than for the coarser movements of the



and shoulder. It is not surprising, therefore, that movement patterns having the least representation in the cortex were the first to recover after a cortical lesion. These observations proved immediately applicable in accounting for the clinical picture of hemiplegia in man, where recovery of motor function proceeds from the proximal to the more distal musculature—i.e., the hip muscles commonly recover motor power before the knee and the knee before the ankle.

### Work on Decerebrate Rigidity

"The integrative action" also revived the Hughlings Jackson concept of release of function to account for decerebrate rigidity and the rigidity of hemiplegia. Thus he says: "Hughlings Jackson with characteristic penetration of thought argued nearly thirty years ago that rigidity ensuing in hemiplegia (hemiplegic contracture) is not owing to the cerebral lesion nor to the lateral sclerosis." Jackson concluded rather that the extensor rigidity stems from unantagonized activity of subcortical centres, possibly from the cerebellum.

Sherrington's analysis of decerebrate rigidity itself, which followed the pattern of his celebrated paper on the subject published in 1898, is characteristic of his approach to a scientific problem. He began with a lucid description of the attitude assumed by the decerebrate monkey: "The hand of a monkey is turned with its palmar face somewhat inward. The hind limbs are similarly straightened and thrust backward; the hip is extended, the knee very stiffly extended, and the ankle somewhat extended. The tail in spite of its own weight, and it is quite heavy in some species of monkey, is kept either straight and horizontal or often stiffly curved upward." He then added that when limbs or tail, head or jaw, are pushed from the pose they have assumed, considerable resistance is felt, and "on being released, they spring back at once to their former position and remain there for a time more rigid than before." He found that deep anaesthesia abolishes the rigidity, but section of the dorsal columns of the spinal cord fails to abolish it; section of one ventro-lateral column of the cervical spinal cord, on the other hand, destroys the rigidity in the fore and hind limbs of the same side. It was also destroyed in a given extremity by posterior root section. This classical analysis of the decerebrate state stands as the corner-stone of modern neurophysiological teaching.

### The Stretch Reflex

After accepting the chair at Oxford, Sherrington devoted his attention to a more minute analysis of individual reflexes. With Frederick Miller he described the swallowing reflexes of the decerebrate cat, pointing out that one of the most effective stimuli of the swallow was a few drops of 30% alcohol. Probably his most important discovery in this later period was that of the stretch reflex, made in 1924 with his colleague, E. G. T. Liddell, who has succeeded to his chair. It had never been entirely clear to Sir Charles why the antigravity muscles could continue in a state of persistent contraction for an indefinite period without some obvious source of stimulation. He had found that the labyrinth could be destroyed, the neck muscles denervated, and the antigravity action still continued. In a given extremity he could denervate the skin and every other muscle save for the one under study—e.g., quadriceps—and the rigidity still continued in that muscle so long as its nerves were intact. Hence the stimulus for maintaining rigidity must arise in the muscle itself, presumably through some of the sensory endings which he had studied so successfully in 1894. When the quadriceps was detached from its insertion in the patella

and allowed to shorten, the sustained contraction of the decerebrate state disappeared; if now the tendon were pulled upon, a sustained reflex contraction ensued—a "stretch reflex" had developed. The stretch of the muscles imposed by the muscle's normal anatomical attachments thus proved a sufficient stimulus to cause sustained contraction. The analysis of the stretch reflex was typically Sherringtonian, and the paper describing it proved as significant as anything that had appeared from Sherrington's pen since *The Integrative Action*.

While preoccupied with the stretch reflex Sherrington turned once again to an early interest—namely, the nature of central inhibition—and in 1925 published his principal paper on the subject. Another interest, which began with his study of sensory-nerve endings in 1894, was the ultimate unit of reflex action. In the case of the stretch reflex it seemed probable that the muscle spindle was the afferent receptor, but the morphological character of the motor unit had received little attention. It was known that following degeneration of sensory-nerve fibres in a muscle nerve the remaining motor fibres were far fewer in number than the muscle fibres in the muscle itself. With J. C. Eccles in 1930 Sherrington discovered that the average motor unit—i.e., the ventral horn cell and the group of muscle fibres which its branching axone innervates—is capable of developing some 10 grammes of tension. Sherrington's pupil, Dean Clark, made nerve and muscle fibre counts of the de-afferented preparations that Eccles and Sherrington had used to determine the contraction values of the motor unit, finding that the ratio of nerve to muscle fibres was approximately 1 to 140—so that on an average a single anterior horn cell controls more than a hundred muscle fibres.

### The Philosophical Aspect

The philosophical implications of Sherrington's studies on the nervous system have often been discussed by his contemporaries, but Sherrington himself remained almost stubbornly silent on the subject until his Rede Lecture, delivered at Cambridge in 1933. Here we find him discussing the brain as an organ of the mind. He has allowed himself similar liberty in the Foreword to the 1947 edition of *The Integrative Action*. In the Rede Lecture he sounds somewhat frustrated when he asks:

"But indeed, what right have we to conjoin mental experience with physiological? No scientific right; only the right of what Keats, with that superlative Shakespearian gift of his, dubbed 'busy common sense.' The right which practical life, naive and shrewd, often exercises. To many of us a mere juxtaposition of the two sets of happenings proclaims their disparity. On the one side changing electrical potentials with thermal and chemical action making a physiological entity held together by energy relations; on the other, a suite of mental experience, an activity no doubt, but in what if any relation to energy? As for me, what little I know of the how of the one, does not, speaking personally, even begin to help me toward the how of the other. The two, for all I can do, seem to remain disparate and disconnected."

In 1947 one detects a similar note:

"In all those types of organism in which the physical and the psychological coexist, each of the two achieves its aim only by reason of a *contact utile* between them. And this liaison can rank as the final and supreme integration completing its individual. But the problem of *how* that liaison is effected remains unsolved; it remains where Aristotle left it more than 2,000 years ago. There is, however, one peculiar inconsistency which we may note as marking this and many other psychological theories. They place the soul in the body and attach it to the body without trying in addition to determine the reason why, or the condition of the body under which such attachment is produced. This, however, would seem to be a real

question.' Instead of, as is usual in physiology, leaving that impasse unmentioned, it seemed better to draw attention to it by the experimental observations in this book's final chapter."

### Conclusion

And so we deem it a rare privilege to hail the man whose intellectual integrity has never allowed him to accept as truth anything that he has not proved to his own satisfaction. To the most profound student of the nervous system the world has yet known, the mind of man remains still unexplained. There are some, however, who may take issue with Sherrington when he modestly insists that the problem remains where Aristotle left it more than two thousand years ago; for many feel that Sherrington himself has pointed the road that will one day lead us to that goal. Some lines from *Ulysses* seem not irrelevant:

Come, my friends,

'Tis not too late to seek a newer world.  
Push off, and sitting well in order smite  
The sounding furrows; for my purpose holds  
To sail beyond the sunset, and the baths  
Of all the western stars, until I die.  
It may be that the gulfs will wash us down;  
It may be we shall touch the Happy Isles,  
And see the great Achilles, whom we knew.  
Tho' much is taken, much abides; and tho'  
We are not now that strength which in old days  
Moved earth and heaven, that which we are, we are—  
One equal temper of heroic hearts,  
Made weak by time and fate, but strong in will  
To strive, to seek, to find, and not to yield.

For a complete bibliography of Sherrington's writings see appendix to the new edition of *The Integrative Action of the Nervous System* (Cambridge University Press, 1947). A full bibliography is also to be found in Denny-Brown's *Selected Writings of Sir Charles Sherrington* (London, Hamish Hamilton, 1940).

## SHERRINGTON—THE MAN

BY

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"Such old enchantment as a boy's  
when life first whispers use of life  
entranced me . . ."

The words are from Sherrington's own verses on Ifley Church, and they confess a spell which in his case has been so strong and lasting that it is almost impossible to believe that we are called on to celebrate the ninetieth birthday of a heart so young. The occasion indeed calls for celebration, but it is difficult for a friend to pay adequate tribute to so essentially living a man, and the task is made the harder by Sherrington's own unself-conscious modesty, which springs from his intense interest in the outside world but nevertheless makes him vulnerable to shafts of honest praise. But he belongs to the world, and not to himself.

Sherrington was born on November 27, 1857. After leaving his school at Ipswich he began his medical studies at Edinburgh, where he was happy, but whence he was soon transferred to Cambridge to be there with his brother. On entering Caius College, his real Alma Mater, in 1880, he took his full part in its life—intellectual, social, and physical. Although slight of build he was fast on his feet and wiry, and in spite of his lightness he played as a forward in the college XV—a fact which says much for his athletic quality. His short sight, which forced him to use glasses, prevented him from taking much part in other games, but later in life he climbed in the Alps until about the time of his marriage, and it is easy to understand how he has retained an interest in, and a sympathy with, athletic games and sports.

### Early Influences

He was at this time greatly influenced by the men, such as Michael Foster and Gaskell, who were then playing their great parts in advancing the young British school of physiology and were bringing the spirit of experimental science into medical research and education as a whole. That spirit ultimately derived from the great experiments of this country who had formed the Royal Society in the seventeenth century; but so far as medical science was concerned, the experimental method had flourished more vigorously in Germany during the period just before the Franco-Prussian War of 1870-1, when it had been brought back from Germany to its original home. In Sherrington's undergraduate days the heaven had so far chiefly affected physiology: anatomy remained a purely topographic study; pathology, not yet established as a chair at Cambridge, was largely a matter of the post-mortem room and the museum.

We may picture the young Sherrington as at first captured by the experimental spirit rather than by physiology as a special field for its adventure; but the picture will also show an unusually keen, inquiring, and zealous undergraduate who not only took a catholic interest in many subjects, but was also urged by his curiosity to learn what he could about the objects of his manifold interests. Above all, he projected himself, as it were, on to the external world, and to that are due his absence of self-consciousness and, closely related thereto, the modesty, too unstudied to be shy, which is sometimes almost an embarrassment to his friends.

Towards the end of his time at Cambridge he was Demonstrator in Anatomy, and then, having taken Part II of the Natural Sciences Tripos with first-class honours, he went on to London in 1884 for his clinical studies at St. Thomas's Hospital. In that year also he held the George Henry Lewes studentship for physiological research at Cambridge, and his first scientific paper, a largely histological examination of the nervous system of one of Goltz's decorticated dogs, was written in collaboration with J. N. Langley. During the winter of 1884-5 Sherrington worked for a time in Goltz's Physiological Institute at Strasbourg, where C. S. Roy had held the post of assistant a few years before.

### Experience Gained Abroad

In 1885 Sherrington obtained his membership of the Royal College of Surgeons, and in the same year he was sent by the Royal Society with C. S. Roy and J. J. Graham Brown to investigate the outbreak of Asiatic cholera in Spain, where these lifelong friends spent the summer and autumn. Of the three, Sherrington proved to be the best linguist, and to him fell the difficult and aggravating negotiations with the various officials who, properly prevented access to the cordoned-off villages, but who could be induced with equal propriety, and by the traditional local method, to let the investigators pass. His mastery of the language led Sherrington to take an interest in Spanish literature, and particularly in the Spanish dramatists; and to it he also owed his friendship with Ramón y Cajal, who stayed with him in London some years later. The obituary notice of Cajal which Sherrington wrote for the Royal Society in 1935 is a tribute not only to that friendship but also to his own capacity for deep feeling. Not least among Sherrington's merits is his gift for solid and disinterested friendship.

After these pathological studies, and during the winter of 1885-6, Sherrington returned for a time to physiology at Cambridge, where Roy, who had been the first George Henry Lewes student in Sherrington's undergraduate days (1881), was now the newly appointed first Professor of Pathology. Later in 1886 Sherrington

investigate another outbreak of Asiatic cholera, and he hereafter spent more than twelve months in Germany, examining his pathological material in Virchow's laboratory and then more profitably with Koeh, but also working in Berlin at experimental physiology with Zuntz and at histology with Waldeyer. On returning home in 1887 he became Lecturer in Physiology at St. Thomas's Hospital, his first independent post. In later years he worked again with Goltz in Strasbourg, and for a short time with Mûlger in Bonn, and elsewhere.

This foreign experience was a strong factor in Sherrington's subsequent development and in his general attitude to academic study. The great German masters of these days had been bred in the traditions of the idealistic, almost pastoral, Germany which existed before the beginnings of industrialization and materialism that followed closely on the Franco-Prussian War and on the creation of the German Empire of the Hohenzollerns. In that older Germany, which persisted in the strongholds of the universities, the ideal of academic liberty and the belief in the obligations as well as in the dignity of the academic life were felt to require open expression and assertion if they, and what they stood for, were to be maintained intact and handed on from master to pupil.

In that atmosphere loyalty was given above all to the objects for which an Institution was the instrument rather than to the Institution as such, and nowhere was this spirit stronger than in Strasbourg. Sherrington had been captured by the missionary spirit of his teachers at Cambridge. At Strasbourg, his first foreign experience, he again met it. When the Prussian Government refounded that university soon after the annexation of Alsace as a spoil of the Franco-Prussian War, the new chairs were offered to the best men in Germany, who regarded it as a point of honour not to refuse the call. The missionary spirit which moved that brilliant group of men was further strengthened by the local atmosphere which prevented social contacts between Germans and Alsations and, even up to the time of the first world war, made it impossible for the two to drink their midday coffee at the same restaurant on the Kleberplatz. The isolated Germans could not have failed to feel, as in fact they did feel, that they held their chairs *in partibus infidelium*, and, as a necessary effect, their strong academic idealism seemed to call more than ever for conscious expression, almost fanatical.

The beginnings of the anti-vivisection crusade had already caused something of the same sort to happen at home, and to the impact of these missionary atmospheres may perhaps be ascribed Sherrington's strong views about academic liberty and intellectual honesty, his clear vision of the objective beyond its instrument, his belief in the fearless but judicious expression of opinion, his hatred of academic or political expediencies, and his distrust of what he calls "institutionalism"—the concentration of personal loyalty on the corporation rather than on the end for which it is devised. His rare anger is roused by sins against his own high ideal, and by little else except unworthy conduct, or meanness, or (as a passing flash) the culpable ineptitude of some unfortunate assistant. He taught one that in all things only the best is good enough, but he could sympathize even with our shortcomings.

#### His Contributions to Knowledge

Sherrington became professor-superintendent of the Brown Institution in 1891, and his marriage in 1892 began a continuously happy partnership with the lady to whose kindness we all owed so much. During the four years of his work at the Brown Institution before he succeeded Gotch as Professor of Physiology at Liverpool in 1895, Sherrington's scientific interest definitely turned to the

subject which became his life's work. Before 1891 the greater number of his contributions to knowledge had been concerned with the structure of the nervous system; thereafter, the localization of function, as in the spinal roots, attracted him; and his interest in the clinically significant knee-jerk led him finally to the study of reflex function itself, as is described elsewhere by the able pen of Professor Fulton. Here again he gave his loyalty to the end rather than to the instrument—to function rather than to structure—and the parallel is revealing.

As a lecturer Sherrington had defects due to his own scrupulous search for exactness and clarity. He would pause, seeking the only word or phrase which would convey his precise meaning, and his dislike of dogmatic assertion caused him to insert qualifications and corrections as if in brackets. This would lead to hesitations and complexities, and it gave the impression that his own thought was being created and moulded as he went along. The ordinary student, fresh from the unequivocal teaching of the anatomy class, disliked the mental effort of learning which Sherrington's lectures demanded; but to those who wished to learn the effort was itself educative, and both the matter and the manner were fascinating. Similarly, his published work at first appealed to a limited circle, although within that circle the appeal was strong; and this was perhaps to be expected where a new terminology had to be invented in what was to all intents and purposes a new field, where the subject itself was of great complexity, and where the results might strike the unthinking as purely "academic"—that is, as of little practical significance. Even the importance of Sherrington's *Integrative Action of the Nervous System*, which was published in 1906 and is now recognized to be a landmark in physiology, was realized somewhat slowly by the generality.

#### His Varied Interests

It was to those who worked in his laboratory that Sherrington gave most and showed most. The research student would enter it, timidly, with a mental picture of the author of *Integrative Action* as a man who must dwell in a sphere of his own making, difficult to attain or to travel in—a man necessarily aloof and out of common reach, "academic," coldly intellectual. But the disarming spirit of equality with which the recruit was received at once destroyed a mental barrier which could not in any case have for long withstood the sympathetic friendship which was offered by Sherrington and earned lasting friendship in return. There was no pomp, no vestige of that Olympian arrogance which was so evident in some of the larger German institutes of the time. The laboratory life was a continuing adventure with always widening horizons. Chance talk would reveal what (but only at first) seemed to be Sherrington's surprising interests outside his own sphere—the Roman Wall, the Dutch masters of painting, Gothic architecture, old books and out-of-the-way bypaths of literature, the history of mechanical inventions, poetry (with strong preferences—Keats for one, and Tennyson, when the latter was still under a cloud in Bloomsbury), the Darwinian theory of evolution, the aesthetic movement of the 1880's, Canada, and all things youthful and adventurous. These in their turn would disclose unsuspected capacities for feeling and depths of feeling, as did Sherrington's own occasional verses. It was indeed possible, without self-consciousness, to show one's own verses to Sherrington—a thing which speaks for itself. In his emotions, too, Sherrington was catholic, and he would be moved not only by the beauty in a picture, or in an act, or in a mountain scene, but also by the beauty of an experiment or of an ingenious technical method. And always there was originality and insight. What would

delight the pupil was less the width of Sherrington's interests than the depth of his knowledge in each; and by the time the pupil had replaced his first crude picture with that of a many-sided, a lovable, and a very human man he himself had received a liberal education.

In such matters Sherrington for long kept himself to his intimate circle of friends except for the rare event of such verses as those in which he wrote of Canada in 1911, and the later poems to which he was moved by the first world war. It is true that he published some of these in *The Assaying of Brabantius* in 1925, but it was not until after he had retired from the chair of physiology at Oxford in 1935 that he really began to give the ordinary cultured reader what he had given to his happy laboratory or at his own fireside. Three articles in the *Cornhill Magazine* of 1936 and 1937 may be instanced here, as also his penetrating essay on *Goethe* (1942) and some remarkable reviews such as that in *Nature* (1937) on Ramón y Cajal's *Recollections*. But amongst all the works of these recent years there stand out his two memorable books—*Man on His Nature* (the Gifford Lectures given at Edinburgh in 1937-8 and published in 1940) and *The Endeavour of Jean Fernel*, which appeared only last year. When we reflect that these multiform activities are the work of a man in his ninth decade and sadly hindered by arthritis, we can only marvel at the persisting strength of the enchantment cast by Sherrington's youthful spell. And now, because it is the privilege of the recipient to ask for more, we may send our greetings and our thanks to Sherrington with fervent hope that he will long be preserved to add to the debt which we already owe him, and to continue what he himself expressed in *Brabantius*:

"Impulsion stirred me, resolute  
with heart a-search and hastened foot,  
to work men service. . . ."

## SHERRINGTON AS PHILOSOPHER

BY

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It should be the task of the philosopher to review critically the thought of his day, taking the various specialist modes of approach in a wider setting than is needed for a purely specialist treatment and trying to attain to a more comprehensive or synoptic view. There is an aspect of this task which is often forgotten and seldom rated as highly as it deserves. That is the interpretation of the thought of the past so as to make it intelligible to the present. In scientific subjects it is easy to get a distorted perspective unless we understand how recent thought has grown out of the earlier stages through the efforts of the pioneers, who nearly always mingled acute insight with confusion.

Because this work of interpretation is generally underrated I mention first Sir Charles Sherrington's exposition of the ideas of Jean Fernel in *Man on His Nature* and in his more recent book *The Endeavour of Jean Fernel*. In the fifteenth century, though Vesalius and Copernicus were at work, no branch of science except mathematics had yet reached a firm basis. Medicine was still weighed down by misunderstood tradition, bogus information, and downright superstition, astrology specially. Though scientific medicine belonged to the future, Fernel was struggling towards the light in a most interesting and suggestive way. To interpret that struggle requires sympathetic insight, a firm grasp of principle, and much hard work to see what lies behind confused and archaic terminology and to reconstruct

forgotten ideas. The book on Fernel is a masterpiece, and—that very rare combination—a book that is a pleasure to read and also a work of scholarship in the strictest and most academic sense. In his lecture *Goethe on Nature and Science* Sir Charles shows the same skill in interpretation. Of course the reason for his skill is not far to seek. The author is both a poet and a man of science.

### His Gifford Lectures

However, the philosophy of Sir Charles will always be judged by *Man on His Nature*, in which he took the opportunity afforded by the Gifford Lectures to survey the relations of the material, the living, and the conscious as displayed in the functioning living organism in general, and more especially in the functions of the nervous system. He also considered the place of mind or conscious life in the universe as a whole. The modern sciences of physics and chemistry, he argued, have expanded and sharpened our conceptions of material things so that the old simple-minded view that life is a kind of fire, which passed muster in the days of Fernel, is now dropped except as a metaphor, apt in one respect but misleading in all others. If greater knowledge of the material world has sharpened certain distinctions and abolished old fallacies it has not solved the main problem of the relation of the material and the mental; indeed, it has raised new problems. The physics and chemistry of the living body are peculiar and complex, but still physics and chemistry.

In the purely material realm things and processes, though in some respects continuous, are in other respects "granular," wrapped in bundles all separate and all similar—the quantum of action, the electron, the atom, the molecule. In the organic realm there are also "granular" entities on a larger scale that are fundamental—the gene, the nervous impulse, the cell. There is in addition a process of co-ordination or integration at work, operating through purely physical and chemical means, yet exemplifying an order over and beyond the physical order. In spite of this integration, the most elaborately integrated of all organisms, the human, though possessing a master organ, the brain, possesses no master cell. Instead, the highest centres of the brain appear to be a kind of republic of millions of cells. Where does the mind come in? Mind is certainly not granular in the way that atoms and nervous impulses are. It is not a special kind of matter or of energy, as earlier speculators often suggested.

The bodily organism which contains millions of cells can do a number of things simultaneously by means of reflexes and acquired habits, but the mind attends to one thing at a time. It goes so far as to see one visual field through the medium of two distinct organs. Moreover, for a great deal of psychology knowledge of brain function is irrelevant. This is seen equally in the modern work of the psychoanalytic school and the many excellent psychological observations of Aristotle, who associated the heart, not the brain, with conscious life.

### Association of Mental Process and Bodily Functioning

In all this discussion Sir Charles brings out clearly the close association of mental process and bodily functioning, and at the same time the difficulty, if not the impossibility, of completely identifying the mental with any kind of structure or activity of the body. Aristotle in his own way seems to have felt the same difficulty. He conceived of a hierarchy of bodily activities, the higher developing out of the dependent on, and yet fulfilling the lower. Sometimes he seems to identify the highest bodily activity with reason, activity and sometimes to consider mind as distinct and perhaps even separable, following Plato to that extent. Sir Charles's conclusion is that man is really part of the

natural world from which he has developed, yet his mind in some way distinct and able to judge that world as rough from outside by means of its own conception of value. The world so judged is often found wanting.

A striking part of the discussion is the account of the life history of the malaria parasite and its implications for human life. From the point of view that I may perhaps be allowed to call plasmodio-centric, the story reveals a triumph of adaptation to environment. From the anthropocentric view the triumph is a terrible curse, one of the great disasters. Malaria has destroyed whole civilizations and still brings death and misery to millions. We cannot avoid believing that in this matter the anthropocentric view as a cosmic significance which the plasmodio-centric lacks. We deny that *Plasmodium* has as good a claim to be heard as *Homo*. However, if human moral judgment leads us to condemn some of the happenings of the natural world and approve of others, that is to be taken as a challenge to action, to maintain what is right and alter what is wrong. So far, but no farther, Sir Charles goes beyond his original starting-point of purely natural knowledge, because an honest acceptance of fact compels him to do so. He takes throughout his own line and works things out his own way, but he supports the testimony of a number of thinkers of our time who have deliberately started out from a naturalistic standpoint and found themselves forced to go beyond it by sheer pressure of facts. Alexander, Whitehead, and Laird may be mentioned, and also Woodbridge, in America. Where these thinkers differ most is after they leave the naturalistic view, and there Sir Charles has not committed himself. We must be grateful for what he has given us, expressed with rare felicity. When distinguished men of science, as Gifford Lecturers or otherwise, expound their philosophies they seldom do it so well. Above all, few have the skill in pilotage needed to avoid equally the Scylla of superficiality and the Charybdis of obscurity.

### The Synoptic View

In conclusion, perhaps I may turn to Sir Charles's more strictly physiological work, particularly *The Integrative Action of the Nervous System*. Before that book was published there were plenty of facts available but a singular

lack of the right concepts to interpret them. Sir Charles of course marshalled the known facts, adding a good many he had discovered for himself, but above all he provided the concepts which have been used ever since. Pre-Sherringtonian physiology of the central nervous system reminds one of the Oriental tale of the four blind men who examined an elephant. One seized a leg and said the elephant was a kind of tree; another a tusk and proclaimed it a kind of spear; the third the trunk and found it like a snake; the last got hold of the tail and said it was just a rope. Every statement reports a fact, and up to a point does it correctly; but they do not hang together.

The nervous system does contain converging and diverging paths; but how are they interconnected? Its functional unit is the reflex; but how are reflexes interconnected? A reflex does work rather like a penny in the slot machine, but not altogether; what are the differences? Given the Sherringtonian conceptions, anatomical and physiological facts could be seen in a new light—seen all together in a synoptic view and each also better seen in detail. Some of the important points have been well summarized in the foreword added to the new edition of *The Integrative Action*. Any reflex even at the lowest end of the scale operates as part of a system and uses the motor organs of the animal as a whole, though not all at once. It is not a matter of one bundle of receptors, one bundle of paths, and then one bundle of muscles. At the same time, a reflex has a permanent and apparently innate anatomical basis, so that it is an error to confuse reflex action with acquired habit. These more adequate conceptions are not so very easy to grasp; it is much easier to slip into the penny-in-the-slot view and to forget the limitations of reflex action—indeed, it is frequently done.

I mention these points because here, within a definitely restricted scientific sphere, Sir Charles has done the kind of thing the philosopher is always trying to do in a less restricted sphere with rather partial success. In some branches of science it may be possible to do without the synoptic view and see each thing separately; the trees may be more important than the wood. That is hardly possible in physiology, certainly not in the physiology of the nervous system.

## METABOLIC DISTURBANCES AFTER INJURY\*

BY

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It is remarkable that the existence of a disturbed metabolic state after injury should have remained unrecognized until 1929, when Cuthbertson observed an increase in the urinary nitrogen output following fractures in experimental animals. Later work demonstrated that this phenomenon also appeared in well-nourished human subjects who had sustained injury. The pattern of the metabolic changes in human patients has been worked out in detail (Stevenson *et al.*, 1945). During the first week after injury the urinary nitrogen output rises to a peak and brings about a phase of negative nitrogen balance even on high-calorie and high-protein diets. The output declines until about two to three weeks after injury, when it equals the protein nitrogen input. This phase is called the "katabolic" phase. Following it the input and output remain about equal for a few days or a week, and then the nitrogen output tends to

decline and a phase of positive nitrogen balance begins. This lasts for a variable period, but is usually complete in two to three months after injury. This latter is the "anabolic" phase during which part at least of the nitrogen loss of the "katabolic" phase is repaired. The work of various investigators has shown that at least three factors condition the magnitude of increased nitrogen output in the "katabolic" phase—immobilization in bed, the severity of the injury, and the nutritional state of the individual at the time of injury.

### Effect of Confinement to Bed

Keys (1944) observed four normal well-nourished subjects who were put to bed for three to four weeks and allowed out of bed only to evacuate the bowels. At the end of three weeks the nitrogen losses were 51.7, 38.5, 58.6, and 43.5 g.; the body weights, however, showed no appreciable change. In the subject who lost 43.5 g. of

\*An abridgment of the Bernhard Baron Lecture given at the Royal College of Surgeons of England on July 4, 1947.



nitrogen the weight fell by only 0.86 kg. at the end of three weeks. With one exception all the nitrogen losses in the third week in bed were in excess of those observed during the first week (Table I).

TABLE I.—Nitrogen Loss from Confinement to Bed (Calculated from Keys's data)

Period	Nitrogen Balance per Period			
	Case 1	Case 2	Case 3	Case 4
Control .. ..	0	0	0	0
1st week in bed .. ..	-18.4	-13.4	-12.0	-12.5
2nd " " .. ..	-9.3	+2.9*	-21.5	-19.5
3rd " " .. ..	-24.0	-28.0	-25.1	-11.5
Total in bed .. ..	-51.7	-38.5	-58.6	-43.5
Ten days after getting up ..	+8.6	+5.3	+14.2	+27.4

\* Protein input raised from 54 to 200 g. protein for this week.

These findings are of great importance, for they show clearly that a protein intake of 54 g. a day is not sufficient to prevent nitrogen loss in a patient confined to bed on an adequate calorie input. On the other hand Keys noted that in two subjects confined to bed it was possible to bring about a state of positive nitrogen balance on an intake of 110 g. of protein a day. Positive nitrogen balance during the ten days immediately following the three weeks in bed was attained on a protein input of 84 g. a day (13.4 g. of nitrogen). The variations in the speed with which the lost nitrogen was restored were most remarkable, although the diets were identical.

#### Effect of Injuries of Differing Severity

The following studies indicate how the magnitude of the nitrogen loss varies with different types of injury (Table II).

TABLE II.—Operations and Injuries (Age of patients, 21-34 years)

Trauma	Negative Nitrogen Balance		Duration of "Katabolic" Phase (Days)
	G.	G. per Day (average)	
Appendicectomy {	26	2.2	12
	29	2.4	12
	37	2.2	17
Burns (lower limbs) {	201	5.2	39
Burns (hands and arms) {	216	4.6	47
Fracture of humerus ..	98	3.4	29
Fracture of femur ..	124	3.0	41
Osteotomy .. ..	32	2.3	14

The duration of the "katabolic" phase is given. This is measured from the morning of the day of operation in the operation cases and from the morning of the day after injury in the accident cases. All these patients were given diets which contained 2,750 calories and 100 g. of protein (16 g. of nitrogen) daily. On such diets Keys's data would indicate that normal uninjured persons confined to bed would have been in positive nitrogen balance or at least in nitrogenous equilibrium. The losses recorded in these cases of injury or operation may therefore be ascribed to the effects of the injury sustained. The total nitrogen loss and the average daily loss would seem to bear a direct relation to the severity of the injury, being highest in the cases of burns and lowest in the operation cases. Similar results have been reported by Browne and his group.

#### Effect of Undernourishment Before Injury

Browne *et al.* (1945) drew attention to the apparent absence of a "katabolic" response after operation or injury in persons who at the time of injury were in a poor nutritional state. Howard and Mason (1946) showed that when such people were put to bed they did not go into negative nitrogen balance as Keys's subjects did, and, moreover, when subjected to operation a negative nitrogen balance either did not develop or if one appeared it was of small

magnitude. The following case illustrates the absence of the "katabolic" response in a poorly nourished patient.

A man aged 65 was suffering from an annular carcinoma of the oesophagus. Owing to difficulty in swallowing, food had been restricted for about three months, and for three weeks before admission had been limited to fluids. He had lost about 20 kg. when admitted—normal weight, 64 kg. The late Mr. Tudor Edwards regarded the condition as operable and planned the removal of the section of the oesophagus containing the tumour and anastomosis of the oesophagus to the stomach within the thorax. The necessary freedom was secured by displacing the major part of the stomach into the left pleural space. The operation was successful and the patient recovered.

Before operation it was estimated that the patient was in nitrogenous equilibrium on a diet containing 1,600 calories and protein equivalent to 5 g. of nitrogen a day. On the day of operation and for the next six days he received by vein solutions of protein hydrolysate and glucose sufficient to provide 1,600 calories and 8.6 g. of nitrogen. Over the seven days the nitrogen balance was:

Input nitrogen ..	60.2 g.	Urinary nitrogen ..	51.8 g.
		Faecal nitrogen	
		(10% of input)	6.0 g.
			57.8 g.

There was thus an apparent but slight positive nitrogen balance equal to 0.34 g. of nitrogen a day. While such a small positive balance is of little significance, it is significant that he did not go into negative nitrogen balance.

#### Source of the Excess Urinary Nitrogen

Cuthbertson *et al.* (1939) showed that "katabolic" response was absent after injury in experimental animals which had been fed on a protein-free diet until their nitrogen excretion became constant. They suggested that the excessive output of nitrogen which follows injury arises from storage protein and not from essential tissue substances, as when the storage protein was depleted there was no increase in the output of nitrogen after injury. Body protein has been differentiated by Whipple into (a) "fixed" or indispensable cell protein without which cellular life ceases, (b) "dispensable" protein which can be yielded up by the cell as a source of energy during starvation, and (c) "labile" protein which can move out of or into the cell when the concentration of the plasma proteins falls or rises. Presumably Cuthbertson's storage protein can be equated with the sum of "dispensable" and "labile" protein of Whipple.

This protein may be present in the cell cytoplasm either as something apart from the cell protoplasm or as only a part of the cytoplasmic mass. If the cytoplasmic mass were reduced in quantity the cell would yield up not only protein but a quantity of its intracellular fluid. On the other hand it is conceivable that the cytoplasm could yield up protein while conserving its intracellular fluid. Howard and Mason (1946) found in cases of injury that nitrogen loss was not accompanied by a proportionate loss of potassium and phosphorus from the body. Presumably protein was yielded by the cell cytoplasm, but the intracellular fluid, which contains potassium and phosphorus, was conserved. Keys (1944), however, found in patients who were confined to bed but were otherwise normal that there was some potassium loss during the period when a negative nitrogen balance existed. Presumably such persons did lose some intracellular fluid. He noted that the body-weight loss was less than that which might be expected on the basis of the nitrogen loss. Both groups of experiments thus tend to support the idea that the body cells can yield up some of their protein without an proportionate loss of intracellular fluid. The evidence is therefore in favour of some part of the cellular protoplasm being "storage" protein. This, however, must not be taken

to imply that such protein is an inert store. It is difficult to estimate how much protein can be yielded up without causing death of the cell. Lusk (1928) calculated that the average human subject weighing about 68 kg. had a total nitrogen content of 2,000 g. Howard (1943) and Stevenson *et al.* (1945) have reported nitrogen losses of between 250 and 300 g. after fractures and burns. If all this nitrogen came from "storage" protein at least 15% of the body protein is available for the "katabolic" response. It is possible that when this amount of nitrogen is lost some mechanism may come into play to prevent destruction of more protein.

### Mechanism of the "Katabolic" Response

Present knowledge of the mechanisms involved in the "katabolic" response is extremely scanty. Some facts have been brought to light which may in the future be found to have some causal relationship to the increased nitrogen output after injury. It has been found in normal persons that a few days after injury the urine contains large quantities of a cortin-like material (corticosteroid). The amount may be from three to five times the normal amount. The peak output is reached by the end of the first week after injury and thereafter tends to decline, reaching the normal level at about the time when nitrogen equilibrium is established (Browne, 1942). There is thus some parallelism between the daily excretion of corticosteroid and that of nitrogen. This material when concentrated has the power of increasing the glycogen content of the liver. This effect is identical with that obtained after the injection of the cortin (corticosteroid) of the adrenal cortex. It is believed that this corticosteroid inhibits the synthesis of amino-acids into protein. Consequently these acids, if not utilized by the body, are deaminated by the liver and in part built into liver glycogen. Their nitrogenous fraction is transformed into urea and excreted. If it be assumed that the increased excretion of corticosteroid after injury represents an increased production of the substance and not a diminished utilization or an increased permeability of the kidney to them, it might be inferred that a causal relationship exists between increased corticosteroid production and increased nitrogen output. Such an inference is, however, not justified, for many reasons. Injections of pituitary corticotrophic hormone into normal persons induce an increased output of corticosteroid in the urine (Schenker and Stevenson, 1943), an effect which is not accompanied by a parallel rise in nitrogen output. Vénning (1944) has reported a case of burns which had a high corticosteroid output until the 28th day after the accident. Nitrogen excretion commenced to decline on the 21st day in spite of an increased protein input which had been given from the 12th day. The nitrogen balance in fact became positive before the level of corticosteroid excretion began to fall. This must mean that the "katabolic" response was waning at least 10 days before the corticosteroid output decreased.

It has been pointed out that in debilitated subjects injury does not lead to an increased output of nitrogen in the urine. The urinary corticosteroid excretion in such cases either is not increased or is reduced below the normal level. This lack of adrenal response to injury suggests that the explanation of Cuthbertson *et al.* (1939) that the lack of response was due only to absence of "storage" protein is not adequate. If such persons were given a large protein input after injury it might be expected that they would katabolize this extra protein as would a normal person who had been injured. The fact that they do not, but instead conserve the increased protein input, suggests that the mechanism for the "katabolic" response is being

inhibited. The following case shows how avidly the organism seizes on the extra protein in the input when injury is sustained in the debilitated state.

A child aged 14 received multiple injuries including fractures of both tibiae and fibulae and severe lacerations to one of the lower limbs. After 10 weeks in hospital the fractures had not united and epithelization of the lacerated area had slowed down considerably. Skin-grafting of this area failed. Observation for a week after the skin-grafting operation showed that the nitrogen input was 39.5 g. and the total nitrogen output 40.2 g. Calorie input averaged 1,520 calories a day. The calorie input was raised to 1,750 daily with a protein nitrogen content of 15 g. a day. Over this week the nitrogen balance was:

Nitrogen input ..	106.5 g.	Urinary nitrogen ..	38.5 g.
		Faecal nitrogen	10.7 g.
		(10% input) ..	49.2 g.

Positive nitrogen balance = 57.3 g., or 8.2 g. a day.

At the end of the week there was a noticeable improvement in the clinical condition and an active epithelization of the lacerated area. The denuded area from which the skin-graft had been taken was healing rapidly. The diet was increased to 2,100 calories and 22 g. of nitrogen a day. At the end of this week the nitrogen balance was:

Nitrogen input ..	160.3 g.	Urinary nitrogen ..	49.2 g.
		Faecal nitrogen	16.0 g.
		(10% input) ..	65.2 g.

Positive nitrogen balance = 95.1 g., or 13.6 g. a day.

After another week on the same diet the positive nitrogen balance was 81.1 g., or 11.6 g. a day. The total gain in nitrogen was 233.5 g. over a period of three weeks. It was then decided to skin-graft the lacerated area. During the following week, the first day of which was the day of operation, the nitrogen balance was:

Nitrogen input ..	132.7 g.	Urinary nitrogen ..	156.2 g.
		Faecal nitrogen	13.3 g.
		(10% input) ..	169.5 g.

Negative nitrogen balance = 36.8 g., or 5.3 g. a day.

Thus after a period of three weeks in a state of positive nitrogen balance a second operation provoked the normal response ("katabolic") which was lacking after the first. The clinical condition during this "katabolic" phase remained good and the skin-graft "took." Healing was rapid, and four weeks after the increased diet had commenced the fractures had united firmly.

The "katabolic" response to injury is thus conditioned not only by the injury itself but by some other unknown mechanism which may or may not involve the adrenal cortex. The fact that a mere increase in the corticosteroid output in the urine in normal uninjured persons produced by pituitary corticotrophic hormones is not associated with increased urinary nitrogen output suggests that increased adrenal activity alone cannot explain the "katabolic" response (Browne, 1943). In the debilitated person who has been injured increase in the protein input is not accompanied by increased nitrogen and corticosteroid outputs, which is precisely the reverse of the reaction of the normal individual. Browne *et al.* (1945), however, have reported two cases in which there had been loss of weight but which responded to increased nitrogen inputs by a typical "katabolic" reaction. Both patients died. It would appear that in them the mechanism which inhibited the "katabolic" reaction in the debilitated state was absent. In one of these cases the corticosteroid excretion was estimated and found to be of the same order as that of previously healthy severely damaged individuals.

In the "anabolic" phase which follows after the "katabolic" reaction the urine contains normal quantities of

the urinary corticosteroids and also of the 17-ketosteroids. The latter substances are derived in part from the adrenal cortex. Kochakian (1946) has shown that a 17-ketosteroid, presumably of adrenal origin, which has the power of conserving nitrogen can be isolated from the urine. This power is possessed by 17-ketosteroids of gonadal origin but is less pronounced in them. The magnitude of the positive nitrogen balance during the "anabolic" phase is not paralleled by the magnitude of the 17-ketosteroid excretion. It is independent of both the corticosteroid and 17-ketosteroid excretion. Testosterone propionate has been used with some success in increasing the positive nitrogen balance, but it has obvious disadvantages. It cannot in any way inhibit the "katabolic" response after injury in normal persons, but can increase the positive nitrogen balance after injury in debilitated individuals. The factors, other than the level of protein input, which influence the magnitude of the positive nitrogen balance in the "anabolic" phase are thus unknown.

Cuthbertson (1943) considered that the increased nitrogen loss after injury might result from the breakdown of protein molecules in an attempt to supply some component amino-acid of the protein molecules which was necessary for the repair process. If such an amino-acid formed, say, 3% of the protein molecule the remaining 97% of the molecule might be metabolized, as it could not be re-synthesized into protein in the absence of an essential part of the molecular structure. The nitrogenous portion (amino-N) of 97% of the protein molecule would be transformed into urea and excreted, leaving the carbon chains to be utilized for energy production or for storage as glycogen. Croft and Peters (1945) thought that in burns the organism might require extra methionine. They reasoned that if this were so then the addition of an adequate quantity of this amino-acid to the diet would satisfy the need and spare protein from being broken down to meet it. Their results suggested that methionine supplements reduced the nitrogen loss after burns. Unfortunately it has not been found possible to confirm their results in human patients subjected to injury or after burns. This, however, does not imply that Cuthbertson's original hypothesis is untenable. The amino-acid necessary for repair might be one of the other "essential" amino-acids of the protein molecule. Rose, Haines, and Johnson (1942, 1943) have shown that nitrogen equilibrium can be maintained in human subjects when all the input nitrogen is provided by ten "essential" amino-acids. If one of these amino-acids is removed from the daily input a negative nitrogen balance follows. Until it has been shown that supplements of these "essential" amino-acids do not reduce or abolish the negative nitrogen balance after injury or operation Cuthbertson's hypothesis remains as a possible explanation of the reason why a negative balance occurs. It does not, however, offer an explanation of how the body protein is broken down and the "essential" amino-acid rendered available.

The position at present is very unsatisfactory. A hypothesis which suggests that the negative nitrogen balance after injury is due to the demand for some component of the protein molecule, the remainder of the molecule being metabolized, is not proved. On the other hand a possible hormonal mechanism which on being brought into action inhibits protein synthesis and permits the de-amination of amino-acids to take place at an increased rate has not been proved to have a causal relationship to the "katabolic" response to injury. Thus both the "why" and "how" of the "katabolic" response are uncertain. The finding (Cuthbertson, Shaw, and Young, 1941) that injections of crude extracts of the anterior pituitary gland into animals

with experimental fractures prevented the usual weight loss and excessive nitrogen output is difficult to explain. It might have been expected that such injections would lead to increased activity of the adrenal cortex and presumably to an increased output of corticosteroid, with consequent inhibition of protein synthesis. Precisely the reverse occurred.

The same group of workers made the significant observation that skin wounds in experimental animals did not heal as rapidly as normal when crude extracts of anterior pituitary gland were injected. Now that relatively pure corticotrophic hormone from the pituitary gland is available these experiments require to be repeated and some attempt made to assay the urinary output of corticosteroid and 17-ketosteroids.

### Vitamin C and Injury

For some years past in most surgical clinics ascorbic acid (vitamin C) supplements of 200-500 mg. have been employed as a routine in the post-operative period and after injuries. Wolbach (1937) defined the function of the vitamin as being concerned with the production and maintenance of intercellular substances. Bourne (1944) showed that the tensile strength of healed wounds was increased when adequate quantities of the vitamin were provided in the diet. The demand for ascorbic acid is, however, much greater than might be expected were it to be used only at the site of injury. All the patients listed in Table I received daily supplements of 500 mg. of ascorbic acid from the day of operation or from the day after accidental injury for periods up to 25 days. During the first five days of administration no trace of ascorbic acid could be detected in the urine. In the second five-day period the operation cases were all excreting between 50 and 100 mg. of the vitamin on the 10th day. The vitamin was not excreted in the cases of accidental injury. During the third five-day period the ascorbic acid output of the operation cases had risen to between 176 and 234 mg. a day on the 15th day. No vitamin was detected in the cases of burns on this day. These cases were given supplements of 500 mg. for a further 10 days. On the 20th day the fracture cases were excreting more than 150 mg., but no ascorbic acid appeared in the cases of burns. These showed traces of the vitamin on the 23rd day, and on the 25th day excreted less than 100 mg.

Long (1947) has pointed out that when the adrenal cortex is thrown into activity by some physiological stress such as injuries or infections the ascorbic acid content of the cortex diminishes. In his article he has noted the work of Lowenstein and his colleagues, who have suggested that ascorbic acid is a necessary component of some of the active corticosteroids existing in the adrenal cortex. It is thus probable that some part of the increased demand for ascorbic acid after injury may come from the adrenal cortex. The relation of ascorbic acid to the "katabolic" response may be even closer than this statement implies. The vitamin in the presence of traces of copper is known to augment the activity of the enzyme arginase (Edlbacher and Leuthardt, 1933). As arginase is concerned with what appears to be the principal urea-producing mechanism in the liver (Krebs and Henseleit, 1932), the importance of this reinforcing action is apparent. Kochakian (1944) has found that after a period of undernourishment rats show a fall in the liver arginase of 52%. It is by no means certain that the local demand for the vitamins at the site of injury, the need for more ascorbic acid in the adrenal cortex, and an increased supply to the liver are sufficient to explain the large over-all requirements of the body for ascorbic acid after injury.

### Calcium Metabolism after Injury

It has been pointed out above that mere confinement to bed can produce a negative nitrogen balance. Reifensstein (1942) also showed that under like conditions the urinary calcium output may be doubled and the faecal calcium increased by one-third. In fracture cases the increased urinary calcium excretion reaches much higher levels. It then becomes a potential danger, for if conditions within the urinary apparatus are favourable the calcium may be precipitated as calcium phosphate and give rise to renal calculi. Shorr (1942) has shown that calcium excretion in the urine is balanced accurately in normal persons by the excretion of citrate. If enough of the latter ion is not available precipitation of calcium phosphate may occur. Investigations by Shorr and others have led to three possible methods for preventing calcium phosphate precipitation. The first is to use substances which can act as precursors of urinary citrate. No fully adequate material, however, has yet been found. The second method is to increase the output of urinary citrate by the use of oestrin; but such a method is not always desirable on account of other effects. The third method is to reduce urinary phosphate excretion by increasing faecal phosphate excretion. This Shorr (1943) accomplished by giving aluminium hydroxide by mouth. That substance forms an insoluble precipitate of aluminium phosphate in the bowel and leads to increased passage of phosphate into the bowel lumen. The value of these methods has not yet been fully explored.

### Summary

In well-nourished persons subjected to injury the urinary nitrogen output increases to reach a peak by the end of the first week after injury. This high output gradually declines until in less severe injuries it reaches the normal level by the end of two to three weeks. Thereafter the level of output may decline further, but by the end of two to three months it returns to normal. The high nitrogen output may be diminished but not abolished by high-protein diets during the first seven to ten days. Continuation of such diets, however, leads to a positive nitrogen balance during the latter half of the period of high urinary nitrogen output and during the subsequent period. In this way the depletion of body nitrogen is compensated. The magnitude of the nitrogen loss in the urine depends on the nutritional state of the individual and on the severity of the injury. Some of the loss is due to the effects of immobilization in bed, but this part is relatively small. Poorly nourished individuals show either no metabolic response or a diminished one after injury. There is evidence that the severity of the injury conditions the magnitude of the nitrogen loss in the urine. The source of the nitrogen lost in the urine during the period of high output is the body cells. These apparently can yield up protein without affecting their viability.

The mechanisms involved in these metabolic disturbances are unknown. It has been shown that the urine during the period of high nitrogen output contains large quantities of corticosteroid material presumably derived from the adrenal cortex. It is not certain how an increased output of such material is related to the increased urinary nitrogen output.

After injury the body requirement for ascorbic acid (vitamin C) is apparently greater. Some of the increased demand may be due to an increased utilization in the adrenal cortex and the liver and some to the needs of the tissues at the site of injury.

The increase in calcium output in the urine after injury is a potential danger, as insoluble calcium phosphate may be precipitated, leading to the formation of calculi. Various methods of treatment to avoid precipitation have been advocated, but these are still in the experimental stage.

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## SYNCHRONOUS COMBINED TOTAL GASTRECTOMY

BY

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Since the introduction of transthoracic total gastrectomy in 1938 there has been an appreciable improvement in the results of surgery in carcinoma of the stomach. The work, among others, of Churchill, Sweet, Garlock, and Phemister testifies to this admirably and has altered the whole outlook, but even now the figures leave a good deal to be desired. The five-year cure rate is depressingly low, though it is early to assess it, and the mortality rate far too high. Finney and Rienhoff (1929) quoted a 53.8% mortality in 67 cases, Waugh and Fahlund (1945) 44.2% in 77 cases, and Clagett (1945) 16.6% (five deaths in 30 operable cases of malignant disease of the stomach). These figures illustrate the progressive improvement in surgical treatment of an otherwise fatal disease, and a great many factors are responsible—earlier diagnosis, better pre-operative preparation, an increasing resectability rate, advances in anaesthesia, and the introduction of chemotherapy and antibiotics.

This communication is essentially a preliminary one, recording a new method of approach which we have found useful, and clearly some time must elapse before any instructive figures are available or there are results from which deductions can be drawn.

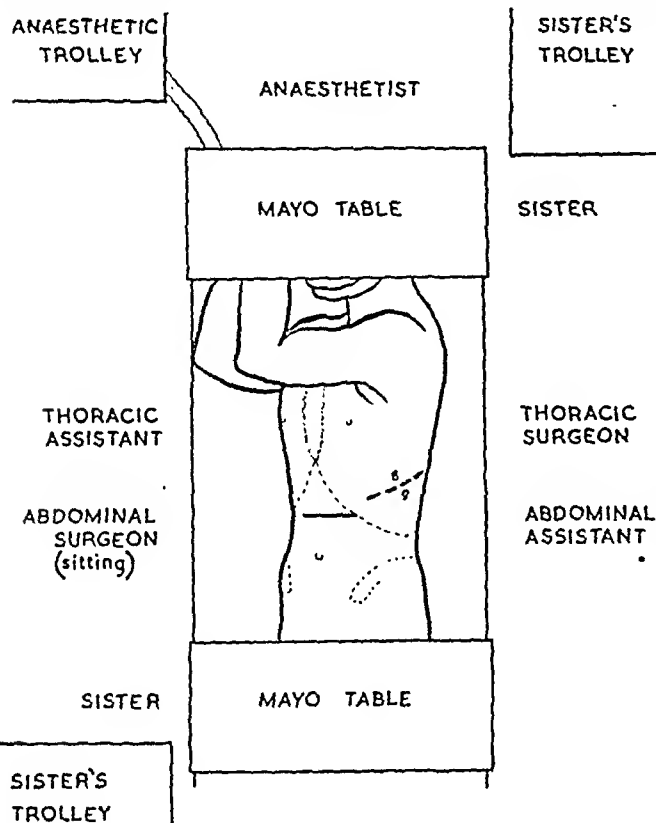


FIG. 1.—Diagram showing position of personnel and apparatus during operation.

In an attempt to reduce the time of operation we conceived the idea of two surgeons working synchronously, in a manner parallel to that employed in excision of the rectum (Morgan and Lloyd Davies). The position of the patient on the table has therefore been adjusted to make it possible for one surgeon to work in the chest at the same time as the other works in the abdomen (Fig. 1). A tilt of approximately 30 degrees (Fig. 2) has made this feasible, and it has been found easier for the abdominal surgeon to sit down and work through a transverse incision. This divides the left rectus muscle and just crosses the midline. Each surgeon has his assistant opposite him, though we have tried the alternative of having the assistant on the same side of the table. A Mayo table is placed at the head of the table and another at the foot, and an instrument trolley is provided for each of the two sisters; thus confusion or competition in the use of instruments is avoided. Finally, we pay particular attention to the position of the arms, avoiding the use of an arm rest, which was found to impede the thoracic surgeon. The illumination of the two wounds presents no difficulties provided that separate lights are employed. Additional spotlights can be used on either side if required.

The usual thoracotomy incision, with resection of one rib, has been made to approach the lower oesophagus, but we have not found it necessary to cut across the costal margin and join the thoracic and abdominal wounds. Experience of thoraco-abdominal wounds with and without damage to the costal margin has

convinced us that its division is not only unnecessary for exposure but undesirable for the patient's convalescence. The thoraco-abdominal wound employed by surgeons such as Wookey and Tanner is therefore replaced by a thoracic and an abdominal wound separated by the width of the costal margin.

The lymphatic drainage of the stomach is so disposed (Fig. 3) that excision of the cardia and 2-3 cm. of oesophagus is essential if ablation of a growth is to be radical. Submucosal spread in the oesophagus and even enlarged lymph glands above the diaphragm occur often enough to commend this step. It is, moreover, an abnegation of surgical principles to remove only part of the lymphatic field in a disease so fatal as carcinoma of the stomach. We would go even further and say that the operation of partial gastrectomy for carcinoma of the stomach is lamentably conceived as a radical method of extirpation of malignant disease in this area. It should surely be replaced by total gastrectomy if and when this operation can be done with a comparable mortality.

Division of the jejunum and end-to-end or end-to-side oesophago-jejunostomy have been carried out, with an anastomosis of the Roux type to complete the operation but these are details outside the scope of our present theme. Jejunostomy likewise seems to be a matter of individual preference, adaptable to certain patients but not invariably required.

The time of operation should, in our view, be two to two and a half hours in an uncomplicated case—the abdominal surgeon doing the division of the duodenum, lower stomach mobilization, and Roux anastomosis, and the thoracic operator the mobilization of oesophagus and cardia and the oesophago-jejunostomy. It is pertinent to add that the thoracic operator does not begin until operability in the abdomen has been decided by his colleague.

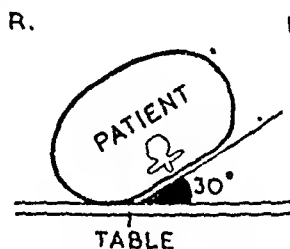


FIG. 2.—Tilt of the table.

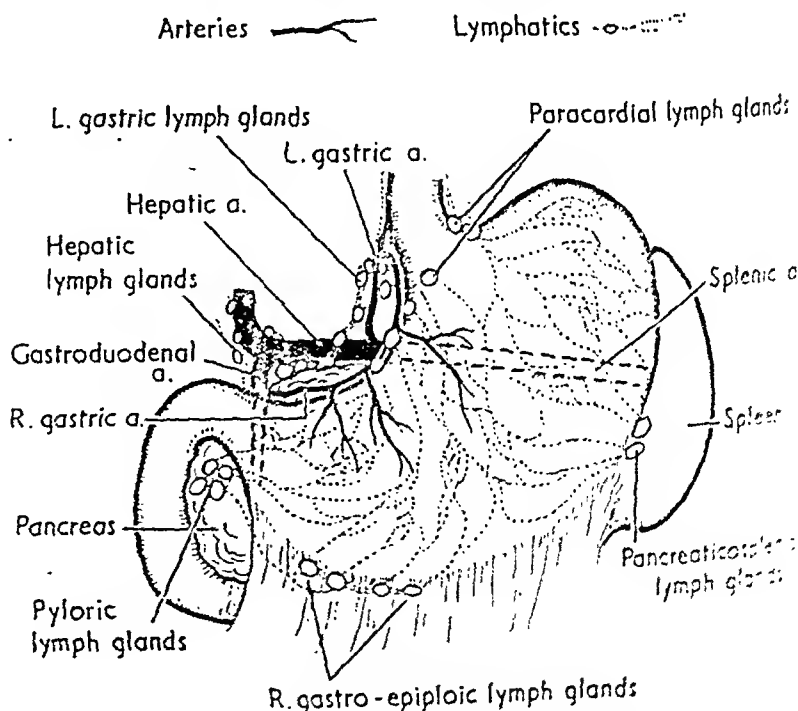


FIG. 3.—The disposition of lymphatic drainage of stomach.



We believe this to be easier than abdominal total gastrectomy as practised by Lahey and others. Decrease in the time of anaesthesia alone would seem to justify it, because patients with this disease tolerate anaesthesia badly. Our preference is for inhalational anaesthesia with endotracheal intubation, and, if controlled respiration is employed the lung should be inflated at half-hourly intervals to minimize the risk of post-operative collapse. Bronchoscopy at the end of operation may in some instances be a wide additional measure.

### Conclusions

The present position of surgery in relation to carcinoma of the stomach is unsatisfactory.

Immediate mortality from total gastrectomy for malignant disease is too high.

A reduction in the time of operation might help to reduce morbidity and mortality.

Synchronous combined excision through a thoracic and an abdominal wound is suggested as a means of attaining it.

We are indebted to Dr. John Hunter for his skill and care in anaesthetizing the patients, and to the staff of St. Andrew's Hospital, Dollis Hill, for much valuable help.

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## EFFECT OF PENICILLIN ON BACTERIAL FLORA OF THE MOUTH

BY

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Many of the organisms present in the mouth as part of the normal flora or as pathogens have been known, since Fleming's original paper in 1929, to be penicillin-sensitive, but it was not until 1944 that the possibility of treating oral infections with penicillin was fully appreciated. Basing his observations on the bacteriological findings in a series of patients treated by Mowlem (1944) for infection of the mandible, Garrod wrote:

"The great majority of the very numerous bacterial species found in the mouth are penicillin-sensitive. This is of far-reaching practical importance, since it means that infections derived from or connected with the mouth are in general susceptible to penicillin treatment, just as those connected with the bowel are insusceptible owing to the prevalence there of resistant species. The flora of the mouth is highly complex and has been imperfectly studied; the following observations are therefore perforce of an elementary nature. In plates, both aerobic and anaerobic, inoculated with material from osteomyelitis of the jaw, from infected compound fractures of the jaw, and from infected gums, or with saliva, the only organisms ever found markedly resistant to penicillin as judged by the cup method have been *Monilia albicans*, an occasional *Neisseria*, and *Haemophilus*. Whole groups of bacteria which are thus sensitive in doubtless varying but apparently adequate degrees are aerobic streptococci (including various types of *Str. viridans*), anaerobic streptococci, anaerobic Gram-negative bacilli (*F. fusiformis* and many others unidentified), and various Gram-

positive bacilli. The mixed and predominantly anaerobic flora often found in infections derived from the mouth is thus in general sensitive to penicillin, and the results of treatment are as would be expected from this."

These findings were confirmed by MacGregor and Long (1944, 1945a), who incorporated penicillin in a slowly dissolving pastille for use in the mouth; the patient was instructed to insert another when the previous one had disappeared. By this means the saliva could be kept fully bacteriostatic throughout the day. Promising results were obtained in a variety of infectious conditions of the oral cavity and in prophylaxis against infection secondary to surgical or dental trauma in the mouth.

Since then penicillin has been applied to the mouth by numerous workers, using many different techniques; the whole subject has recently been reviewed by Hutchinson and Cranston Low (1946). It is not proposed to discuss these various techniques, but to describe the bacteriological findings in a series of patients who were treated with penicillin during the years 1944-6. These patients were classified as follows:

**A. Patients Receiving Local Penicillin Treatment** (Penicillin Pastilles).—(1) Patients with acute gingivo-stomatitis (Vincent's type); (2) patients with acute and chronic tonsillitis; (3) patients under the care of the Maxillo-facial and Plastic Units at Hill End Hospital, St. Albans, while receiving treatment for a variety of traumatic, surgical, and dental conditions. The total number of cases was 500.

**B. Patients Receiving Systemic Penicillin Treatment.**—(1) In a dosage of 500,000 to 1,000,000 units of penicillin in 24 hours:—(a) Patients treated under the scheme sponsored by the Penicillin Trials Committee of the Medical Research Council for the investigation of the penicillin treatment of subacute bacterial endocarditis; (b) patients treated for severe diphtheria and scarlet fever; (c) patients treated for actinomycosis. The total number of cases in Group B 1 was 30. (2) In a dosage of less than 500,000 units of penicillin in 24 hours:—(a) As Group B 1 (a); (b) patients receiving routine penicillin treatment for a variety of conditions. The total number of cases in Group B 2 was 30.

### Excretion of Penicillin in the Saliva

Changes can be produced in the bacterial flora of the mouth by the administration of penicillin either locally as already stated (Garrod, 1944; MacGregor and Long, 1944) or systemically if sufficiently large dosage is employed (Long, 1946a, 1946b, 1947). It is probable that in the latter case the changes are caused by penicillin excreted in the saliva, though attempts to demonstrate this have either been unsuccessful (Rammelkamp and Keefer, 1943) or have detected it only in small quantities (Florey *et al.*, 1941; Struble and Bellows, 1944; Fleming, 1945). No simple relationship has been shown to exist between the penicillin content of the saliva and the penicillin content of the blood. Herrell (1945), reviewing the evidence, is unable to be dogmatic, and states: "I am inclined to believe that fairly adequate amounts of penicillin do reach the saliva following systemic administration." The persistence of highly penicillin-sensitive organisms in the mouth of patients receiving less than 500,000 units of penicillin systemically in 24 hours, combined with failure to demonstrate penicillin in their saliva, suggests that the threshold for penicillin excretion in the saliva is attained only by a dosage of this magnitude. However large the dosage employed systemically, penicillin will be demonstrable in the saliva only in the initial phases of treatment, for as soon as the organisms of the *Bacterium* group establish themselves in the mouth penicillinase is produced in sufficient quantity to destroy it. Further work on the concentration of penicillin in the blood, the excretion of penicillin in the

saliva, and the changes produced in the flora of the mouth at a given time will possibly clarify the position.

### Changes in Flora of the Mouth

Whether penicillin is administered locally, or systemically in the dosage stated, the changes produced in the bacterial flora in the mouth are the same, but with systemic administration the flora of the tonsils, pharynx, and nose is also affected. Moreover, the action can be maintained throughout the 24 hours, whereas with the local method of treatment continuous action depends on the conscious co-operation of the patient.

After the administration of penicillin by either route there was a rapid fall in the number of viable penicillin-sensitive organisms present in the mouth. The changes appeared first in the saliva, in which the total viable count fell from about 60,000,000 organisms per ml. to about 8,000,000 organisms per ml. in a few minutes (MacGregor and Long, 1945b). Changes in the bacterial flora of the gum pockets and superficial parts of the tonsils followed in a few hours, and were more striking when the systemic method of administration was employed. Since the nose is the main source of droplet spread of haemolytic streptococci (Hamburger and Green, 1946) the systemic action of penicillin in rendering patients non-infectious is very important. The suggestions that penicillin pastilles might replace the use of surgical masks (Fleming, 1945) and render carriers of haemolytic streptococci non-infectious (MacGregor and Long, 1944) are no longer tenable.

The use of systemic penicillin in large dosage in the treatment of nasopharyngeal diphtheria has been discussed elsewhere (Long, 1947). Initial experiments on carriers of haemolytic streptococci and diphtheria bacilli show that this kind of treatment is the most effective known. Cultures from excised tonsils indicated that the flora of the crypts remained unaltered by penicillin pastilles, but the effect of massive systemic dosage is not known, since none of the patients so treated had their tonsils removed. It is important to discover the effect of such therapy on the tonsillar crypt flora for other reasons also. For instance, such treatment may be of value in haemolytic streptococcal infections in patients suffering from rheumatic fever and other ailments associated with infected tonsillar crypts.

During the first few days of treatment *Haemophilus influenzae*, *Neisseria pharyngis sicca*, and *Monilia albicans* were the only organisms demonstrated in cultures made from material taken from the oral cavity. Such cultures often remained sterile.

This first phase of rapid reduction of organisms was followed by a second phase of bacterial invasion by organisms of the *Bacterium* group. Of 312 patients suffering from acute gingivo-stomatitis (Vincent's type) treated with penicillin pastilles in collaboration with Dr. A. B. MacGregor, 77% became infected by Gram-negative bacilli between the second and seventh days of treatment. Had all the patients been fully co-operative and sucked their pastilles regularly it is probable that the figure would have been higher. It was noted that conscientious patients often became infected with Gram-negative bacilli earlier than did the careless ones. All patients receiving systemic penicillin in a dosage of a million units a day for more than three days developed a secondary bacillary infection, most of them on the third to fourth day of treatment, whether penicillin was administered locally or systemically. Once present the invading organisms rapidly increased in numbers until the total viable count in the saliva was about 60,000,000 per ml. On stopping treatment they gradually decreased in numbers as the normal flora re-established

itself. Gram-negative bacilli did not produce penicillin stomatitis, but were associated with a breakdown in intra-oral surgery with destruction of skin- and bone-grafts. Mowlem (1945) states that "penicillin pastilles may lead to the appearance of extraneous organisms which are not penicillin-sensitive and the presence of which is more disastrous than is that of the normal flora of the mouth." Protected by the penicillinase produced by these organisms, the flora of the mouth present before treatment partly returns. Thus in a patient with a very severe acute gingivo-stomatitis secondary to metal poisoning, who was never cured by penicillin pastilles, organisms of the *Bacterium* group always established themselves before the pathogenic organisms could be eliminated. Nowadays, with penicillin freely available, all penicillin-sensitive organisms could probably be eliminated from the lesions of such patients by massive systemic dosage before the organisms of the *Bacterium* group became established.

Three hundred strains of various species of Gram-negative bacilli isolated from the patients already mentioned were classified as follows:—

<i>Bact. aerogenes</i> , Type I ..	40%	<i>Intermediate</i> , Type II ..	4%
<i>Bact. coli</i> , Type I ..	17%	<i>Bact. aerogenes</i> , Type II ..	10%
<i>Intermediate</i> , Type I ..	14%	Irregular other types ..	16%
<i>Bact. coli</i> , Type II ..	4%	<i>Pseudomonas pyocyanea</i> ..	4%

As the majority were of non-faecal type it is probable that they were derived from food or water.

### Behaviour of Certain Mouth Micro-organisms

Ordinary strains of *H. influenzae* are penicillin-resistant, but it is interesting to note that the haemolytic variety, which on a blood-agar plate may often be mistaken for a haemolytic streptococcus, is remarkably sensitive and is rapidly removed from the mouth by penicillin treatment.

The effect of penicillin on *Actinomyces bovis* is also peculiar. Marked changes in the morphology of this organism, with loss of its characteristic dimorphism and a tendency to assume the bacillary form, were associated with atypical colony formation which rendered identification difficult once treatment had been started.

### Summary

Changes in the flora of the mouth were studied in 500 patients treated by the administration of penicillin locally in small dosage by pastilles, and in 60 patients treated systemically with penicillin given by intramuscular injection.

Penicillin-sensitive organisms were eliminated from the surface of the tonsils and from the nose and pharynx, as well as from the mouth, by systemic administration in large dosage (approximately one million units a day). Patients were thereby rendered non-infectious.

The changes in the flora of the mouth are divided into an initial phase of reduction of the penicillin-sensitive organisms of the mouth and a later phase of invasion by Gram-negative bacilli. The practical consequences of these changes are discussed.

Penicillin excretion in the saliva probably occurs only when a dosage of over 500,000 units in 24 hours is employed. It will be demonstrable only during the initial phase of reduction of bacteria, before the organisms of the *Bacterium* group have established themselves.

Three hundred strains of secondary invading organisms were classified.

It is a pleasure to acknowledge the helpful criticism of P. L. P. Garrod, in whose laboratory this work was undertaken. Most of the observations made are based on work carried out by Dr. A. B. MacGregor on the administration of penicillin in the form of pastilles. I am indebted to the staff of St. Bartholomew's Hospital and to Mr. Rainsford Mowlem, director of the Maxillo-facial

Plastic Units at Hill End Hospital, St. Albans, for their co-operation and for providing much of the clinical material.

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## CALCULATION OF TUXFORD'S INDEX BY GRAPHICAL METHODS

BY

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**Q.**—In a large series of cases the calculation of Tuxford's index of nutrition in childhood is laborious and time-consuming. Is it possible to devise a graph from which the index may be rapidly computed?

Tuxford's (1939) index of nutrition in male children is given by the formula:

$$T = \frac{W}{H} \times \frac{379 - m}{0.3} \quad (\text{Equation 1})$$

where  $W$ =weight in lb.,  $H$ =height in inches, and  $m$ =age in months.

The normal level of the index, according to Tuxford's data, which were based on 584,000 measurements made in 1909-10, is 1,000. Although this is naturally an arbitrary figure it is contended that the index does provide some basis for a comparison between different groups of children and between different stages of development among the

same children when a clinical examination is not possible. The validity of this assumption was tested extensively against clinical examination by Huws Jones (1938).

The calculation of the index for a large number of cases is laborious, and although a graphical method of calculation was indicated in the original paper it is not simple to use.

The original formula can be arranged as follows:

$$y = \frac{W}{H} \quad (\text{Equation 2}) \quad \text{and} \quad y = \frac{0.3T}{379 - m} \quad (\text{Equation 3})$$

It should be noted that " $y$ " is an algebraic expression which is needed only for the construction of graphs and is not calculated in any individual case.

### Construction and Use of the Graphs

Equations 2 and 3 can now be graphed separately. In the case of Equation 2, if  $y$  is the vertical axis and  $W$  the horizontal axis, then for one given fixed value of  $H$  there is a diagonal line which will fix all values for  $y$  and  $W$ . Consequently by drawing a series of diagonal lines, like contours, for each value of  $H$  from say 18 to 66 in. it is possible to cover all appropriate values of  $W$ ,  $y$ , and  $H$ . The simplest way to construct this graph is to notice that along the horizontal line  $y=1.0$ ,  $W=H$ , so the exact points for  $W$  for each height can be fixed—e.g.,  $H=20$  in.,

$W=20$  lb. Similarly along the line  $y=1.5$ ,  $W=\frac{3}{2}H$ , so the exact points of  $W$  can again be fixed—e.g.,  $H=20$  in.,  $W=30$  lb. These points can then be joined by straight lines and extended if necessary. A skeleton of this is outlined in Graph 1.

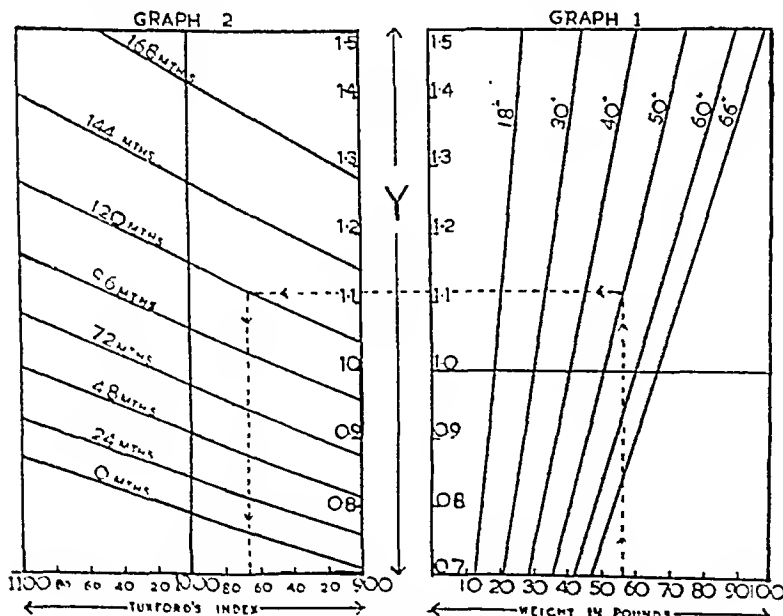
In the case of Equation 3, again make  $y$  the vertical axis on exactly the same scale as before, only this time tabulate it on the right-hand side of the graph. If  $T$  is the horizontal scale moving from right to left, then, as before, a series of contours for each fixed level of  $m$  can be drawn which will be straight lines. The simplest method of drawing these is to take the two vertical lines  $T=1,000$  and  $T=900$ , where  $y$  will be  $\frac{300}{379 - m}$  and  $\frac{270}{379 - m}$  respectively. This gives two points for each value of  $m$ , and thus the corresponding contour line will be fixed uniquely—e.g.,  $m=0$  and  $T=1,000$ , then  $y=0.792$ , and when  $m=0$  and  $T=900$ , then  $y=0.712$ . The line joining these two points gives the contour for age at birth. This is illustrated in Graph 2. Graphs 1 and 2 may now be placed side by side so that the vertical axes coincide.

If it is proposed to use a separate index for females as suggested by Tuxford it will be necessary to construct an alternative Graph 2 from the formula:

$$y = \frac{0.27T}{355 - m} \quad (\text{Equation 4})$$

As previously, all the contours are straight lines which can be readily constructed by marking the two points where each line cuts the two vertical lines  $T=1,000$  and  $T=900$ .

**Use of the Graphs.**—On Graph 1 measure off the weight of the child along the horizontal axis and the height along a diagonal contour; these will give a fixed point. Place a ruler horizontally through this point, move along the ruler on to Graph 2 until it cuts the appropriate age contour on this second graph, then move vertically downwards on to the  $T$  scale; this will fix the index of nutrition. An alternative method would



Tuxford's index of nutrition in childhood. Specimen chart: Weight 56 lb., height 50 in., age 120 months; index 967.

be to engrave Graph 2 on a transparent substance such as mica or celluloid, which could then be moved over the first graph until the age contour coincides with the appropriate point on Graph 1.

### Accuracy of the Result

The accuracy of the result depends entirely upon the size of the scales and the skill of the draughtsmanship used in their construction. The best scales on ordinary 1/10-in. squared paper would probably be:

for  $y$  from 0.7  $y$  to 1.5  $y=16$  in.  
for  $W$  from 0 to 100=10 in.  
for  $T$  from 900 to 1,100=10 in.

The height contours can then be drawn for every inch in height from 18 to 66 in. and the age contours for every 3 months from 0 to 168 months. In these conditions it will be possible to determine  $T$  accurately to the nearest unit.

To demonstrate the use of the graphs an illustrative chart is given. Start with weight 56 lb., move vertically upwards till this line cuts the contour for height 50 in., then move horizontally to the left until the contour for age 120 months is cut on Graph 2, then vertically downwards on to the scale for the index, which reads  $T=967$ .

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## Medical Memoranda

### Spontaneous Delivery of Placenta in Front of Foetus without Haemorrhage

Spontaneous delivery of a placenta in front of the foetus is a rare happening, and for it to occur without haemorrhage is very rare indeed.

#### CASE REPORT

The patient, a 7-gravida aged 43, was admitted to hospital under the care of Prof. Hilda Lloyd on May 24, 1947, as an emergency case with a prolapsed cord. Her last menstrual period began on Sept. 12, 1946, she was thus 37 weeks pregnant. She had no abnormal symptoms during this pregnancy, and was reported as having been normal before the onset of labour. Her six previous pregnancies included four normal ones and two breech presentations, both of the latter ending in stillbirths.

She stated that pains had started at 5.30 o'clock that evening, "waters breaking" two hours later with the escape of a "moderate" amount of blood-stained liquor. She was quite definite that it was "blood-stained water" and not pure blood. She stated that the cord first appeared at the vulva shortly after this, and she then (and only then) sent for her nurse, who promptly summoned the doctor.

On admission at 9.45 p.m. her general condition was good, temperature 98.2° F (36.8° C.), pulse 100, and B.P. 134/88. The urine contained no albumin, sugar, or acetone. There was no clinical anaemia. Abdominal examination showed the foetus to be lying obliquely, with the head in the right iliac fossa. She was having good contractions, one every three minutes, but the presenting part was not fixed. The foetus was a small one. No foetal heart could be heard. Inspection of the vulva showed a protruding loop of umbilical cord, involving about 6 in. (15 cm.), lying outside the vulva.

The patient was anaesthetized with thiopentone and gas, oxygen, and ether, and placed in the lithotomy position. After thorough disinfection of the vulva and prolapsed loop of cord, which was not pulsating, a hand was inserted into the vagina, and the placenta was encountered lying free but without any membrane attached. It was now obvious that the foetus must be dead; the placenta was removed, and the cord excised generously to minimize the risk of carrying infection upwards during the subsequent manoeuvres. The cervix was dilated between three and four fingerbreadths, soft, and pink. The presentation was a shoulder with the back anterior.

In view of the retention of membranes and the small dead foetus, immediate delivery was decided on. After internal version had been performed a leg was brought down, and gentle traction was exerted on the half-breech. The other leg was then brought down and the foetus delivered without difficulty as far as the waist. Both arms were extended and were now brought down. The body was then allowed to hang for two or three minutes by its own weight, after the manner of Burns. At the end of this time the cervix still gripped the head firmly, so the skull was perforated through the mastoid region, delivery then being completed without difficulty. There was no abnormal bleeding. Ergometrine 0.5 mg., was given intravenously, and the retained membrane was removed with forceps. Again there was no unusual loss. The cervix and lower uterine segment were carefully examined, but were found to be undamaged. The patient was given 100,000 units of penicillin immediately, and a total of 500,000 during the next twenty-four hours, as a prophylactic, systemically. The puerperium was entirely afebrile, and was normal in every respect.

The foetus (with perforated skull) weighed 3 lb. (1.36 kg.), and was a male with a marked degree of hypospadias and double hare-lip. It revealed no sign of maceration. The placenta showed no gross abnormality, was normal in size, and weighed 11 oz. (310 g.)—a weight in proportion to the weight of the foetus.

### COMMENT

It is suggested that the possible mechanism was that the placenta had a poor attachment, becoming detached with the onset of pains, and that the uterine contractions, possibly assisted by a mild degree of hydramnios (a not unreasonable assumption in view of the foetal abnormalities), drove the presenting part down and plugged the placental area. If it was partly or largely on the anterior surface of the lower segment the foetal back was ideally placed for the purpose.

The assumption that the placenta was attached to the lower segment seems to be the only possible explanation that covers the three facts of primary placental separation, retention of membranes completely, and absence of haemorrhage.

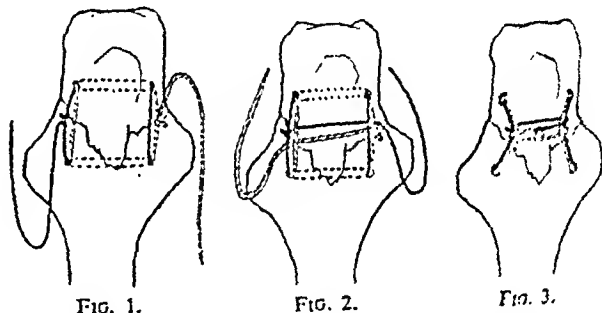
My thanks are due to Prof. Hilda Lloyd for permission to publish this case, and to Mr. Hugh McLaren, First Assistant to the University of Birmingham Gynaecological and Obstetric Unit, for his advice and encouragement.

M. HALDEN LLOYD, M.B., Ch.B.,  
Late House-Surgeon, Birmingham Maternity Hospital.

### Suturing the Fractured Olecranon

For those who prefer simple suture to the use of wire or screw for the fractured olecranon the following method may be found useful in overcoming the difficulty of tying sutures tightly enough to give perfect fixation.

The fragments are drilled transversely. Two sutures are passed through the drill holes in opposite directions and tied as tightly as possible. The knots then lie one on each side of



the bone. One end of each suture is left long (Fig. 1). These long ends are passed across the bone and with the aid of an aneurysm needle are threaded under the sutures on the opposite side (Fig. 2). They are then tied together tightly across the bone, thus greatly increasing the tension of the sutures and incidentally holding down the spur of bone commonly found on the upper fragment due to the oblique direction of the fracture (Fig. 3).

The principle is of course in common use at sea and for lashing loads on railway trucks and lorries.

T. J. FAIRBANK, F.R.C.S.

## Reviews

### A FOUNDATION OF NEUROLOGY

*The Integrative Action of the Nervous System.* By Sir Charles Sherrington, O.M. Second edition, entirely reset. With a new foreword by the author. (Pp. 433. 25s.) Cambridge: The University Press. 1947.

It was indeed an inspiration that moved the Physiological Society to have a new edition of Sherrington's *Integrative Action of the Nervous System* issued on the occasion of the recent International Physiological Congress at Oxford. In doing so they have honoured not only the author but also the British school of physiology, which owes so much to him, and they have recreated the stimulus this imperishable work gave to physiologists forty years ago. I have called it "an imperishable work," for it is one of those works, rare in science, the permanent value of which is unquestionable, and I believe that future generations of physiologists will so acclaim it. In physiology it holds a position similar to that of Newton's *Principia* in physics, and when physiologists finally emerge from that preoccupation with technologies under which the present generation staggers, and when they find time and the inclination to contemplate and interpret the innumerable observations now being accumulated in such unresting haste, the full stature of this book and the permanent quality of its author's teaching will become apparent. For it is more than an orderly record of precise observations: it is a product of sustained thought upon what is essentially—though only his genius revealed it as such—a single problem—namely, the mode of nervous action. Sherrington advances the argument step by step, exposing the full significance of each new aspect of the problem as he brings it to light. Here is no medley of *ad hoc* hypotheses but a logical analysis and synthesis bearing the imprint of scientific genius.

A detailed account of the *Integrative Action* is not necessary here or possible in a brief notice, but the principles of reflex action that he expounded will remain essential foundations of whatever edifice of knowledge may yet be erected upon them. The book is a primer for every physiologist and student of clinical neurology—indeed, for every medical man who values the study of precise observation and its integration into ordered knowledge as part of a scientific training.

To-day the thoughts and affection of all his pupils and admirers go out to Sir Charles Sherrington, and they recall with gratitude the inspiration he has been to them and the generous and ready help he was always so willing to afford them. They will welcome the new edition of this book and will see in it a good omen for the future of physiology.

F. M. R. WALSH.

### ANOTHER HEREDITARY DISEASE

*Heredopathia Atactica Polyneuritiformis. A Familial Syndrome not Hitherto Described.* By Sigvald Refsum. (Pp. 303: 28 figures. No price given.) Oslo: Johan Grundt Tanum Forlag.

The author of this monograph gives a detailed history of five cases of "a familial syndrome not hitherto described" seen in three sibships of two unrelated families. The condition is of considerable interest, and it is always something of an event to hear of yet another hereditary disease. A recessive gene seems to be the cause of the disease in all cases. As is to be expected in so rare a manifestation, the malady has occurred in each case in the offspring of consanguineous parents who showed no sign of a similar affection.

The ages of the patients at the date of observation were 41, 32, 23, 38, and 32 years. Signs of disease had appeared some years before, but in no case had serious incapacity previously occurred. The main characteristic signs include (a) night-blindness, with loss of the peripheral fields of vision and fundal changes—not, however, typical of retinitis pigmentosa; (b) difficulty in walking, noted at the ages of 36, 28, 20, 37, and 32 respectively; (c) "polyneuritis-like manifestations" associated with muscular wasting, ataxia, and sensory disturbances. The author discusses the relationship of the cases to retinitis pigmentosa, Charcot-Marie-Tooth's disease, and hereditary ataxia,

to none of which conditions in its typical form does the condition appear to approximate. As an addendum to the monograph he describes necropsies on two of the patients who died suddenly. Distinct pigmentation of the nerve cells in all sections of the brain, and marked disturbances in the lipid and probably in the protein metabolism, were found. The pathologist, Dr. Cammermeyer, concluded that the disease belongs to the lipidoses and is closely related to Niemann-Pick's disease and to familial amaurotic idiocy.

Though this volume presents facts of great interest, it might with advantage have been shortened by the omission of a good deal of discussion, much of it shown by the post-mortem findings to be irrelevant.

JULIA BELL.

### RECENT NEUROLOGY

*The 1946 Year Book of Neurology, Psychiatry and Neurosurgery.* Neurology: edited by Hans H. Reese, M.D., and Mabel G. Masten, M.D. Psychiatry: edited by Nolan D. C. Lewis, M.D. Neurosurgery: edited by Percival Bailey, M.D. (Pp. 732; illustrated. 53.75 or 21s.) Chicago: The Year Book Publishers, Inc. London: H. K. Lewis and Co. 1947.

The series of *Year Books* is a welcome annual addition to one's professional library. Since 1945 some of the subjects have been redistributed, and neurology now accompanies psychiatry and neurosurgery, while endocrinology is consigned with metabolism and nutrition to another volume. This little book is an interesting and useful guide to the current literature—perhaps we should say to current American literature, for there is a tendency to emphasize unduly the work of local writers. Indeed the editors of the neurological section confess in their introduction that "the clinical material from foreign countries has been abstracted only with regard to its obvious importance, since too much of it reviews old material." Rather than take umbrage at any fancied neglect, we in Britain might act on the hint, produce a greater output of original work, and look to the present rather than the past.

The *Year Book* series compares, of course, with its older cousin, the *Medical Annual*. There are differences in the scheme of presentation. In the British work contributors more often take as their unit a subject rather than an author's individual communication and make *en courant* comments and criticisms, while the American *Year Book* consists of abstracts of original articles, with editorial remarks appended in small print. Both methods have their advantages, but the *Year Book* may well be said to appeal less to the medical practitioner than to the embryo specialist.

MACDONALD CRITCHLEY.

### WHY AND HOW

*Man: The Verdict of Science. Science and Superstition.* By G. N. Ridley. The Thinker's Library, No. 114. (Pp. 156. 2s. 6d.) London: Watts and Co. 1946.

This book is a succinct and clearly written account of anthropology, if we use that term with its widest connotation. Mr. Ridley does not try to disguise his own opinions but honestly seeks to epitomize fairly the opinions of others. The publisher's "blurb" is truthful in saying that "the result is a book which will be found stimulating reading, even by those whose philosophy impels them to disagree with Mr. Ridley's conclusions." Even theologians, with whom Mr. Ridley is not in charity, are not likely to be irritated, for his "philosophy" is very naive. For instance, we read on p. 10 (a typical passage):

"A long time ago marriage between members of a family was observed to produce frequently abnormal offspring, and these were regarded as a sign of God's displeasure at the practice. It therefore became illegal in the eyes of the Church and the State for near relatives to mate. When, many centuries later, science had devised methods by which to study how children inherited their characteristics from their parents, the whole matter was put on an entirely new foundation—a foundation of fact that effectively removed it from association with the irrational beliefs that people had formerly entertained concerning God's feelings on the subject."

As Karl Pearson (by no means a lover of theology) used to say. Science is concerned not with the question Why? but with the question How? Those who believe in a divine order may be mistaken in their answer to the question why



things are as they are. To show how inbreeding may produce bad results does not, and indeed ought not, to shake their belief. The father of vital statistics, John Graunt, noted that although more males than females were born more died before puberty, and so, as he said, "Every woman may have an husband, without the allowance of polygamy." Contemporary theologians were delighted by this demonstration of how God, who in their opinion disapproved of polygamy, had made it unnecessary. Mr. Ridley is, like Laplace in the anecdote, quite entitled to say that he has no need of the hypothesis of God, but he should not misrepresent it.

Mr. Ridley's section on psychology is useful, but a paragraph on Aristotle's psychology would have improved it. Not only did the Aristotelian definition of the soul as the realization, the entelechy, of the body have an immense influence on subsequent thought, but his discussion brings out the essential difficulty of any hypothesis which in a scientific sense describes, not explains, the soul-body relation. The name of Berkeley does not appear in the "Reading Guide" or in the text, which is a pity. The three dialogues between Hylas and Philonous are not likely to convince materialists that "matter" is impossible, but it is always wise to hear what can be said against one's beliefs when it is said in such good English. T. H. Huxley did not agree with Berkeley, but he admired him.

M. GREENWOOD.

### A GREAT REFORMER

*No Centenario de Pestalozzi.* Monografia No. 4 do Boletim do Instituto de António Aurélio da Costa Ferreira. (Pp. 61. No price given.) Lisbon.

This monograph was dedicated by the António Aurélio da Costa Ferreira Institute in Lisbon to the memory of Johann Heinrich Pestalozzi, the Swiss educational reformer, on the second centenary of his birth. In it Prof. D. Santos discusses this great humanitarian's message for a generation confronted with nearly 32 million child victims of war. He gives a brief account of Pestalozzi's poverty-stricken childhood, the influences—especially that of Rousseau—that moulded his character and inspired his life's work, and its full flowering in 1798 when he came to the relief of children orphaned through the French invasion of Switzerland. Santos discusses his subsequent educational experiments and his numerous publications. Pestalozzi strove to attain an educational system that would permit a psychological approach to the individual, directing his harmonious development and spiritual regeneration, and he aimed also at making human labour an ennobling influence. Santos calls for a revival of his ideals in an age when technical studies and the memorizing of facts dominate education. He calls for schools which will be "a nursery of men and not factories of automata." Child psychologists, magistrates of juvenile courts, and social workers will endorse his views.

The monograph also contains appreciations of Pestalozzi by two graduates of the University of Lisbon. One illustrates from Pestalozzi's writings the role of the mother in education and of the woman in society, and analyses his educational system; the second describes his personality and work. Of topical interest is the article by W. R. Corti (reprinted from *Pro Juventute*) which completes the monograph. He describes the village of Pestalozzi—the child settlement which is being established at Trogen, in Switzerland. Inspired by Pestalozzi's example in 1798, it offers shelter and family life to the disinherited orphans of the war and aims at preserving their national qualities in an international medium. Corti outlines the magnitude of the problem and urges the need for this example to be followed in all countries.

J. J. KEEVIL.

*The Care of Babies and Young Children in the Tropics* is an admirable pamphlet written by Dr. John Gibbens and obtainable from the National Association of Maternity and Child Welfare Centres and for the Prevention of Infant Mortality, 5, Tavistock Place, London, W.C.1 (price 1s.). Dr. Gibbens gives a simple account of elementary measures to be taken against infectious diseases in the Tropics, detailed instructions for feeding the baby on breast milk or artificially, and includes advice on inoculation, suitable clothing, and care of the skin.

### BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

*Adrenalin-free Cyclic Anesthesia.* By Béla Mezö, M.D. (Pp. 40. No price.) Budapest: Printing House Frater. 1946.

The author describes his method of inducing analgesia by infiltrating the sympathetic ganglia with adrenaline-free "pantocaine."

*A Synopsis of Hygiene (Jameson and Parkinson).* By G. S. Parkinson, C.B.E., D.S.O., M.R.C.S., L.R.C.P., D.P.H., and K. M. Shaw, M.B.E. 9th ed. (Pp. 791. 28s.) London: J. and A. Churchill. 1947.

A textbook of public health and hygiene, with an account of the relevant laws.

*Essentials for Final Examinations in Medicine.* By John de Swiet, M.D., M.R.C.P. 3rd. ed. (Pp. 178. 9s.) London: J. and A. Churchill. 1947.

Intended to aid rapid revision before taking the "finals."

*Practical Points in Penicillin Treatment.* By G. E. Beaumont, D.M., F.R.C.P., and K. N. V. Palmer, M.B., M.R.C.P. 2nd ed. (Pp. 18. 1s. 6d.) London: J. and A. Churchill. 1947.

Notes on the organisms sensitive and insensitive to penicillin, the diseases for which it is suitable, and methods of administration.

*Disfunciones Motoras del Estómago.* By E. Arias Vallejo (Pp. 155. No price.) Madrid. 1947.

A monograph on functional disorders of the stomach and intestines.

*Renewal Pages for Nelson Loose-Leaf Surgery.* New York and London: Thomas Nelson and Sons. 1947.

*Curare: Its History, Nature, and Clinical Use.* By A. R. McIntyre, Ph.D., M.D. (Pp. 240. 27s. 6d.) Chicago: The University of Chicago Press. London: Cambridge University Press. 1947.

The author discusses botanical details, the chemistry of curare, its physiological effects, and its clinical uses.

*Obstetrics and Gynaecology.* By C. Scott Russell, M.A., M.B., F.R.C.S.Ed., M.R.C.O.G. (Pp. 214. 12s. 6d.) London: Geoffrey Cumberlege, Oxford University Press. 1947.

A short revision book intended particularly for returning ex-Service men.

*O'Meara's Medical Guide for India and the Tropics.* By H. W. Williamson, O.B.E., M.D., M.R.C.P., F.R.C.S.Ed. 5th ed. (Pp. 928. 30s., postage 1s. extra.) London: Butterworth and Co. 1947.

An alphabetically arranged guide to medical practice.

*Les Varices.* By I. Florian. (Pp. 137. 6 Swiss francs.) Bucharest. Les Editions d'Etat. 1947.

A monograph on varicose veins, including an account of their treatment.

*Differentialdiagnose der Lungenvöntgenbilder.* By Rudolf Zeeleder. 2nd ed. (Pp. 296. 28 Swiss francs.) Berne: Hans Huber. 1947.

The use of skigrams in the diagnosis of lung conditions; profusely illustrated.

*The Personality of the Preschool Child.* By Werner Wölff, Ph.D. (Pp. 341. 25s.) London: William Heinemann. 1947.

An account of the mentality of children aged from 3 to 5.

*Arthur de Bretagne.* By Claude Bernard. 2nd ed. (Pp. 156. No price.) Paris: J.-B. Baillière and Sons. 1947.

A drama by the famous French physiologist, written in his youth.

*Le Ferite Osteo-Articolari d'Arma da Fuoco.* By Stefano Morando. (Pp. 172. 900 lire.) Turin: Edizioni Minervina Medica S.A. 1947.

An account of gun-shot wounds of bones and joints and their treatment.

*Bassini's Operation Modified.* By Major V. P. Gupta, M.S. (Lucknow), F.R.C.S. (Pp. 36. No price.) Bombay: The Popular Book Depot. 1947.

An account of the author's modification of Bassini's operation for inguinal hernia.

## BRITISH MEDICAL JOURNAL

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THE INFLUENCE OF SHERRINGTON ON  
CLINICAL NEUROLOGY

Sir Charles Sherrington, O.M., will be 90 years of age on Nov. 27. To celebrate this notable event and to honour a great man we publish in the opening pages of this issue three articles on his life and work. It was in 1904 that Sherrington gave his Silliman Lectures, published subsequently in 1906 under the title of *The Integrative Action of the Nervous System*, at Yale University; so it is fitting that the appraisal of his profound contributions to neurophysiology is made in our opening pages by the present Professor of Physiology at Yale, Dr. John F. Fulton. As Dr. Fulton observes, *The Integrative Action of the Nervous System*, like Harvey's *De Motu Cordis*, marked a turning-point in the history of physiological thought, and in this the author's ninetieth year the Physiological Society prompted the issue of a new edition, brought out by the Cambridge University Press in time for the XVIIth International Congress of Physiology at Oxford in July of this year, the Yale University Press having generously transferred their ownership of copyright to the Physiological Society. The value of the new edition is enhanced by a 12-page foreword in which Sherrington once more illustrates his high qualities as humanist and philosopher. The decorticated animal, "a Cartesian puppet," is a mindless animal that "reacts with the fatality of a multiple penny-in-the-slot machine to certain stimuli, all of them, as in the case of the penny-in-the-slot machine, physical, and not psychical." Integration, Sherrington observes, has been traced at work in two great systems of the organism. The physico-chemical produced a unified machine. "The psychical creates from psychical data a percipient, thinking, and endeavouring mental individual." And he ends his 1947 foreword thus: "That our being should consist of two fundamental elements offers I suppose no greater inherent improbability than that it should rest on one only."

Sherrington the philosopher is considered elsewhere in this issue by Prof. A. D. Ritchie. Here we may inquire more particularly into the impact of his work upon the development of clinical neurology, an impact perhaps seen most clearly in the writings of Dr. F. M. R. Walshe, whose Victor Horsley lecture of 1946 appears abridged in the middle pages of this *Journal*. Perhaps the simplest way in which to assess the influence of Sherrington's work upon clinical neurology would be to turn to the volumes of *Brain*, or to those of any other representative neurological journal abroad, during the first decade of the present century, and then to pass on to the volumes of the same journals in the second and subsequent decades. The

contrast in outlook revealed by the later volumes is as striking now as it was while the change was unfolding before those who from about 1910 onwards were taking their first steps in clinical neurology. They had the great good fortune to begin their work under the inspiration of *The Integrative Action*, because, viewed in the light of the sequence of precise observation and of the principles so clearly evolved from them by Sherrington, the numerous reflex and motor disorders seen in affections of the nervous system in man began to gain a meaning and an orientation that they before had lacked. Disorders of movement and certain reflex reactions of limbs in cases of nervous disease were seen in the light of Sherrington's synoptic exposition. The old familiar signs one after another began to assume a physiological meaning, and thus progressively revealed the fundamental plan of the organization of movement and of posture in man, a plan which linked him with the humbler vertebrates, the monkey, the dog, the cat, in regard to their motor taxis.

It was not that clinical observation became more detailed or accurate, for indeed nothing could have exceeded in minute precision and descriptive clarity the accounts of disorders of movement and of reflex reaction in hemiplegia and paraplegia so abundantly given by the French school of neurology in the early years of this century. The pages of the *Revue Neurologique* of that time bear witness to the clinical acumen and scrupulously accurate observation that characterized the clinical neurology of the day, and even of still earlier days. Reading modern neurological literature, indeed, one may sometimes feel that our standards in this regard would be the better, perhaps, did we refresh ourselves from time to time by the study of these earlier models. What had changed after 1910-15 was not clinical skill or power of accurate description; it was the point of view. Once again, as before in Jackson's day, clinical neurology had received a fresh inspiration from physiology, and had been ready to accept it.

For too long, perhaps, the "physical sign" had been sought and cherished for its practical usefulness in locating the lesion and in pathological diagnosis. The point of view was empirical, and the link between clinical and physiological thought frail and not always evident. The literature of the early nineteenth century abounded in an ever-increasing number of eponymous signs, which, while they provided convenient symbols for the ends of description and of empirical classification, were regarded primarily as diagnostic weapons. When neurologists sought to relate them to normal modes of function the line of approach was loosely phylogenetic—for example, the writhing movements of the athetotic child were likened to the antics of our hypothetical arboreal ancestors. On such a soil false analogies grew readily, but in general the physical sign was a phenomenon pragmatically regarded and esteemed. It is but fair to say, however, that in this country the conscious intent to interpret signs in terms of disordered function had never ceased since Jackson's day, and the publication of *The Integrative Action* did not so much change the direction of neurological thought as give the physiological outlook a tremendous impact on the British school of clinical neurology, a stimulus which later spread in widening circles to every centre of neurological study

in the world. That this stimulus worked sooner and more powerfully here was perhaps our good fortune rather than our virtue, for we were nearer to the source of inspiration and had not—like neurologists abroad—to wait for translations, or to grapple as foreigners with Sherrington's occasionally formidable English, at times reminiscent of Doughty's in *Arabia Deserta*.

From 1914 onwards the pages of *Brain* have shown a series of important papers analysing clinically observed phenomena in terms of Sherrington's observations and interpreting them in terms of physiological principles as these were expounded in his writings. Such papers steadily increased in number until it could be said that the Sherringtonian influence had pervaded neurological thought. A fresh accession, deriving at one remove from the physiology of decerebrate rigidity and of muscle tone, came from the work of Magnus and his school, a true and direct offshoot from Sherrington's work. And what is true of the succeeding volumes of *Brain* is true of all neurological journals, and to-day it would be difficult to overestimate this influence or to find any field of neurological advance in which it is not somewhere evident. The gain to neurological thought and knowledge has been inestimable: they have become progressively less empirical. Scientific method and thought have enriched and given order to the abundance of facts of observation, detailed and precise, which are the treasury of clinical neurology. Clinical observation has come itself to enrich and supplement the body of experimentally derived neurophysiological knowledge. After all, the nervous system of man is the finest of its kind, the most complex and the most highly endowed with capacities for further development, and much of the study of that system, in health and in sickness, can come only from clinical observation. Thus the relation of experimental neurophysiologist with clinical neurologist has been one of a natural partnership, of give and take, and for this admirable consummation we owe more to the influence of Sherrington's thought and work than to any other source or combination of sources.

This has been Sherrington's gift to clinical medicine, a field of knowledge and a discipline which have always attracted his deep and sympathetic interest; an interest which has embraced not only the work but also, and with generous a mind, the individual worker. This kindest and most modest of great men "belongs," as Professor Graham Brown so well says, "to the world, and not to himself," and so, we hope, will accept the small tribute made to him in this week's *Journal*.

## THE CRIMINAL JUSTICE BILL

Reform in the law of criminal justice is long overdue. It is required not so much to raise the practice of the courts as to bring the law itself up to the level of existing practice. The new Criminal Justice Bill has been anticipated in recent years by the anxious consideration which the courts have shown in awarding punishment, particularly to the young offender. They have done their best to keep him out of prison, and have called in probation officers, doctors, Army authorities, and others in the search for a less dismal alternative. The Bill is an effort to enable the letter of

administration to catch up with its spirit. A similar Bill was introduced by Lord Templewood, then Sir Samuel Hoare, when he was Home Secretary in 1938. It was given a second reading without a division but had to be dropped on the outbreak of war. The new Bill repeats the principal proposals made at that time. It seeks to make the punishment fit not the crime but the criminal.

The power of courts to impose sentences of corporal punishment is to disappear. The Departmental Committee<sup>1</sup> which considered this subject in 1937 declared that corporal punishment as a court penalty should be entirely withdrawn. More recently the Joint Committee of the British Medical Association and the Magistrates' Association made a recommendation to the same effect. The Bill is silent on the question of capital punishment, but this will be a matter for free debate. "Penal servitude" with its ticket-of-leave system and "hard labour" with its suggestion of cranks and treadmill are to be abolished. A more debatable change is the abolition of statutory prison divisions. It might have been better to leave the classification of prisoners to be decided by the court rather than by the prison governor. The Bill gives more facilities to courts which desire a medical report. It has been difficult for a court of summary jurisdiction to obtain a report unless the offender was remanded to prison; now it will be possible to remand him on bail on condition that he submits himself to medical examination. It is not stipulated that the examiner must be a psychiatrist or that, if he has to do with a juvenile, he must have a knowledge of child psychology; the phrase used is "a duly qualified medical practitioner"; but apparently a particular practitioner may be specified by the court. If an offender is certifiable as insane a court of summary jurisdiction will be given the same power to make a reception order as a magistrate has already in the case of a person of unsound mind not charged with any offence.

It is in the amendment and consolidation of the law relating to probation that the Bill is most admirable. The system of probation has now stood the test of sixty years' experience. The character of the delinquent has been guided, his social background improved, employment found for him, and any mental deviation discovered. Power is now to be given to the court when it appears from medical evidence that the offender may be susceptible to treatment for his mental condition to require him to submit to such treatment for a period not exceeding twelve months. It might have been better to make the case subject to review at the end of twelve months, and to extend the period if thought desirable. The form of treatment is apparently left to the judgment of the practitioner; it may be residential or non-residential. Borstal is retained in the Bill, though the upper age limit is reduced from 23 to 21. Possibly Borstal, which has not quite come up to expectations, may give place ultimately to something like the new detention centres to which courts will be able to send under-age offenders. Even the word "prison" may one day follow "workhouse" and "asylum" into oblivion. There is something in a name, and here a change of name indicates a new outlook. Incidentally, the term "criminal lunatic," which escaped the fate of other obsolete terms when the

<sup>1</sup> Cmd. Paper 5684. 2s. 6d. net; also *British Medical Journal*, 1938, 1, 680

Mental Treatment Act, 1930, came in, will disappear under this Bill. Henceforth there will be no more "criminal lunatic asylums"; they will be "Broadmoor institutions" under the Board of Control, and the former "criminal lunatic" will be a "Broadmoor patient."

It is worth while trying to place in perspective the class of cases with which the courts have to deal, the predominant age groups of the offenders, and the principal crimes with which they are charged. Those whose business it is to attend assizes or quarter sessions are aware that a large proportion of the prisoners—at the present time, for understandable reasons, a very large proportion—are young men between the ages of 18 and 25. The calendar for the current session at the Central Criminal Court may be said to represent major crime in the county of London for one month, and to give a fairly typical picture of the country as a whole. It excludes, of course, juvenile court cases and cases dealt with summarily. Of the 177 prisoners 65 had not reached their twenty-sixth year, and just upon 100 were under 30. In about half these cases the offences charged were stealing in one form or another. There were also 13 cases of forgery, which is another form of stealing, and a rather smaller number in which the charge was that of obtaining money by false pretences or by fraudulent conversion. Only in 9 cases was the theft accompanied by threats or violence. In 14 other cases the offence was that of "causing grievous bodily harm"; in two it was manslaughter, and in one attempted murder. Sex offences were comparatively rare. Among these hundred young men, one was charged with indecent assault, one with a homosexual offence with an older man, and two with rape. Older prisoners, those over 30, include a few, the despair of judges and recorders, who have more or less a lifetime of convictions behind them, but also others who at a mature age are guilty of a first and sometimes apparently inexplicable lapse. But it is the younger men—and these, too, often come up with a long list of convictions—who are mainly responsible for the lengthening of the calendars, the prolongation of sessions to two or three times their normal duration, and the talk of increased post-war crime. Most of them were at school, or on the point of leaving school, when war was declared, and they have passed their later adolescence in a violent and unseemly world. Very few of them are in any respect mentally deficient; mostly they have a sharp intelligence. A committee of the B.M.A. declared<sup>2</sup> fifteen years ago that the term "mental defective" could not be applied to the great majority of such persons. Nor are they psychological cases in any special sense.

In a certain number of delinquents psychiatric advice—and in a smaller number psychiatric treatment—may be of value, but such cases are a small minority. Some years ago the Director of the Institute for the Scientific Treatment of Delinquency suggested that 10% of all adult offenders might benefit from psychiatric treatment.<sup>3</sup>

The problem in fact is sociological rather than medical. It is the problem of inducing some sense of social obligation in people whose impulses seem to be entirely selfish. For the solution of this problem, though religious, educa-

tional, and economic influences may all play a part, a wise and understanding administration of the law, aimed not only at the protection of society but at the reform of the criminal, is essential. The new Bill would have gladdened the hearts of John Howard, Jeremy Bentham, and Elizabeth Fry in its emphasis on prevention and reformation rather than retribution. We assume that it has the support, as its predecessor had, of the Prison Commissioners, whose office it may abolish, prison governors, visiting justices, and discharged prisoners' aid societies. It is something to sweep off the statute book in their entirety the various Whipping Acts, Hard Labour Acts, and Transportation Acts which have stood there as a confession of our failure since the early nineteenth century.

### TOXIC FACTOR IN BURNS

Controversy still continues on whether or not there is any important toxic factor involved in the illness which follows severe burning. Systematic biochemical studies<sup>1</sup> at Oxford failed to reveal any burn "toxin." A proteinase was found which might play some part in local blister formation, but the effects of this substance are apparently neutralized should it enter the blood stream. Later in the course of the illness losses of body weight, simulating a toxic state, were found to be associated with a negative nitrogen balance which could be corrected by increasing the intake of protein. This deficiency state is induced by an increased demand for tissue protein. These systemic reactions follow the immediate local effects of the burn with fluid loss into the burnt area and consequent haemoconcentration. Other systemic reactions may be associated, of course, with complicating infections.

Prinzmetal and his co-workers<sup>2</sup> have shown that when rats are burned and subsequently bled to death the amount of blood obtained from the animal is reduced compared with that collected when normal rats are bled. This reduction in volume is not necessarily accompanied by haemoconcentration and is therefore not due to diminution of the actual blood volume. Post-mortem examination of the animals shows renal congestion, compared with the pallor of the kidneys in otherwise normal animals bled to death. In a further paper<sup>3</sup> from the same laboratory the authors describe how the infusion of blood from a burned rat into the aorta of a normal rat proximal to the renal artery reproduces this picture of renal congestion and capillary atony in the kidney of the recipient. This evidence certainly seems to suggest the presence of some vasodilator substance in the blood of these particular burned rats.

Before assuming that a similar "toxin" may be produced in burnt human beings, it would be well to keep in mind some points about the nature of these experiments. Prinzmetal's rats were anaesthetized and immersed up to the neck in boiling water for 20 seconds. It is quite clear that this procedure would produce an intense hyperthermia in the animals, and the only comparable human burn would result from being ducked in boiling water. The local action of an extensive scald is unlikely to raise body temperature significantly. Before Prinzmetal's results can be applied to the pathology of human burns, we should hear more about control experiments on the effect of gross rises of body temperature.

<sup>1</sup> Peters, R. A., *Brit. med. Bull.*, 1945, 3, 81.

<sup>2</sup> *Clin. Sci.*, 1945, 5, 205.

<sup>3</sup> Prinzmetal, M., Bergman, H. C., and Kruger, H. E., *J. clin. Invest.*, 1946, 25, 781.

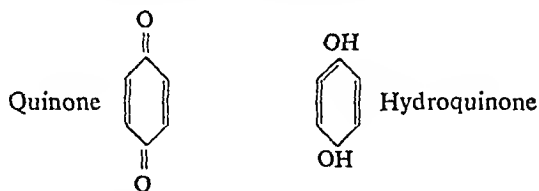
<sup>2</sup> *Report of the Mental Deficiency Committee*, 1932.

<sup>3</sup> B.M.A. *Report of Committee on Mental Health*, 1941, p. 9.

## QUINONE AND HYDROQUINONE AS INDUSTRIAL HAZARDS

Hydroquinone is well known to amateur photographers as a developer. An ophthalmologist practising in Kingsport, Tennessee, where the Eastman Corporation have a factory which makes developers and other photographic products, saw a number of workmen who had brown stains on their conjunctivae. Investigation soon showed that there were as many as 50 cases of conjunctival staining or corneal opacity among men who had been in contact with either quinone vapour or hydroquinone dust. This sequence of events, which is classical in industrial toxicology, is described in two recent papers<sup>1,2</sup> on the noxious actions of quinone and hydroquinone.

The ocular signs of the condition were in the interpalpebral fissure. The conjunctiva showed minute spherical deposits of brown or black pigment and the cornea a superficial green-brown stain and—of more serious significance—greyish white opacities at varying depths. Biopsy of the conjunctiva from one case revealed the deposition of large brown globules in the basilar cells near the basement membrane, and of a more finely divided and more widely distributed intercellular pigment. After removal from exposure the pigmentation gradually disappeared, but the corneal opacities remained; apart from the ocular condition no haematological or other systemic effects could be detected. The degree of eye injury was correlated with the length of time the workmen had been employed in the dangerous environment, though there were marked differences in individual susceptibility. Staining of equivalent severity developed in one man in one year and in another in over 13 years. That the toxicity of a substance is largely a function of its physics and chemistry is underlined in this study. Both quinone and hydroquinone are unstable water-soluble reducing substances of formulae:



Quinone vaporizes without boiling at ordinary temperatures and pressures, and hydroquinone forms a finely divided dust. The stage is therefore set for atmospheric contamination and subsequent solution in body fluids and tissues.

When a poisonous vapour is involved in an industrial process, ideally, its escape should be prevented by completely enclosing the chemical system used in the process; failing this, the vapour should be removed at the point of production by exhaust ventilation, or diluted with large volumes of air to a previously determined safe concentration. A combination of these methods was applied by the Eastman Corporation. A colorimetric method was devised for estimating the concentration of quinone in the atmosphere, and the upper safe limit was fixed at 0.1 parts per million. The accepted criterion formerly had been the bearable level of ocular irritation, which was found to correspond to a concentration as high as 0.8 parts per million. The method employed depends upon collecting the vapour in isopropyl alcohol, developing the colour with phloroglucinol in potassium hydroxide, and then comparing the absorption spectra with previously prepared standards at a wave length of 520 m $\mu$  using an Evelyn colorimeter. With the same technique the atmosphere at various points

in the factory was sampled in order to check the efficacy of the newly instituted safety measures. For hydroquinone dust a level of 2–3 mg. per cubic metre was arbitrarily selected, pending further investigations directed towards determining the standard of absolute safety.

## TRUE HERMAPHRODITISM

True hermaphroditism is defined as the presence of both male and female gonads in the same individual. A review of the literature shows that it is a rare condition; only 2 cases proved microscopically have been reported. The sex of an individual was previously believed to be determined at the moment of union of ovum and sperm by the number of, or some intrinsic factor in, the chromosomes. Recent experiments suggest that other factors may play a decisive part in the determination of sex. Sisk and Cornwell state that abnormalities of genital development may result from endocrine imbalance in the mother or embryo. The normal growth of the genital tract depends on the continued development of the Wolffian elements and the simultaneous suppression of the Mullerian tract or vice versa. If the retrogression of the antagonistic elements in defective hermaphroditism results. Should the Mullerian and Wolffian elements be equally developed so that two ovaries, two Fallopian tubes, and a uterus coexist with two testes, epididymes, vasa, seminal vesicles, and a prostate the condition is classified as true hermaphroditism bilateralis. If the Mullerian tract is developed on one side and the Wolffian elements on the other, "hermaphroditism lateralis" is the term used. Two such cases have been reported recently, one by Stirling<sup>1</sup> and the other by de Moura and Basto.<sup>2</sup> A much commoner condition is that in which ovarian and testicular tissue are present in the same gonad (ovotestis) with an ovary or testis or neither on the opposite side; this is classified as "unilateralis." An ovotestis was found on one side in a case described by Davis and Scheffey,<sup>3</sup> and in another case reported by Engle, Yeaw, and Lattimer.<sup>4</sup>

Advice is usually sought in early childhood on account of some external genital deformity, such as hypospadias or cryptorchidism, or at puberty because of abnormal secondary sexual characteristics. When the sex of a child was in doubt it was customary to advise the parents to bring him up as a boy; the male is three times more prone to deformity of the genitalia than the female, and the disadvantages are less if a mistake has been made. Garcia states that only by an exploratory laparotomy can the true sex be determined, and some authorities would insist also on biopsy of the gonads.

The question of treatment is complicated by anatomical, endocrine, and psychological factors. The aim of surgery will be threefold. First, it is necessary to establish a functioning genital tract of the sex which has been decided upon in the light of the laparotomy; this may be impossible because of some essential defect in the development of the tract, and even if the organs appear normal sterility usually ensues. Secondly, it is essential to remove all antagonistic gonad tissue if unfortunate secondary sexual characteristics are to be avoided. Finally, the external genitalia may need reconstruction. The secondary sexual characteristics may have to be stimulated by appropriate hormone therapy before and after puberty, and the psychological aspect of the problem must receive adequate attention. All these points are well illustrated in the remarkable group of four cases recently described.

<sup>1</sup> Stemer, J. H., Oglesby, F. L., and Anderson Banks, *J. Indust. Hyg.*, 1947, 29, 60.  
<sup>2</sup> Oglesby, F. L., Stemer, J. H., and Anderson Banks, *ibid.*, 1947, 29, 74.

<sup>1</sup> Stirling, W. C., *J. Urol.*, 1946, 58, 720.  
<sup>2</sup> de Moura, A. C., and Basto, L. P., *ibid.*, 1946, 58, 725.  
<sup>3</sup> *Ibid.*, 1946, 58, 715.  
<sup>4</sup> *Ibid.*, 1946, 58, 731.



## BORAX AS AN INSECTICIDE

Before the advent of modern synthetic insecticides it was difficult to find any chemical substance toxic to insects which was not dangerous to vertebrates. Arsenicals and fluorine compounds present certain hazards when used against insects living in association with man or domestic animals. However, borax ( $\text{Na}_2\text{B}_4\text{O}_{10} \cdot 10\text{H}_2\text{O}$ ) and boric acid ( $\text{HBO}_3$ ) do combine moderate insecticidal activity with low toxicity to mammals. These compounds have been employed in ant baits and as dusts against cockroaches with some effect. But since ants and roaches are difficult to eradicate it would seem advisable to abandon borax for more highly insecticidal materials. Borax and boric acid have been applied successfully to the reduction or prevention of the breeding of fly maggots in manure.<sup>1</sup> Boric acid is more effective than borax, probably because it is more soluble and, weight for weight, contains more boron. The quantities required are  $2\frac{1}{2}$  to 3 lb. (1.1 to 1.35 kg.) of boric acid or 3 to 5 lb. (1.35 to 2.25 kg.) of borax per ton of manure. Farmers may view with caution, however, the possibility of building up a boron excess in the fields, especially with cereals which have low boron requirements.

Another use of boron against fly maggots has been reported recently from Australia.<sup>2</sup> There are a number of blowflies which, apart from the domestic annoyance they cause, are responsible for great losses by "striking" sheep—that is, causing a fatal myiasis. These blowflies can be controlled to a considerable extent by baited traps, but it has been found that the flies breed on the bait in the traps and many maggots escape to renew the natural population. It has been shown that borax added to the baits will prevent breeding in them without destroying their attractiveness.

## EMPIRE MEDICAL BUREAU

The Council of the B.M.A. has decided to establish an Empire Medical Advisory Bureau at its Headquarters in London, and we would draw attention to an advertisement in this week's issue inviting medical practitioners with administrative experience and organizing ability to apply for the post of Medical Director of the Bureau, the work of which will be under the general direction of a Committee of Management. It has long been felt both by medical men from the Dominions and Colonies and by those who do their best to help them when they come to this country that there should be one place and one person to whom they can come for advice on the numerous medical and personal matters the solution of which would go such a long way to helping them to make their visit pleasant and profitable. Most medical men from the Dominions and Colonies come to this country with a view to obtaining postgraduate instruction. Great Britain now has a wealth of medical talent and experience which is unequalled in Europe. The reputation of British medicine has probably never stood higher than it does to-day, and we may justly be proud of the fact that some of the fundamental contributions to medical science during recent years have been made by men working in this country. Postgraduate education is now in the process of being put on a more firm footing with the development of the British Postgraduate Medical Federation, under the direction of Sir Francis Fraser. Although the facilities for this work are not yet available, men working in the principal medical centres in Great Britain are always pleased to welcome and to help

the medical man and woman from the Commonwealth and Empire who come here to learn new things. Part of the work of the new Empire Advisory Bureau, therefore, will be to see that the Dominion visitor has all the information he wants about postgraduate study whether it is for the purpose of taking a higher qualification or for learning about new surgical and medical techniques.

In this country we perhaps tend to forget that the Commonwealth visitor arriving in England for the first time feels very much of a stranger, is faced with unfamiliar customs, and is naturally ignorant of those various details that can be so harassing to the stranger. An important part of the job of the Medical Director of the Bureau will be to see that the newcomer is put in touch with suitable lodgings and hotels, receives information about facilities for sport and travel, and is introduced to medical men in this country who are prepared to offer private hospitality. Through members of the Branches and Divisions of the B.M.A. it is hoped also to arrange that the man or woman doctor from the Commonwealth will be greeted as soon as he arrives, whether it is at an airfield or at one of the ports. Here indeed is a job well worth doing and one which will enable the bolder of it to play a more than useful part in tightening the bonds that already exist between the medical men of Great Britain and the Commonwealth and Empire.

## PURCHASE TAX ON DRUGS

The Chancellor of the Exchequer in his Budget speech on Nov. 12 proposed certain increases in the present rates of purchase tax. The tax on the doctor's traditional black bag will increase from the present  $33\frac{1}{4}\%$  to  $50\%$ . Most instruments will continue to be free from purchase tax, but the tax on the lamp in cystoscopes and ophthalmoscopes and similar instruments will be increased. More important, however, is the fact that a large number of drugs are likely to become subject to tax at  $33\frac{1}{4}\%$  of the wholesale price instead of  $16\frac{3}{4}\%$ . This increase will affect many of the alkaloids and barbiturates; thiouracil and digitoxin; quinine, mepacrine, and pamaquin; aspirin, phenacetin, and the bromides; cascara, liquid paraffin, and castor oil; and most of the extracts, liniments, tinctures, syrups, elixirs, and the like. Under the Purchase Tax (Exemptions) (No. 2) Order of 1945 penicillin and the sulphonamides, vaccines and sera, cocaine and morphine, and vitamins A, B, C, and D, except in ampoules for injection, are exempt from purchase tax, as are pethidine, procaine, and certain other preparations. The British Medical Association has already protested to the Ministry of Health against this increase in the cost to the patient of a wide range of prescriptions. Many of the drugs affected by the proposed increase in purchase tax are in constant use by the dispensing practitioner. A substantial rise in the cost of these medicines is bound to fall most heavily on the chronic sick. The Association has urged that the whole question should be reconsidered.

The Treasury is clearly interested in the revenue from the taxation of nationally advertised proprietary medicines. Penicillin and the sulphonamides, among other things, have been treated differently. They have not been subject to purchase tax and it has not been thought necessary to alter this exemption. Surely there is a case for widening what Mr. Dalton called the "free list" to include drugs which are just as essential to the treatment of the individual patient. It is illogical to apply a purchase tax to the treatment of toxic goitre or malaria while exempting from tax the treatment of pneumonia or gonorrhoea.

<sup>1</sup> Midelev, A. R., and Dunklee, D. E., *Univ. Vermont State Agric. Coll. exp. Sta.*, 1943, Pamphlet No. 5.

<sup>2</sup> Waterhouse, D. F., and Fuller, M. E., *J. Conn. Sci. Ind. Res.*, 1946, 19, 321.

# PHYSIOLOGY OF THE CEREBRAL MOTOR CORTEX: THE CONTRIBUTION OF CLINICAL STUDY\*

BY

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ABRIDGED

[After a tribute to Sir Victor Horsley.]

The methods and the fruits of the experimental study of the motor cortex are known to us all, and the familiar diagrams in which the topographical localization of movements in this cortical region have been embodied by numerous observers look out on us from the pages of innumerable papers and textbooks. On the other hand, this is by no means true of the remarkable contributions of the clinical method to the physiology of the motor cortex. Even contemporary clinicians commonly show an imperfect appreciation of their nature and significance, as may be seen from the unquestioning acceptance they give to the punctate theory of the localization of movements in the cortex, despite the numerous ways in which this theory conflicts with the clinical study of disorders of movement: while for the contemporary physiologist all this clinical work is an imperfectly explored world of phenomena and thought.

The last third of the nineteenth century was a period of great intellectual excitement for those engaged in the study, clinical and experimental, of the nervous system. As we read the original papers of the time upon this subject, naive as is their phraseology in some respects, we can recapture some of that excitement, and can realize how the experimental confirmation of Jackson's hypothesis of a localization of somatic function in the cerebral cortex, by Hitzig in Germany and by Ferrier in this country, stirred the imagination. Thus it was that the philosophic genius of Jackson, and the pioneer work of Ferrier which was stimulated by it, together opened what I have always looked upon as the golden age of British neurology. At this fortunate time Horsley began his work, and came to take his due place in the direct line of those, clinicians and experimentalists, through whom have flowed the two main streams of our knowledge of the cerebral motor cortex.

## Experimental Contribution and Hypothesis

What has predominantly occupied the experimentalist during the seventy-five years of investigation of the motor cortex has been the progressively detailed charting and subdivision of the excitable region, and innumerable maps, from the simple ones of the pioneers to the beautifully detailed ones of Leyton and Sherrington, bear witness to the perseverance and accuracy with which these surveys have been carried out.

If the physiologist, absorbed in these studies, has concerned himself at all with the problem of the functional organization of the excitable motor cortex it is because his punctate electrical stimuli soon began to reveal to him a perplexing instability in the reactions of the cortex. The factors underlying this were later to be analysed by Graham Brown and Sherrington, but this analysis cannot be said to have had any deep influence upon the general conclusions formed by the following generation of experimental physiologists as to the plan underlying the representation of movements in the cortex. This plan is generally held to be that the motor cortex is a close-set mosaic of points in each of which is represented, or localized, a physiological unit of movement: "One spot, one movement" for the majority of physiologists, the whole making up a somatotopic projection of moving parts on the surface of the cortex.

There is an engaging simplicity about this conception that is in the true tradition of Newtonian physics, but it has progressively crumbled, almost unnoticed, until upon examination

it is found to have no solid foundation. Horsley was one of the first to cast doubts upon its validity when he pointed out that there was no ground for the current assumption that the fragment of movement evoked by a momentary threshold electrical stimulus of a cortical point was all that the point really represented, and that in any case the stimulus was a grossly unphysiological way of exciting a nervous centre.

Graham Brown and Sherrington's analysis of the so-called cortical instability or liability showed that the activity of a cortical point is in fact influenced in a number of definite ways by its past behaviour, and its future behaviour by its present. To the conception of primary facilitation they added that of secondary facilitation with its consequences of the deviation or reversal of the response of a cortical point. These phenomena became the basis of Leyton and Sherrington's exposition of motor cortical function. In them they saw indications of "rich mutual associations" of cortical points, associations by means of which the units of movement assumed to be represented in individual points were built up into the innumerable combinations and sequences that go to make the normal movements of the intact organism.

[The lecturer summed up the present position by saying that although the cortex is a labile organ, there has been added to the notion of a perpetual flux of representation, so that the idea of a representation is gone, and to call the cortex labile or unstable gives us nothing in its place. Yet the punctate theory still appears to command the formal assent of physiologists, a telling example of the survival of what was once a useful working hypothesis which had become an obstacle to the penetration of fresh and original thought to the problem of the motor cortex.]

It is a fair criticism of the experimental study of the motor cortex that it has stopped short of giving us a clear insight into the functional organization of that cortex, and that in some of its aspects current physiological opinion shows signs of regressing to a simplicity wholly inadequate to generalize the facts of observation. I venture to submit that this failure is not so much due to a lack of relevant facts as to one of conceptual thinking about them. We may discern at least three factors underlying this. First, successive generations have continued to interpret their findings on the basis of the original punctate localization theory, the permanent validity of which they have assumed. Secondly, they have departed from the concept of a representation of processes—that is, movements—in the cortex in favour of one of a representation of structures—that is, muscles; and thirdly, in coming to their conclusions they have left out of account, by a sort of unawareness, all the facts of observation that did not harmonize with the theory, thus giving an example of the insufficiently recognized truth that the relevance of evidence is always dictated by theory, a quality inherent in the observational order of experience.

[After this brief and somewhat critical review of a vast body of experimental work with its great merits and obvious limitations, the lecturer turned to his main theme, the clinical contribution, which this introduction brought into relief.]

## The Clinical Contribution and Hypothesis

That these studies have almost from the first taken a very different path from the one we have just traced we owe to two circumstances: the one inherent in the clinical method, the other fortuitous.

The limitation inherent in the clinical method is that Nature makes the experiment, and not the observer. She makes it for and when she likes, seldom as we should desire to have it, and still more seldom under the eyes of someone interested to assess its significance in terms of physiology. "Experiment," it has been said, "is nothing else than a method of cooking the facts for the sake of exemplifying the law"; but the clinical observer has to take Nature's facts in the raw, and to elicit Nature's law in these circumstances may be a high adventure of thought.

The second and fortuitous, though most happy, determination was that the pioneer in the field, Hughlings Jackson, characterized by at once a scrupulously accurate observer and a man of philosophic genius. He was quick to recognize that once the fact of a topographical representation of movements in a certain region was established, the further and more practical mapping of that region could be left to that experimental method which Ferrier had begun to show was so eminently suited to the task. He was thus free to turn to what was

\*The Victor Horsley Memorial Lecture delivered at the National Hospital, Queen Square, on Nov. 27, 1946, and here abridged. The complete lecture is published by E. and S. Livingstone, Ltd., Edinburgh: price 1s. 6d.

him the more congenial task of analysing the nature of this representation. To this end he adopted what he called his "double plan": namely, the parallel study of the consequences of destroying and of discharging lesions, that is, of analyses and of those convulsions beginning unilaterally that we now speak of as Jacksonian fits. In one of his papers Jackson says:

"I considered convulsive seizures and certain cases of paralysis which regard only to the localization of movements in the brain. What interested me most was, not so much the localization of movements in the cerebral hemisphere in the sense that, for example, the movements of the foot are localized here and those of the arm in another place, but the facts of the cases as they bore on a broad principle of localization."

Here, surely, is the authentic method of science, philosophically considered, with its observational and conceptual elements, and here, thus early, the clinical study of the motor cortex set its course for a different goal from that sought by the pioneer experimentalists. For myself, I know of no more fascinating episode in the history of clinical medicine in modern times than Jackson's intensive study of the convulsion beginning unilaterally, as he called it, and the masterly fashion in which he made it yield up so many of the secrets of the cortical organization of movements.

[The lecturer described as the classical example of the "discharging lesion" the Jacksonian fit, and of the "destroying lesion" hemiplegia in all its grades of severity.]

We have learned that, *ex hypothesi*, the motor cortex is a mosaic of discrete points in each of which a muscle or a unit of movement is represented, and, from what we have heard, all these points are to be thought of as equipollent. How remarkable it is, then, that the Jacksonian fit, with this vast and complex representational mosaic at its disposal as it were, could invariably choose to fire off in one or other of three critical foci: that for thumb and index movements; that for movements at the angle of the mouth; or that for movements of the hallux, and in that order of frequency. An inevitable result of this selective incidence of the discharging cortical focus, for which nothing in the literature of experimental physiological studies has prepared us, is that the Jacksonian fit begins in what has been called a leading part (a part having the greatest number of different movements at the greatest number of different times)—namely, hand, face, or foot. From these observations Jackson concluded that these three cortical foci—"physiological fulminates," as he called them—possessed the lowest threshold of excitability in the motor cortex. Again, in respect of each point of onset of the fit there are certain uniform sequences of spread. Of equal significance as a general characteristic of the fit is that it spreads in a uniform sequence. In respect of the discharging lesion itself, Jackson believed that though this might be restricted, it could yet lead to a widespread convulsion.

#### Paralyses of Movements

Tracing the general features of hemiplegia, the effect of the destroying lesion, we find that they include the maximal incidence of impairment or loss of movement in the same three leading parts we have already considered—hand, face, and foot, in that order. As hemiplegia increases in severity, or in the comparative study of a series of progressively more severe examples, we see the same compound order of involvement that we found to be characteristic of the Jacksonian fit: as paralysis spreads to include more movements it deepens in the movements first affected.

Now hemiplegia is usually the sequence to a destroying lesion of the motor pathway deep to the cortex, the way out from the cortex, but the study of limited destroying lesions of the cortex itself reveals that the general characters of the paralyses observed are the same in each case. Nevertheless there are certain significant features of destroying cortical lesions to be considered. As Jackson expressed it, the cortex is very tolerant of destroying lesions. If such a lesion be very restricted it may be symptomless, and when productive of paralyses these are apt to be minimal in range and severity and to be capable of a high degree of restoration. Nevertheless, this apparent restoration is not truly complete, for of all the possible movements of a given part some remain absent, but are largely compensated for by other and similar movements of the same

part. This so-called "tolerance" of destruction, the high degree of recovery after a destroying lesion, and the nature of the compensation achieved are all incompatible with the theory of an exclusive representation of movements in certain fixed points.

Summing up, then, we have primary involvement of leading parts in paralysis, compound order of paralysis of movements in the same sequence as that of convulsion in the Jacksonian fit: tolerance of the cortex to localized lesions, extensive recovery and partial compensation of lost movements by similar movements of the same part. Thus convulsion and hemiplegia are the positive and negative of one picture, and convulsion "the mobile counterpart of hemiplegia." The destroying lesion reveals yet another feature inherent in the organization of the motor cortex—namely, that it is movements and not muscles as such that are represented. "The cortex knows nothing of muscles, it knows only of movements," as the familiar aphorism of Jackson's has it, and it must at this date strike the clinician as remarkable that any should be found to dispute it.

In the matter of paralysis there is no evidence that a single muscle can be paralysed by a cortical lesion in man. It is doubtful whether in the experimental animal after a cortical ablation any conclusive finding on this matter is possible. On the positive side there is ample clinical evidence that paralyses from cortical lesions and in hemiplegia are paralyses of movements and not paralyses of muscles as such. One of the most familiar examples is provided by the behaviour of wrist extensors in many cases of residual hemiplegia: those in which the power of voluntary clenching of the fist is retained but that of voluntary extension of the wrist is lost. In the former movement the wrist extensors can be seen and felt to contract powerfully, while on the attempt to extend the wrist nothing happens and the muscles remain inactive. As synergists in the first movement they act, as prime movers in the second they are paralysed. Even more striking instances are recorded by Beavor (one of Horsley's collaborators) in the case of movements of the trunk in hemiplegia, showing that muscles paralysed for certain movements retain their full power in others.

[After adducing a philosophical argument against representation of structure—as opposed to process—in the cortex, showing that it can only be the *performance* of the muscle as a moving structure that can be represented:—]

Clinical observation has shown that the motor cortex pre-determines the combinations in which muscles shall act simultaneously, and also the sequence in time, the order of action, in which they enter into a voluntary movement. These are those cortical functions of co-ordination in space and co-ordination in time of which Jackson spoke and which Beavor so abundantly exemplified and recorded in his Croonian Lectures (1903).

#### Jackson's Theory of Representation

At an early stage Jackson found himself compelled to discard the punctate or "cortical muscle" theory of localization of movements as being incompatible with the facts of observation and inadequate to generalize them. What has been spoken of as the tolerance of the cortex to destroying lesions, and the remarkable degree and kind of recovery of movement seen after such lesions, could not occur with a cortex so organized. Similarly, the compound spread of convulsion from discharge of a restricted cortical focus is equally impossible on this basis. Jackson therefore concluded that representation of movements must be multiple in the sense that a given cortical focus must contain the anatomical and physiological substrata of more than a single movement, and that the representations of the movements of a given moving part are not abruptly demarcated and merely contiguous but extensively overlapping.

Implicit in this view, and in strong contrast to that of the experimental physiologists, is the notion that what the motor cortex represents, what is "localized" there, is not a vast collection of elementary units of movement, waiting to be assembled *ad hoc* into those complex combinations and sequences that we know normal voluntary movements to be, but a field in which all possible movements—all the movements the individual has ever learned—have their own separate representations in so far as they differ from other movements. There is, in fact, no conclusive evidence that any hypothetical "units" of movement are represented as such in the cortex.

The hypothesis of multiple and overlapping representations allows of an integration of all the phenomena of facilitation with the known facts, and we no longer have to suppose that what deviation and reversal of response really signify is that a given representation actually changes its location from place to place and moment to moment, and that cortical representation is in a perpetual flux.

[Only on the basis of Jackson's theory of representation was it possible to account for the clinically observed facts. But in the field of experimental physiology the facts pointed to the same conclusions.]

The notion of multiplicity of localizations of movements in a single cortical spot stands out clearly enough from a great number of experimental observations. Thus it has long been known that if the faradic stimulus to a cortical point be prolonged a sequence of primary, secondary, and tertiary movements, as they have been called, can be evoked, and these involve a spreading field of musculature.

[The lecturer quoted from Horsley's Linacre Lecture in which he had drawn attention explicitly to the fact that multiplicity of representations at a single focus had always been an inference that could be drawn from experimental observations; also the recent work of two American physiologists, Murphy and Gelhorn (1945), who, using supra-threshold condenser discharges as their cortical stimuli, had found multiplicity of representation throughout the motor cortex of three animal types—rabbit, cat, and monkey—and also extensive overlap of representation, transcending the boundaries of the three great somatotopic regions, those of the head, upper limb, and lower limb. This multiplicity of representation persists in an isolated cortical focus and is not due to spread of current over adjacent areas of cortex.]

This consummation must be profoundly moving to whomsoever has been bred in the tradition of the great neurologists of the turn of the century. At last a great adventure of thought has come safely to port, and in the words of a phrase from Pope's *Essay on Man*, the motor cortex has been shown to be "A mighty maze! but not without a plan." Just as seventy-five years ago the clinically ascertained fact of a localization of somatic function in the cerebral cortex obtained its brilliant confirmation at the hands of Ferrier, so now the hypothesis as to the nature of that localization, based upon clinical observation and formulated so long ago, finds an experimental verification in the laboratory at the hands of two American physiologists. Now this clinical hypothesis may be regarded as valid on its own merits, and not in need of any further verification.

### Conclusion

The material and the conditions out of which the clinical investigator has to forge ordered knowledge are a constant challenge to his capacity for conceptual thinking as well as to his powers of observation. This chapter I have put before you is the story of the response to challenge. This particular challenge, which faces the experimental no less than the clinical investigator, is the challenge to conceptual thinking, a challenge we see so brilliantly met in the work we have been considering, or in that of Sherrington in the realms of experimental physiology. Science, it has been said, is formed by the meeting of the two orders of experience, observational and conceptual, and the former can be interpreted only in terms of the latter.

How appropriate to our thought of Victor Horsley is the conception of challenge and response, for his full and eager life was a series of responses to challenge. His name and fame are part of the imperishable tradition of medicine.

Medical practitioners might like to draw the attention of paraplegic patients to a new quarterly journal entitled *The Cord*. The journal may be ordered from the Editor, Paraplegic Branch of the British Legion, Stoke Mandeville Hospital, Aylesbury, Bucks, a year's subscription costing only 2s. Though the journal is issued by the Paraplegic Branch of the British Legion it will cater also for the interests of those paraplegics who are not members of the Legion. It will provide information about appliances and medical treatment suitable for paraplegics, and how they may best be obtained. General problems of housing and employment will also be discussed. The present number contains an entertaining short story, and announces the offer of a two-guinea prize each quarter for the best short story submitted by a paraplegic reader.

## A SUGGESTED HOSPITAL UNIT

BY

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County Hospital

For some time it has been evident to me that the private pay block in a hospital is obsolete. In such a block the segregation is based on social and not on medical grounds and patients lose the advantages that the less affluent obtain from specialized nursing and equipment. While by no means I advocate of specialization to the extent that many consider advisable, whereby a "special centre" is necessary before a malady can be treated, yet I think there can be no doubt that a reasonable degree of specialization is an advantage. I am convinced that this applies as much to the nursing as it does to the medical profession, or even more so. I have on many occasions heard surgeons remark that their cases do better both in the public and private wards of special hospitals restricted to the type of work concerned than do similar cases in nursing homes or the private blocks of general hospitals.

Sisters and nurses tend to be interested in special aspects of their work. Thus in a general pay block a fractured femur may be nursed by a sister specially interested in diabetes, and the requisite special equipment is not available, or, if it is, the staff are not familiar with it. It is for these reasons that private blocks have been provided in special hospitals. Not only does this apply particularly to fractures and orthopaedic cases, but also applies to genito-urinary, chest, and abdominal surgery, neurosurgery, and gynaecology.

In my opinion, the ideal conditions are those in which the surgeon works as part of a self-contained team of agreed and co-operative colleagues, medical and nursing, in a self-contained unit having all the facilities required for the efficient execution of his work, both public and private. The unit should therefore have general and private wards; it should, in the case of a surgical unit, have operating theatres, and an x-ray room for pyelography, salpingography, encephalography, or the correction of fractures, depending on the type of work engaged in. It is hard to think of any major surgical division that does not for its finest technique, require the help of x rays. There should be facilities for out-patients, both public and private, and a small clinical laboratory. Under such conditions a good technique could be developed; no doubt each "firm" would plan its own special technique, and this might be the subject of friendly rivalry. In this manner the method could be judged by results. In a pay block it is difficult to get a special technique followed in detail, and the procedures are apt to be a blend of the ideas of several surgeons—so often the best features of each method fail to be incorporated in the blend, and one often feels that the exact technique of any competent surgeon (if one cannot get one's own) would be better than a hotchpotch of many.

I have been thinking of these things for many years, but have been stimulated to put my thoughts on paper by the inspiring article by J. C. Spence on the subject of children's hospitals (*Journal*, Jan. 25, p. 125). I submit, as an illustration of what I mean, a plan kindly drawn up for me by Mr. Owen Watson, A.R.I.B.A., and his staff. It does not profess to be perfect in detail, and as I have already put these experts to a great deal of trouble by alterations and revisions I have refrained from further alterations as the plan illustrates my theme. There is, however, one detail that strikes me as needing changing—the plaster room should adjoin and communicate with the x-ray room, and it might be an advantage for the laboratory to communicate with the theatre suite. The private wards would be better grouped in one group and should not face the back of another building. Obviously, if such a plan were to be drawn up in connexion with a proposed hospital the nature of the treatment to be carried out there and the available site, as well as the personal views of those who were to work in the unit would make considerable alteration necessary. I therefore feel that at this stage there is no need to ask for the plan to be redrawn to provide for comparatively trivial revisions.

### Accommodation

The following are the main provisions in carrying out the scheme.

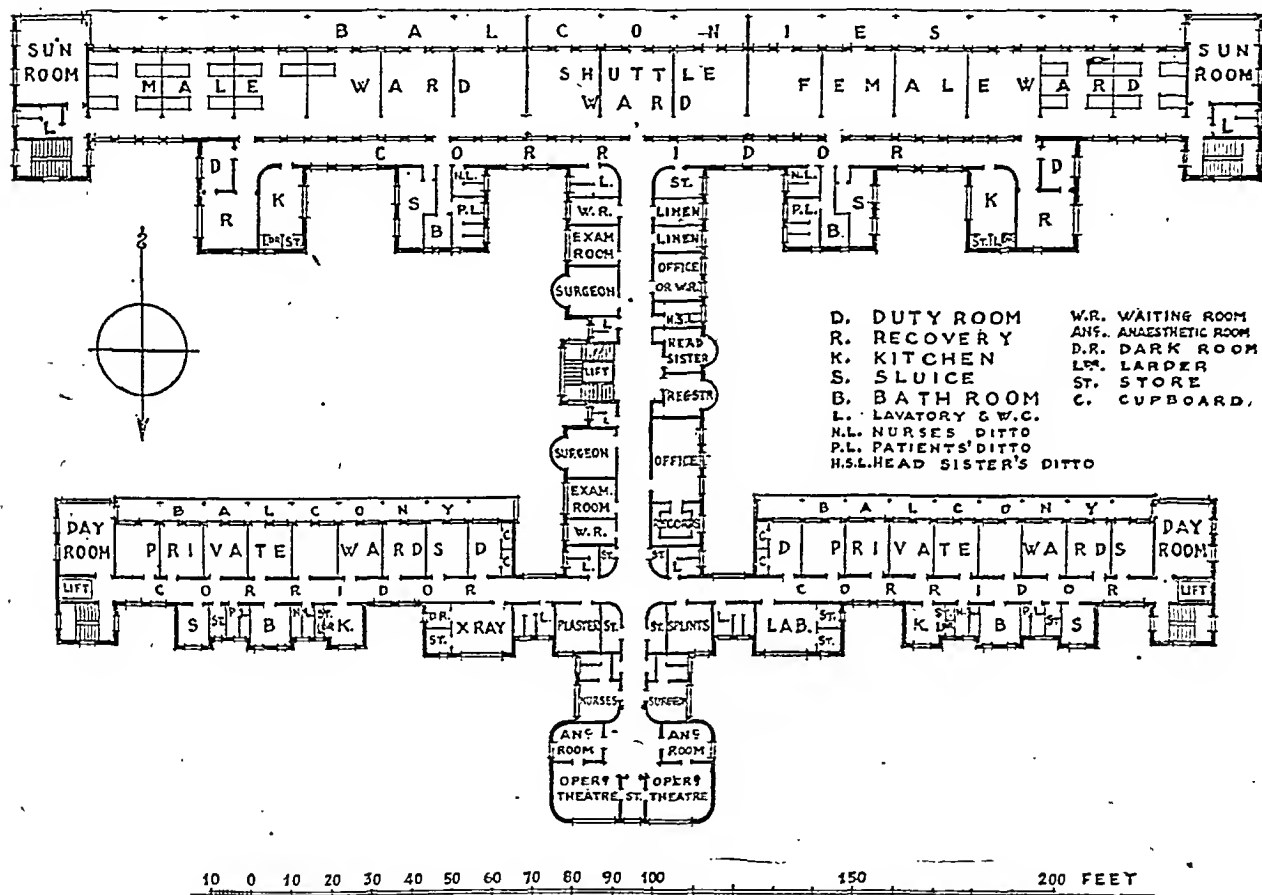
- General wards: male, female, and shuttle
- Private wards (single rooms)
- Theatre and anaesthetic rooms
- X-ray and developing room
- Plaster room if the unit deals with orthopaedic or fracture cases
- Splint store and store for Balkan beams, etc.
- Resuscitation ward
- Balconies adequate to accommodate a fair number of beds

There are, however, certain features to which I would draw attention.

**Shuttle Ward.**—To those not acquainted with this feature I would explain that a shuttle ward is one which forms an annexe to either the male or the female ward, it being situated between the two and with a door leading into either ward at each end.

ressing case. Attempts to reserve the single rooms for bad cases break down in practice, I find. If single rooms are provided, the private wards need not be separated for the sexes any more than are the rooms and floors in a hotel.

**Resuscitation Ward.**—The question of a resuscitation ward must be considered. It has advantages in the way of equipment and facilities, but there are objections. A much better relationship exists between nurse and patient when the nurse who has cared for him in *extremis* also nurses him through his convalescence: it is encouraging to the nurse and builds up a keen and happy spirit in the clinic. The beneficial influence of the gratitude of patients to the nursing staff is familiar to all who have worked in hospitals, and many patients make a point of returning when fully recovered in order to thank the sister of the ward and to bring her some flowers. On the other hand, it is an advantage to segregate a desperately ill patient, and to be able to come and go without disturbing the other patients; to



By opening the door into the male ward and closing that into the female ward the shuttle ward becomes an auxiliary male ward. It has no kitchen or sanitary accommodation, and is therefore cheap to build; it uses the kitchen and sanitary arrangements of the ward with which it communicates. This arrangement enables fluctuations in the number of each sex awaiting admission to be dealt with: If there was a big female waiting list, the shuttle ward could be used to reduce this by becoming a female ward, but if as a result a small hold-up of male cases occurred the shuttle ward could become a male ward for a week or two, and so on.

**Private Wards.**—Some advocate that two or three patients should share a room. This is satisfactory for trivial illnesses or for convalescents who are particularly sociable, but those who have shared a small ward with a patient taking two or three days to die of general peritonitis will need no further argument to convince them that, generally speaking, private single rooms are better. For myself, if I could not have a single room I would prefer to share with twenty rather than with one, as I should not be so likely to have such close contact with a dis-

use bright lights instead of groping to do an intravenous transfusion in the semi-obscurity of shaded lights, and to carry out all noise-producing procedures without disturbing other patients. The patient in such a ward is usually oblivious to the general turmoil.

It seems that both these advantages could be secured by having a recovery ward attached to each general ward. In the plan it is shown as having an observation window into the duty room. The ward staff, supplemented if necessary, could look after the very ill patient, would not lose contact, and would have the joy, if successful, of seeing the patient reach convalescence. On the other hand, if resuscitation failed, their disappointment and distress would be mitigated by the fact that they are not entirely engaged in this rather wearing occupation.

In the case of single private wards, there are few advantages in having a separate resuscitation ward.

### Personnel

This is not the place to enter into details, but certain principles should be established. To ensure unification there must be



unified control. There should, on the medical side, be one surgeon in charge of the whole unit. On the nursing side there should be a senior sister as unit sister, with theatre and ward sisters under her. She might combine her duties with a double appointment, as, for instance, unit sister and sister-in-charge of a ward or the theatre. On the other hand, she might take charge of wards or the theatre when the sister in direct charge of these is away, and she could advise and help the staff nurse, whose relative lack of experience should make her welcome such support.

The second principle is that of continuity. In many hospitals a complete change of residents occurs periodically, and the new resident has to spend a week or two finding his feet, with a consequent drop in efficiency. It is an advantage in any unit to have a senior and a junior house-surgeon. The junior becomes in time the senior and by that time is familiar with the work of the unit, and the newly appointed junior is supervised and helped by his senior, especially in the earlier weeks of his appointment. This principle should extend throughout the clinic. It does not follow that one man need progress all the way, held up for years by lack of vacancies, but new blood can be introduced at various levels without, however, a complete rupture of continuity. One sees in some municipal hospitals the ill effects of neglecting this principle. Whole-time surgeons are appointed without adequate deputies, and every time a fresh appointment is made a new man arrives, often with little or no introduction. He does not know any of the old patients, or the methods and traditions of the hospital. He inevitably finds a certain number of failures, for whom he feels no responsibility and little affection.

Continuity on the nursing side would be obtained by having several sisters and a unit sister.

#### Other Features

The importance of adequate clinical notes and records is universally recognized but as a rule most inadequately provided for. In this plan provision is made for a records office and accommodation provided for typists and clerks to help in keeping adequate and—what are too often lacking—legible clinical notes.

I do not wish to give the impression that I favour special hospitals: I am entirely opposed to the further creation of such hospitals. I feel that constant contact with those engaged in other branches of work is good for both doctors and nurses, and prevents isolation and a narrow outlook. In my opinion a general hospital should consist of a collection of units such as I have described above with a central administrative block containing, amongst other things, staff dining and common rooms where meeting one's colleagues in various branches would be automatic.

Space prevents further elaboration of this scheme, but enough has been written to present the idea as a subject for consideration, discussion, and development by those interested in the welfare of clinical medicine and surgery and the improvement and advance of our hospital service. It would be a great relief, to have one's work centralized, and not to waste one's strength and energy in transportation and in toiling up flights of stairs in inadequate nursing homes carrying bags of instruments and appliances, with the fear that the one instrument that may really be needed has been left at home; having to make do without such aids as suction or portable x-ray apparatus, and with no trolleys or lifts to carry the patient from the operating table to his bed. Surely what is best for the patient is best for us all: the finest work demands that all the most up-to-date facilities and aids should be available whenever required, and the practitioner's energies should be conserved and directed to the work for which he has prepared himself by years of study and experience and not be dissipated in trivial but fatiguing tasks.

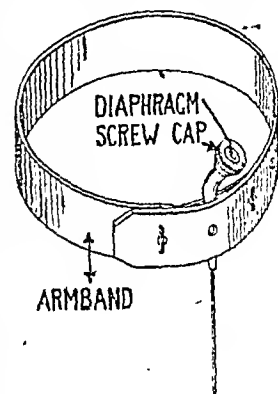
At a meeting of the North of England Obstetrical and Gynaecological Society held recently Mr. F. J. Burke described a case of theca-celled tumour of the ovary. The patient was 74 years of age; the menopause had been 22 years previously. She had been a spinster until the age of 72. Apparently some rejuvenation had taken place, for sexual desire and marital intercourse were normal. She stressed that her marriage was the great event of her life. A theca-celled ovarian tumour weighing 20 lb. (9 kg.) was removed.

## Preparations and Appliances

### NON-CLOTTING NEEDLE FOR INTRAVENOUS INJECTIONS

Drs. G. P. FOX and J. H. TAYLOR, London Hospital, London, E.1, write: The increasing use of the intravenous route for anaesthesia brings the problem of maintaining the patency of an indwelling intravenous needle into special prominence. While on a visit to Stockholm in 1946, one of us (J. H. T.) was impressed by a needle devised by Dr. Torsten Gordh, of the department of anaesthesia at the Karolinska Hospital, and made by the surgical instrument firm of Stille.

This needle is the essence of simplicity and efficiency, and was fully described in *Anesthesiology* (1945, 6, 258). It consists of a shaft 3 cm. long of about 20 s.w.g., with a slightly thickened shoulder-piece 2.2 cm. in length, upon which is mounted at the end and at right angles to the shaft a small upward prolongation, surmounted by a detachable screw cap within which is a tightly fitting rubber diaphragm of 1.5 mm. thickness. The shoulder-piece is fitted with a thin-winged fin which lies snugly on the patient's skin and is maintained firmly by a strip of adhesive strapping. The overall length of the needle is 5 cm.



The patient is anaesthetized with a preliminary dose of thiopentone, and as soon as he is unconscious the needle is inserted into any convenient vein of the forearm or hand and maintained in position by the strip of adhesive strapping encircling the shoulder wing and the patient's arm. Further injections are made as required by piercing the rubber diaphragm with a very fine hypodermic needle mounted on a 10-ml. syringe.

The principle upon which clot formation is prevented is that blood cannot flow back into the needle once it is within the lumen of the vein since the distal end is closed by the rubber diaphragm. It is advisable before inserting the needle to inject a little of the anaesthetic fluid through it so as to expel any air which may have entered the needle through removal of the screw cap during sterilization.

The needle is easily sterilized by boiling, and the life of the rubber diaphragm varies with the extent of its use, but using only very sharp fine hypodermic needles a diaphragm will last from two to four months. No additional apparatus is required, and even an arm-board can be dispensed with if a suitable vein is found near the wrist and the hand is kept on the pillow by the side of the patient's head. We have used this needle now for over a year, and have never encountered clot formation within it, even when it has remained *in situ* for over four hours; neither have we seen any thrombosis higher up the vein, provided the needle is kept firmly within the lumen by means of the adhesive strapping. The uses to which this Torsten Gordh needle can be put are many. The anaesthetist will find it of service particularly when employing a thiopentone-nitrous-oxygen combination using intermittent, fractional doses of thiopentone and tubocurarine. In this case, since thiopentone and tubocurarine together form a dense precipitate, it is necessary to inject a small quantity of sterile saline after each injection in order to prevent the formation of such a precipitate.

Recently a minor modification of this needle has been made for us by Bleas Anaesthetic Equipment, Ltd., of 223/7, St. John Street, London, E.C.1. The shoulder wing has a thin rubber arm-band and buckle attached to it and this makes for easier fixation to the forearm without the use of adhesive plaster. In addition, the screw cap embodying the diaphragm is mounted at an angle of 45 degrees instead of at right angles, thus streamlining the needle, which is then less likely to project from the arm.

## LONDON MEDICAL EXHIBITION

The London Medical Exhibition, organized by the *British and Colonial Druggist*, returned to the hall of the Royal Horticultural Society, Westminster, last week with a varied display of products of interest to the medical profession. Quite half the 167 stands were devoted to the showing of chemical, pharmaceutical, and food products, the remaining exhibits being chiefly surgical and orthopaedic instruments, hospital and operating-theatre furniture, and special appliances for diagnosis and treatment. Unlike the exhibition of last year, when, after wartime dormancy, many new products were shown, the new introductions on this occasion were few and minor, but the exhibition excelled more than ever in the ingenious way in which the products were presented.

Many of the manufacturing chemists had illuminated models showing their products in action. This art of presentation was remarked particularly at the stands of Roche Products, Ltd., with its mural display of research workers and clinicians in the field of nutrition before and since the beginning of the vitamin era; Parke, Davis and Co., with its panorama of pharmaceutical research; and the decorative displays of Bayer Products, Ltd., the Crookes Laboratories, Allen and Hanburys, Ltd., and William R. Warner and Co., Ltd., with a relatively small range of products excellently shown. Imperial Chemical (Pharmaceuticals), Ltd., showed a more or less continuous programme of medical films illustrating anaesthetic techniques, and the British Oxygen Co., Ltd., had a big-scale exhibit of apparatus for the administration of anaesthetic gases. Of surgical instruments there appeared to be more than the former variety and abundance. One stall was entirely devoted to hospital equipment in stainless steel and another to surgical rubber. Hearing aids, electrical and non-electrical, were exhibited at several stands and rivalled ophthalmic equipment. Half a dozen bookstalls, three stands devoted to British spas—Bath, Buxton, and Harrogate—and such refreshing exhibits as those of Cadbury Bros., Ltd., and Bovril, Ltd., made attractive corners.

## Reports of Societies

### SNORING

In the Section of Laryngology of the Royal Society of Medicine on Nov. 7 Mr. IAN G. ROBIN read a short paper on "Snoring"—a complaint which was often a distressing physical and mental handicap. There was a remarkable lack of literature on the subject. Most physiology books devoted one line to it, and some journals of hygiene in America mentioned it in a breezy "lay" manner. Some useful information, however, was to be gained from recent work by anatomists and orthodontists.

Noisy respiration during sleep might be produced by various structures in the respiratory tract. He limited snoring to sounds made by vibrations in the soft palate and posterior faucial pillars during sleep. Whillis had shown that the vibrating part in a snore was the thin edge, or velum, of the posterior faucial pillars, and that if there was a reservoir of air filling the nasopharynx the velum could not vibrate. The vibrating parts were influenced by the relative position of the tongue and soft palate and by the texture of the velum. After a discussion of the position of these structures, the effect of the tone of the glosso-pharyngeal musculature, and other factors, Mr. Robin said that often it was the minor degrees of nasal obstruction which led to enough mouth-breathing to initiate snoring. These included slight deflection of the septum, collapsed alae nasi, or moderate mucosal congestion. Pathological changes in the pharynx might make the soft palate and faucial pillars more liable to be in a suitable state for snoring.

The majority of cases of snoring in children were cured by the removal of adenoids and tonsils. Exceptions were the cases of persistent mouth-breathing of functional origin and cases with infective or allergic rhino-sinusitis. It was rare for snoring to persist into adolescence. Even at puberty, when there was increased vascular congestion, there were not many snorers.

The child snorer did not progress into the adult type unless there was persistent nasal obstruction, nor did the adult snorer necessarily give a history of snoring as a child. The young adult who started snoring usually did so from some organic cause. The largest group of sufferers were elderly persons, and both men and women were affected. The majority had some functional derangement in the glosso-pharyngeal structures. Lack of tone seemed to be the fundamental cause.

### Treatment

Of irrational methods of treatment the chief was amputation of the uvula, which used to be a popular practice, rarely giving much relief, though it might modify the depth and pitch of the snore. Of rational methods the first was removal or prevention of nasal obstruction, thus allowing for cessation of mouth-breathing. In some instances decongestive nasal drops before retiring would allow a peaceful night. In others, various nasal operations might have to be performed. "Benadryl" was useful in some cases. The second method was to change the position of the head, thus preventing the tongue from falling back. Many persons snored only when on their backs, and sometimes a cotton-reel sewn into the back of the pyjamas was effective. The third method was to alter the position of the tongue and soft palate and perhaps also the jaws by breathing, swallowing, and phonetic exercises, or by orthodontic "splints." The exercises aimed at training the central nervous system to regain proper neuromuscular control. The "splints" altered the shape of the mouth, which might guard against the tongue and fauces falling into the critical position. In all these methods it was necessary to regain proper central control of the soft palate and break the habit of an inverted reflex.

A further method was to keep the mouth closed during sleep by wearing an "andresin" splint (which was well tolerated by most children, but less so by adults), or by the simple expedient of a strip of adhesive plaster across the corner of the mouth. After a short time this was well tolerated by many patients. An adequate nasal airway was, of course, essential. Jerome Strauss advocated the injection of sclerosing solution into the pillars, but no high percentage of cures had so far been claimed. Mr. Robin felt that surgeons might have prevented much future snoring by their removal of tonsils and adenoids, leaving the patient with nothing but a fixed fibrous band instead of a mobile soft palate and faucial pillars. His conclusion was that snoring was a symptom of unbalanced breathing caused by a combination of several physical conditions. Remedies must aim at curing all and not only one of them.

In a brief discussion which followed, the President of the Section (Mr. A. J. WRIGHT) said that for many years it had been his custom to teach students that snoring represented nasal breathing through an obstructed airway with the mouth open, but he was now satisfied that that was incorrect. Some remarks were made on snoring in animals. Mr. W. H. BRADBEER said that the dog was the only domestic animal that snored, and Mr. V. E. NEGUS said that this was because in the dog the epiglottis lay below the palate. The horse, cow, and cat would be incapable of snoring, as he believed they could not breathe through the mouth. He had always understood that in birds the sound was produced in the syrinx, and very loud sounds might be forthcoming. Mr. H. V. FORSTER inquired whether trained singers, whose muscles should be much better disciplined, were accustomed to snore, and also whether snoring occurred after operation for cleft palate. Mr. ROBIN was of the opinion that if the operation for cleft palate was attended by a good result the child should be capable of snoring but capable also, with efficient training, of not snoring.

### CARDIAC PAIN

A meeting of the Medical Society of London on Nov. 10, with Mr. W. E. TANNER, the President, in the chair, was devoted to a discussion on "Cardiac Pain."

Dr. WILLIAM EVANS said that after Heberden's classic description of angina pectoris there appeared to be nothing more to be said about cardiac pain; nevertheless he now detected a certain restlessness, an uneasy feeling that all was not well with

their knowledge of the subject. In the first place he wanted to discuss the term "angina pectoris" itself. Custom had associated "angina" with the heart, but the term was misused and abused, and dreaded by the patient. The loose terminology of "angina pectoris" should be left on one side and the more responsible term "cardiac pain" substituted. He also wished to see the term "cardiac ischaemia" substituted for "angina of effort."

The diagnosis of cardiac pain was founded on three cornerstones—the patient's narrative, the signs elicited on physical examination, and the electrocardiograph. The first two of these were insecure, and the electrocardiograph was the keystone. Pain over the heart was seldom a heart pain. A guide to the origin of the pain was often the way in which the patient described his symptoms. The patient with true cardiac pain would not over-emphasize or exaggerate; he dealt with his pain quietly and without recourse to rhetoric. He would describe it as tight, pressing, heavy; vice-like, dull, crushing, gnawing, boring, gripping. The patient with non-cardiac pain, on the other hand, would describe it as stabbing, shooting, sharp, pricking, knife-like, burning, niggling, stinging, piercing.

In cardiac infarction of the extensive kind diagnosis was simplified by the presence of obvious signs, which included shock, collapse, small pulse, distant heart sounds, and triple heart rhythm. In less serious attacks the blood pressure might sometimes give a clue, and another physical sign was cardiac enlargement. Triple heart rhythm would result from cardiac infarction either alone or when it had caused heart failure in hypertension. The auscultatory sound of triple heart rhythm in a patient with chest pain was without equal as a clinical test. Sometimes the triple heart rhythm would be due to the addition of a fourth heart sound coming in front of the first; this was met with when cardiac infarction had caused heart failure in hypertension. The other variety was due to the addition of a third heart sound following the second and was probably commoner.

#### Electrocardiography

Dr. Evans went on to ask and answer certain questions. Was the electrocardiogram of cardiac infarction or coronary thrombosis ever normal? He believed not. If this was true they must act on it in the future even more than in the past, and allow a normal electrocardiogram to exclude by itself the diagnosis of cardiac infarction, however much it might be upheld by the sudden impact of pain. Could the electrocardiogram provide early evidence of cardiac infarction? In his experience the changes were there from the start, not in their more obvious and stabilized form but none the less plain to see at the beginning of the attack. They need never wait in the false belief that the infarction must ripen before it produced its electrocardiographic effect.

The treatment of either cardiac infarction or ischaemia must be preceded by a clear-cut diagnosis. Enforced unwarranted invalidism was a cruel imposition at any age, most cruel when the autumn of life was clouded by unnecessary restrictions. For the doctor to miss a step here was to commit a wrong. Even when the diagnosis was withdrawn the real harm had been done, and the mental injury was lasting. The consequences of failure to recognize in a patient the marks of coronary disease were of equal moment. At these cross-roads, therefore, the doctor must read his signs clearly.

#### "Angina Pectoris"

Dr. JOHN PARKINSON said he was glad Dr. Evans had used the term "cardiac pain," but cardiologists would not use the term "angina pectoris" unless they were forced to do so. He objected to the term being thrown overboard. He did not believe that the average man to-day feared the term as much as he used to do. It was a rather serious matter to talk about removing a term which had been in existence since Heberden. The use of "ischæmia" for "angina of effort" also seemed to broaden the terminology until it became almost meaningless.

Dr. JENNER HOSKIN agreed that it would be a pity to lose the term "angina pectoris," though they should never use it before the patient, and its loose use on certificates was to be deprecated. "Effort pain" was probably a helpful way of

explaining it to the patient. He did not agree with Dr. Evans that the electrocardiogram was always abnormal in simple angina of effort. He had seen several cases with a typical history of angina of effort in which the electrocardiogram was perfectly normal.

Dr. A. HOPE GOSSE said that in diagnosing angina of effort he relied on the distribution of the pain rather than on the electrocardiogram. It was not always substernal pain, might be observed in the arm and forearm, sometimes in the form of a band around the wrist. It went up to the shoulder, the neck, the lower jaw and teeth.

Dr. R. W. COCKSHUT said that Dr. Hope Gosse had restored his faith in himself as a general practitioner, which had been imperilled by this reliance upon electrocardiography. Dr. G. SCHOTT showed radiographs of a number of cases in which the pain of angina of effort had been associated with other conditions. Dr. W. G. OAKLEY said that hypoglycaemia would produce cardiac pain in a patient who had coronary disease, though he could not recall any instance in which hypoglycaemia had produced cardiac pain in a patient without coronary disease. Dr. COWAN said that at a good many necropsies he had found quite definite infarction, but on going back into the history there was no evidence that the person had had any pain or had suffered in any way.

Dr. EVANS replied briefly to the discussion.

### MEDICAL HYDROLOGY

#### INTERNATIONAL CONGRESS

The annual meeting of the International Society of Medical Hydrology was held in Rheinfelden, Switzerland, on Sept. 10-14. Members representing nine countries were present. At a council meeting before the congress Dr. Barnes Burt (Bath) was elected chairman of the council. The vice-chairmen are Prof. Franstiel Lenocho (Prague), Dr. G. D. Kersley (Bath), and Prof. Walther (Geneva); the treasurer, Dr. F. Clayton (Leamington), and the secretary Dr. Donald Wilson (Bath).

At the first session Prof. STAUB gave an address on the effect of neuro-humoral reactions following irritation of the skin, and Prof. VERZAR, of Basle, described recent investigations of the climate at high altitudes. Prof. PANCONI, of Zurich, emphasized that spa treatment was an excellent form of therapy after the acute stage of poliomyelitis, but care had to be taken to avoid the over-use of healthy muscles at the expense of the paralysed ones. The temperature of the baths used should be between 96°-100° F. (35.6°-37.8° C.): lower temperatures would be too cold to relax any muscular spasm which might be present, higher temperatures would be too exhausting for the physiotherapists directing re-educational exercises.

Prof. CAMPBELL, of Pontresina, gave an account of his experiences in the treatment of asthma on the Engadine at an altitude of 5,500 ft. (1,650 m.). Of children who had asthma 50% were completely desensitized in six months, 75% in nine months and there was no recurrence when they returned to lower altitudes.

On the second day Dr. DONALD WILSON read a paper of balneotherapy in occlusive disorders and Raynaud's disease and Prof. LENOCH discussed the treatment of thrombophlebitis. In the afternoon, at Schinznach Bad, there was a discussion opened by Dr. NICHOLSON, on balneotherapy with sulphur water in non-rheumatic diseases.

The third day began with a discussion on spa treatment in rehabilitation after accidents and war injuries. Dr. McCLELLAN of Saratoga Springs, outlined the scheme which had been evolved by the American Army for the use of spas in the rehabilitation of the injured. Dr. BARNES BURT gave a short account of his experience with injuries during the war, and read a communication from the U.S.S.R. on methods of treatment of frostbite.

During the meeting members of the Society had much private hospitality offered to them, both by the Swiss members of the Society and by the members of the Swiss Society of Medical Hydrology and Climatology. This meeting coincided with the twenty-fifth anniversary of the International Society of Medical Hydrology.

## Correspondence

### Mental Health and World Citizenship

SIR.—Some of your readers will be familiar with this title, which is the general theme selected for the International Conference on Mental Hygiene due to assemble in London in August, 1948, as part of a rather larger Congress on Mental Health. This theme has been chosen deliberately in view of the present state of world affairs in the belief that many of us in medicine—not only in psychiatry—along with our colleagues the psychologists, sociologists, educationists, and others have an opportunity of learning to apply some of our understanding of individuals to the problems of group attitudes and international tensions. No doubt psychiatrists should be able to provide the central focus for much of the thinking that is necessary, but they certainly cannot do it alone.

This general theme of mental health and world citizenship has been broken down in a tentative way into various subjects for the different days of the Congress: "World Citizenship and Good Group Relations," "The Individual and Society," "Family Problems and Psychological Disturbances," "Industrial Relations," "Planning and Training for Mental Health." There are in London discussion groups or preparatory commissions composed of men and women from various allied professions, working each of them on one of these day's topics. In some 14 or 15 other countries there are already groups—in some cases, as in the United States, a great many—working on exactly the same topics. Their material as they produce it will be sent in to the central commissions in London, who hope to put it together and send out a monthly summary of all these various points of view to the other groups throughout the world.

This plan of preparatory action has been made because international conferences are often somewhat sterile, and we hope that in this case we shall be able to get a good deal of the work of the Congress accomplished before the meeting next August. At that meeting we actually want to exchange ideas and bring each other up to date in these matters. We hope that out of the work of these various preparatory commissions, which are of course on a national basis, and from the work of a residential International Group which we hope will meet before and after the Conference, we shall be able to clarify many of the points of agreement and disagreement. It should be possible to delineate many of the subjects which demand continuing research and inquiry in this medico-sociological field; and we hope also to be able to arrive at some points of agreement, however simple these may be, which could be of assistance to those two important functional organizations of the United Nations, the World Health Organization and Unesco, in the tasks to which their constitutions have committed them.

In this country there are a number of groups being planned, but there are not yet so many as there might be. As chairman of the organizing committee of the Congress I am writing now in the belief that many of your readers will feel that this provides them with an opportunity for getting together with colleagues from their own and other disciplines to try and study these topics and see what contribution can be made towards the solution of some of these major problems. Usually when one talks in any gathering about the general purposes of the Congress, about our intention to experiment in presenting group opinions rather than individual communications at the meetings, and about our desire to adventure out of our normal field of work into this wider region, one meets with general approval. It is, however, far from easy in these busy days to get men and women to settle down to serious discussion and to formulate their ideas on paper for the benefit of other people: but this is what we want. Certainly in every academic centre in this country there should be sufficient people with concern for the sanity and balance of society to provide separate discussion groups for each of the five topics; and, equally, there are many more isolated areas where perhaps the inter-professional nature of the group might be more limited, but yet there are people who could get together and produce much that would be of real value. Careful studies of much more limited subjects coming within the general field of interest of the main topics would also be welcomed. It is hoped that it may be possible to publish, fully or in summarized form, in the documents of the Congress such of them as are specially useful.

I hope that this letter may be taken as an invitation of a somewhat urgent kind to those who feel a concern about these matters to do something, and to get in touch with Prof. Flugel (the chairman of the programme committee) or with the programme secretary at the office of the International Congress on Mental Health, 19, Manchester Street, London W.1.—I am, etc.,

London, W.1.

J. R. REES.

### The Extent of Neurosis

SIR,—Is not Dr. H. Crichton-Miller's thesis (Oct. 25, p. 669) based on too narrow an interpretation of the facts? Effort directed against fear—if clearly envisaged—is but one means of giving significance and meaning to activity. I would suggest that this feeling of significance is the more fundamental factor in the apparent cause and effect he postulates.

Evidence in favour of such a view comes from a recent investigation of rate and standard of production in an electrical-instrument works. The story will be known to many of your readers. A group of workers were chosen and their co-operation obtained by explaining the objects of the inquiry. Various changes were then made, one by one, in their working conditions. Lighting was improved, seats were made more comfortable, music was provided, etc. With each change output improved. The dénouement came when conditions were finally put back to where they started—and still output improved! It was the opinion of those conducting the experiment that the feeling of purposeful co-operation in this group of workers was responsible for the increased work.

I suspect that such a feeling of significant purpose is encouraged in the U.S.S.R., and was inherent in the general "Weltanschauung" of that part of the Victorian era which produced "the finest work in quantity and quality." But to suggest that fear is the only or main source of such a feeling seems to me against the evidence, and an ethically undesirable philosophy.—I am, etc.,

Oxford.

C. W. M. WHITTY.

### Child-bearing and Tuberculosis

SIR,—Drs. C. J. Stewart and F. A. H. Simmonds are to be congratulated on their valuable paper on child-bearing and pulmonary tuberculosis (Nov. 8, p. 726). There can be little doubt that numerous pregnancies have been needlessly terminated. Diseases such as diabetes and syphilis are established or excluded by laboratory routine in antenatal clinics. A routine chest radiograph is perhaps even more essential than the routine W.R.

Modern tuberculosis therapy offers the greatest help to the pregnant woman who has early pulmonary disease, and there can be little doubt that a chest radiograph should form part of the early antenatal care of every woman.—I am, etc.,

Bournemouth.

D. J. AP SIMON.

SIR,—Drs. C. J. Stewart and F. A. H. Simmonds (Nov. 8, p. 726) are to be congratulated on their statistical research into the above question, and their conclusions will be gratefully received by tuberculosis workers throughout the country. Nevertheless it should not be forgotten that tuberculosis workers deal with individuals suffering from tuberculosis, with their families and contacts, and that from the point of view of the treatment of individual cases statistics may be very misleading. It is, for example, quite impossible to show by statistical methods that sanatorium treatment has any influence whatever on the course of pulmonary tuberculosis, yet those of us who have spent a lifetime in dealing with individuals suffering from this disease can recall the names of dozens or hundreds of our patients whose lives have been saved by prolonged sanatorium treatment and who would undoubtedly have succumbed without it. Similarly, while accepting the general conclusions of the Middlesex investigators that, statistically, pregnancy has little or no effect on the progress of pulmonary tuberculosis, we all can recall individual cases in which pregnancy led to disaster.

As a matter of clinical observation and experience the effect of pregnancy on an active case of pulmonary tuberculosis with cavitation and tuberculosis bacilli in the sputum is well recognized. Provided that the patient does not suffer from

hyperemesis gravidarum or other complication, the pulmonary condition usually improves during pregnancy, and this improvement is particularly marked in the later months. Whether this improvement is due to metabolic changes such as increased absorption of calcium, production of calciferol, etc., or can be attributed to some extent to compression of the lungs from below by the rise in the diaphragmatic level, is not known, but there is no doubt of its occurrence.

Then comes parturition and the puerperium, at the end of which in only too many cases one finds that all the progress made during pregnancy is lost and that an acute flare-up of the disease may occur. If we knew the cause of this sudden drop in the patient's resistance we could, perhaps, take appropriate measures. Is it due to obstetric shock, to loss of blood, or to the sudden re-expansion of the lungs with abdominal relaxation? Does it occur in women of primitive races whose delivery is easy? Does it occur after delivery by early caesarean section?

Collapse therapy by artificial pneumothorax when practicable is of course continued during pregnancy and pushed after parturition. But when artificial pneumothorax, although desirable, is impossible, should the induction of pneumoperitoneum, with or without phrenic crush, as soon as practicable after parturition be regarded as the method of election in such cases; or are there special risks attributable to the condition of the pelvic floor, etc., which render this treatment inadvisable? These are some of the questions which call for answers, and until the answers are forthcoming the temptation to terminate pregnancy in women suffering from active and acute pulmonary tuberculosis will remain.—I am, etc.,

Chichester.

P. HEFFERNAN.

### Heparin for Coronary Thrombosis

SIR,—Lest a massive dose of double strength be given as suggested in Dr. J. T. MacLachlan's letter (Nov. 1, p. 709), with what results I do not know, perhaps the massive dose recommended by Prof. Lambert Rogers in the *Practitioner*, October, 1947, p. 247—viz., 300 mg.—would be safer to give.—I am, etc.,

Worthing, Sussex.

R. H. WILSHAW.

SIR,—Dr. J. T. MacLachlan (Nov. 1, p. 709) advocates the use of heparin in cases of coronary thrombosis. On theoretical grounds it would seem that heparin is indicated in the treatment of this condition. On the other hand it would seem important to critically survey any extension of the use of an important therapeutic agent such as heparin before extending its use indiscriminately.

The interest in heparin has been stimulated recently by the classical work of Jorpes and other Swedish workers. It is of interest to note that these workers have confined themselves mainly to the use of heparin in the treatment or prevention of thrombosis arising in the femoral blood vessels following operations, and they have dealt with pulmonary embolism on the grounds that this condition arises as a consequence of undetected femoral-blood-vessel thrombosis. The femoral blood vessels have an elaborate collateral anastomosis, and heparin therapy will keep this collateral anastomosis open until such time as the original clot has become organized or organized. In Jorpes's work there is no mention of heparin for use in either coronary or cerebral thrombosis, and it would seem that the question of coronary and cerebral thrombosis was shelved because these workers felt that heparin would not prove of much value in these conditions.

So far as coronary thrombosis is concerned I would not use it myself because (1) once a thrombus is formed heparin has no further action and will not dissolve the clot; (2) a large number of cases will die from the shock and spasm attached to the attack of coronary occlusion, and heparin will be of no value, as these cases will die instantaneously; (3) the coronary arteries are end-arteries, and as such there is no collateral circulation to carry on after the attack of thrombosis; and I cannot see how heparin will prevent infarction or ischaemia of the heart muscle leading to ultimate impairment of cardiac output or death from rupture of the heart; (4) it would also seem that if the thrombosis is, as it is so often in coronary

thrombosis, secondary to some disease or degeneration of the blood vessel such as arteriosclerosis or atheroma, then a heparin has no curative action upon the condition which is causing the thrombosis we must not expect too much from heparin therapy. I am putting these points forward not in order to air my own views but in the hope that some cardiologist will clear up the doubts in my mind. It would be pity if a therapeutic agent such as heparin, which has been proved to be of value in certain specific conditions, should fall into disrepute because it has been used in conditions in which its use is unsuitable.—I am, etc.,

Southport, Lancs.

JOHN H. HANNAN.

SIR,—In his letter advocating heparin therapy for cases of coronary thrombosis Dr. John T. MacLachlan (Nov. 1, p. 709) suggests that it should be given after shock has been treated with morphine. He does not indicate clearly what delay there should be before using heparin. Unless someone can show any contraindications I would suggest that it be commenced as soon as possible after the attack. Pollard and I (*Quart. J. exp. Physiol.*, 1946, 33, 267) produced evidence that heparin, physiologically, does not appear to be a blood anticoagulant. It is stored in the tissues and only enters the blood as a result of trauma. The amounts released, as a result of trauma, are hardly enough to warrant its being called an anticoagulant. In fact, as normal clotting time lengthens, the action of heparin in physiological doses is to reduce it. We feel that heparin takes part in the "adaptation syndrome" described by Selye and almost certainly plays a defensive role in the body. The nature of its action is not yet understood, but its chemical character suggests that it will be an antibody to a number of substances which occur in the body, an example being histamine.

On the hypothesis that certain aspects of shock might be due to the action or overaction of histamine or similar substances, we tried heparin as follows. A female aged 72 years had been almost totally burned. When seen three hours after the accident she was very cyanosed. During 10 minutes 70 mg. of heparin was given. The cyanosis disappeared. A further 70 mg. was given by drip during the next 1½ hours. After another hour, during which no heparin was used, the patient developed acute pulmonary oedema. 75 mg. of heparin apparently completely relieved the condition. On two more occasions before the patient died (6 hours later) the pulmonary oedema returned and was similarly relieved by heparin. Heparin supplies were limited and this prevented more continuous administration.

We have seen several cases of migraine and a case of asthma quickly relieved by a skin prick, which would produce a natural outflow of heparin into the blood. It is likely, though not proved, that adrenaline is the chemical mediator by which heparin is discharged from the tissues into the blood. When its real action is understood, it is probable that heparin will find a useful place in therapy other than as an anticoagulant. Knowledge of this action will be gained more rapidly if clinicians are alert to its possibilities.—I am, etc.,

Osssett, Yorks.

S. B. STOKER.

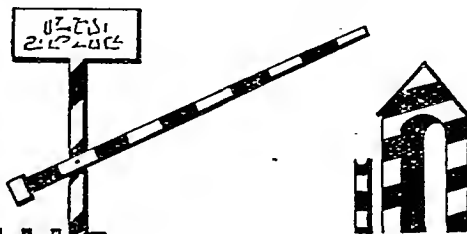
### Health Regulations for Air Travel

SIR,—At the present time, with a continually increasing volume of air travel, any measures directed to the prevention—as far as possible—of the introduction of disease into this country by air-borne passengers is bound to be of interest. Dr. R. H. Barrett's article (Nov. 8, p. 741) gives a résumé of the regulations approved by the International Convention for Aerial Navigation, 1944. These regulations show clearly the amount of thought and planning (blessed word!) which has been devoted to the subject. Planning, unfortunately, is not infallible.

That there is a very real danger of the introduction of infectious disease by air which might be the starting-point of an epidemic cannot be denied. "We have reached the stage when we no longer think of countries overseas as being separated by distance, but by time. . . . That is to say that countries where all sorts of unfamiliar diseases flourish are nearer to this country in point of time than the length of their incubation periods" (Presidential Address, Surrey Branch B.M.A., July 2, 1947).



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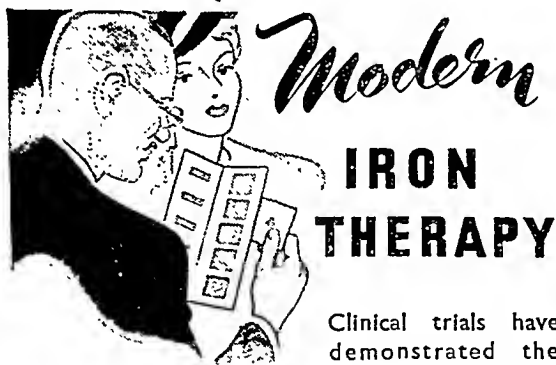
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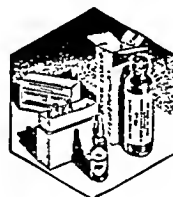
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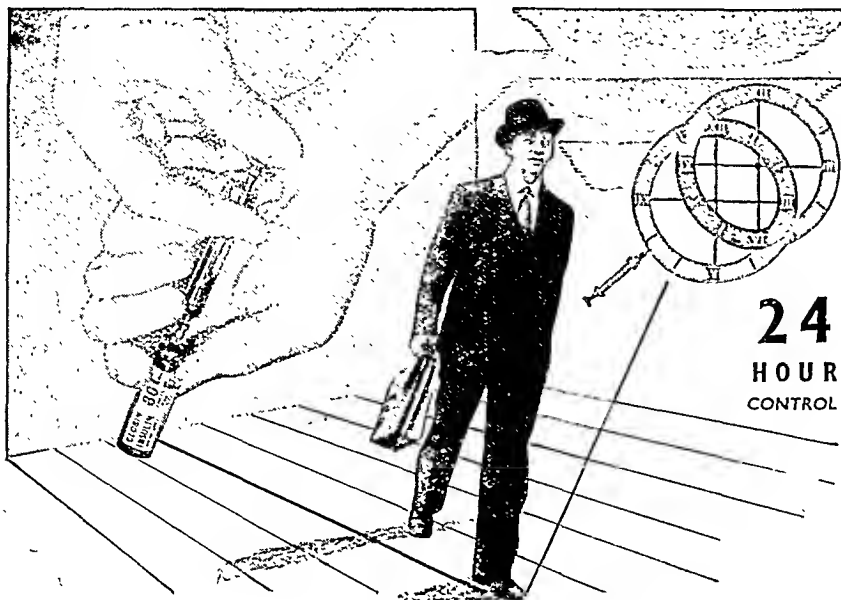
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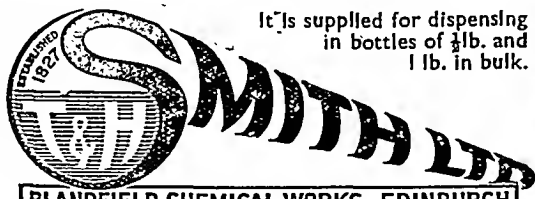
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Compliance with the regulations in every particular may absolve the various airways corporations from charges of carelessness or neglect when supported by all the necessary certificates required by the regulations, but nobody could possibly claim that they are an absolute preventive. Only quarantine can do that. To insist on quarantine in the case of every passenger is manifestly unnecessary and impracticable. It was to avoid delay and inconvenience to travellers by sea that the system of sanitary surveillance was adopted by the Paris Convention, and on the whole it has worked well. It must not be forgotten that in travelling by sea infectious disease may reveal itself in the course of the voyage. Travel by air, by reason of its speed, is deprived of that natural safeguard to a very great extent.

To conform to the different conditions as far as possible, recourse is recommended to preventive inoculation by the Air Convention. As we know from past experience, inoculation is by no means an absolute preventive. It may, in fact, modify diseases to a sub-clinical and much less easily recognized type, in which the sufferer is just as much a possible source of infection. Moreover, non-carriers may be converted to carriers. This appears to have been foreseen to some extent by the adoption of a form of sanitary surveillance (*vide* "Health Regulations for Entry into the United Kingdom") and the "warning card" to be given to the patient's doctor. This measure is by no means foolproof. Pressure of business and shortness of sojourn are apt to cause the patient to "fight the disease" so that he may be able to get through his work in the time at his disposal. He may try to rationalize his symptoms as "another go of my old dysentery (or malaria)" until it lays him low and he has to call in a doctor, by which time he will probably have spread infection. His doctor may be unfamiliar with tropical diseases and inclined to accept the patient's own diagnosis until the illness takes a more serious turn.

I do not think too much value should be given to "personal declarations of health" for the same reason. It has not been unknown in the past for an individual to make a false statement for reasons of expediency to avoid being held up. Persons who make false statements or fail to comply with instructions may be a great menace, and if detected should be liable to heavy penalties. It would be a sound step if every airport which receives aircraft from overseas had provision for the temporary reception and rapid diagnosis in cases of illness in persons "deplaning." This should have facilities for blood and stool examinations on the spot, and the airport medical officer should be a man with considerable tropical experience. Such provision is a matter for each country to make the arrangements which it considers to be most efficient. It is not uncommon to find that persons who have lived in hot countries are carriers of typhoid or dysentery. I have seen a perfectly fit and healthy person who, in the course of a routine examination, was proved to be a cholera carrier. These are risks that have to be taken.

It would be too much to hope that we may continue to escape from air-borne infection indefinitely. Hence the importance of adequate provision for isolation and rapid diagnosis.

I wonder who invented the horrible words "disinsectization" and "disinsection"? Would not "disinfestation" have served the purpose?—I am, etc.,

Brookwood, Surrey.

H. M. STANLEY TURNER.

### Appendicitis in the Young Child

SIR,—Dr. Howard Williams is to be congratulated on his paper (Nov. 8, p. 730) on the above subject. There is, however, a point in differential diagnosis which appears to me to need stressing and which I have not seen pointed out before. It is the inverted respiration (inspiration—pause—expiration—immediate inspiration) which is often found with the onset of peritoneal involvement. This is usually looked upon as a sign of intrathoracic disease and is especially misleading, as some 20% of cases of acute appendicitis in children are associated with or immediately follow upon an upper respiratory infection. The mechanism is the same whether the chest or the abdomen is involved; the breath is held in inspiration in the one case because of the pain of pleural involvement, in the other case because of the pain of peritoneal involvement, and the association of inverted respiration with the latter infection is particularly noticeable in childhood, where diaphragmatic respiration is naturally greater than costal respiration. Movements of the alae nasi are frequently present with the altered respiratory rhythm.

The correct diagnosis depends on the definite finding of focal abdominal tenderness or rigidity. This can be confirmed in cases of serious doubt by aspiration of the peritoneal cavity, a method I have never used but have seen employed in the U.S.A. with satisfactory results. The normal cell content is

about 2,300 per c.mm., and is mainly composed of mononuclears and lymphocytes. The pulse, respiration rate, temperature, and lymphocyte count are of little value, and x-ray films both of the chest and of the abdomen may be misleading.—I am, etc.,

Sheffield.

JUDSON T. CHESTERMAN.

### Anaesthesia for Head and Neck Surgery

SIR,—The flexible metal tube with mouthpiece described by Dr. J. G. Bourne (Oct. 25, p. 654) is an interesting piece of equipment. For some time an ordinary Hewitt's airway has been used in the same manner with good results. The fixed curve of this airway holds the tube so as to prevent deviation towards the oesophagus; it obviates the use of introducers, as does the curve given to the tube by storage in a circular tin. When large tubes are in use the airway required takes up a good deal of space, and there may be some difficulty in sliding it along the blade of the laryngoscope even if the Macintosh spatula is in use. Dr. Bourne's tube should be an advantage in these cases.

The use of "tubarine" for intubating cases of head and neck surgery is perhaps debatable, as a suitable dose of thiopentone given slowly, followed by nitrous oxide with a little trilethyl ether by passive ventilation, has been found to facilitate laryngoscopy and intubation. The same mixture is used for maintenance, and local analgesia of larynx and trachea is not required. It is felt that this sequence, using only a small amount of volatile anaesthetic, is less depressing than curarization; admittedly it takes more time.—I am, etc.,

Glasgow.

C. T. BARRY.

### Control and Treatment of Diphtheria

MONSIEUR.—Je viens de lire avec un vif intérêt votre "leading article" du *Journal* de March 22 (p. 384) ainsi que la suggestive étude de Dr. James Fanning (p. 371). Cette lecture me suggère les réflexions suivantes.

D'après Collins, 7% seulement des enfants non soumis à l'immunisation contractent la diphtérie au cours des 15 premières années de la vie. Pour que l'immunisation soit efficace, elle devrait donc protéger plus de 93% des enfants inoculés au toxoïde. Or, comme je l'ai montré dans un article—"Fréquence de la Diphtérie chez l'Enfant dans ses Rapports avec la Vaccination"—le pourcentage des Schick-négatives par l'immunisation active ne dépasse pas 85 à 90% (Ramon). La vaccination au toxoïde ne peut donc pas être efficace.

Vous dites qu'en 1947 en Angleterre 50 à 60% seulement des enfants sont inoculés. En 1941 cette proportion était forcément beaucoup plus faible et ne peut pas expliquer la baisse qui a commencé à ce moment. Tous les partisans de la vaccination antidiphtérique (Goldfley, Ramon, etc.) sont, en effet, d'accord pour dire que l'immunisation ne commence à produire ses effets que lorsque 40 à 50% au moins de la population infantile est immunisée. Si la diphtérie a beaucoup diminué en Angleterre depuis cinq à six ans, elle a diminué dans de bien plus grandes proportions dans des pays où l'on n'a pas vacciné. En Suède, par exemple, de 1919 à 1938 le nombre des cas a passé de 40,514 à 113 et celui des décès de 2,000 à 10.

Vous estimez que le renouvellement des injections de toxoïde rendrait l'immunisation plus efficace. L'expérience prouve qu'il n'en est rien (voir mon étude, "La Multiplication des Injections de Rappel Rendraient-elle Efficace la Vaccination Antidiphtérique?"). Veuillez agréer, mon cher Confrère, l'expression de mes sentiments les plus distingués.

Lyon, France.

ROBERT RENDU.

### A Method of Abdominal Palpation

SIR,—I was interested to read Dr. E. W. Price's article (Nov. -1, p. 703) describing his method of inducing relaxation of the abdominal wall, which seems ideally suited to ambulant patients or those already in the erect posture. In this country most patients are already supine at the time of examination, and time would be wasted in getting them up, just as with Dr. Price's ambulant African cases time would be wasted by getting them to lie down.

I have for some years used the following simple means of inducing relaxation in supine patients who, through nervousness

or anticipation of pain, cannot or will not relax, and which has not been, so far as I am aware, described in textbooks or taught in medical schools. The patient is asked to press his head hard back into the pillow. This simple action contracts the erector spinae, and in 19 cases out of 20 the abdominal muscles, which are antagonistic, promptly relax. Moreover, this draws the attention of the patient away from the part to be examined, and a gentle "patter" of conversation on the part of the doctor keeps it away. The principle of contracting a group of muscles in order to relax an antagonistic group is probably also the basis of Dr. Price's method.—I am, etc.,

London, S.E.5.

BERNARD J. FREEDMAN.

### "Unjustified" Use of *d*-Tubocurarine Chloride

SIR,—Dr. T. Cecil Gray (Nov. 8, p. 745) has drawn attention to what he describes as the "unjustified" use of *d*-tubocurarine chloride during anaesthesia for operations upon the head and neck. While agreeing with Dr. Gray in this respect I wonder whether he has not fallen into a similar fault in advocating the use of *d*-tubocurarine chloride in caesarean section—a procedure which he describes so ably in your issue of April 5 (p. 444).

To my mind the only possible reason for administering curare preparations to caesarean sections must be for its effect in relaxing the tone of the abdominal musculature, but surely this is quite unnecessary "since the muscles have been well stretched during pregnancy" (H. E. G. Boyle and C. L. Hewer, *J. Obstet. Gynaec. Brit. Emp.*, 1924, 31, 264). This relaxation can be observed quite easily when the obstetrician sews up the peritoneum, which latter can be lifted some inches above the level of the wound.

The increase in uterine tone observed in Dr. Gray's cases is almost certainly due to his use of thiopentone, "kemithal," or *light* cyclopropane, either alone or in combination, as can readily be demonstrated by omitting the administration of curare. Thiopentone and *light* levels of cyclopropane anaesthesia increase the contractility of the uterus, and since 1943, when we finally recognized this effect at King's College Hospital, the routine use of "pituitrin" has been abandoned after the employment of these anaesthetics. The first caesarean section ever to be performed under kemithal anaesthesia was at the same hospital, and the surgeon was Mr. John H. Peel; the date was Nov. 23, 1944, and in that and succeeding cases we rapidly came to recognize that this drug too had a similar tonic action on uterine muscle.

Propos of the above, I well remember the first time I administered a *light* cyclopropane anaesthetic for a caesarean section performed by the present P.R.C.O.G. Up to that time it had been his routine to inject pituitrin into the wall of the uterus just before making the uterine incision. On this occasion he persisted with the usual routine, but as his scalpel pierced the uterine wall the surgeon was hit smartly in the face by a geyser of liquor amnii and momentarily incommoded. Such an exhibition had never occurred while using gas-oxygen-ether and was the first of many instances (such as those attributed by Dr. Gray to the employment of *d*-tubocurarine chloride) which made us conclude that these three anaesthetics were uterine stimulants. Incidentally this property makes them useless for intrauterine manipulations or external version, although *deep* cyclopropane anaesthesia (which would never be used during caesarean section) does relax the uterus.—I am, etc.,

King's College Hospital.

A. H. GALLEY.

### Waiting for Operation

SIR,—A. B. is referred by his medical attendant to a particular consultant at hospital. A diagnosis of early carcinoma of the stomach is made and confirmed. The patient is advised to have an operation, to which he agrees, and he is put on the waiting-list for admission. Presumably the consultant has entered into a contract with the patient and his doctor to carry out the treatment. The patient is not admitted for six or even twelve months, and the growth becomes inoperable.

Is this the responsibility of the consultant or the committee of management of the hospital? Should the law decree that the onus is on the committee of management, is it not incumbent upon the committee to review the number of patients on

their waiting-list and to advertise or otherwise make known to all concerned what prospects they envisage of fulfilling the contracts to which they are party? Your decision on these questions is a matter of national importance.—I am, etc.,

London, W.1.

HAMILTON BAILEY.

\*\* Our Legal Correspondent writes: Any cause of action must be founded either on contract (agreement between the parties) or tort (civil wrong; in this case failure to use proper care). In each case the burden of proof is upon the patient. To succeed in an action for breach of contract he must show that an agreement, express or implied, existed to admit him to hospital or to operate on him, or both, while the growth was still operable. If he contracted for operation with the consultant, or for admission with the hospital, on this understanding and could prove it, he might have a chance of success. It is, however, hardly conceivable that either a consultant or a hospital would undertake such an obligation in these days of shortage of beds and would fail to tell the patient that he must wait his turn. Neither the consultant nor the hospital is required to do the impossible. If the patient seeks to found his action in tort, he must prove that the consultant or the hospital, or both, failed to use reasonable care. He might succeed if he could show that it would have been reasonable to warn him of probable delay and that he had not been warned, or that he had been wrongly deprived of his turn in the list, or if there was some other circumstance indicating negligence. Otherwise he would have no chance of success at law; and it may be said generally that in order to succeed he would have to prove a very exceptional state of facts. If he did succeed against the hospital, the committee would certainly be wise to make sure in future that they could not be taken to promise anything they could not perform regarding the interval of time between the acceptance of a patient and his admittance.—Ed., *B.M.J.*

### Morphine in a Patent Medicine

SIR,—In a medico-legal note (Sept. 27, p. 511) you referred to a case of death in a small child after drinking a quantity of a patent medicine sold for the purpose of relieving infantile disorders. You gave the quantity of morphine in the bottle but stated that it was not disclosed how this figure was ascertained. Actually, the Manchester City Analyst gave the quantity as a result of his analysis, and gave his evidence on oath at the inquest.—I am, etc.,

STANLEY HODGSON,  
Deputy Coroner, Manchester

Salford, 7.

SIR,—Dr. Paul B. Woolley (Nov. 8, p. 747), in quoting *The Chemist and Druggist Year Book* as his authority on dangerous drugs legislation, appears to have misinterpreted the paragraph he cites. Paragraph *e* (p. 339) (so far as it affects morphine) states that *any* solution or dilution of morphine in an inert substance is subject to the Dangerous Drugs Regulations; other preparations of morphine—i.e., preparations which are not solutions or dilutions in an inert substance—are subject to the Regulations if they contain not less than 0.2% of morphine.—I am, etc.,

London, W.C.2.

O. F. C. BROMFIELD.

### Vaginal Temperature

SIR,—Dr. John Hankinson (Oct. 11, p. 574) has drawn attention to the dangers which may accompany the taking of vaginal temperatures. A further similar case has within the last few days come under my care in which a woman had accidentally introduced a clinical thermometer into the bladder. She had been practising this procedure for some twelve months, not for the purpose of birth control, but in an endeavour to become pregnant. No trouble had previously been experienced until one morning she failed to find the thermometer and concluded it had been mislaid in the bedclothes. About midday, however, she experienced a sharp pain in the lower abdomen and some dysuria. It then became apparent where the thermometer was, and she sought medical advice.

An x-ray examination confirmed the presence of an intact thermometer in the pelvis, and the passage of a sound revealed the foreign body in the bladder.—After preliminary dilatation of

he urethra a pair of narrow-bladed forceps was passed into the bladder, the thermometer lightly gripped and, with the aid of a guiding finger in the vagina, easily withdrawn. A cystoscope was then introduced, and apart from some bruising of the rigone the bladder was seen to be intact. The occurrence of a second example serves further to emphasize the risks inherent in his undesirable procedure, and it seems that patients who follow his practice should be warned of its dangers.—I am, etc.,

Hove, Sussex.

W. R. FORRESTER-WOOD.

SIR,—The rectal (or vaginal) method of obtaining the basal temperature gives a more accurate record than the oral. To condemn the method because one woman has accidentally inserted the thermometer into the bladder is as unreasonable as it would be to disallow the practice of self-administration of an enema, when necessary, in case the nozzle was passed into the wrong passage. Dr. G. I. M. Swyer (Oct. 25, p. 672) would do well to read an article by Dr. Hales (*Medical Press and Circular*, May, 1946) in which he gives charts of a number of chronic diseases in which the condition would have been overlooked had reliance been placed on the oral recording. I know of an instance in which absence of the ordinary biphasic temperature record of the menstrual cycle drew attention to a tuberculous endometritis. The patient was wards for investigation, and it was observed that the temperature taken by the oral route failed to show the persistent slight rise shown by the rectal method.

The rectal route gives a more accurate degree of temperature. There are a few women whose records of the basal temperature in the pre- and post-ovulatory phase show only a slight difference in the fluctuations, the biphasic character of which could easily be missed if recorded by the less sensitive oral route.—I am, etc.,

London, W.1.

M. MOORE WHITE.

### Health Visitors

SIR,—The existing shortage may be attributed to a combination of causes: (a) greater demand on a reduced supply; (b) long course in training—as a nurse, midwife, and health visitor's certificate; (c) less call for change of area from stabilization of pay; (d) multiplicity of duties; (e) interference with training during the war. Two questions arise in one's mind to meet the existing demand: (1) Should a special interim short-term policy of a shorter course, or only a health-visitor's certificate course, be carried out? (2) Should only a long-term policy of existing methods of training prevail even at the expense of acute shortage for years—it may be five to ten years before normality reigns?

At the present time there is no doubt that considerable economy could be carried out in the use of health visitors and that in this respect either (or both) an assistant nurse or a voluntary worker could be utilized in the place of some of the duties now carried out by health visitors. Locally lady members of the maternity and child-welfare committee (both councillors and co-opted members) take turns of duty on a rota at my infant-welfare clinics. No trained nurse is required at an immunization clinic, at weighing of infants and toddlers, the recording of such, and the distribution of foodstuffs. With a doctor in attendance at infant-welfare clinics it should be possible with lectures on hygiene and baby welfare to release some trained nurses for hospitals, where the claim of the sick should hold priority for their services.

There are also some new fields now being attempted for utilization of the services of health visitors. I refer to immunization and blood withdrawal for Rh factor. A hypodermic injection is one thing, but an intramuscular injection of an antigen (capable sometimes of producing shock) and the introduction of a needle into a vein (not always at first shot) are quite different and definitely surgical procedures. In the latter of these unless great care is exercised in asepsis and method there can be a cause for toxæmia. Again this Rh factor concerns midwifery and the midwife at the antenatal clinic is more concerned with the result than the health visitor, and so surely the midwife should be trained to do this at the clinic. One has recently had judgments against a hospital in connexion

with a certain case, and it behoves us to defend our authority to the best of our judgment. On these thoughts I should like to have views of others, and perhaps we may get a lead from the Ministry on some of the problems raised.—I am, etc.,

Blyth, Northumberland.

A. G. NEWELL.

### Penile Carcinoma

SIR,—An experiment conducted on a national scale for two thousand years has proved that penile carcinoma is preventable by circumcision, and King Edward's question about tubercle, "If preventable, why not prevented?" is relevant to this form of cancer. As the writer of the annotation (Nov. 1, p. 699) observes, carcinoma of the penis is a rare disease. From a selfish point of view men need not trouble themselves about it unduly, but the interests of the other sex are involved. Correlated with the absolute freedom of Jewish men from this form of cancer is the relative freedom of Jewish women from carcinoma of the cervix. In New York, where three million of the eight million inhabitants are Jews, Dr. Maurice Lenz states that not 1% of the cases of cancer of the cervix occur in Jewish women. During a short visit to the Fiji Islands, where circumcised Fijians live alongside uncircumcised Indians, I obtained statistical evidence that cervical carcinoma is rare in the Fijian women but relatively common in the Indian women, no doubt from a transference to the vagina of the mixed bacterial flora that flourish beneath the prepuce.

As your annotation states, it is unlikely that the routine circumcision of male infants would commend itself to English opinion. But a simpler operation—slitting up the prepuce in the dorsal midline—would be equally effective, and in the first few days of life can be done without an anaesthetic. Only for a long phimotic prepuce is circumcision necessary.

The evidence indicates that routine preputiotomy for male infants would abolish penile cancer and ultimately reduce the incidence of carcinoma of the cervix in this country from about 4,000 cases per annum to 500 cases per annum. The principal obstacle to its adoption appears to be the erroneous belief that carcinoma of the cervix is the result of tearing of the cervix during parturition—an accident to which women of all races are equally liable.—I am, etc.,

London, W.1.

W. SAMPSON HANDLEY.

### Modern Treatment of Neurosyphilis

SIR,—I was most interested to read of the experiences of Drs. F. Graham Lescher and H. R. M. Richards in their article "The Modern Treatment of Neurosyphilis" (Oct. 11, p. 565). I note that their most successful results were obtained with combined penicillin and malarial therapy. The following two cases which I treated in conjunction with Sir Sidney Sewell early last year may therefore be of interest.

*Case 1.*—Mrs. B., a woman of 36, was found to have a positive Wassermann reaction when her husband developed neurosyphilis. She had no clinical symptoms or signs of disease, but the Wassermann and Kline reactions were positive +++ in both blood and cerebrospinal fluid, and the C.S.F. cell count was 40 lymphocytes. Prior to my seeing her she had had three courses of intravenous arsenic and intramuscular bismuth and one seven-day course of penicillin, 15,000 units three-hourly. Following the first course of penicillin the Wassermann reaction of her blood had been negative, but this had reverted to positive when I saw her, and the C.S.F. findings were as above.

She was put into hospital and given penicillin, 20,000 units three-hourly for ten days, and for the last seven days 5,000 units was given intrathecally twice daily. A month later the Wassermann reaction was negative in the blood but still positive in C.S.F. A further month later the blood Wassermann was positive +, and after another month positive ++.

She was then subjected to hyperthermia in the inductotherm to 105° F. (40.6° C.) for six hours, with two doses of penicillin, 50,000 units (the first at the commencement and the second three hours later) given intramuscularly. In all she was given twelve treatments at weekly intervals.

A month after cessation of treatment Wassermann reaction was negative in both blood and cerebrospinal fluid and has remained so with monthly blood and quarterly C.S.F. Wassermann tests since then—a period of eighteen months. Apart from one occasion (the fourth treatment) when she developed hyperpyrexia which responded to the usual measures, she tolerated the treatments well.



Case 2.—Mr. D., aged 42 years, was a tabetic. He originally had presented with gastric crises three years before. When I saw him for the first time he had been under continuous treatment with arsenicals, bismuth, mercury, and iodides for three years. He complained of intractable lightning pains and frequent severe gastric crises and was in danger of becoming a morphinomaniac. Wassermann reaction was positive +++ in blood and C.S.F.

He was treated by twelve inductotherm fevers combined with penicillin as in Case 1, and a month after cessation of treatment Wassermann reaction was negative in blood and C.S.F. Repeated tests for the past year have remained negative. Lightning pains disappeared after the fifth treatment and have not recurred, and there have been no further gastric crises. At the commencement of treatment both ankle jerks were absent; they are now present, though diminished as compared with a normal individual. He tolerated treatment well and was able to carry on his business in between treatments.

I have not had the opportunity of treating any further cases along these lines, but it seems to me that the inductotherm is to be preferred to malarial therapy. With skilled attendants the risks are slight and certainly no greater than those with malarial therapy. Where anaesthetic areas are present, especially over the heels or coccygeal region, burns are a very real risk, and the state of the pain fibres in these segments should be carefully tested before commencing treatment. The risk of hyperpyrexia can be minimized by skilled and experienced attendants. It is a very frightening complication, but prompt treatment should prevent fatalities. Using treatment at weekly intervals the patient's daily life is not unduly upset, and he can usually continue with his occupation, attending for treatment as an out-patient—a very important matter in these days of shortage of hospital beds.

Stratton St. Margaret, Wills.

SIDNEY A. SEWELL.

### Duodenal Ulcer and Priority Foods

SIR,—Dr. A. H. Morley's statement (Nov. 8, p. 745) that the symptoms of chronic duodenal ulcer are here to-day and gone to-morrow only to return another day, and that two pints of priority milk daily for these patients is squandermania, should not go unchallenged. The symptoms of chronic duodenal ulcer are chronic, recurring at regular intervals every day and every night throughout many years. Patients suffering from this disease have to learn and apply a strict and rigid regime of diet and conduct if they wish to avoid the symptoms of pain, vomiting, acid regurgitations, laryngeal spasms. Alkaline powders are often useless and even harmful. Small amounts of milk at frequent intervals is the best method of counteracting the hyperchlorhydria, and two pints a day is not over-generous. If any alternative to present certification were contemplated it should be to extend the period covered by the certificate to six or twelve months.—I am, etc.,

Harrold, Beds.

R. STUART.

### Milk for the Sick

SIR,—I feel that the following account of a recent and, presumably, continuing struggle with the food authorities may be of interest. The relentless undermining of the doctor-patient relationship is once more demonstrated and made very clear, and it is possible that ventilation of the story may be of help to someone in a similar predicament in the future.

Miss X. is a panel patient aged 54. She has a permanent gastrostomy necessitated by inoperable carcinoma of the oesophagus. Until a fortnight ago she required and obtained a special milk ration of 3½ pints (2 l.) per day. Two weeks ago this was without warning cut to 1½ pints (850 ml.) per day, but as a result of my intervention at the food office and at the cost of a wasted morning it was restored pending the consideration by the medical advisers of a "confidential" report from me.

Yesterday the ration was again cut without warning to my patient or myself to 2 pints (1 l.) daily, an allowance on which she will quickly starve. I visited the food office at once and was shown a letter which simply states that "Our advisers recommend that the patient be granted two pints of milk daily and a priority allowance of eggs for three months renewable . . . but they cannot recommend any supplies in excess of the allowance, and the request for five pints of milk must be

refused." This last request had not of course been made. Medical advisers had made no inquiries further to my original letter, nor of course had they or anyone else seen the patient. It would appear possible that these gentlemen are somewhat out of touch with the problems of management of gastrostomy in general practice.

At this stage, in an attempt to save my patient's life, I sought the help of the Association, and a very helpful secretary put me in touch with a charming gentleman at the Ministry of Food. To him, not a medical man, I was compelled by circumstances to disclose the patient's name and address. The diagnosis I already had, so the breach of professional confidence was complete. He told me that he would make an immediate authorization as a "life-saving measure" while the matter was referred to these mysterious advisers. When I told him that they had already decided, he rescinded his decision, but when I further reminded him that the phrase "life-saving measure" was his own he changed his mind again, and the issue is now as far as I know, again authorized pending some undefined further decision.

It does seem intolerable that when these "advisers" decide against an application on behalf of a patient that they have never seen action can be taken to implement their decision without further reference to the doctor concerned, that one should have to disclose confidential details to a completely unknown layman, and incidentally that one should have to spend a sum considerably greater than even the new capital fee on telephone calls to obtain the bare necessities of life for a desperately ill patient. And it would appear to bode ill for anyone rash enough to suffer from this complaint after Jan. 1, 1948.—I am, etc.,

Gl. Yarmouth.

H. DE B. MILNE.

### Homosexuals

SIR,—May a schoolmaster with some knowledge of history be permitted to comment on the concluding paragraph of Mr. Stanley-Jones's letter (Oct. 25, p. 671)? It is difficult to recognize in his description of Innocent III as "a repressed homosexual and a fanatical persecutor" the subject of Prof. E. F. Jacob's brilliant opening essay in the sixth volume of the *Cambridge Medieval History*. Mr. Stanley-Jones's conviction that the Albigensians and Bogomils were engaged solely in a quarrel with the Church of Rome looks odd after reading, for instance, the views of a scholar of international repute such as Prof. Jean Guiraud, a useful summary of which may be found in the third volume of *European Civilization* (Oxford University Press, 1935).—I am, etc.,

York.

T. CHARLES-EDWARDS.

### Refraction Testing

SIR,—It is a strange suggestion that a medical man should be invited to prescribe spectacles for a visual disability if he lacks adequate specialist knowledge to investigate other possible causes, or that, being recognized to possess such knowledge, he should abstain from applying it. These are the only logical interpretations to be placed upon the recommendation of lesser sessional rate of remuneration for "clinical refractive work" than for specialist examination, and for countenancing the evasion by local education authorities of liability in respect of children attending a hospital eye department "solely for the prescription of spectacles." The estimate of error of refraction and of the possible benefit to be conferred by spectacles is by a part of ophthalmic specialist examination; the desire of the patient or of others to elicit a prescription for glasses cannot absolve a doctor of responsibility to apply special medical knowledge of eye conditions or warrant a cheap or gratuitous "semi-specialist" service.

A patient consults a doctor for his opinion and advice, and although this may be expressed in relation to pharmaceutical means the attendance is not "solely for the prescription of a bottle of medicine." The representatives of the profession cannot recognize any such suggestion of limited application of the skill of its members, bearing the implication of a "dual standard" or worse. It is legitimate to establish certain qualifications of experience and training to merit recognition in special fields; it is paradoxical to suggest that the eyes of each school

child need specialist ophthalmic care, and yet to approve a less-than-specialist rate of remuneration for "clinical refraction" (whatever that may mean) as something apart from specialist ophthalmic examination. As a part of such examination the specialist may—and in the future will—delegate it to others adequately trained in that routine procedure, and correlate their findings with his in determining further conduct, including the prescription of spectacles if indicated. In a special matter affecting so important an organ no doctor can feel happy in advising the use of an appliance without specialist opinion of its suitability.

From recent correspondence in these columns on the subject of amblyopia, however, it seems that a few doctors are insufficiently aware that squint in children seldom arises from error of refraction alone; that in its inception there are commonly parietic and other factors, sometimes transient but often persistent; that attempted cure by spectacles, however apt, will fail in a large number of cases; and that by delay in examination or by misplaced confidence in spectacles alone opportunity may be irrevocably lost at an important period in visual development, especially in infancy and the pre-school years.—I am, etc.,

Hull.

D. STENHOUSE STEWART.

### Contact Lenses

SIR.—I think that it is right to point out that the remarks of Mr. A. Seymour Philips (Sept. 20, p. 469), based on the experience of a number of patients, present a more correct estimation of the results of wearing contact lenses than do those of Dr. C. Peter Warren (Oct. 11, p. 589), derived from his personal experience, satisfactory as that may be. A survey of a large number of patients who have been fitted with contact lenses has recently been carried out, and the results, which will be published in full elsewhere, show that about one-third of all patients fitted no longer wear their lenses. The careful preliminary estimation of each patient's suitability for contact lenses is essential to reduce the percentage of disappointments.—I am, etc.,

London, W.1.

A. G. CROSS.

### Planning and World Population

SIR.—I have always found it difficult to understand why such people as Dr. G. E. Paul (Oct. 11, p. 589) put man's sexual functions in a category entirely apart, when to the average person they would seem no more important than the functions of self-preservation and nutrition, for instance. Surely it would be equally logical for Dr. Paul to state that one of man's functions made known to him by his reason is self-preservation, and two of the organs most involved are the eyes, so that any act where they are used exclusively for pleasure, such as reading a good book or visiting the theatre, is intrinsically evil, because self-preservation is temporarily ignored. Using a similar argument, eating or drinking substances which give pleasure, but do not nourish and so temporarily frustrate the true purpose of the digestive glands, becomes intrinsically evil also.

Perhaps those who hold the same views as Dr. Paul perform no action which does not fulfil a basic function. If so, I admire their intensity of purpose; the world would undoubtedly be a better place if there were more like them, but I doubt if it would be happier.—I am, etc.,

Islip, Oxford.

J. L. BOLDERO.

### Student Health

SIR.—Your readers may be aware that the British Medical Students' Association has been discussing the problem of student health for the past two years. At the last Annual General Meeting in London the following resolutions were made:

That the B.M.S.A., taking into account the hazards to which clinical students are exposed and bearing in mind the facilities which already exist in all teaching hospitals, views with concern the absence of any compulsory medical examination for clinical students on admission to hospital. The B.M.S.A., therefore, recommends very strongly that all schools which have not already done so should with the least possible delay arrange regular compulsory medical examinations for all their clinical students.

That the B.M.S.A. recommends that every University should appoint a full-time medical officer who, together with such assist-

ance as may be necessary, should be responsible for the routine compulsory medical examination of all matriculated students with the dual object of raising the standard of student health by giving advice and of obtaining information about the student morbidity rate and its relationship to the varying factors in university life.

Compulsion was agreed on after considerable discussion because the delegates from all over the country realized that voluntary student health schemes, where they existed, have left a good deal to be desired. It must be further pointed out that entrance to university will in no way be influenced by medical examination, as this will take place after students have already matriculated. It is hoped that the first resolution will be acceptable to many schools in the very near future. The second resolution will be sent on to the National Union of Students and the Scottish Union of Students with the hope of formulating a united student policy on this important problem.—I am, etc.,

Edinburgh.

S. M. DRANZ,  
President, B.M.S.A.

### Road Accidents

SIR.—The paper by Dr. Kenneth Soddy (Oct. 18, p. 623) on the psychological aspects of accidents is interesting and no doubt scientifically valuable, but it appears to me somewhat remote from the immediate problem. I have before me a newspaper cutting of to-day's date of police court proceedings in which a driver was fined £5 and his licence not suspended following an accident in which a pedestrian was run down on a crossing and his body thrown 20 ft. Independent evidence was given that the crossing was clearly visible, and a bus driver estimated the speed of the car at between 35 and 40 m.p.h. in a busy street.

The truth is that nearly everybody in authority is a motorist, including magistrates, and the law in consequence is not adequately enforced. Motorists have got into the habit of throwing the onus of avoiding accidents upon the hapless pedestrian, including the young and the aged, who are the chief victims, instead of constantly bearing in mind that they are in charge of a potentially dangerous machine that it is their responsibility to keep well under control. The short-term solution is low speed and strict law enforcement under the present-day conditions of mixed traffic. The long-term solution is segregation. This is the policy of this association.—I am, etc.,

London, S.E.24.

T. C. FOLEY,  
Secretary, The Pedestrians' Association.

### Future of Almoners

SIR.—Next year the financial functions of hospital almoners will come to an end. It is to be hoped that they will then be able to devote more time to the needs of long-term patients, sometimes known as the "chronic sick." Such cases often require considerable help to adjust their circumstances to the conditions arising from their illness when this lasts months or years, not weeks. Payment for tenancy of rooms may need settlement; business affairs often require some attention; legal advice may be necessary. None of these matters can be conveniently managed from a hospital bed. In these days, when some hitherto incurable disease can be treated with a certain amount of success, it may be necessary to find a home or lodging for the patient on discharge. At present the "acute" short-term case has almost monopolized the attention of the almoners.

After they have been parted from their money bags they will need to spend more time with the long-term sick; for only by assisting in the rehabilitation of the despised "chronic" will they be able to play their part in relieving the congestion in hospital beds which now so sorely afflicts this country.—I am, etc.,

London, S.W.11.

TREVOR H. HOWELL.

### Qualifications and Remuneration of Specialists

SIR.—It would appear self-evident that the appropriate qualification for a psychiatrist is a qualification in his own specialty. Certainly his study of psychiatry should be founded upon a sound knowledge of general medicine. Perhaps the standard of the D.P.M. has not always been consistently high, but are these good reasons for taking the M.R.C.P.? Experience has shown that a high proportion of the psychiatrists

who take the M.R.C.P. become interested in the physical aspects of mental illness to the exclusion of the psychological side. To hold the higher qualification essential to the general physician is surely not the hallmark of the psychiatrist. It merely proves he has spent a period of study (probably two years or more) away from his own specialty.

A sound knowledge of general medicine is equally essential for any other specialist. Are surgeons or gynaecologists to take the M.R.C.P.? I submit that academic distinction is only one of the qualifications of a specialist. Experience and ability are equally important.

Those who advocate varying scales of remuneration for specialists in different branches of medicine advance all manner of "reasons" for this. The two favourite arguments are (1) responsibility and (2) alleged amount of work done as assessed by annual turnover of patients. Anyone who has practised psychiatry in a busy observation ward will agree that the responsibility is great. Decisions affecting the liberty of the subject are part of the daily routine. Decisions involving the safety of the general public are frequent. Responsibility for the patient's life arises frequently in a variety of ways. If the "turnover" theory is to be applied logically the assistant throat surgeon performing several thousand tonsillectomies per annum should be more highly remunerated than the senior general surgeon performing only a few hundred major operations in the same period.—I am, etc.,

Birmingham.

F. A. BLEADEN.

### Spinal Pumping

SIR,—In the *Journal* of July 12 (p. 62) there appeared an annotation on "Spinal Pumping" which could be construed as meaning that an "iron curtain" on medical information exists between Eastern and Western Europe, and a complaint that Speransky's work had been buried in the Russian language. I am much further away from this "iron curtain" (which was invented by Goebbels and resurrected by Churchill) than the author of the annotation, but find that all the evidence *re* this figment of a Nazi's imagination is negative: there is no iron curtain.

The simple expedient of perusing the *B.M.J.*, for instance, informs me that there was recently (June 27) a meeting of the European Association of Clinical Pathologists at Cambridge, where for one country at least behind the "iron curtain"—Czechoslovakia—there was a representative. On July 26 there was an International Congress for Microbiology in Copenhagen, where "most other European countries [than Scandinavia, England, France] were represented." From June 24 to 28 there was the Medical Women's International Association at Amsterdam, which included delegates from Finland, Poland, Hungary, and Czechoslovakia; and from July 21 to 25 the International Physiological Congress was held, at which delegates from Hungary and the U.S.S.R. were present. Again, there is no difficulty in subscribing to Soviet medical journals, and to such papers as *American Review of Soviet Medicine*, *Soviet Weekly*, and *Slavonic Review*, which contain a fair selection of contemporary Russian medical work. And how did the geniuses of the *Bulletin of War Medicine* penetrate this opaque "iron curtain"? One is driven to suspect Soviet agents at work in the most apparently innocent places.

Finally, later communications showed that Speransky's work and ideas were by no means buried in the Russian language but were known to those who had intelligence and lack of prejudice enough to find out whether they really were available before they started to ape the gibberish of the Hitler Propaganda Ministry. How would we feel if the Russians accused us of burying our medical works in the English language instead of being jolly gentlemen and sedulously translating every word we write into Russian? Apart from thinking them to be madmen, we would consider them damned impudent, and rightly so—I am, etc.,

Perth, W. Australia.

L. R. JURY.

### A Protest

SIR,—I was amazed to read in a daily newspaper of a British doctor being taken to the assizes for throwing a brick through the shop window of a Jewish citizen of this country. It is a most terrible blot on the medical profession in this country,

and brings back to all who read such a thing memories of typical Nazi actions of the German doctors during the Hitler regime. If we in our profession act as typical thugs, our profession is lost. This action of the above doctor requires most severe reprimand from the profession. To-day is the time to uphold the dignity of our calling, not to insult it.—I am, etc.,

Preston, Lancs.

A. E. BERNSTEIN

## POINTS FROM LETTERS

### What is Male Climacteric?

Dr. C. L. MALHOTRA (Sarangarh) writes: There has been a good deal of talk about the male climacteric. The female climacteric is a well-known and recognized entity, with definite symptoms, age onset, aetiology, and to all intents and purposes the cessation of pregnancy, barring exceptions, the last being the most important. In the male climacteric, so-called, this last factor is wanting. There is no age beyond which a man can be said to be infertile. Nor does the desire vanish with age. . . . The enlargement of the prostate gland in the male, associated with increasing years, is fact said to increase the desire. Wherein lies the male climacteric then? It would appear more probable that in late middle life the fighting male may suffer from the effects of the fight—a variety of nervous depletion or fatigue, which he ascribes to the male climacteric. It may also be that the male does not desire to be excellent by the female in having one disease less.

### Sodium Bicarbonate as an Antiseptic

Dr. HEDDA GORZ (Polish Hospital, Storrington) writes: During the insurrection in Warsaw we were very short of all drugs, particularly of antiseptics. We used a solution of 5% sodium bicarbonate for dressing of wounds as well as for operation. The results appeared to be excellent. All of us were greatly satisfied of obtained results and I used it afterwards in my further practice. . . . For two months the patients were treated in cellars and other very inadequate conditions without water and drugs. Working in such terrible conditions—field hospitals arranged in cellars and underground shelters—patients whose wounds were open, dirty, and contaminated with dust of the bombed houses were only treated with the 5% solution of sodium bicarbonate, the only one obtainable there. All heavy cases in badly ventilated cellars became tolerable after dressing with the solution, even open lung wounds notorious for their fetor as we known to every surgeon. . . .

### Australian Chapel of Remembrance

Major N. KEITH BUSHELL (late No. 3 Australian General Hospital of Harefield, in Middlesex, there lie the remains of 110 Australian soldiers, sailors, munition workers, and one Australian nursing sister. These died from wounds and sickness in No. 1 Australian General Hospital, which was stationed in Harefield in the first world war and many of them were badly wounded men from Gallipoli in 1915. These graves have been cared for by the Imperial War Graves Commission and the devoted ministrations of many of the Harefield people. . . . The almost inevitable outcome of this true spirit of imperialism, inspired by the late head master of Harefield and so well fostered by the present vicar, is the representative Australian desire that a chapel in the old and historic church of Harefield should be converted into an Australian chapel of remembrance to cover both the world wars. An executive committee has since been formed for this purpose, and I am honoured by being asked to act as the hon. sec. and treasurer of it. In order that this chapel of remembrance may be made beautiful in quality and Australian in feature, it is necessary to appeal for no less a sum than £5,000. Any contributions that English friends care to send will be welcomed and appreciated, but this appeal is made primarily to Australian residents in Britain, and especially to those who were with the Australian Imperial Forces in the first world war. Contributions to this fund should be addressed to me c/o the National Bank of Scotland, 18-20, Lower Regent Street, London, S.W.1, when they will be officially acknowledged.

### Warm Houses

Dr. G. C. PETHER (Hadley Wood, Herts) writes: With cuts in our rations it is surprising that more thought is not given to the possibility of keeping our houses warmer while reducing our heating bills, both for coal and for food. In an experimental house the provision of a small air space and wood panelling made an enormous reduction in the time required to bring the wall temperature up to the room temperature. Under standard conditions the period fell from 9 hours to 20 minutes. It is not often realized that in heating up the walls unnecessarily we lose comfort and also money. Similar economies are possible if double windows are fitted and heat losses through roofs are cut down. I think the dietitians might take heart and think of indirect means of reducing our calorie requirements

## Obituary

### W. ROWLEY BRISTOW, F.R.C.S.

Mr. Walter Rowley Bristow, orthopaedic surgeon to St. Thomas's Hospital, died in a London nursing-home on Nov. 10 at the age of 64.

Mr. Rowley Bristow was a student at St. Thomas's Hospital. He took the conjoint diploma in 1907, and graduated M.B., B.S. a year later, going on to take the F.R.C.S. in 1909. As a student he played regularly in the soccer, lawn tennis, and water polo teams. After holding a number of house appointments, including that of house-surgeon to Sir George Makins, he decided to devote himself to traumatic surgery. During the 1914-18 war he began his long connexion with the Army, serving first as R.M.O. with the Middlesex Yeomanry in Egypt and Gallipoli. He was mentioned in dispatches for his services at Suvla Bay. In 1916 he was appointed surgeon at the Military Orthopaedic Hospital at Shepherds Bush, where he first became interested in some of the applications of electrotherapy and where also he began his long friendship with Sir Robert Jones, who was then his chief.

As part of the post-war scheme of reconstruction at St. Thomas's in 1919 an orthopaedic department was established with Sir Robert Jones as titular head. Bristow was elected as his assistant, but was in fact from the start its real director. He continued his connexion with the Shepherds Bush Hospital, remaining as consulting surgeon after it had been handed over by the War Office to the Ministry of Pensions. His growing reputation led also to his appointment as consultant to the King Edward VII Convalescent Home for Officers and to the Orthopaedic Hospital, Pyrford, among other hospitals. His connexion with Pyrford provided a valuable addition to the limited facilities at St. Thomas's, and it became virtually a county annexe for orthopaedic patients. The Royal College of Surgeons elected him Hunterian Professor in 1935; when he took as his subject "Internal Derangement of the Knee-joint." He also gave the Hugh Owen Thomas Memorial Lecture in 1937, and in the same year was president of the British Orthopaedic Association, of which he was one of the founders. In the recent war he was consultant in orthopaedic surgery to the Army, with the rank of brigadier, and was largely responsible for the establishment of efficient orthopaedic services in every theatre of war. He was at one time president of the Orthopaedic Section of the Royal Society of Medicine, and he had been vice-president of the Section of Orthopaedics at the annual meetings of the B.M.A. in 1931 and 1932. He was a corresponding member of the American Orthopaedic Association and an honorary member of the French and Belgian Orthopaedic Associations. He married, in 1910, Florence, the only daughter of Dr. James White, LL.D., and had one son and two daughters.

We are indebted to Mr. George Perkins for the following appreciation: By the death of W. R. Bristow, known to thousands as Rowley and to his intimates as Walter, English medicine has lost one of its most colourful personalities. A link with the past has been severed, for essentially he belonged to the pre-war era. Wherever he went and whatever he did, his presence was felt. Like Dr. Johnson, he craved for company and fully repaid his audience for their society. No. 102 was, at least to one of his admirers, like no other house in Harley Street, because Bristow lived there, and live he did. No one ever enjoyed life more. Not for him the sedate backwater of a university city: the hurly-burly of busy London was his purlieu. He breakfasted at 8.0 and was in his office by 8.30. From then until 7.30 in the evening, with a break for lunch, at which there was never less than one guest, he worked at top pressure, expending his own depthless energy and exhausting that of his secretaries. There followed a champagne cocktail and a change for dinner. Dinner was an occasion. He had one of the best cooks in London, and could talk intelligently to any *chef de cuisine* on his own subject. When he was told the nature of his fell disease, he received his sentence of death with philosophic resignation. "Well, I have had a damned good life," he said; and how true it was.

As a host he was in a class apart. He had the knack of making the humblest of his guests feel that he was important, and no one can do that who does not love his fellow men. His attributes were legion. He was a scratch golfer, a good shot, an ardent fisherman, and a good bridge player, and although his opponents did not always agree with his own estimate of his prowess he usually won.

As a student he was remarkable for getting through his examinations without doing any work. As an orthopaedic surgeon he was remarkable for knowing the latest work without doing any reading. After he had been invalidated home from the Middle East in the Great War he came in contact with Sir Robert Jones. There followed a firm friendship broken only by Sir Robert's death. In the late war he did what Sir Robert would have done had he been alive. Many consider that Bristow's best work was done during this period. He threw his heart and soul into the establishment of an efficient orthopaedic service for the Army, and personally recruited most of the surgeons. The casual way in which his services were officially recognized demonstrates how much was expected of him. That Rowley Bristow could and would do it was taken for granted. During his years as president, the British Orthopaedic Association flourished as never before. Those members who went with him to Scandinavia were proud of their leader. But as an orthopaedic surgeon his loss will be felt most by his innumerable patients, and by members of the orthopaedic department that he created at St. Thomas's Hospital. All his life the hospital came first. His views did not always coincide with those of his colleagues, yet none of them doubted but that his actions were intended to add to the lustre of the hospital he so truly loved.

It is natural for his alumni to venerate his memory, for no one could have had a more loyal chief. He backed up his juniors through thick and thin, and accepted the blame for all their mistakes. He went out of his way to advance all who had trained or worked under him. Many of his juniors have reason to remember his generosity. Nobody is missed for long, but those who knew Bristow will cherish his memory for as long as they live.

G. R. G. writes: Walter Rowley Bristow will be most sorely missed, for he was a man of remarkable and altogether delightful character, endowed with outstanding vigour and zest for life and fellowship. He was the central figure of a great group of friends which included all his colleagues and many of his patients. He will be very gravely missed by orthopaedic surgeons all over the world, for when he and Robert Jones came together in the first world war he found his true vocation and soon became one of the most eminent orthopaedic surgeons, trusted universally for his sound judgment, ability, and sincerity. He taught well, penetrating to the heart of his subject and picking on the essentials with clarity and emphasis. His out-patient clinics at St. Thomas's were stimulating, memorable, and crowded. They were alive with humour and humanity, for he never failed to feel and show a friendly intimacy with the Lambeth folk. In the war he gave splendid and unsparing service, especially in developing a first-class orthopaedic organization in the Army. A conscientious student of everything he took up in work or play, he quickly made himself master of style and craftsmanship; his keenness was infectious, his influence admirable, his presence a joy. He has left us while still at the height of his powers.

### SIR ROWLAND MALLETT, M.D.

Sir Frederic Rowland Mallett, for thirty-six years an honorary consulting surgeon of the Bolton Royal Infirmary, died suddenly on Oct. 29 at his home at Minchinhampton, Gloucestershire, at the age of 78. He was educated at Rossall and Edinburgh University, where he graduated in 1891, proceeding M.D. five years later. He was appointed to the staff of the Bolton Royal Infirmary in 1893. This appointment continued a remarkable family record of unbroken service which, including that of his father and his grandfather before him, totalled 113 years. Sir Rowland always took a keen and active interest in medical and surgical matters, and particularly in the welfare and activities of the Bolton Royal Infirmary, of which he was appointed president in 1929.

Unfortunately he had to relinquish this post in 1945 owing to ill health.

In addition to his professional duties he undertook much public work. He was honorary secretary of the local medical war committee in the 1914-18 war. He was a member of the town council for many years, chairman of the Bolton Division of the B.M.A., 1926-8, chairman of the Local Medical and Panel Committee and of the Bolton Division of the British Red Cross Society, and he held many other posts. He was knighted in 1934, the year before he went to live in Minchinhampton, in recognition of his long and devoted service to the Bolton Royal Infirmary. His outstanding characteristics were his sound judgment not only in his professional work but in all matters, his unswerving loyalty to duty, his patience and courtesy in all circumstances, and his interest and sympathy in human affairs. All these endeared him to a host of friends, and no man was more respected in the town in which he was born and worked for most of his life.

He married in 1901 Mary Constance, daughter of Mr. C. W. Dixon, and had one son and three daughters.

Dr. ARNOLD GREGORY died on Oct. 31 at the age of 68. The son of a Congregational minister, he qualified M.R.C.S., L.R.C.P. in 1902. After holding house appointments at the Leeds Infirmary and Ida Hospital, he came to Manchester in 1906 as a general practitioner. During the 1914-18 war he served in the R.A.M.C., chiefly in India, where he contracted malaria. A member of the British Medical Association since 1907, he served for many years on the local executive committee, and was a representative in the Representative Body from 1929 to 1939, and from 1941 to 1943. He was a member for eleven years of the Charities Committee, and he used every opportunity to further its activities. He was on the Local Medical and Panel Committee for many years, acting as its honorary treasurer from 1927 to 1945. A member of the Manchester Medical Society from 1906, he served on the committee for two periods, and became a vice-president in 1930. In 1935 he was president of the Society—a rare distinction for a general practitioner. He was keenly interested in medical education and its application to general practice, and made this the subject of his presidential address to the Manchester Medico-Ethical Society. He was always especially interested in the patient's point of view and in the welfare of chronic invalids. He will be sorely missed by his patients, as also by his fellow practitioners, whom he has served so faithfully and well. He leaves a widow, a daughter, and three sons, two of them members of the medical profession.

Dr. HUGH MCKERLIE died on Sept. 28 at his home in Manchester at the early age of 47. He had been ill for many months but had recovered sufficiently to resume work, when a sudden haemoptysis put an untimely end to a busy and useful life. After his early education in Dumfries he entered Glasgow University and qualified in 1921, graduating M.B., Ch.B. a year later. He held a resident appointment at Wakefield before starting general practice in Manchester. Full of common sense and ability to get on with all sorts and conditions of people, he had a sound knowledge of his work and soon built up a large practice. He devoted considerable time to the interests of the profession, serving for the last ten years as secretary of the Manchester Panel Committee, and being also on the Manchester Insurance Committee and attending many panel conferences. He was also chairman of the Manchester Division of the B.M.A. from 1939 to 1943, and a member of the local Medical War Committee. His death is a great loss to his colleagues, his patients and friends, and most of all to his two sons.

Dr. WILLIAM HAIG died at Crieff on Nov. 2 at the age of 76. Dr. Haig had conducted an extensive general practice in the area for forty-three years, retiring only in 1942. Of a quiet and retiring disposition, his human understanding and many kindnesses made him a well-loved and respected figure in the district. He was a student at Edinburgh and graduated in 1894. A cousin of the great Field-Marshal, Dr. Haig served with distinction during the 1914-18 war, reaching the rank of major and being awarded the D.S.O. For a number of years after the war he was president of the local branch of the British Legion. During the second world war he acted as welfare officer for all the troops in the Crieff area, and for most of that period was chairman of medical boards for Perthshire. He was honorary physician and surgeon to Crieff Cottage Hospital, and had many other interests. He was senior elder

in St. Michael's Parish Church, Crieff; had held high office in Freemasonry; was one of the oldest members of the Ancient Order of Forestry and official surgeon to that body, a member of the local committee of the Overseas Club, a strong U.S.A. and in his younger days an enthusiastic member of the golf club. He was keenly interested in the local Ambulance Brigade, having been its lecturer for many years. Dr. Haig was a member of the B.M.A. for fifty years, and had held the following offices: representative in the Representative Body on thirteen occasions at intervals over the years 1909-39; member of the Insurance Acts Subcommittee (Scotland), 1928-30; president, Perth Branch, 1932-3; member, Scottish Committee, 1934-7; and he was also a member of the Charities Committee, 1937-8. He is survived by a brother and sister.

Dr. STEPHEN GREEN died on Oct. 31 after a long illness. He graduated M.B., Ch.B. in Manchester in 1906, and was a house physician at the Manchester Royal Infirmary. Later he held a house appointment in Winchester, and was resident medical officer at the Royal National Sanatorium at Bournemouth. He took the D.P.H. in 1906, and started his work in Portsmouth as schools medical officer before going to St. James's Hospital as a medical officer. He then joined his father, Dr. James Green, and his brother, Dr. Philip Green, in general practice. He was one of the Portsmouth doctors who remained there throughout the war and carried on his work through all the difficult "blitz" period. He leaves a widow and two sons.

## Medico-Legal

### MEDICAL EVIDENCE IN PENSION CASES

[FROM OUR MEDICO-LEGAL CORRESPONDENT]

The application of the law of war pensions has raised many difficult problems, especially of legal proof, and Mr. Justice Denning is to be respectfully congratulated on the patience and skill which he has brought to their solution, and on his comprehension of the medical issues involved. In the course of a recent appeal<sup>1</sup> he gave some useful directions to medical men who are asked for their opinions in disputes on whether a patient is entitled to a war pension or not.

A regular Army officer was taken to hospital in 1944 with cancer of the oesophagus, was sent to England, and died a month after the diagnosis had been made. His widow claimed the higher rate of pension given to a widow whose husband's death is due to war service. The tribunal had dismissed the claim. The learned judge explained that in cases where a man is passed fit at the beginning of his service but is later afflicted with a disease which leads to his death or discharge there is a compelling presumption in his favour, and to displace it the Minister must prove beyond reasonable doubt that the disease was not attributable to nor aggravated by war service. The evidence against the claimant must be as strong as that needed to convict a person of a crime. On the other hand, there is no need for it to amount to a certainty. If it leaves a remote possibility that can be dismissed with the sentence, "Of course it is possible, but not in the least probable," the case is proved beyond reasonable doubt.

Naturally in these cases much of the evidence is medical, and the judge emphasized that it is useless for a medical man to give an opinion that a disease is or is not attributable to, or aggravated by, war service without giving his reasons. Such an opinion involves not only his scientific knowledge but also his views on causation and on the meaning of terms such as "attributable" and "war service," which are matters for the tribunal and not for him to decide. He must not usurp the functions of the tribunal, but he should point out the probable or possible causes of the disease and of any aggravation of it, giving the degree of probability and then leaving the tribunal to decide whether on the facts the claim should be allowed. In cases where the aetiology is known, there should be little difficulty in stating the causes of the disease and of any aggravation of it, but cases where the aetiology is unknown or imperfectly known present great difficulty. If nothing else appears except that the cause is unknown, then it may be a cause incidental to war service and the Minister cannot prove

<sup>1</sup> *Miller v. Minister of Pensions*, 1947 2 All E.R. 372.





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Fig. 1



Fig. 2

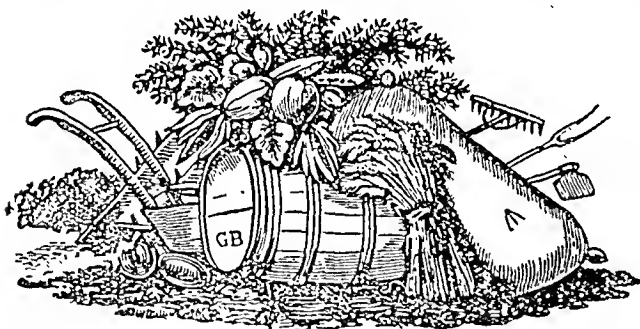
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Fig. 3



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that it is not. That is what once happened in a case concerning Hodgkin's disease. In many cases, however, although the aetiology is unknown, experience and statistics are able to throw light on the circumstances in which the disease arises or develops. For instance, although the precise cause of schizophrenia is unknown, experience shows that in the great majority of cases it is essentially independent of external circumstances, and that therefore in a given case the probability that it is not attributable to war service may be high enough to defeat the strong presumption in favour of the claimant. On the other hand, if there is a reasonable suggestion that any incident of war service, such as exceptional strain immediately before the onset of the symptoms, may have played a part, the claim may succeed, because statistics show that in a minority of cases schizophrenia has been preceded by severe stress.

The little knowledge of the cause of cancer possessed by medical men is based on experience and statistics. The high incidence of carcinoma of the scrotum in chimney-sweeps warrants the inference that the irritation of soot plays a part. No such observation, however, supported the present claim. One medical witness thought that this cancer might have resulted from the irritation of sand swallowed in the Middle East, but other experts dismissed that idea as highly speculative and quite outside the bounds of probability, because of the rarity of cancer of the oesophagus in men serving in the desert. Another suggestion, that it might have been due to the drinking of spirits or of excessively hot liquids, was rejected on the ground that oesophageal cancer is predominantly a male disease and that these habits are not confined to men; in any event these habits are personal ones and not attributable to war service. For the Minister it was stated that for all practical purposes cancer is not regarded as infectious or contagious, and that cancer of the oesophagus is not related to employment or environment. Moreover, only 45 cases in Service men were reported over the period of the entire war—7 cases a year against the 1,700 known to occur in the whole country. There remained the doubt, due to the unknown aetiology of cancer, that war service might have played some part. One expert said that he could not state with any degree of certainty that Service factors had played no part, and another said that he could not assert that nothing whatever in the environment had had an influence in causation.

The tribunal had come to the conclusion that the whole of the probabilities were that war service played no part. There had been a possibility the other way, but they had dismissed it as too remote. That was a reasonable conclusion to come to, and so the judge held that they were right and dismissed the appeal.

## The Services

The following officers have been awarded the Efficiency Medal (Territorial): Lieutenant-Colonel T. W. Preston, Major (now Lieutenant-Colonel) W. H. Wolstenholme, O.B.E., Captain (now Major) J. R. Hamerton, and Captains (Honorary Majors) D. P. Holmes and J. A. Reid, R.A.M.C.

### DEATHS IN THE SERVICES

Lieut. ALEXANDER MCKENZIE ELLIOTT, recently R.M.O. of the 3rd Battalion, Parachute Regiment, 6th Airborne Division, died on Oct. 7, as the result of an accident, at Haifa Military Hospital, Palestine. Lieut. Elliott, who was 25, graduated M.B., B.Ch., in 1945. He was a student at Cambridge University and after qualifying he held a senior house appointment at Hope Hospital, near Salford, before being commissioned in January of this year.

A circular from the Department of Health for Scotland has been sent to local authorities asking them to submit to the Secretary of State proposals for discharging their functions under the National Health Service Act. The proposals must be submitted by specified dates, the last of which is Feb. 28, 1948. The circular urges local authorities to hold consultations with Executive Councils, Regional Hospital Boards, and voluntary organizations as soon as possible, and suggests the joint establishment of advisory co-ordinating committees for suitable areas.

## Medical Notes in Parliament

### Discussions with the Minister

On Nov. 13 Sir HENRY MORRIS-JONES asked the Minister of Health whether he would make a statement on the result of his negotiations with the representatives of the medical profession on the terms and conditions of service under the National Health Service Act, 1946. Mr. BEVAN replied, "The time to decide that is when the discussions are complete."

Sir ERNEST GRAHAM-LITTLE had asked on Nov. 10 for an estimate of the number of general practitioners and of specialists which would be required to warrant putting into operation in July, 1948, the National Health Service Act, 1946. He further asked what measures had been taken to provide additional hospital accommodation, health centres, and other buildings required to carry out the provisions of the Act.

Mr. BEVAN replied that the National Health Service would be brought into operation with the resources available at the appointed day. These resources would be extended as circumstances permitted.

### Calories

Major LEGGE-BOURKE inquired on Nov. 10 how the daily calorie content of the weekly minimum amount of food regarded as necessary for an unemployed man, as decided by the Ministry of Health in co-operation with the British Medical Association in 1933, compared with that of the present ration after the reduction recently announced by the Government.

Mr. STRACHEY said that the calorie value of the No. 2 diet suggested for an adult man by the British Medical Association in 1933 was 3,386 calories daily. As announced by the Minister of Economic Affairs the recent reduction in distribution would result in an estimated average daily calorie intake of just below 2,700 per head for the whole population. This took into account the rationing of potatoes. The cut in potato consumption represented 70 calories.

Mr. Strachey stated on Nov. 11 that the present calorie values of rationed foods for a normal adult were:

Meat	..	..	..	..	..	..	..	117
Bacon	..	..	..	..	..	..	..	15
Cheese	..	..	..	..	..	..	..	33
Butter	..	..	..	..	..	..	..	61
Margarine	..	..	..	..	..	..	..	124
Lard	..	..	..	..	..	..	..	36
Sugar	..	..	..	..	..	..	..	123
Bread	..	..	..	..	..	..	..	648
Milk	..	..	..	..	..	..	..	102
Preserves	..	..	..	..	..	..	..	41
								1,300

These figures were the calories derived from the rations of a normal adult and did not include eggs nor points-rationed foods.

Asked by Mr. BUTCHER on Nov. 10 whether patients in hospitals and nursing-homes would suffer the recently announced cut in civilian rations, Mr. STRACHEY answered that residents in hospitals and nursing-homes were entitled to the same rations as the domestic consumer. Additional foods considered necessary on medical grounds could be obtained in the same way as for people suffering from similar complaints at home. Special cuts of 15% or 17½% in the allowance of various rationed and controlled foods to certain catering establishments made because of the crisis were not applied to residents in catering establishments or anyone in institutions.

### Cholera in Egypt

Sir HENRY MORRIS-JONES asked Mr. Bevin on Nov. 12 his opinion on a letter from the Egyptian Feminist Union accusing the British Army in Egypt of responsibility for the origin and dissemination of cholera.

Mr. BEVIN said this extremist attack was unworthy of a reply. It would only be believed by those already hopelessly prejudiced against Britain. The thanks of the Egyptian Government had been conveyed to him for what Britain had done against the outbreak. Besides the vaccine, over 60 ambulances had been made available, and also the services of Sir J. Taylor and Dr. Bruce White.

Mr. OSBORNE inquired on Nov. 12 why the squadron of heavy bombers which left Binbrook, Lincolnshire, aerodrome on a goodwill mission to the Turkish Air Force landed in Egypt on the outward journey in view of the presence of cholera in Egypt, and what was the cause of the death of one of the aircrew immediately on his return to this country.

Mr. ARTHUR HENDERSON replied that this squadron landed at an R.A.F. station in the Canal Zone of Egypt as part of its training programme. All members of the squadron were inoculated against cholera before leaving the United Kingdom. A member of the squadron died shortly after landing in this country. His death was due to the effects of lack of oxygen.

#### Proprietary Medicines

Asked on Nov. 11 by Captain FIELD to ensure a better use in the national interest of the labour and materials put into proprietary and quack medicines, Mr. BELCHER replied that drugs, chemicals, and other raw materials were allocated for the manufacture of proprietary medicines only when the needs of hospitals, doctors, and dispensing chemists had been met. Mr. Belcher hesitated to condemn such medicines generally. They made a useful contribution to the export effort.

#### Mental Illness

Mr. MICHAEL STEWART stated on Nov. 11 that 646 patients were in military hospitals suffering from mental illness. It was impossible to say in how many of these cases the condition might be regarded as due to war service. A decision on that was not taken till some time after admission, or, in many cases, not until after discharge. He added that the treatment of Service psychotic patients was well up to the standard of civilian hospitals.

**Petrol for Doctors.**—Mr. LESTER HUTCHINSON asked on Nov. 6 whether the Minister of Fuel and Power would allow medical practitioners, with a limited amount of time at their disposal, who had to be on call all day and every night, to use their cars for all purposes within a radius of ten miles of their consulting-rooms, to permit them some measure of relaxation and yet remain within speedy recall. Mr. GAITSKELL replied that this matter, on which he had received certain representations from the British Medical Association, was under consideration.

**Refresher Course.**—On Nov. 6 Mr. SOMERVILLE HASTINGS asked whether regulations existed under the National Health Service Act, 1946, for Regional Hospital Boards to arrange for refresher courses for any of those in their employ. Mr. BEVAN replied that such regulations were unnecessary. He said he would see that the Boards encouraged their officers to keep up to date by whatever methods were most appropriate. They would be able to allow leave with pay for attending suitable conferences and courses.

**German Doctors.**—Mr. HASTINGS was told by Mr. SHINWELL on Nov. 11 that 373 German doctors were employed in the United Kingdom to provide medical services for prisoners of war. These doctors received instruction in British health administration and in the British way of life.

**Regulation 33b.**—Answering Col. STODDART-SCOTT on Nov. 13, Mr. BEVAN said Regulation 33b would lapse at the end of this year. He did not propose to substitute any other compulsory powers but to encourage the use of persuasion to bring contacts under treatment.

**Smallpox.**—Mr. BEVAN states that on Nov. 13 there were no cases of smallpox in England and Wales. Since the year 1932 no death of an infant in England and Wales under the age of one year has been attributed to smallpox.

**Nystagmus and Dermatitis.**—In 1938 1,224 certificates of disablement were given by examining surgeons under the Workmen's Compensation Act for miners' nystagmus, and in 1946 1,297. Corresponding figures for scheduled dermatitis produced by dust or liquids were respectively 254 and 1,702.

**Unstable Adolescents.**—Mr. Chuter Ede is keeping in mind the contents of the report of the Joint Committee of the British Medical Association and the Magistrates Association on the problem of the unstable adolescent girl as it affects the Home Office in the continuous efforts to develop effective methods of treatment for such girls.

Sir George Henderson, Secretary of the Department of Health for Scotland, told members of the Northern Regional Hospital Board recently that both as a Board and as individual members their responsibility was to the Secretary of State alone. They were not appointed to represent—in the ordinary meaning of the word—any particular body or interest. Most of them had been appointed after consultation with various bodies and their names had been put forward by those bodies, but in their work on the Board they did not represent those bodies: they had been selected by the Secretary of State for the personal contribution which their particular form of knowledge and experience could help them to make. The fact that their collective experience had been so varied ensured that all necessary viewpoints could find expression. All that remained was that the various experiences should weld together in harmony.

## Universities and Colleges

### UNIVERSITY OF CAMBRIDGE

The following degrees were conferred on Nov. 1:

M.D.—R. T. Mummery, E. Clayton-Jones, C. R. T. Lane, W. A. Nichols, W. H. K. Willis, P. D. Scott.

T. Hoogstraaten, M.D., has been elected to a Frank Edward Elmo Fund Studentship, from Nov. 1.

### UNIVERSITY OF LONDON

The following candidates have been approved at the examination indicated:

THIRD M.B., B.S.—O. A. N. Husain (with honours and distinguished in applied pharmacology and therapeutics), S. Adler, G. C. Ambrose, G. J. Amiel, G. W. S. Andrews, D. E. Argenti, D. A. L. Ashforth, A. W. Banks, A. F. Barnett, J. H. Baylis, R. W. Bazeley, Nancy Benstead, F. V. A. Bose, D. P. Bowler, P. R. Boyd, J. C. Brace, W. L. L. Brace, J. P. Bradshaw, D. J. Brewer, D. Brown, D. A. G. Brown, T. C. L. Brown, R. H. Browning, Alison M. Brydson, Joyce M. Buck, J. Bullough, R. A. Bush, A. W. H. Challis, M. S. Chayen, A. H. Cheshire, D. J. E. Cheshire, P. W. Clements, K. L. Cleminson, J. H. H. Clough, Pauline M. Cole, L. H. Collier, E. G. Cook, Olive Cooke, D. J. Cowan, D. H. Crook, A. D. Crown, S. P. Datta, D. W. Davies, W. M. Dixon, G. W. Downes, Wendy Dyer, K. C. Easton, C. D. Edwards, D. Edwards, L. R. L. Edwards, J. W. Ellis, J. Elvish, Angela I. Emerson, M. Ernest, J. W. G. Evans, M. P. Fiddian, D. H. Foddick, T. W. H. Forster, Dorothy P. Forsey, G. S. Foster, P. S. Gardner, C. D. Garat, E. Geiringer, P. Glasman, S. Goldwater, R. A. Goodbody, E. R. Griffiths, P. Griffiths, A. P. Grimby, H. J. Groves, G. J. Hadfield, E. Haigh, R. C. Hallam, S. J. Harris, Ursula M. Hay, J. L. Hayward, A. J. Heber, C. J. V. Helliwell, Mary Helmer, E. P. W. Helps, A. G. Henderson, S. R. Hewitt, A. W. Hind, Miriam Hirtzel, K. E. Hodge, G. R. Holby, P. K. Hopper, P. W. Hunt, R. J. Isaac, Pauline M. Jackson, M. A. K. Javid, B. A. G. Jenkins, D. H. Jenkins, M. S. Johnson, E. G. G. Jones, C. Jones-Morgan, W. A. J. V. Kilby, C. R. Knappett, A. Knudsen, F. K. Larkins, Joan Latham, S. Leigh, E. L. W. Leiser, L. L. L. L. Lim, Muriel J. Lowe, J. C. McDonald, N. J. C. McGill, D. I. Mackenzie, A. C. McLeish, R. I. Maitland, J. E. Mandel, F. B. Meade, E. W. Miles, B. C. Morgan, R. Morgan, J. B. Morrison, F. J. Napier, E. Neumar, R. D. Nicholson, E. G. Old, Susan H. Palmer, J. A. R. Parker, A. Paton, B. G. Pickles, A. Pilling, G. D. Pinker, W. A. Porter, Diana Powell-Colton, S. H. M. Price, Audrey K. Raistrick, R. L. Ray, D. M. Reader, Pauline Readman, E. J. Rich, R. W. Riddell, Adore H. Rider, E. Robinson, D. J. H. Rogers, R. H. Satchell, J. S. Scott, T. A. Shannon, D. A. Skan, B. C. Smith, H. Spira, J. D. Stevens, H. H. A. E. Tarnawski, P. W. G. Tasker, D. P. P. Thomas, W. R. G. Thomas, E. J. Trimmer, J. C. Turner, P. A. Tyser, G. F. Vaughan, P. J. F. Walsh, J. L. Warren, G. L. Whitmore, F. O. W. Wilkinson, D. W. Wilks, R. D. Willet, J. R. D. Williams, R. G. Williams, P. Wilson, G. Wiseman.

### ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH

Dr. R. M. Stewart, F.R.C.P., will deliver a Morison Lecture on "The Clinical Features and Pathological Anatomy of Infantile Hemiplegia" before the Royal College of Physicians of Edinburgh (9, Queen Street, Edinburgh) on Friday, Nov. 28, at 5 p.m.

A quarterly meeting of the College was held on Nov. 4, with the President, Dr. D. M. Lyon, in the chair.

Drs. H. M. D. Shepherd (Shanklin, I.O.W.), P. M. Wood (Hull), John Craig (Aberdeen), J. McG. Rogan (Glasgow), J. M. Macfie (Edinburgh), A. W. Wright (Edinburgh), Charles Cameron (Edinburgh), Neil Macmichael (Edinburgh), and J. A. L. Gilbert (Edinburgh) were introduced and took their seats as Fellows of the College.

Drs. J. D. M. Claessens (Capetown), J. M. Watt (Johannesburg), I. N. Sutherland (Edinburgh), G. Singh (Amritsar), R. O. Gillhespy (Paisley), J. G. Macleod (Edinburgh), G. M. Wilson (Edinburgh), R. S. Aitken (Aberdeen), and T. G. Brown (Hamilton, Lanarkshire) were elected Fellows of the College.

Drs. W. H. Rose (Ontario), K. G. W. James (Jamaica), A. S. R. Stewart (Shotts, Lanarkshire), Jack Rudolph (Pretoria), J. A. Ross (Rainhill, Lancs), J. B. H. MacArthur (Nottingham), J. H. L. Gilie (Dumfries), H. J. T. Ross (Kidderminster), W. J. G. Barrie (Edinburgh), W. G. MacDougall (Edinburgh), J. W. Rae (Larbert, Stirlingshire), K. K. Dacey (New York), E. M. Heller (Ontario), H. G. B. Richards (Cullercoats, Northumberland), J. K. Drummond (Dunbar), H. G. H. Houghton (Edinburgh), Nick Pedersen (Edinburgh), P. E. Brown (Bath), J. W. Buchanan (Barnton, Midlothian), M. W. Archdall (Lampeter), Thomas Black (Newcastle-upon-Tyne), G. B. Tait (Edinburgh), A. W. O. Taylor (Edinburgh), D. E. Williams (Edinburgh), Aneurin Hughes (Swansea), W. L. Sharp (London), Alexander Skene (Edinburgh), H. R. L. Fraser (Edinburgh), N. W. Horne (Edinburgh), J. B. Lowe (Edinburgh), H. D. Ross (Edinburgh), Erich Kahn (London), Malcolm Watt (Wellington, N.Z.), A. E. Claireaux (Edinburgh), J. W. T. Pretsell (Surrey), A. G. Harper (South Canterbury, N.Z.), T. McS. Wilson (Edinburgh), A. K. Das (Calcutta), H. C. W. Stringer (Christchurch, N.Z.), J. T. R. Russell (Edinburgh), and Constance C. Forsyth (Edinburgh) were elected Members of the College.

The Freeland Barbour Fellowship for original investigations carried out in the laboratory of the College was awarded to Lieut.-Col. W. F. Harvey, C.I.E., and the Wood Bursary to students commencing the study of medicine at the Edinburgh Medical School to Thomas Mercedith Chalmers.

## Medical News

### Nobel Prizes

The Nobel Prize for Chemistry has been awarded to Sir Robert Robinson, P.R.S., "for his research on important substances in plant biology, especially alkaloids." The physics prize has been awarded to Sir Edward Appleton, F.R.S., "for his work on atmospheric physics, and especially for his discovery of the Appleton layer."

### Royal Society Awards

The King has approved the recommendations of the Council of the Royal Society for the award of Royal Medals for the current year to Prof. C. N. Hinshelwood, F.R.S., for his distinguished work on the mechanism of chemical reactions from the simplest gas phase processes to the complexities of cell division, and to F. M. Burnet, M.D., F.R.S., for his distinguished work on bacteriophages, viruses, and immunity, and for his contributions to the study of infectious disease as an ecological phenomenon. The Royal Society has awarded the Copley Medal to Prof. G. H. Hardy, F.R.S.; the Davy Medal to Prof. L. C. Pauling; the Buchanan Medal to Sir Edward Mellanby, K.C.B., M.D., F.R.S., F.R.C.P., Secretary of the Medical Research Council; and the Hughes Medal to Prof. J. F. Joliot.

### Presentation to Sir Alfred Webb-Johnson

A painting of the Council of the Royal College of Surgeons of England for the year 1946-7 was presented to Sir Alfred Webb-Johnson at a dinner given by the Council for that year at the College on Thursday, Nov. 13, in honour of the President and Lady Webb-Johnson. The painting is by Mr. Henry Carr, and the presentation was made by Sir Cecil Wakeley, the senior Vice-President.

### New Medical Journal

The first number of the *Journal of Clinical Pathology* has appeared recently. It is edited by Dr. A. Gordon Signy for the Association of Clinical Pathologists, and published by the British Medical Association. The annual subscription for four numbers is 25s. (in U.S.A. \$6); single numbers are obtainable at 7s. 6d. The policy of the editorial board is declared to be the publication of original articles, reviews, accounts of technical methods, and abstracts that will be useful to the practising clinical pathologist, whose chief concern is to elucidate disease in man.

### Stalingrad Album

A replica of the Stalingrad Album which records messages of greeting from British contributors to the wartime Stalingrad Hospital Fund, organized by the Joint Committee for Soviet Aid, is now on view at the British Museum until Dec. 6. The original of the album is on exhibition at Stalingrad, beside the Sword of Honour presented by His Majesty the King to the City. The albums are outstanding examples of British craftsmanship. The binding, in red Levant leather, was executed by Mr. Frank Vaughan, book-binder to the late King George V, and the crests were painted by the College of Arms.

### Commonwealth Fund of New York

The Commonwealth Fund of New York announces that a number of Fellowships, open to men only, will be offered in 1948. Full details of the Fellowships and copies of the prescribed form of application may be obtained from the secretary to the Committee of Award (Mr. Richard H. Simpson), Commonwealth Fund Fellowships, 35, Portman Square, London, W.1, to whom the completed form must be sent by Feb. 1, 1948.

### Braithwaite Nursing Home

The Government of Nigeria have renamed the European Hospital, Port Harcourt, the Braithwaite Nursing Home in honour of Dr. E. C. Braithwaite, C.B.E. Dr. Braithwaite has served in the Colonial Medical Service in Nigeria and the Cameroons for over 35½ years, and for over 13 years, until retiring in April last, was in charge of the European and African Hospitals at Port Harcourt.

### Leslie Dana Gold Medal

The National Society for the Prevention of Blindness (1790, Broadway, New York 19, New York, U.S.A.) announces that the Leslie Dana Gold Medal for 1947, awarded annually for outstanding achievements in the prevention of blindness and the conservation of vision, was presented to Dr. Frederick H. Verhoeff, of Boston, Mass., on Oct. 16. Dr. Verhoeff is Professor Emeritus of Ophthalmic Research at Harvard Medical School and consulting chief of ophthalmology at Massachusetts Eye and Ear Infirmary.

### Dr. Jessie Macgregor, Prize

The trustees of the Dr. Jessie Macgregor Prize in medical science have announced the award of the prize, value £75, for the present triennial period to Sheila Sherlock, M.D., M.R.C.P., British Postgraduate Medical School, London, W., for her work on the liver, purpura, and malnutrition in the Ruhr.

### Trachoma

The International Organization against Trachoma, founded in 1929, held its last general meeting in London in 1939. The Executive Committee met in Paris on May 17 of this year under the presidency of Dr. MacCallan, and it was decided to hold the next General Assembly of Delegates and Members and the Scientific Meeting in London in 1950. The Organization hopes soon to begin publishing its quarterly journal again, *La Revue Internationale du Trachome*. Articles by members of the I.O.A.T. may be sent to Dr. Jean Sedan, 94, Rue Sylvabelle, Marseille. The annual subscription is 25s. Further information may be obtained from the President, Dr. A. F. MacCallan, Westminster Hospital Medical School, 17, Horseferry Road, London, S.W.1.

### Pharmacy Working Party

A Working Party has been appointed by the Minister of Health and the Secretary of State for Scotland to investigate the differences in the work of pharmacists in England and Wales and in Scotland in dispensing and supplying medicines and appliances, with particular reference to conditions likely to arise under the National Health Service. The Working Party consists of two pharmacists from England and Wales—Messrs. G. H. M. Graham and D. A. Bryan—and two from Scotland—Messrs. A. A. Meldrum and J. Shields—under the chairmanship of Mr. William Penman, M.B.E., a past president of the Institute of Actuaries. The investigation will probably extend from about mid-November to mid-February.

### Harveian Society of London and Prehistoric Society

The late Sir Norman Gray Hill, Bt., M.C., R.A.M.C., who was killed in Sicily on Feb. 24, 1944, has left the residue of his estate to be divided between the Prehistoric Society and the Harveian Society of London.

### Appointment for Distinguished Services

Dr. A. C. Kathigasu, medical practitioner, Ipoh, Malaya, has been appointed M.B.E. (Civil Division) for services to the Forces during military operations in Malaya prior to Sept. 2, 1945.

### Cancer Tests in U.S.A.

A plan consisting of twice-yearly examinations of all women over 40 years old in the State of Delaware has been approved by the Delaware Division of the American Cancer Society. Women who can afford it will pay \$3 for each examination.

### Wills

Dr. Wilfrid Boothby Blandy, of Nottingham, left £129,127. He left £2,000 to be held for up to fifteen years for the establishment of a faculty of medicine at the University College of Nottingham. Dr. Joseph Stanislaus Gubbins, formerly of Ealing and Hounslow, left £20,918. Mr. Philip Roscoe Wrigley, formerly consulting surgeon to the Manchester Royal Infirmary, left £29,785.

## COMING EVENTS

### Social Sciences

A conference to consider action to be taken on the Association of Scientific Workers' Report entitled "The Furtherance of the Social Sciences" will be held on Nov. 22 at 2.30 p.m. at Gas Industry House, 1, Grosvenor Place, London, S.W.1. Prof. V. G. Childe will speak on "The Need for the Greater Use of the Social Sciences." Mr. I. Mikardo, M.P., and Mr. R. Innes will open a discussion on future action to win support for the proposals in the Report.

### Health and Housing

Mrs. Gilbert, of the British Federation of Social Workers, will lecture on "The Health Visitor and Housing" at the Housing Centre, 13, Suffolk Street, Haymarket, London, S.W.1 (Tel. Whitehall 2851) on Nov. 25.

### Society of Chemical Industry

A meeting of the Microbiological Panel of the Food Group of the Society of Chemical Industry will be held at the Chemical Society's rooms, Burlington House, Piccadilly, London, W., on Wednesday, Nov. 26, at 6.15 p.m., when two papers on "Biological Stability of Processed Fish and Manufactured Fish Products" will be presented.



**Institute for the Scientific Treatment of Delinquency.**

The ninth annual general meeting of the Institute for the Scientific Treatment of Delinquency will be held at 8, Bourdon Street, Davies Street, London, W., on Wednesday, Nov. 26, at 6.30 p.m., when the speaker will be the Rt. Hon. Walter Elliot, M.P.

**Society of Medical Officers of Health**

A meeting of the Society of Medical Officers of Health will be held at B.M.A. House, Tavistock Square, London, W.C., on Thursday, Nov. 27, at 5.30 p.m., when Sir Allen Daley will give an address entitled "My American Diary."

**Medico-Legal Society**

A meeting of the Medico-Legal Society will be held at 26, Portland Place, London, W., on Thursday, Nov. 27, at 8.15 p.m., when Dr. W. R. H. Heddy, H.M. Coroner, Eastern District, County of London, will read a paper on "Death on the Roads: an Analysis of 200 Fatal Traffic Cases."

**Medical Society for the Study of Venereal Diseases**

A general meeting of the Medical Society for the Study of Venereal Diseases will be held at 11, Chandos Street, Cavendish Square, London, W., on Saturday, Nov. 29, at 2.30 p.m., when a paper on "Some Psychological Aspects of Venereal Disease" will be read by Dr. E. Wittkower.

**SOCIETIES AND LECTURES****ROYAL SOCIETY OF MEDICINE**

**Section of Odontology.**—Monday, Nov. 24, 5.30 p.m. Paper by Miss E. M. Knowles: A Survey of the Dental Condition of Children in Day and Residential Wartime Nurseries.

**Section of Medicine.**—Tuesday, Nov. 25, 8 p.m. Short papers by Sir Allen Daley: Acute Anterior Poliomyelitis; Dr. A. Margaret C. Macpherson: Some Atypical Primary Tuberculous Lesions; Dr. J. E. Capes: The Use of Tubular Blockade in Penicillin Therapy.

**Section of Endocrinology.**—Wednesday, Nov. 26, 5 p.m. Discussion: Simmonds's Disease. Openers: Prof. H. L. Sheehan, and Drs. A. W. Spence, Russell Fraser, and S. L. Simpson.

**Section of Urology.**—Thursday, Nov. 27, 8 p.m. Clinico-pathological Meeting.

**Section of Paediatrics.**—Friday, Nov. 28, 5 p.m. Discussion: The Place of Child Guidance in the New Health Service. Openers: Drs. Ian Skottowe, A. A. E. Newth, and Mildred Creak.

**LONDON: UNIVERSITY COLLEGE, Gower Street, W.C.**—Tuesday, Nov. 25, 5.15 p.m. Dr. Bernard Katz: Propagation of Impulses in Muscle Fibres and the Initiation of Muscle Contraction.

**MEDICAL SOCIETY OF LONDON, 11, Chandos Street, Cavendish Square, W.**—Monday, Nov. 24, 8.30 p.m. Discussion: Tumours of the Bladder. To be introduced by Messrs. E. W. Riches, W. Somerville Mack, and R. W. Reid.

**INSTITUTE OF PUBLIC HEALTH AND HYGIENE, 28, Portland Place, W.**—Wednesday, Nov. 26, 3.30 p.m. Dr. Mary D. Sheridan: Hygiene in the Nursery and Playroom (illustrated).

**ROYAL MEDICAL SOCIETY.**—At Balmoral Rooms, Edinburgh, Thursday, Nov. 27, 8 p.m. President's Annual Dinner. At 7, Melbourne Place, Edinburgh, Friday, Nov. 28, 8 p.m. Address by Prof. Ian Aird: The Surgical Management of Peptic Ulcer.

**POSTGRADUATE DIARY**

**EDINBURGH POSTGRADUATE BOARD FOR MEDICINE.**—At West Medical Lecture Theatre, Edinburgh Royal Infirmary, Tuesday, Nov. 25, 5 p.m. Dr. J. L. Henderson: The Child's Inheritance.

**EDINBURGH ROYAL INFIRMARY.**—Thursday, Nov. 27, 4.30 p.m. Honyman Gillespie Lecture by Prof. J. Chassar Moir: November, 1947, and its Sequel.

**INSTITUTE OF DERMATOLOGY, 5, Lisle Street, Leicester Square, London, W.C.**—Tuesday, Nov. 25, 5 p.m. Dr. I. Muende: Pathological Demonstrations.

**INSTITUTE OF LARYNGOLOGY AND OTIOLOGY, 330-2, Gray's Inn Road, London, W.C.**—Monday, Nov. 24, 6 p.m. Cinematograph films. Mr. Geoffrey Bateman: Organic Disorders of the Larynx; Dr. Paul S. Holinger: Bronchial Neoplasms. Wednesday, Nov. 26, 11.30 a.m. Prof. T. Pomfret Kilner: Plastic Surgery.

**LONDON CHEST HOSPITAL, Victoria Park, E.**—Friday, Nov. 28, 5 p.m. Dr. K. Shirley Smith: Acute Heart Failure.

**APPOINTMENTS**

Victor F. Lambert, M.D., Ch.M.Manch., F.R.C.S.Ed., has been appointed Professor of Otolaryngology at Manchester University, where he has been Lecturer in Diseases of the Ear since 1935.

Prof. Michael Polanyi, M.D., F.R.S., has been appointed Professor of Social Studies at Manchester University.

Prof. Polanyi graduated in medicine at Budapest, and was appointed Professor of Physics and Chemistry at Manchester University in 1933.

**BIRTHS, MARRIAGES, AND DEATHS****BIRTHS**

**Gideon.**—On Oct. 27, 1947, at Lindo Wing, St. Mary's Hospital, to Peggy a Dr. David Gideon, a daughter.

**Hargrove.**—On Nov. 11, 1947, at Wingfield Nursing Home, Wokingham, Elizabeth (née Corbett-Lowe), wife of Dr. Peter Hargrove, a son.

**Jacobs.**—On Nov. 10, 1947, at St. Mary, Islington, Hospital, London, to Lu (Dr. Frank), wife of Dr. A. L. Jacobs, a son.

**Lowe.**—On Nov. 5, 1947, at Ardeneale Nursing Home, Nunthorpe, Middlesbrough, to Dorothy (née Arnot), wife of Dr. G. S. Lowe, a daughter.

**Mackenzie.**—On Nov. 7, 1947, at Inverness, to Marjorie, wife of Dr. G. Mackenzie, a daughter.

**Southern.**—On Nov. 10, 1947, at Queen Charlotte's Maternity Hospital, Elizabeth (née Raphael), wife of Dr. E. M. Southern, a daughter—Jude Helen.

**DEATHS**

**Bristow.**—On Nov. 10, 1947, at a London Nursing Home, Walter Rowland Bristow, F.R.C.S., aged 64.

**Crowe.**—On Nov. 12, 1947, at 38, Bradford Drive, Ewell, Surrey, 1st Tabuteau Crowe, L.M.S.S.A.

**Dickinson.**—On Nov. 15, 1947, at West House, Chiswick Place, Eastbourne, William Henry Dickinson, M.B., Ch.B.Ed., Lieutenant-Colonel, I.M.S. retired.

**Fraser.**—On Nov. 9, 1947, at Fittleworth, Sussex, Margaret Helen Fraser, M.B., B.S., aged 75.

**Giuseppe.**—On Nov. 10, 1947, at "Treviso," Felixstowe, Paul Léon Giuseppe M.D., F.R.C.S.

**Hendrie.**—On Oct. 27, 1947, at 63, Westwood Road, Tilchurst, Reading, Berks, Helen MacDougall Hendrie, M.D., aged 64.

**Ritchie.**—On Nov. 8, 1947, at 511, George Street, Dunedin, New Zealand, Russell Ian Ritchie, M.B., M.R.C.O.G.

**Scholefield.**—On Nov. 9, 1947, at Hereford, Robert Ernest Scholefield, M.B. B.Ch.

**Shea.**—On Nov. 12, 1947, at St. George's Nursing Home, Royston, Colere Henry Francis Shea, D.S.O., late R.A.M.C., aged 75.

**Unsworth.**—On Nov. 11, 1947, Jonathan Unsworth, L.R.C.P.&S.I., aged 60.

**Waite.**—On Nov. 10, 1947, at 24, Portarlington Road, Bournemouth, Joseph Edward Waite, M.B.

**Winder.**—On Nov. 12, 1947, James Herbert Roche Winder, D.S.O., MD Lieutenant-Colonel, late R.A.M.C.

**EPIDEMIOLOGICAL NOTES****Dysentery at Wallingford**

This explosive outbreak occurred in a mental hospital in the Wallingford Rural District, and by Oct. 31 there had been 362 cases notified. A few secondary cases are still occurring. The total population of the hospital is about 1,400. Between Sept. 22 and Oct. 21 13 cases of acute gastro-enteritis appeared in the same male ward. On Oct. 21 the Public Health Laboratory at Oxford isolated *Shigella flexner* type 103 from rectal swabs from 3 of the 13 cases. This ward contained the worst mental cases in the hospital.

There followed 35 fresh cases on Oct. 21, 71 on Oct. 22, 57 on Oct. 23, and then on successive days: 42, 47, 24, 20, 22, 20, 6, and 4 on Oct. 31. On Oct. 21 the fresh cases were isolated so far as possible, and methods of disinfection of excreta and soiled bedding, etc., and of preparing and cooking food were investigated. None of the staff or patients who worked in the kitchen had been ill recently, but rectal swabs were taken. Rectal swabs were taken from those of the original 13 who were about again, from the 35 fresh cases, and also from the one patient in hospital who had a previous history of dysentery (type unknown).

It was thought that this "explosion" might be due to a superimposed epidemic of salmonella or staphylococcal food poisoning, but the laboratory failed to find pathogens in samples of food and isolated *Shigella flexner* of the same serological type in swabs from the fresh cases. By Oct. 24 it seemed probable that there was a carrier at work in the kitchen, and therefore the taking of diagnostic swabs was discontinued and all efforts were concentrated on those who prepared food. On Oct. 28 the organism was isolated from two patients working in the kitchen. One of them subsequently developed the disease, but the other remained symptomless throughout. Their removal from the kitchen caused a marked drop in the fresh case rate.

There were only 4 cases in the surrounding district, but each worked in the hospital and had at least one meal a day there. Water, milk, and sewage effluent showed no pathogens. All the cases were treated by sulphonamides, but details of the numbers who have had sulphonamides prophylactically and who have subsequently developed the disease or have become symptomless excretors are not yet available.

The one patient who had a history of dysentery has had two negative swabs, but on Oct. 27 produced a positive swab, and on Nov. 4. As he has been swabbed several times since the dysentery and the result has been negative each time, his case would appear to have been a reinfection rather than the source of the outbreak. The source then is unknown, but the explosive outbreak was probably due to one or both of the patients in the kitchen, who were possibly infected by one of the original 3 cases. There have been no deaths. Investigations are still continuing.

### Poliomyelitis and Polio-encephalitis

In the week ended Nov. 8 the decline in the notifications of poliomyelitis 198 (221) and of polio-encephalitis 12 (22) continued. Figures for the previous week are shown in parentheses. The small decline this week gives some support to the opinion expressed last week (Nov. 15, p. 801) that the incidence is likely to remain relatively high for some time. The rate of decline has been fairly consistent for the last three weeks. If it remains the same for the rest of the year then there may still be about 100 notifications a week at the end of December.

### Cholera in Egypt

The decline in the incidence of cholera in Egypt still continues. According to the Egyptian Ministry of Health only 88 of Egypt's 4,000 villages are affected. On Nov. 17, for example, there were only 34 deaths and 55 new cases reported. In the week ending Nov. 11 there were 1,895 cases and 1,049 deaths, which should be compared with the peak figures of 4,566 cases and 2,075 deaths in the third week of October.

A careful watch is being kept in this country on passengers arriving by air from Egypt. So far the question of cholera has been raised in only one case. This was a man of 40, flying home from Australia, who on Nov. 10 spent one night in a Cairo hotel. He reached this country by flying boat on Nov. 12 and two days later had all the symptoms of a severe cold. On Nov. 15 he complained of diarrhoea and abdominal pain, and he passed some blood and mucus. Dr. R. Swyer, of the North Eastern Hospital, Tottenham, N.15, informs us that clinically the diagnosis appears to be that of a mild dysentery rather than cholera, but the laboratory investigations are not yet complete.

### Discussion of Table

In England and Wales the rising trend in the incidence of scarlet fever and measles was continued with increases of 77 and 71. Increases were also recorded in the notifications of whooping-cough 34, acute pneumonia 20, and paratyphoid fever 12. There were decreases in the notifications of dysentery 214, acute poliomyelitis 30, and diphtheria 60.

The rise in the notifications of scarlet fever was due to the northern section of the country; in the South the incidence declined. The only variation of any size in the returns of measles was an increase of 50 in Durham.

The largest rises in the incidence of whooping-cough were those of Yorkshire West Riding 55 and Lancashire 31. A decrease in the incidence of diphtheria was general and the largest falls were Middlesex 11 and Lancashire 11. Of the 15 cases of paratyphoid fever 8 were notified in Leicester C.B. A further 55 cases of dysentery were reported from the outbreak in Berkshire, Wallingford R.D., where 260 were notified in the preceding week.

The general decline in poliomyelitis continued; the largest returns during the week were Lancashire 35, London 20, Yorkshire West Riding 17, Middlesex 12, and Lincolnshire 10.

In Scotland there were increases in the notifications of measles 26 and diphtheria 14, while decreases were recorded for scarlet fever 22, acute primary pneumonia 23, whooping-cough 13, and dysentery 10. The largest local rise in the incidence of diphtheria was 9 in Glasgow. Only 2 cases of dysentery were notified in Edinburgh compared with 13 in the preceding week.

In Eire infectious diseases were less prevalent than in the preceding week; the only exception was a rise of 15 in the notifications of whooping-cough. The notifications of diarrhoea and enteritis fell by 31. In contrast to the returns for the whole country a small increase was recorded in Dublin C.B. in the incidence of scarlet fever and measles.

In Northern Ireland a decrease of 10 was recorded in the notifications of scarlet fever.

### Week Ending November 8

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,730, whooping-cough 772, diphtheria 219, measles, 2,179, acute pneumonia 571, cerebrospinal fever 39, acute poliomyelitis 198, acute poliomyelitis 12, dysentery 105, paratyphoid 6, and typhoid 9.

## INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Nov. 1.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales\* (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1947					1946 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	39	—	25	2	—	40	2	13	—	1
Deaths .. ..	—	1	—	—	—	—	—	—	—	—
Diphtheria .. ..	178	19	63	12	8	274	34	95	47	8
Deaths .. ..	3	—	—	—	—	3	1	1	—	—
Dysentery .. ..	126	5	20	—	—	69	15	36	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Encephalitis lethargica, acute .. ..	—	—	—	—	—	—	—	1	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Erysipelas .. ..	—	—	29	9	5	—	—	56	10	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Infective enteritis or diarrhoea under 2 years .. ..	—	—	—	53	—	—	—	—	43	—
Deaths .. ..	51	3	15	10	8	31	2	8	8	4
Measles* .. ..	2,052	67	131	207	6	3,374	119	222	54	32
Deaths .. ..	—	—	3	2	—	2	—	—	—	—
Ophthalmia neonatorum .. ..	41	3	11	—	—	63	7	16	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Paratyphoid fever .. ..	15	1	—	—	—	66	22(B)	1(B)	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenza ..	502	39	2	2	3	485	30	6	2	2
Deaths (from influenza) ..	16	2	2	—	—	12	1	2	—	1
Pneumonia, primary .. ..	—	—	215	13	—	—	—	207	24	—
Deaths .. ..	—	32	—	6	4	—	27	—	—	8
Polio-encephalitis, acute ..	22	3	—	—	—	2	—	—	—	—
Deaths .. ..	—	1	—	—	—	—	—	—	—	—
Poliomyelitis, acute .. ..	221	20	46	6	4	25	1	1	6	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Puerperal fever .. ..	—	—	10	—	—	—	2	13	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Puerperal pyrexia† .. ..	100	4	8	2	3	117	7	11	1	2
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Relapsing fever .. ..	1	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Scarlet fever .. ..	1,529	104	286	73	48	1,187	86	313	49	41
Deaths .. ..	1	—	—	—	—	3	—	—	—	—
Smallpox .. ..	—	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Typhoid fever .. ..	4	—	—	11	—	6	2	—	5	5
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Typhus fever .. ..	—	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Whooping-cough* .. ..	1,037	59	41	45	6	1,549	83	188	56	37
Deaths .. ..	4	1	—	1	—	8	1	1	—	1
Deaths (0-1 year) .. ..	336	38	64	29	22	341	40	60	28	19
Infant mortality rate (per 1,000 live births) ..	—	—	—	—	—	—	—	—	—	—
Deaths (excluding stillbirths) .. ..	4,415	739	590	172	118	4,373	654	620	189	123
Annual death rate (per 1,000 persons living) ..	—	—	12.3	10.9	—	—	—	13.6	—	—
Live births .. ..	7,626	1240	954	364	200	8,920	1382	1060	333	260
Annual rate per 1,000 persons living ..	—	—	19.2	23.0	—	—	—	21.3	—	—
Stillbirths .. ..	203	34	35	—	—	273	38	45	—	—
Rate per 1,000 total births (including stillbirths) ..	—	—	35	—	—	—	—	41	—	—

\* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

## Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

### Prophylaxis of the Common Cold

**Q.**—For some years I have used intranasal drops of the following formula with some success in the prophylaxis of colds: Ephedrine, 0.5%; eucalyptol, 0.5%; camphor, 0.5%; castor oil, 0.5%; liquid paraffin, q.s. 100%. Is any harm likely to result from this practice?

**A.**—The formula given is similar to that of the compound ephedrine spray of the *British Pharmaceutical Codex*, except that the *B.P.C.* formula contains 1% ephedrine. This preparation is presumably more effective as a spray than as drops. For those who dislike oily sprays, a solution containing 1% ephedrine hydrochloride and 4% dextrose in normal saline may be used as a spray. It is probable that too prolonged use of such a preparation in the form of drops will injure the mucous membrane. According to R. E. Ryan (*Proc. Mayo Clin.*, March 19, 1947) the excessive use of nose-drops over a prolonged period has been observed to cause a clinical syndrome in human beings, which may be designated "vasomotor rhinitis medicamentosa." The effects were produced in rabbits which had nasal drops instilled four times daily over a period of ten weeks. Sections of the mucosa showed degeneration, then oedema, and finally metaplasia of the epithelium into the stratified squamous-cell type.

### Concentrated Vitamins

**Q.**—It is said that certain vitamins are incompatible and should not be taken together in concentrated form, as in the various composite vitamin tablets now widely sold. Is there any truth in this?

**A.**—There would appear to be some confusion between the "concentrated form" of vitamins in certain medicinal products and exceptionally large doses of vitamins. While the latter are hardly practicable without the former, it is possible, and very widely customary, to take highly concentrated preparations of some vitamins at physiological levels. There is much scattered evidence to suggest that under certain experimental conditions large doses of one vitamin may affect the metabolism of others at more normal levels, but there does not seem to be any clear evidence at all for antagonistic action between vitamins fed at therapeutic levels or even considerably above this—that is, in the quantities practicable with many vitamin tablets and capsules on the market in this country and elsewhere. It must not be forgotten, however, that feeding one vitamin or a limited number of vitamins to a patient suffering from multiple vitamin deficiency may result in the flaring-up of symptoms due to the absence of an essential nutrient not being replaced by the therapeutic measure. Thus symptoms of beriberi have been evoked by administering therapeutic doses of nicotinic acid and riboflavin to pellagrins. The position of such patients, correctly described as suffering from deficiency disease, is doubtless very different from that of "normal" subjects taking multivitamin preparations as supplements to their ordinary food intake of nutrients.

### Flying for Whooping-cough

**Q.**—A patient wishes to try the effect of an aeroplane flight on his child who is suffering from whooping-cough. Is there any standard of (a) rate of climb, (b) height attained, and (c) rate of descent? What is the accepted explanation of the beneficial effects supposed to result from this treatment?

**A.**—There is no standardized procedure for the treatment of whooping-cough by altitude. There has as yet been no conclusive evidence of its consistent efficacy, except in producing temporary alleviation of symptoms, in tests carried out in this country. A lowering of pressure can more conveniently be produced on the ground in a decompression chamber than in

actual flight; a chamber is being used in Paris on a number of cases at present. Cases tested by the R.A.F. during the war were given a rate of climb and descent of 500 feet (152 m) per minute and kept for one to two hours at 10,000 or 12,000 feet (3,050–3,650 m.) equivalent altitude. The temporary relief at low pressure appears to be due to the lowered friction in the respiratory passages of air at reduced density. No satisfactory theoretical basis has yet been put forward to account for any permanent improvement which may result.

### Treatment of Mongolism

**Q.**—Is there any new treatment for mongolism? I hear recently of the successful use of some endocrine therapy. Will such treatment benefit a mongol aged 18 months, or is it likely to do harm?

**A.**—There is no evidence that mongolism is due to endocrine disturbance, and therefore no endocrine preparation can be justifiably used in treatment of the condition. It should be remembered that all but the lowest grades of mongols will show considerable mental development in the early years of life, and that any "treatment" given is likely to be "successful" in the sense that, after a varying delay, such functions as speech and walking are achieved. In the much over-weight, constipated mongol the use of thyroid extract in a non-specific fashion may produce some physical benefit.

### Taste in the Mouth with Dentures

**Q.**—Since first wearing dentures fifteen months ago a man aged 54 years has had a persistent sweet taste in his mouth, a dirty brown tongue, at times excessive salivation, and at others a dry condition which is sometimes relieved by removing one or other denture. He has had his sinuses, salivary ducts, alimentary tract, and kidneys x-rayed, and his blood tested for sugar and urea; all were normal. He has had two plastic sets, one vulcanite, and one stainless-steel set. I would not care to label him neurotic, but I would like to help him. Can you advise?

**A.**—Tastes in the mouth following insertion of dentures are sometimes due to imperfectly vulcanized or processed vulcanite or acrylic resin dentures. The patient in question has tried several sets of dentures, and it would therefore appear that the base has nothing to do with the condition in his particular case. Some patients do not tolerate dentures of any sort well, and any foreign body in the mouth may stimulate an excessive flow of saliva. Scrupulous cleanliness of the dentures, washing them after meals, etc., may be helpful; but if, as is probable, this has already been tried with no result, the patient must either undergo the inconvenience of the symptoms of which he complains or do without dentures.

### Ennuechoidism

**Q.**—Eight years ago a patient, now aged 25, had testes the size of a pea, with a feminine voice and bodily contours. There were no secondary sex characters, his penis measured 2½ in. (6.5 cm.) and pubic hair was scanty. He was 4 ft. 11 in. (150 cm.) tall. A course of chorionic gonadotrophin was started at that time, but without obvious result. During 1940, following a course of testosterone propionate, the penis became bigger and the patient had marked erections and some ejaculation. In 1942 he again had a course of testosterone propionate, with good results. He was given three further courses in 1943, after which he achieved successful intercourse. Continued treatment with testosterone resulted in an increase in size of the penis, almost to normal, moderate increase in size of the testes, a deeper voice, and better bodily development. His height is now 5 ft. 1½ in. (156 cm.). With cessation of treatment libido is disappearing and the patient is losing his self-confidence. Can you suggest further treatment?

**A.**—The diagnosis in this case appears to be ennuechoidism—that is, a primary gonadal defect. This is based on the fact that the patient did not respond to gonadotrophic hormone, as he would have done with a primary pituitary defect, but he did respond to testosterone propionate, which increases the size of the penis but not of the gonads and, further, restores the produces potency without, however, fertility. On the other hand, his subnormal height would, be more compatible with a primary pituitary defect. The increase in height during the

ient shows that the epiphyses are ununited, even at the age of 5, and this occurs with hypogonadism which is either primary or secondary. It also illustrates, contrary to general belief, that testosterone in therapeutic doses does not cause the epiphyses to unite, although in small animals, experimentally, it may do so, and premature union of the epiphyses occurs in sexual precocity. The treatment is substitution therapy, and therefore relapse follows cessation of therapy. The writer has found that insertion of testosterone propionate tablets, at intervals of eight months, is the best treatment, and the usual dose is eight tablets of 100 mg. each. He has also found the best site to be in the subcutaneous fat of the lower abdomen. The technique consists in local procaine analgesia, an incision of 1 to 1.5 cm. down to and through the subcutaneous fat, and the insertion of sinus forceps to make a pocket. The tablets can be implanted either directly with ordinary forceps or preferably through a blunt trocar and cannula. Two pockets in the subcutaneous fat in different downward directions can be made through the same primary incision. One suture is sufficient. An alternative method of treatment is one or two 5-mg. tablets of methyl testosterone by mouth, or allowed to dissolve under the tongue, three times daily.

### Estimation of Serum Phosphatase

**Q.**—In what conditions is estimation of the serum phosphatase of value? What is the difference between acid and alkaline phosphatase, and what are regarded as the normal ranges of each in adult life and childhood? What are Kay units, King-and-Armstrong units, and Bodansky units?

**A.**—Phosphatases are classified according to their origin or the pH at which they show maximum activity. Alkaline phosphatase, derived from osteoblastic and osteoclastic cells, has maximum activity between pH 9 and 10; while acid phosphatase from prostatic epithelium has maximum activity at about pH 4.8. Serum levels run parallel with the quantity of phosphatase-secreting tissue in the body. Serum alkaline phosphatase is therefore at a minimum in the normal healthy adult, and increases whenever bone is being formed or rapidly destroyed. The most important of such conditions are: normal osteogenesis in infancy, childhood, and adolescence; osteomalacia and rickets (including those forms caused by chronic azotemia or chronic steatorrhea), hyperparathyroidism, osteitis deformans, and the osteoblastic (as opposed to osteolytic) forms of osteogenic sarcoma. Small and inconstant increases occur also in multiple myeloma, carcinomatosis of bone, and during the healing of fractures. Serum alkaline phosphatase is also increased in obstructive jaundice, and irregularly and to a less extent in other types of jaundice; a level of over 30 King-and-Armstrong units in a jaundiced patient is pathognomonic of obstruction.

Serum acid phosphatase from prostatic mucosa is low in all normal subjects, being increased only when skeletal metastases of a primary carcinoma of the prostate have developed. Treatment with oestrogens, causing fibrosis of the metastases, leads to a reduction in serum acid phosphatase, so that serial estimations of the latter are used to control the treatment. The serum prostatic phosphatase is inactivated by incubation at 37° C. for one hour, or by addition of 25% ethyl alcohol; thus a very precise estimation can be made. Neither phosphatase has been prepared pure, so that their concentration is measured in arbitrary units, which depend on (1) incubation time, (2) nature of substrate, (3) nature of buffer, (4) pH of incubation, (5) volume of serum to which unit is calculated, and (6) temperature (always 38° C.). The usual methods of estimation are:

Method	Incubation Time	Buffer	pH	Volume of Serum	Nature of Unit	Normal Range	
						Adults	Children
Substrate Sodium Glycerophosphate							
Kay .. .. .	48 hrs.	None	7.6	1 ml.	1 mg. P liberated	mg.	mg.
Jensen and Kay .. .. .	3 hrs.	Glycine NaOH	8.6	100		0.03-0.21	0.17-0.33
Bodansky .. .. .	1 hr.	Veronal	8.6	100		3-8	6-20
Substrate Disodium Phenyl Phosphate							
King and Armstrong .. .. .	30 mins.	Veronal	9.0	100	1 mg. phenol liberated	3-14	10-30
King .. .. .	15 mins.	Na <sub>2</sub> CO <sub>3</sub> -NaHCO <sub>3</sub>	10.0	100		3-14	10-30
King, acid phosphatase .. .. .	60 mins.	Sodium citrate-HCl	4.8	100		1-3	

### Infected Burn

**Q.**—A woman spilled pure carbolic acid over her forearm and developed a superficial burn which became infected with *Pseudomonas pyocyanea*. As one area heals another becomes inflamed and breaks down; after daily dressings for eight months the condition remains unchanged. What treatment do you advise?

**A.**—Presuming that no question of artefact arises in this case, it is suggested that some form of skin graft is most likely to lead to complete healing. A 1% acetic acid dressing will usually do much to clear up a superficial pyocyanea infection, when, after forty-eight hours' saline dressings, small patch grafts could be applied to the raw areas, dusted with penicillin powder, and fixed firmly by an occlusive pressure dressing for eight to ten days. If the whole area of skin on the back of the forearm is atrophic, some more radical form of plastic repair may in the end be the quickest solution of the problem—for example, a "flap" full-thickness graft from the anterior abdominal wall.

### Terminology in Smallpox Vaccination

**Q.**—Recently I saw a vaccination record card which stated that in cases of revaccination the result after forty-eight hours should be described as a "reaction of immunity," or an "accelerated reaction (vaccinoid)," or a "typical primary vaccinia." It was stressed that a report of "No reaction" would not be accepted. In the old days we used to describe the results as successful or unsuccessful. What is the "reaction of immunity"; and what is an "accelerated reaction"?

**A.**—The form referred to, which appears to be similarly worded to that recommended by Unrra, uses terms which have been the subject of recent discussion. The term "reaction of immunity" has been applied to a local reaction reaching a maximum size on the second or third day and accompanied by elevation and itchiness of the site but without a vesicle. In many quarters this is considered to be unwarranted, because it may be due to weak lymph or even to sensitivity to protein or other substance in the lymph and not the living virus of vaccinia. This is the view taken by the Ministry of Health (see *Mon. Bull. Min. Hlth.*, 1947, 6, 164). An "accelerated" (or vaccinoid) reaction is when the local reaction reaches a maximum size between three and seven days after inoculation and there is some degree of vesicle formation. This occurs in an individual who has a partial degree of immunity as a result of a previous vaccination.

### Erythema Induratum

**Q.**—In a case of erythema induratum scrofulosorum is there any effective treatment to clear or prevent the unsightly nodules on the legs?

**A.**—The affection is a gummatous tuberculide. Overhaul of the patient or contacts sometimes reveals the source of infection, treatment of which is helpful. Rest and supporting bandages or stockings—warmth and support—are important. Injections of neoarsphenamine, 0.45 g. weekly for six injections, or gold or tuberculin often control the infection for long periods.

### Rectal Prolapse

**Q.**—What is the best treatment for rectal prolapse? Is an operation likely to effect a cure, and, if so, what is the operation of choice?

**A.**—Rectal prolapse is essentially of two types—partial (or mucosal) and complete; in the latter the entire rectal wall is everted and extruded. The former is more frequently a

unilateral condition and rarely exceeds 2 in. (5 cm.) in length. The anal orifice remains central and circular. In procidentia (or complete prolapse) the protrusion may be 6 in. (15 cm.) or more, the anal orifice is frequently eccentric and slit-like, and a finger in the rectum will recognize the thickness due to the presence of the muscular coats. In either case in an adult, particularly if the condition is of long standing, operation offers the best solution. Mucosal prolapse is treated either by excision of the excess tissue, or preferably by ligature—in sections, in a manner similar to that used in treating internal haemorrhoids. In procidentia, amputation of the extruded portion (Miles's operation) is preferable to the many varieties of suspension or fixation. It need hardly be stressed that, before treating the prolapse as such, all possible underlying causes should be excluded.

## NOTES AND COMMENTS

**Sterilization of Syringes and Specula.**—Messrs. JOHN FOSTER and C. H. LE MAY (Leeds) write: It is probable that no instrument is more frequently used in medicine and surgery than the hypodermic needle and glass syringe in their various forms. From time to time tragedies are recorded from poor sterilization, and queries appear in the *Journal* as to the best method of rendering the instrument sterile. In "Any Questions?" (Oct. 25, p. 680) a correspondent who had difficulties with liquor sterilizans and a phenoloid asks whether it is "possible to sterilize a spinal needle satisfactorily without an autoclave." Your reply recommends hot-air sterilization and boiling (presumably in water). If we can accept experiments on hypodermic syringes and needles as bearing on the question and if by satisfactory sterilization the instruments are to be rendered spore-free and left undamaged by the process, we would suggest that until new alloys and glasses are invented, the answer should really be, "No."

**Hot Air.**—Hanne<sup>3</sup> using *B. mesentericus* in 17 hot-air sterilizers found that practically no spores were killed by this method, and that 50 out of 99 needles routinely sterilized by hot air in Berlin hospitals were non-sterile.

**Boiling in Water.**—While vegetative forms are rapidly killed by boiling in water, it is sometimes overlooked that killing spores by this method is a slow process. Boiling in water also rusts needles and gradually dissolves the glass of the syringe. Experiments in which all-glass syringes were boiled for 70 hours showed losses of weight of the order of 0.14%.

**Boiling in Alkali.**—Garrod claims that five minutes' boiling in 2%  $\text{Na}_2\text{CO}_3$  kills all spores.<sup>2</sup> This is a considerable speed-up on water-boiling, but unfortunately this (1) leaves a trace of alkali in the syringe barrel. We cannot say if this would contaminate aspirated fluid seriously, but it might upset certain local analgesics soluble only in acid solution. Harvey, Le May, and Shuttleworth, using the "A.C.10 (surgical)" method (essentially a sterilization by boiling  $\text{Na}_2\text{CO}_3$ ), found the alkali effect negligible on "cobefrin," the initial pH of 2.8–3.6 being altered only to 4.6–5.2, which is regarded in dental practice anyhow as advantageous (at least two of the manufacturers of local analgesic solutions for dental use, as prepared are at low pH, issue "alkalinizing" preparations for use with them prior to injection). (2) Dissolves the glass (0.57% loss after 70 hours in an all-glass syringe), leading ultimately to a leaky piston. (3) Reduces but does not prevent rusting of the needle, which becomes obstructed at a rate which varies with the metal.

**Boiling in Alkali and A.C.10.**—This method<sup>4</sup> is applicable to syringes and protects the needles. Unfortunately the glass is attacked to the same extent as with 2%  $\text{Na}_2\text{CO}_3$ , and a certain amount of oily A.C.10 remains in the barrel and is difficult to remove. The A.C.10 has, however, been shown<sup>4</sup> to be biologically inert and non-irritant. Harvey,<sup>4</sup> however, has found it effective for dental work, though one of us reserves it for sharp-edged ophthalmic instruments, and uses boiling in sodium carbonate alone for syringes. It is true the damage to the syringe is slow, but we are now entering on a period of shortage when such minutiae may be of importance.

### REFERENCES

- Foster, J., Le May, C. H., and Johnstone, K. L. (1945). *Proc. roy. Soc. Med.*, 38, 465.  
<sup>2</sup> Garrod, L. P., personal communications, 1941, 1942, 1944.  
<sup>3</sup> Hanne, R. (1937). *Pharm. Ztg.*, Berlin, 82, 2.  
<sup>4</sup> Harvey, W., Le May, C. H., and Shuttleworth, C. W. (1947). *Proc. roy. Soc. Med.*, 40, 507.

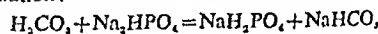
**Lead Contamination of Water.**—ALAN W. STEWART, D.Sc., F.R.I.C. (London, W.C.), writes: With reference to the question of lead contamination of water (Nov. 8, p. 758) I think the answer is, "No." The amount of lead stated by the questioner is 0.04 part per million. In the U.S.A. 0.1 part per million is accepted. It is probable that 0.5 part per million is safe for domestic use. Others

consider this amount too high if the risk of lead poisoning is to be avoided. In the annual report of the Chief Medical Officer of Ministry of Health, 1934, it is stated that 0.2 part per million may be tolerated, and this would probably be passed as safe. A water containing 1 part per million has hitherto been considered dangerous provided it is certain that this amount is never exceeded. Other authorities tolerate 1/100 grain per gallon (0.143 part per million). From your reply it would take 50 litres of water to be consumed daily to reach the 2 mg. of the strength of lead 0.04 per litre.

**"Jugged Hair."**—Prof. T. POMÉRET KILNER (Oxford) writes: The cover of the *British Medical Journal* of July 27, 1946, appears in large print "Vinesthene Anaesthesia for Repair of Hair-lip: Cleft Palate." I expected to see some apology for this mis-spelling or at least a letter from some wag cleverly pulling the leg of Editor who had allowed it to pass him. Either it went unnoticed or I overlooked reference to it in subsequent issues of the *Journal*. In the *Lancet* of Oct. 18 (p. 588) in an annotation I read, "the feeding of a child with a double hair-lip is at best tedious... In the three issues since that date I have seen no correction this mis-spelling. It is perhaps to be expected that a surgeon who receives a great many letters about this condition from parents, general practitioners should have come across this mistake frequently, but it seems odd that the editors of our two leading medical journals should have allowed it to pass. For twenty years or more I have refused to use the term at all, and I and those who have worked with me have adopted the terminology "cleft lip," as suggested, I believe, by Ritchie, of St. Paul, Minnesota—misdescriptive, less inapt, and less likely to lead to incorrect spelling.

\* [Prof. Kilner is right. We must have been thinking of split hairs.—Ed., B.M.J.]

**Examination of Saliva.**—Mr. G. E. P. PHILPOTS, D.D.S. (M Bourn; Victoria), writes: With reference to the question and answer (Aug. 23, p. 318) under this heading, as several medical friends have asked me to make comments, it was thought the following remarks might be of interest to your readers. The taking of plenty of milk and a "sufficient" dosage of calcium and vitamin D for the ten years prior to the time of being reported would not prevent dental caries developing if the ill effects of an unbalanced diet over period from early childhood have existed. The proposed test of the saliva for acidity would be of value if it showed an amphoteric reaction to litmus paper. I recall that my friend and teacher, the late Dr. E. C. Kirk, when dean of the Dental School of the University of Pennsylvania, was a physiological chemist and keen student of salivary analysis. In cases similar to that reported above I always (generally) found the (mixed) saliva would give an amphoteric reaction due to the presence of acid sodium phosphate. This reaction indicated a susceptibility to dental caries caused by excessive consumption of refined sugars and starches, which in turn causes an excess of hypothetical  $\text{H}_2\text{CO}_3$ . There follows a chemical reaction with the acid sodium phosphate in the saliva, represented by the following equation:



Normal saliva is a supersaturated solution of calcium phosphate. When there is an excess of acid sodium phosphate present, such excess is due to the eating of an excess of refined starches and sugars and aggravated by lack of vitamin D. The type of patient mentioned does not respond to diet treatment, but, strange to relate when the age of about 25 years is reached there seems to be a period of immunity to dental caries, which, however, sets in again a few years later. The excessive consumption of starches and sugars can in many mouths produce a saliva which erodes the enamel thus allowing the free entry of various decalcifying bacteria always present in the oral cavity to do their work of destruction.

**"Cancer Research Society."**—A deceased client of Messrs Farrington and Winterton, solicitors, has bequeathed a one-third share in her residuary estate to the "Cancer Research Society." Inquiries have failed to discover whether this society exists. Messrs Farrington and Winterton would be glad to receive any information at 12A, Marlborough Place, Brighton, 1.

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: ALLIED PRESS, LONDON. ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* and its supplements. Authors desiring REPRINTS should communicate with the Publishing Manager, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs. ADVERTISEMENTS should be addressed to the Advertisement Manager, B.M.A. House, Tavistock Square, London, W.C.1 (hours 9 a.m. to 5 p.m.). Telephone: EUSTON 2111. TELEGRAMS: BIRMINGHAM, WESTLOND, LONDON. MEMBERS' SUBSCRIPTIONS should be sent to the SECRETARY of the Association, EUSTON 2111. TELEGRAMS: MEDICINA, LONDON. B.M.A. SCOTTISH OFFICE: 7, Drumshugh Gardens, Edinburgh.



# SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY NOVEMBER 22 1947

## HEARD AT HEADQUARTERS

### Local Executive Councils

We are pleased to learn that Dr. E. A. Gregg, Deputy Chairman of the Representative Body, has been appointed to the co-chairmanship of the Executive Council for London. No happier choice could have been made. Dr. Gregg's long chairmanship of the London Panel Committee and now of the Insurance Acts Committee has revealed him a master of committee procedure and possessed of an intimate personal knowledge of the demands and exigencies of a public service. He is himself a busy general practitioner in central London. Dr. P. V. Anderson, of Shildon, Co. Durham, has been appointed vice-chairman of the Durham County Executive Council. Dr. Anderson is also a member of the Insurance Acts Committee, and is chairman of the Durham County Panel Committee and vice-chairman of the Finance Committee of the Durham County Insurance Committee.

Members of the medical profession number at the minimum seven out of the twenty-five members of an Executive Council, and it should often be possible by arrangement with other groups to arrange for a medical vice-chairman. The chairman, who is the Minister's nominee, will in most instances be lay.

### And Local Medical Committees

From correspondence received at Headquarters it is evident that there is some misapprehension about Local Medical Committees. Attention has been drawn to the fact that the Minister of Health has recognized the existing Local Medical Committees which have functioned under the National Health Insurance scheme as being the proper bodies to act under that name in anticipation of the new Service, and yet there have been no elections of Local Medical Committees in most areas since the service took shape. The Minister has recognized the present Local Medical Committees for the purpose of making the appointments of seven members to the Executive Councils, and he has urged local health authorities to consult these same Local Medical Committees in exercising their powers of co-optation to statutory Health Committees. But such recognition is only an interim measure, and for the purposes of Section 32 of the Act there will be an election of new Local Medical Committees which will be representative of the whole profession, and these will replace the existing bodies. The method of appointment of these committees has yet to be determined.

### Deaf Aids

Not much has been heard about the aids for the deaf which have been promised as part of the National Health Service. The Association has been making some inquiries of the Ministry of Health and the Medical Research Council, particularly about the arrangements which will be made for the prescriptions of the aid to patients and its adjustment to individual cases. An assurance has been received that the supply of the aid will be made at ear-nose-and-throat departments of hospitals and clinics, and that the aid will therefore be adjusted by the otologist at the time of distribution.

### Processing the Patient

In one American medical journal, which is undertaking a study of group practice, an account of how one successful medical group deals slickly with its patients may be read. This

group, housed in a modern three-story building, deals with 250 patients a day. The patient, let us say, has an appointment to see one of the group's seventeen specialists at 10 a.m. At 9.55 he strides through the main entrance and is greeted in a pleasant foyer by a receptionist who checks his name and on the telautograph writes "Mr. A to see Dr. B." This message is flashed to two other departments—one that of the telephone operator, who passes it on to Dr. B's nurse, and the other the business office, where the record librarian takes from her files the case history and drops the envelope through the chute to the receptionist's station. The receptionist, having in the meantime taken certain details, hands the patient to an usher who conducts him to the internal medicine reception-room. The group makes it a practice to "route" all new patients to internal medicine even if their superficial symptoms suggest some other department, for the "internists" are regarded as the family doctors. Dr. B receives the patient in a large consulting-room flanked by two examination-rooms, each with a small dressing-room attached. When the examination or treatment is completed the doctor writes (1) his prescription and (2) his fee slip. The former is dealt with at the group's own pharmacy in the building, and the fee slip with the history envelope goes down to the business office, through which the patient passes on his way out. Here he meets the manager, who gently extracts further information on income and size of family, and may suggest the prepayment plan. If the patient wants to pay cash, a receipt—in triplicate—is made out on a commercial register. Meanwhile Dr. B up above is dictating his comments on the case into a dictaphone.

### Clipped Talk

A distinguished member of the medical profession, himself one of our few remaining orators, deplored to us the other day the slipshod speech so current at medical meetings. A generation ago a large number of those who took part in discussions in medical societies took pains over the style as well as the substance of their utterance, but to-day everything is casual, conversational, and unpolished. It seems to be considered bad form to pay attention to phrasing. On the very day on which this remark was made, one participant at another meeting had mentioned in the course of three minutes "sulphs," "staphs," "streps," and "labs." Why he continued to give "penicillin" its four syllables is not known: but perhaps he reflected that "peni" (pronounced "penny") would not do.

## DISABILITY PENSIONS

*The Ministry of Pensions has issued the following statement on the method by which disability pensions are assessed.*

### Assessment of War Disablement

The basis of assessment of disablement incurred as a result of service in the 1939 world war is laid down in Article 9 of the Royal Warrant, and the degree of disablement due to war service of a member of the Forces is assessed by making a comparison between his condition, as so disabled, and that of a normal healthy person of the same age and sex. In making this comparison no regard is paid to the member's capacity, or failure of capacity, to follow his own or any other specific trade or occupation.

The assessment is based on the *average* degree of disablement over a substantial period—e.g., twelve months—and account is taken of probable variations. Where a man receives a special course of medical or surgical treatment for his pensioned

disablement and as a result is unable to provide by his normal earnings for his own support or that of his family, treatment allowances equivalent to pension for the highest degree of disablement are normally paid in lieu of the current pension.

The degrees of disablement for pension purposes are assessed in multiples of 10 from 20 to 100% (100% representing total disablement). Where the disablement is less than 20%, compensation takes the form of a fixed sum, according to a prescribed scale, and payable by weekly instalments or in a lump sum, or by a combination of both.

The assessments for certain specified injuries, such as the loss of a limb, are prescribed in the Royal Warrant by schedule. Those for other injuries and for diseases are determined by medical boards, which normally consist of two doctors, with specialist advice as required.

#### Ministry of Pensions Responsibilities

The Ministry of Pensions is responsible for the provision of treatment for conditions accepted as attributable to, or aggravated by, war service, unless the required treatment is provided by other authorities—e.g., panel-doctor treatment under the National Health Insurance Acts, and treatment for tuberculosis and mental disease.

Subject to these exceptions the following types of case should be referred by doctors to the regional office of the Ministry of Pensions:

**Ex-Service Cases.**—(a) Where the treatment is required for a disability accepted by the Ministry as attributable to, or aggravated by, war service; this applies also to ex-members of the Polish Resettlement Corps. (b) Where the treatment is required for a condition *prima facie* connected with war service.

**Merchant Navy Cases.**—Where the disability has been accepted by the Ministry as due to a war injury or war-risk injury.

**Civilians and Former Civil Defence Volunteers.**—Where the disability has been accepted by the Ministry as due to a war injury or war-service injury.

The pension order books and leaflets issued by the Ministry to disabled pensioners contain instructions on how to apply to the local chief regional officer of the Ministry when special treatment, or artificial limbs, surgical boots, or other appliances are required. If hospital treatment is urgently necessary and contact cannot be made with the Ministry, the patient's doctor should arrange the necessary admission and inform the Ministry as soon as practicable.

## Correspondence

### Buying and Selling of Practices

SIR,—I wish to thank Dr. A. E. Moore for the courtesy of his reply (Oct. 25, p. 97) to my query (Oct. 11, p. 89). In essence his standpoint is that if we own our practices we shall not be governed by politicians. I should be delighted with this solution. My view is that whether we own our practices or not, and no matter what form the Health Scheme ultimately takes as long as it covers the whole population, we must be under the control of the Government of the day, since practically our whole income will be provided by the Government out of public money. Now this is the crux of the whole question of whether or not buying and selling of practices should continue under a national scheme. No doubt the report of the Negotiating Committee will clarify the picture, including the alleged attractiveness of the Government's proposals for compensation.—I am, etc.,

Southport, Lancs.

S. H. STEWART.

SIR,—I have read with great interest Dr. A. E. Moore's letter (Oct. 25, p. 97) and entirely agree with him. The question of the sale and purchase of our practices is most fundamental and must be considered very carefully. Why Mr. Bevan becomes so emotional on the subject and accuses us of buying and selling

our patients is beyond me, particularly when one reads weekly almost of professional footballers being frankly and unequivocally bought and sold for vast sums. One can hardly expect him to be reasonable, but at least he should be logical.—I am, etc.,

Coventry.

JOHN HALE POWER.

### The Future of the Profession

SIR,—The leading article entitled "Discussion with the Minister" (Oct. 25, p. 661) will do much to allay the fear of members that they were to be presented by a *fait accompli*. There is one jarring note: "The profession will decide its own fate when it is in full possession of the facts." It is to be hoped that this is merely a slip of the pen and not prescience on the part of the writer. The *Oxford Dictionary* gives: "Fate: n. power predetermining events from eternity; what is destined; appointed lot or ultimate condition; death, destruction."

No, Sir. The profession must decide its own future when it is in full possession of the facts. Otherwise what is destined for the profession is destruction of its tenets, death of its principles, and its ultimate condition (or appointed lot) to be overridden by a power predetermining events till eternity.—I am, etc.,

Wokingham, Berks.

J. M. SMILES.

### National Health Service

SIR,—In his letter under the above heading (Nov. 1, p. 100) Dr. H. Firman displays a lack of appreciation of the facts in relation to the motion on hours of duty in the N.H.S. in the A.R.M. of July last. I do not think that he will deny that the profession as a whole by an overwhelming majority has rejected the conception of a whole-time salaried service. Under such a service it would be entirely natural and logical to work definite fixed hours and be freed from all responsibility during periods of off-duty. The G.P. would be provided with consulting premises, in most cases in a health centre, with equipment and clerical and nursing staff. In such a service a doctor naturally would not be expected to assume continuous responsibility for or to a patient, and the instruments which he used would never be his own. The clerical and nursing staff would not be his employees but would, like himself, be State servants.

The profession rejected this conception and has asked for a contract system under which each G.P. shall be responsible for such patients as choose him as their doctor and whom he accepts, at a fixed annual capitation rate. He must provide his premises, his clerical help, and his instruments out of his aggregate fees. If and when health centres are available he may elect to pay for accommodation in one of these.

If Dr. Firman and the other correspondents who demand fixed hours and clerical and nursing aid provided by the Service want a salaried whole-time service let them say so frankly. At any rate they will have to learn that they can't have it both ways. If they want the greater freedom of a capitation system they must submit to the burden, or accept the honour of continuous responsibility for their patients. There is nothing to prevent the G.P.s in any locality making their own deputizing arrangements to whatever extent suits them. This is done in many areas with great success, and the existing insurance committees are in no way concerned, nor should they have any say in the matter. What Dr. Firman describes as "hypocritical bunkum" is an article of faith to most of his colleagues on the Representative Body. Would he desire his local executive council to have the right to interfere in the day-to-day working of the rota in his area? Would he like to have to obtain its sanction for every exchange of duty with a colleague?

Dr. Firman writes of the "genuine G.P.s," with whom he identifies himself, who comprise 90% (presumably of the total of G.P.s) and who are yearning for a chance of release from "blood, toil, sweat, and tears" and would therefore vote for reasonable fixed hours of duty had they the chance. Unfortunately it is quite impossible, so pressed are they by their professional duties, for them to spare one or two hours a year to attend meetings of their Divisions. A clear field is left for the remaining 10%—the phony G.P.s, whose betterable practices give them greater leisure. These elect from their number and instruct a representative, who is naturally cut off

touch with the desires of the backbone of the profession—the 90%—and who proceeds to sit on the Representative Body, which is already heavily weighted with consultants and specialists. This is apparently what Dr. Firman would have us believe, and yet nothing could be further from the truth. The general practitioners who form the majority of the R.B. are almost without exception in active practice, are drawn from all types of practice, and in many cases are the busiest practitioners in their own area. They serve their colleagues, often at considerable financial sacrifice, and they are oftener the targets for misinformed criticism than for bouquets. At no time have the consultants and specialists failed to support the interests of their G.P. colleagues.

Finally I should like to deprecate the gross exaggeration which is used in describing the work of the general practitioner. He works hard; during an epidemic he may be working all out for a few weeks. But there are times when the work is lighter and the leisure considerable. He is doing the work he has chosen and he can arrange it to suit himself. Personally I work at least as hard as any of my colleagues in this area, but if I came to consider that I had been "reduced to abject slavery" my self-respect would compel me to seek other employment either inside or outside the profession.—I am, etc.,

Preston.

F. M. ROSE.

SIR,—It seems appropriate now for us to review our attitude towards the National Health Service Act. A large measure of the support from within the profession for the principles of the Act undoubtedly rested upon the consideration that the proposed Health Service expressed the wishes of the large majority of the people. The principle that "I know what I want, therefore it must be good for me" is not always accepted as a sound one in the care of the sick. Surely in the wider field of a national health service it is just as true that we, the profession, are the experts relative to the lay electorate. And now there is evidence that the present Government no longer has such overwhelming support the wisdom of their earlier measures needs some review.

If the outcome of the present shrouded deliberations with the Minister does not allow further legislation to alter the Act in the essential items set forth by the Negotiating Committee, then we may thwart the purpose of the Act with a clear conscience. The termites of bureaucracy are multiplying within the structure of the present administration. Is the fabric still sound enough to bear the grave responsibilities of our ancient art?—I am, etc.,

London, E.C.1.

E. A. J. ALMENT.

SIR,—We have been recently reassured that the decisions of the Representative Meetings are being acted upon. Negotiations are going on with under-officials, and the Negotiating Committee is doubtless making a strong stand and doing its very best. But all preparations for the nationalization of doctors, patients, and hospitals are being energetically pushed forward, and young medical men are buying practices or partnerships at ruinous expense to avoid "direction," without even knowing the terms of the service that they may be forced into next July.

The Japanese kept America happy with negotiations up to the hour of Pearl Harbour. Snakes "negotiate" with rabbits before swallowing them. The sooner that we get a new plebiscite free from ambiguity the better. The voice of the profession has spoken through its representatives, and it spoke decidedly. Until now the British have always hated and resisted despotic controllers.—I am, etc.,

Hastings.

H. S. GABB.

SIR,—I don't want to add to the correspondence on the National Health Service Act, but I should like to call attention to one fact. The present Government has changed the old Mosaic commandment, "Six days shalt thou labour and do all thy work. But the seventh day . . . thou shalt not do any work" into "five days shalt thou labour . . . but on the sixth and seventh days thou shalt not do any work—except as overtime and paid accordingly."

The obvious deduction from this is that the contract of service with the medical profession should specify a five-day working

week and allow all work on Saturdays and Sundays to be "overtime," to be paid for by the person requiring such overtime at the usual rates for present-day private practice. Rather a brainy idea, I think, don't you?—I am, etc.,

Salford, Lancs.

STANLEY HODGSON.

SIR,—Dr. H. Firman's letter (Nov. 1, p. 100) is so much to the point and so straight from the shoulder that it seems surprising that it was published. Is the B.M.A. content to allow its members to feel that they would get more backing from a trade union—such as the coal-miners? Many of us will thank Dr. Firman (and the Editor) for saying what we think.—I am, etc.,

Glasgow.

J. E. KENNEDY.

### Working Day in the Services

SIR,—I feel that I must show some of your readers that the working day in the Services is not always as your correspondents make out. For the past nine months, until my admission to hospital last week, I have been M.O. at a central ordnance depot in the S.E. Midlands—a garrison of nearly 6,000 troops, including A.T.S. At no time during that period have I had less than 3,000 troops under my medical care, and for several weeks on more than one occasion I have looked after the entire garrison. While there were two of us we did night calls for seven out of fourteen days. When I was alone I did the night work continuously. Unlike "Captain, R.A.M.C." (Nov. 1, p. 101) I have had only 20 days' privilege leave in thirteen months.—I am, etc.,

ANOTHER CAPTAIN, R.A.M.C.

### Joint Tuberculosis Council

SIR,—I see in the *Supplement* of Nov. 1 (p. 100) that the Joint Tuberculosis Council is reported as recommending that physicians in charge of clinical teams and medical superintendents should have a status and remuneration identical with other consultants—e.g. general physicians. In addition, the J.T.C. recommends that there should be among the Regional Hospital Board's *specialist* officers a chief administrative and consultant tuberculosis officer. Presumably this officer is to be appointed to supervise the work of the physicians in charge of clinical teams and sanatorium superintendents.

I can understand the necessity for a chief *administrative* tuberculosis officer on the staff of the Regional Hospital Board, but why should he be expected to control the *clinical* work of those with full physician status? Or does the J.T.C. consider that *all* general physicians should have their clinical activities controlled by suitable "administrative and consultant" officers of the Regional Hospital Boards?—I am, etc.,

Kenton, Middlesex.

H. J. TRENCHARD.

### MEDICAL WAR RELIEF FUND FURTHER CONTRIBUTIONS NOT REQUIRED

The committee of the Medical War Relief Fund, the annual report of which for the year 1946-7 will be published shortly, has recently considered the financial position of the Fund and decided that it is unnecessary for supporters of the Fund to send further contributions. Applications for assistance are now relatively infrequent, and although some of the present beneficiaries are likely to need continued help for a number of years the committee is satisfied that by the time the existing balance of some £24,000 has been exhausted the Fund will have fully discharged the purely temporary function for which it was established.

In making this announcement the committee wishes once again to express its deep gratitude for the magnificent support received from the profession at home and overseas during the past seven years.

### RETURN TO PRACTICE

The Central Medical War Committee announces that Dr. Harold Parsons has resumed civilian practice at 25, Upper Wimpole Street, London, W.1. (Welbeck 9033.)

## B.M.A. LIBRARY

The following books have been added to the Library:

- Abrahamson, D.: *The Mind and Death of a Genius*. 1946.  
 Allen, R. B.: *Medical Education and Changing Order*. 1946.  
 Alport, A. C.: *One Hour of Justice: the black book of the Egyptian hospitals and Fellahien Charter*. 1947.  
 Arthur, G.: *Tutoring as Therapy*. 1946.  
 Baruk, H.: *Psychoses et Névroses*. 1946.  
 Bécclère, C.: *Diagnostic Hormonal et Traitements Hormonaux en Gynécologie*. 1946.  
 Bell, J.: *Total War at Havcrington*. 1947.  
 Berkeley, Sir C.: *A Handbook of Midwifery*. Thirteenth edition. 1946.  
 Bogert, L. J.: *Fundamentals of Chemistry*. Sixth edition. 1946.  
 Chevigny, H.: *My Eyes Have a Cold Nose*. 1947.  
 Coter, R. E. (Editor): *Research in Regional Welfare*. 1946.  
 Coter, W. J. (Editor): *Studies in Science*. 1946.  
 Cutting, W. C.: *Actions and Uses of Drugs*. 1946.  
 Duggart, J. H.: *Diseases of Children's Eyes*. 1947.  
 Fabricant, N. D.: *The Common Cold and How To Fight It*. 1947.  
 Fisher, R. A.: *The Design of Experiments*. 1947.  
 Gates, R. R.: *Human Genetics* (two volumes). 1946.  
 Hamilton-Paterson, J. L.: *Penicillin in General Practice*. Second edition. 1947.  
 Howard, L. E.: *The Earth's Green Carpet*. 1947.  
 Leach, W. J.: *Functional Anatomy of the Mammal*. 1946.  
 Lee, J. A.: *A Synopsis of Anaesthesia*. 1947.  
 Lyburn, E. F. St. L.: *The Fighting Irish Doctor*. 1947.  
 Macpherson, K.: *Mothercraft in the Tropics*. 1947.  
 Minski, L.: *A Practical Handbook of Psychiatry for Students and Nurses*. 1946.  
 Moncrieff, A., and Thomson, W. A. R. (Editors): *Child Health (Practitioner Handbook)*. 1947.  
 Olmstead, J. M. D.: *Charles-Edouard Brown-Séquard*. 1946.  
 Paterson, D.: *Sick Children*. Sixth edition. 1947.  
 Read, G. D.: *The Birth of a Child*. 1947.  
 Samuels, J.: *Die Hormonalen Aspekte des Fortpflanzungsprozesses*. 1946.  
 Samuels, J.: *Die Hormonversorgung des Foetus*. 1947.  
 Sandys, O.: *Caradoc Evans*. 1946.  
 Sergeant, E., *et al*: *Etudes sur les Piroplasmoses Bovines*. 1945.  
 Singdon, D.: *Belsen Uncovered*. 1946.  
 Sokoloff, B.: *Penicillin: a dramatic story*. 1947.  
 Stamer, S.: *Effect of a Carcinogenic Hydrocarbon on Manifest Malignant Tumors in Mice*. 1943.  
 Stead, G.: *Elementary Physics*. Seventh edition. 1947.  
 West, G. I.: *The Dental Assistant's Handbook*. 1946.  
 White, E.: *The Eternal Child*. 1946.  
 White, M. M.: *Womanhood*. 1947.

carried out automatically in an environment. A perfect plan might have been spoiled by a bad environment. A good environment might have made the best of an unsatisfactory plan.

There were two extreme views about the mind. The brain might make the mind in the same way that the heart circulated the blood alternatively, the mind might be independent of the body and the brain the executive machinery of the mind. Either theory could be argued equally persuasively, but it seemed more probable that the body and mind were different aspects of some reality which man would never comprehend. The causes of disease fell into three groups: genetic defects latent in the plan whence the individual was derived; adverse factors in the environment into which he had been born—mechanical injury, lack of food and vitamins, chemical poisons, and infections; and adverse action on the mind through normal organs of sensation. Action on the body or the mind led to reaction by the body or the mind. These actions together with the corresponding reactions constituted the different pathological processes of body or mind, which might lead to symptoms which brought the patient to consult his doctor.

Was there any evidence that primary disorders of the mind could lead to organic changes in the body in the same way that organic changes in the body could lead to changes in the mind? Symmetrical erythema of the skin was common in hysterical patients. Emotional states influenced the appearance of the mucous membrane of the stomach seen through a gastroscope. Fire walking seemed to be a fairly well established phenomenon. Under hypnosis slight trauma might produce structural changes in the skin. The mind could sensitize or desensitize the body to physical stimulation and therefore predispose to organic disease. Some diseases were almost entirely somatic, due to physical action on the body stimulating reaction by the body. Other diseases were almost entirely psychological, due to action on the mind stimulating reaction by the mind. There was also a group of diseases in the centre in which physical changes predisposed to emotional stimulation or emotional stimulation predisposed to physical changes. These diseases were neither entirely somatic nor entirely psychological. They were psychosomatic.

There was a good deal of evidence that states of mind predisposed to states of body and that emotional factors predisposed people of certain biochemical constitutions to diseases which were ordinarily regarded as entirely organic. One patient developed coronary thrombosis or hypertension when faced with business worries. Another developed thyrotoxicosis or ulcerative colitis when submitted to emotional stimulation. Other constitutions were made of stronger stuff.

He concluded by saying that science did not explain the conjunction of mind and body which constituted the patient. But medical education attempted to build a knowledge of clinical medicine entirely on a foundation of science. He was not saying that a doctor should not be scientifically trained. Of course he should. But observational medicine and applied science should be taught in parallel from the moment the student began to learn about anatomy and physiology. He should start in the wards sooner. Leaving out the mind at the preclinical stage inculcated an unbalanced attitude of mind.

## Association Notices

## Branch and Division Meetings to be Held

**BIRMINGHAM: CENTRAL DIVISION.**—At 154, Great Charles Street, Birmingham, Tuesday, Nov. 25, 8.15 p.m. Clinical meeting conducted by Dr. B. C. Tate.

**KENSINGTON AND HAMMERSMITH DIVISION.**—At West London Hospital, Hammersmith, W., Friday, Nov. 28, 8.30 p.m. Clinical meeting.

## Meetings of Branches and Divisions

## FIFE BRANCH

A complimentary dinner was given on Oct. 24 at Aberdour in honour of Dr. J. M. Johnstone, of Leven, by his colleagues in appreciation of his services as honorary secretary of the Branch from 1923 to 1947. The toast of "Our Guest" was proposed by Dr. John Isdale Greig, and a presentation of an inscribed writing-desk was made by Dr. F. McEwan Sinclair. Mrs. Johnstone was the recipient of a wristlet watch.

## MONMOUTHSHIRE DIVISION

Dr. Clark-Kennedy delivered a lecture on "Psychosomatic Medicine" on Oct. 23. He began by saying that the subject of his lecture was not of his own choosing. Moreover, he was not a psychologist. Rather he was a general physician who spent most of his time trying to avoid being driven into specialization. He had no practical tips to give his audience.

The term psychosomatic medicine implied disease of three kinds: psychological and somatic on either wing, psychosomatic in the centre. This conception was fundamentally correct. Everybody—and everybody was a potential patient—looked upon himself or herself as a conjunction of mind and body. But what was a mind? What was a body? A body from one point of view was a machine which converted the chemical energy of food into the potential energy of heat and movement. It differed from ordinary machines in being self-repairing and potentially self-reproducing. Whence did it come? It was the product of a genetic plan which had been

## NORTHERN IRELAND BRANCH

A Meeting of Branch Council of the British Medical Association, Northern Ireland, was held in the Whitla Medical Institute, Belfast, on Oct. 2, with Mr. McClure in the chair.

A letter was read from Dr. J. C. Johnston resigning his position as Assistant Honorary Secretary of the Branch owing to his taking up a position in England. Dr. R. A. Pyper was appointed to the position on the motion of Dr. T. A. Kean seconded by Dr. A. McQuiston.

Dr. Halliday read a letter from the Ministry of Health and Local Government referring to earlier consultations on the subject of the prohibition of the sale of medical practices, and placing before the Association two alternative proposals for arriving at a settlement. After discussion the meeting agreed to adopt the second method: the adoption of an individual basis of assessment for each doctor joining the service; the amount in each case shall be determined by reference to incomes for the three immediate pre-war years and for the year 1946 as confirmed by returns for income-tax purposes, with 1.9 years' purchase and a betterment adjustment (for pre-war figures) of 22%. But it was considered that the Minister should be requested to add the words "or such greater sum as Parliament may determine" after the words "two million pounds" in the Health Services Bill, Clause 8 (2).

## TRADE UNION MEMBERSHIP

The following is a list of local authorities which are understood to require employees to be members of a trade union or other organization:

**County Borough Councils.**—Barnsley, Gateshead.

**Metropolitan Borough Councils.**—Fulham, Hackney, Poplar.

**Non-County Borough Councils.**—Dartford, Leyton, Redditch (limited to future appointments), Tottenham, WallSEND.

**Urban District Councils.**—Denton, Droylsden, Houghton-le-Spring, Huyton-with-Roby, Portslade, Redditch (restricted to new appointments), Stanley (Co. Durham), Tyldesley.

**Scottish Burghs.**—Motherwell and Wishaw.

LONDON SATURDAY NOVEMBER 29 1947

## THE VALUE OF B.C.G. VACCINATION IN CONTROL OF TUBERCULOSIS\*

BY

G. S. WILSON, M.D., F.R.C.P., D.P.H.

*Director of the Public Health Laboratory Service (Medical Research Council)*

accination with B.C.G. is now so universally applauded that any attempt to question its value is regarded almost as heresy. Despite this I propose in this address to act as devil's advocate, and to ask seriously whether the claims of Calmette and Guérin to canonization rest on an unshakable foundation. So far, B.C.G. vaccination has not been used in Great Britain, but there is an increasing demand from tuberculosis workers for its introduction. Before this step is taken let us be sure that it is fully justified. It is much easier to introduce a given measure into the public health practice of this country than to remove it once it has become firmly established. On a more suitable occasion I may dilate on what I call "public health anachronisms"—practices that are carried on now because they have been in use for the last thirty years or so, even though it has since been shown that they are of little or no value for the purpose for which they were originally intended. The accumulated weight of precedent is almost overpowering, and I therefore ask you to pause for a moment before committing yourselves to a practice that it may be very difficult subsequently to discontinue.

Let me make it clear that I have no prejudice either in favour of or against B.C.G. vaccination. I am merely interested in learning the truth about it. The published evidence, however, that I shall review briefly leads me to the conclusion that, though a strong presumptive case may be made out for the value of B.C.G., it is not yet convincing enough to justify the whole-hearted acceptance of this agent as a means of preventing tuberculosis in Great Britain.

### Vaccination of Infants with B.C.G.

Of the numerous investigations reported on the vaccination of infants with B.C.G. the majority have included no control group. Attempts to assess the value of the procedure have been made by comparing the tuberculosis death rate among the vaccinated infants with that among the infant population as a whole, either during the same period or during the previous five years or so, or with a group of ostensibly similar infants which have not been offered vaccination. Calmette (1928), for example, vaccinated one group of infants and compared the mortality among them with that among children of tuberculous parents and other children who were exposed to massive infection in their first year of life. As Greenwood (1928), however, pointed out, there were gross fallacies in these figures, and the comparison that Calmette made between the mortality in the vaccinated infants and that in the non-vaccinated was quite unjustifiable.

\*A paper read at the International Conference of Physicians on Sept. 12.

Wallgren (1934), working at Gothenburg, vaccinated every infant that was considered by the municipal dispensary to be in danger of infection from family contact. The result was striking. The infantile tuberculosis death rate fell from 3.9 per 1,000 in 1927, the year before this routine was introduced, to 0.3 per 1,000 in 1933—a fall of 92%. But, as Wallgren is the first to point out, it is impossible to assess the part played by B.C.G. in this achievement. The infants, for example, were separated from their parents for a variable period of time after vaccination, and in some instances were not exposed to infection till they were a year old. Moreover, the educational work of the dispensary nurses stimulated the interest of the mothers, so that they co-operated in shielding their infants from infection and made full use of the prophylactic means at their disposal. The ensuing fall of 92% in the infant mortality rate due to tuberculosis was almost certainly greater than any fall that might otherwise have occurred during the years 1928 to 1933. It is fairly safe to conclude, therefore, that the very thorough measures taken by Wallgren were mainly responsible for the result observed, but it is quite impossible to say what part in this result was played by B.C.G.

### Chicago Investigation

Two lots of workers have included a special control group in their series. At Chicago, Rosenthal, Bland, and Leslie (1945) carried out an investigation at the Cook County Hospital. Expectant mothers desiring vaccination for their babies were asked to sign a consent card. X-ray studies were then made of the entire household to find out whether any of the members was suffering from tuberculosis. The child of every alternate mother who had consented was vaccinated with B.C.G. by the multiple-puncture method, usually when it was three to seven days old. The children were kept under observation and were tuberculin-tested and x-rayed at intervals.

The infants were divided into those having no contact with known cases of tuberculosis and those known to be exposed to contact. In the non-contact group 1,204 vaccinated children were observed and 1,213 control children. Among the former there were three cases of tuberculosis and one death, among the latter 23 cases and four deaths. In the contact group, infants who were in contact with closed cases of tuberculosis were removed from their homes for six weeks to three months; those who were in contact with open cases were permanently removed and kept in a foster-home. Among 98 newborn infants who were in contact with tuberculosis after vaccination there was one case of tuberculosis and no death; among 63 controls there were four cases and three deaths. Taking the



contact and non-contact groups together, we see that there were four cases and one death in the vaccinated group as opposed to 27 cases and 7 deaths in the control group (Table I).

TABLE I.—*B.C.G. Vaccination of Infants in Chicago (Rosenthal, Bland, and Leslie, 1945)*

Group	Subgroup	No. of Children	No. of Cases of Tb.	No. of Deaths from Tb.
Non-contact	Vaccinated	1,204	3	1
	Control	1,213	23	4
Contact	Vaccinated	98	1	0
	Control	63	4	3
Contact and non-contact together	Vaccinated	1,302	4	1
	Control	1,276	27	7

Superficially these results are impressive, but before accepting them at their face value one would like to have information on a number of points that are left vague. (a) The follow-up apparently did not start till three to seven months after vaccination, by which time it would seem that many infants in both groups had died; it would be interesting to know more about these infants, since they are completely ignored in the final figures; (b) the total deaths from all causes were 21 in the vaccinated and 21 in the control group, but, apart from those due to tuberculosis after the follow-up had started, there is no information on when they occurred or what they were due to; (c) it is said that observations were made on the non-contact group during a period of seven years and on the contact group during a period of three to four years, but it is not stated what was the average duration of observation among the vaccinated and the control groups; (d) there is no information on whether the radiologist who read the x-ray photographs knew whether the child had been vaccinated or not; (e) in the early part of the investigation on the contact group there were no controls; the vaccinated children during this period, however, are included in the comparison; (f) it is not clear whether in the contact cases the controls were isolated in exactly the same way and for the same length of time as the vaccinated.

The results of this investigation suggest that B.C.G. vaccination may lead to some lowering in the morbidity and the mortality rates in infants, but without more precise information on the method of conducting the investigation it would be unwise to regard this as more than a very tentative conclusion.

#### New York City Investigation

In New York City a more or less similar investigation was carried out, with results that are both interesting and illuminating. Observations were made on children in tuberculous families. Practically all children came under observation before they were a year old, and no child over one month old was accepted unless it was both tuberculin and x-ray negative. Except during the first two years of the trial, when the vaccine was given by mouth, all inoculations were made intracutaneously. After January, 1933, the B.C.G. dose was standardized at 0.15 mg. Between 1926 and 1932 the children were divided into two groups, according to whether the mother wished her baby to be vaccinated or not. Under these conditions the children of the more intelligent and co-operative parents tended to be vaccinated and those of the careless and less intelligent parents to constitute the control group. From 1933 onwards the mode of allocation into groups was altered. Consecutive mothers were asked whether they would like to have their children vaccinated. Those that refused were not considered any further. To the children of the mothers who were willing to accept vaccination B.C.G. was given alternately without selection. Under these conditions both the vaccinated and

the control groups comprised children who came from the same class of co-operative parents. The results of this investigation, as described by Levine and Sackett (1946), are given in Table II.

TABLE II.—*B.C.G. Vaccination of Infants in New York City (Levine and Sackett, 1946)*

Period	Alternate Selection	Vaccinated Group			Control Group		
		No. of Children	No. of Deaths from Tb.	Tb. Mortality %	No. of Children	No. of Deaths from Tb.	Tb. Mortality %
1926-32	No	445	3	0.67	545	18	3.30
1933-44	Yes	566	8	1.41	528	8	1.52

It will be observed that during the first period, when the method of selection was faulty, the tuberculosis mortality in the control group was five times that in the vaccinated group; but during the second period, when strict alternate selection was practised, the tuberculosis mortality in the two groups was almost identical.

These results serve to show how important it is, when carrying out a controlled investigation on human subjects, to do everything possible to ensure that the vaccinated and the control children are similar in every respect, including such factors as age, race, sex, social, economic, and housing conditions, intellectual level and co-operativeness of the parents, risk of exposure to infection, attendance at infant welfare or other clinics, and treatment when ill.

Levine and Sackett's findings are open to criticism on three points. First, no records are given of the morbidity as opposed to the mortality, in the two groups. Secondly the diagnosis of tuberculosis in 3 of the 11 fatal cases in the B.C.G. group was doubtful. It may be pointed out however, that only one of these occurred in the 1933-4 period, so that even if this case was excluded it would not have much effect on the final results. Moreover, a similar deduction might have to be made for unconfirmed diagnosis in the control group, though the number of such cases is not stated. Thirdly, the most serious criticism is that the infants were not usually separated from their tuberculous parents before and after vaccination, with the result that some infants may have been actually infected before they were vaccinated and others may have been exposed to infection before immunity following vaccination had had time to develop. It is difficult, as the authors themselves admit, to know how much allowance to make for this factor. Any attempt to make such allowance would be largely guesswork. It is probably safer to conclude that though B.C.G. vaccination of the infants of tuberculous parents might be of value if accompanied by the necessary amount of segregation to ensure that exposure to infection did not take place till immunity, as judged by the tuberculin test, had been established, under ordinary conditions in which the infants are brought up in a tuberculous environment it seems to confer little, if any, protection.

The results of this investigation do not support those of the Chicago experiment, and we are therefore left without any convincing evidence that B.C.G. vaccination of infants by itself confers any considerable degree of protection against the risk of death from tuberculosis in early life.

#### Vaccination of Nurses with B.C.G.

The two main investigations on the B.C.G. vaccination of nurses are those of Heimbeck (1936) in Norway and of Ferguson in Canada (1946). Since Ferguson included a control group in his series, and merely judged the efficacy of the B.C.G. vaccination by a diminution in the tuberculosis morbidity of nurses during the investigation it

relation to that in nurses during the previous 5-year period, his results, however suggestive, cannot be accepted without question. It is impossible to be certain that the conditions during the period of the investigation were identical with those before vaccination was started, and conclusions drawn from comparisons of this sort are liable to be misleading.

Of Heimbeck it is probably true to say that he has done more than any other single person to convince tuberculosis workers of the value of B.C.G. vaccination in protecting against the disease in young adults. His conclusions are based on two main contentions: (a) that tuberculin-negative nurses are more liable than tuberculin-positive nurses to contract tuberculosis; and (b) that among tuberculin-negative nurses vaccinated with B.C.G. the tuberculosis morbidity is lower in those who become tuberculin-positive as the result of vaccination than in those who do not.

Heimbeck's work was carried out on probationer nurses entering the Ullevål Communal Hospital at Oslo during the years 1924 to 1935. Every nurse was submitted to a von Pirquet test on entry. This was repeated periodically on those that failed to react. From 1927 onwards the negative reactors were vaccinated subcutaneously with B.C.G. As a result rather over two-thirds became von Pirquet positive. The two groups were followed up for two to three years, and the number of cases of tuberculosis developing was noted. The results given in Table III are restricted to cases of pulmonary tuberculosis, the multiple minor manifestations, including erythema nodosum, being omitted.

TABLE III.—B.C.G. Vaccination of Nurses in Oslo (Heimbeck, 1936)

Group	Subgroup	No. of Nurses	Nurse Observa- tion Years	No. of P.T. Cases	Rate per 1,000 Observa- tion Years
von Pirquet positive on entry	(a)	625	2,659	4	1.5
von Pirquet negative on entry	(b) Not vaccinated	280	561	13	23.2
	(c) Vaccinated and became positive	287	910	1	1.1
	(d) Vaccinated and remained negative	107	204	1	4.9

P.T. = Pulmonary tuberculosis.

It will be seen first of all that the nurses in subgroup *b*, who were von Pirquet negative and were not vaccinated, suffered much more heavily from pulmonary tuberculosis than those in subgroup *a*, who were initially von Pirquet positive. The difference between groups *c* and *d* is very much less, and by the ordinary statistical tests would not be regarded as significant.

Before regarding the difference between groups *a* and *b* as conclusive two points must be noted. In the first place the girls had been subjected to a careful medical examination before being accepted as probationers, and any girls with a history of tuberculous disease or showing evidence of tuberculosis were rejected. The effect of this would be to reduce the number of subjects in group *a* who developed pulmonary tuberculosis during their training period. Secondly, instead of following up initially positive and initially negative nurses over the same length of time, Heimbeck transferred in his analysis the initially von-Pirquet-negative nurses to the positive group within one year of their primary infection. The result was that if the nurse developed symptoms of tuberculosis within a year of her primary infection she appeared among the initially negative group that became tuberculous. If, on the other hand, she showed no evidence of tuberculosis for a year or more she went to swell the number of the initially von-Pirquet-positive group that remained free. Since the majority of tuberculous lesions in initially tuberculin-negative nurses seem to occur during the year following the appearance of a positive reaction (Israel, Heitherington,

and Ord, 1941; Daniels, 1944), the effect of this transfer must have been to increase the disparity between the two groups and weight the odds in favour of the initially tuberculin-positive group. (It is a little doubtful how the groups were finally constituted, but in this account I have adhered strictly to that given in Heimbeck's paper).

#### Vaccination of Primitive Peoples with B.C.G.

Starting in 1935, a carefully controlled study, lasting for six years, was made by Aronson and Palmer (1946) among North American Indian children and young adults. The subjects, who ranged from 1 to 20 years of age, were tuberculin-tested with P.P.D. (purified protein derivative). Those who failed to react to 0.005 mg. were divided at random into two groups.

The first group, which comprised 1,550 persons, were injected intracutaneously with 0.1 or 0.15 mg. of B.C.G.; the second group, which comprised 1,457 persons, were injected with 0.1 ml. of sterile saline. An initial x-ray film was taken to exclude those with evidence of pulmonary tuberculosis, and the inoculated subjects were re-examined annually by the tuberculin test and by radiography. The expert who read the x-ray films did not know to which group any given subject belonged. Analysis showed that the two groups were very similar in age, amount of exposure to tuberculous infection, and completeness of the follow-up. The results are summarized in Table IV.

TABLE IV.—B.C.G. Vaccination of North American Indian Children and Young Adults (Aronson and Palmer, 1946)

Group	No. of Subjects	No. Develop- ing N.P.T.	No. Develop- ing P.T.	Tb. Case Rate per 1,000 Person-years*	No. of Deaths from all Causes	No. of Deaths from Tb.
Vaccinated	1,550	9	8	2.0	34	4
Non-vaccinated	1,457	48	20	9.0	60	28

\* Pleural effusion and hilar gland enlargement excluded.

As in the record of Heimbeck's investigations, I have purposely omitted cases of pleural effusion and enlarged hilar glands from the pulmonary tuberculosis figures so as to make the comparison between the vaccinated and control groups more definite. It will be noted from Table IV that the incidence of pulmonary, and still more of non-pulmonary, tuberculosis was considerably higher in the group receiving saline than in that receiving B.C.G., and that the tuberculosis mortality was seven times as high in the control as in the vaccinated group.

These figures are very suggestive, but it may be questioned whether the conclusions drawn from them can legitimately be transferred to civilized peoples having a higher degree of genetic immunity and exposed, as a rule, to a lower risk of infection. Some indication of the lack of similarity between the North American Indians and the ordinary population of the United States is afforded by the great difference between them in the incidence of non-pulmonary tuberculosis. In Aronson and Palmer's control group, for example, the ratio of non-pulmonary to pulmonary tuberculosis was about  $2\frac{1}{2}$  to 1, whereas in the United States as a whole, during the years 1935-41, the ratio among persons of 1 to 25 years of age, as judged by the recorded deaths (figures for incidence not available), was about 1 to 5. It is, in fact, doubtful whether the same proportionate degree of protection is likely to be conferred by vaccination in a community such as our own as in a race of people in which the natural history of tuberculosis is so very different. In this connexion it may perhaps be well to remember the law of diminishing returns.

### Discussion

Within such a short compass as is here allowed it is impossible to do justice to the full claims for B.C.G., but I have selected for review those investigations which come more closely to a controlled laboratory experiment than any others. Even so, it must be admitted that the results of all but one of these investigations are inconclusive. What we have got to decide is whether the routine use of B.C.G. in this country would diminish the total tuberculosis incidence and mortality. It is clearly impossible to estimate numerically the advantage that such a course would have, or even to be sure that it would have any advantage at all. Assuming, however, that B.C.G. does afford some measure of protection against the development of clinical tuberculosis, let us consider the difficulties and disadvantages that its use might entail.

(1) B.C.G. is a live vaccine, and should be used within a week of its preparation. This means that very great care has to be taken in its preparation to avoid contaminants, and in its distribution to make sure that a high proportion of the organisms are alive at the time of injection. (2) The virulence of B.C.G. is not fixed. If it is too virulent harmful reactions may occur in those who are injected; if it is not sufficiently virulent the degree of protection it affords will be reduced. (3) The injection has to be made intracutaneously with considerable care. If the vaccine is injected too deeply serious ulceration may occur at the site of injection in a high proportion of subjects and persist for weeks or months, sometimes accompanied by suppuration of the regional lymphatic nodes. Even if the injection is made strictly into the superficial layers of the skin a small local ulcer may normally be expected to develop (Holm, 1946). It is true that some of the disadvantages of intracutaneous injection are said to be avoided by the multiple-puncture method (Birkhaug, 1944), but too little experience of this method is as yet available to justify the claims of its author. (4) The infants of tuberculous mothers must be separated at birth, or, if taken away at a later age, they must be separated for at least six weeks to exclude the possibility of their having already acquired tuberculous infection by the natural route before they can be vaccinated. (5) After vaccination they should be separated from their parents for two to three months in order to allow a reasonable degree of immunity to develop. (6) Infants separated in this way and kept in residential nurseries may be exposed to serious risk of cross-infection, and develop pneumonia or gastro-enteritis, either of which may prove fatal. (7) Since the B.C.G. organisms die out in the human body, it is desirable to revaccinate the child at intervals to ensure the continuance of immunity.

Taken individually, none of these disadvantages need be regarded too seriously, but taken together they do combine to render B.C.G. vaccination very much more formidable than vaccination against smallpox or diphtheria. Even if it is assumed that B.C.G. is of value it must be asked whether it should be applied to the whole population or only to selected portions of it. When it is realized that in England and Wales the chances of dying from tuberculosis in the first year of life are 1,740 to 1 against, I think we may conclude that universal vaccination of the infant population is out of the question. If it was pressed it would almost certainly result in the partial substitution for highly reliable prophylactic procedures, such as vaccination against smallpox and diphtheria, of the very much more doubtful procedure of B.C.G. vaccination, since a considerable proportion of parents would refuse to have their children inoculated with all three agents—particularly if the B.C.G. vaccination, which would normally be given first, was followed by any serious local disturbance. The alternative, therefore, would be to restrict B.C.G. vaccination to those groups of the community, such as the infants and children of tuberculous families, and medical students and

nurses, who are exposed to an unusually high risk of developing tuberculosis (see Cox, 1929; Ridehalgh, 1944; Daniels, 1944). If it is adopted for these groups, the infants and children should be separated for a time from their tuberculous parents for the reasons that have already been stated, and care should be taken that medical students and nurses are kept away from any known source of tuberculous infection for six to twelve weeks after vaccination.

Before we commit ourselves to adopting this course would be of great help if a properly controlled investigation on human beings could be carried out in this country. The difficulties of such a task are not underestimated, but unless we do attempt to measure the advantage so gained we shall never know the real value of B.C.G. vaccination and we may not even know whether it is of any value at all in the circumstances in which we use it. It is suggested that a suitable trial might be carried out on probation nurses entering the London and larger provincial hospitals. The results of the Prophit investigation (Ridehalgh, 1944; Daniels, 1944) have shown that about 20% of these nurses are tuberculin-negative at the start of their training course. Forty thousand nurses should therefore include 8,000 who are suitable for investigation. Alternate tuberculin-negative nurses should be vaccinated with B.C.G. and the remainder should receive some control fluid indistinguishable from it. If 0.5% of the nurses in the control group develop pulmonary tuberculosis annually, and if the average period of follow-up is two years, the number of cases in this group should amount to 40. If the B.C.G. vaccination is really effective the number of cases in the vaccinated group should be small enough to render the difference between the two groups significant. It is realized, of course, that the 40,000 nurses required initially for testing could not be obtained at once, but if 4,000 or 8,000 were taken into the investigation every year an answer should be forthcoming in about five to ten years.

In an investigation of this sort I feel that the comparison between the two groups should be confined to pulmonary tuberculosis of reasonable severity. I shall not attempt to define this more accurately now. My point is that if minimal pulmonary, glandular, and other manifestations of tuberculosis are included it may be possible to swell the number of tuberculous cases in the control group, as in Heimbeck's (1936) figures, and make out a theoretically convincing but practically unimportant case for B.C.G. vaccination. Should such a properly controlled trial prove impracticable, then I would suggest that B.C.G. vaccination should be liberated for use only under strictly defined conditions ensuring the most careful follow-up of the vaccinated subjects with some degree of central supervision.

If B.C.G. vaccination is to be undertaken the gains must be commensurate with the disadvantages; and unless it can be shown that the morbidity and, particularly, the mortality from tuberculosis are substantially lowered should regard it as doubtful whether routine vaccination of all tuberculin-negative nurses and medical students was worth while adopting. When it is realized that during the whole of the Prophit survey, which lasted for ten years only two nurses died from tuberculosis, giving an annual mortality rate one-third of that for the female population of corresponding age in England and Wales, it may be wondered whether the relative degree of immunity that B.C.G. vaccination may possibly confer is likely to be of any substantial value in practice, and whether almost equally good results might not be achieved by measures designed to protect nurses from undue exposure to infection.

Infants and children in tuberculous families present a rather different problem. Presumably the best answer, as a rule, is to remove the tuberculous member of the family from the house; but if this is not practicable the children should be removed. This has got to be done temporarily in any case if they are to be vaccinated, as all the protagonists of B.C.G. insist that separation for a time is necessary if the best results are to be obtained. If temporary removal has got to be practised, it is surely worth while considering whether separation should not be continued till the tuberculous member of the family has been cured, has died, or has been admitted to an institution for chronic cases.

One more word. Is it really worth while vaccinating infants at birth? We are still ignorant of the time the antibody-producing mechanism takes to reach maturity, but we have reason for believing that the tissue response to antigenic stimuli during the first few months of life is less than it is by the end of the first year. That is why inoculation against diphtheria is usually delayed till nine to twelve months after birth. Is there any reason for believing that the tissue response to a vaccine against the tubercle bacillus is likely to be more active than that against other antigens? If not, would it not be better to remove the infant from its tuberculous home at birth and delay vaccination with B.C.G. till it is at least 6 months of age? That this objection is not purely hypothetical is borne out by the finding that infants at birth require larger doses of B.C.G. than older infants to render them tuberculin-sensitive, and take a longer time to become allergic (Wallgren, 1947).

### Summary and Conclusions

Investigations are reviewed in which a control group of persons was studied along with a B.C.G. vaccinated group.

Though a presumptive case for the value of B.C.G. vaccination has been established, it is concluded that the documentary evidence so far available is insufficient to allow any estimate to be made of the degree of protection it affords or even to prove conclusively that, in a civilized population, it has any protective effect at all.

Some of the disadvantages of B.C.G. are enumerated, and it is argued that, unless the gains from its use are likely to be substantial, B.C.G. vaccination in this country may not be worth while undertaking.

Since the risk of dying from tuberculosis in the first year of life is so small, universal vaccination of infants is clearly out of the question, and vaccination, if it is used, should be restricted to specially exposed groups, like nurses, medical students, and children in tuberculous families.

It is pointed out that the tuberculosis mortality among nurses in the Prophit survey was only a third of that among the corresponding female population in England and Wales; and it is doubted whether the relative degree of immunity that might be conferred by B.C.G. vaccination would have any greater effect in lowering the mortality than measures designed to shield nurses against undue risk of exposure to tuberculous infection.

It is further pointed out that infants and children of tuberculous parents must be separated from their homes for two to three months after vaccination with B.C.G. in order to allow immunity to develop; and it is questioned whether it might not be wiser to prolong this separation till the infecting member of the household has been cured, has died, or has been removed to an institution for chronic cases.

Since the normal antibody-producing mechanism does not seem to reach maturity till towards the end of the first year of life it might be better, if B.C.G. is to be used, to remove the infant from its tuberculous home at birth and delay vaccination with B.C.G. till it is at least six months of age.

A plea is entered for the carrying out of a properly controlled trial of B.C.G. vaccination in Great Britain, or, if this

is impracticable, for the liberation of the vaccine only under strictly defined conditions.

I am indebted to Prof. A. Bradford Hill for help in assessing the evidence in some of the investigations reviewed in this paper.

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## SYMPATHECTOMY AND INTRASPINAL ALCOHOL INJECTIONS FOR RELIEF OF PELVIC PAIN\*

BY

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Pain may be either acute or chronic. In women acute pelvic pain is not infrequent, and may be due to such causes as rupture of an ectopic pregnancy or of a corpus luteum cyst, or sudden torsion of an ovarian cyst. Such causes of pain may be relieved instantly and dramatically by a surgical operation. Likewise, in many cases in which the pain is chronic, as in pelvic inflammatory disease and endometriosis, an operation that removes the source of the pain brings relief. However, there are many women who suffer severe pain and in whom removal of its cause is either impossible or inadvisable. In this category are women with inoperable carcinoma of the uterus or severe dysmenorrhoea, women subjected to repeated unsuccessful laparotomies for the relief of pelvic pain, and young women with endometriosis who should not be castrated.

For the intractable pain associated with carcinoma of the uterus, particularly of the cervix, most physicians prescribe an opium derivative such as morphine, "pantopon," codeine, or "dilaudid." These drugs are temporarily helpful, but eventually the patient becomes refractory to them. The reasons for this inadequacy are: (1) the potential tolerance for the drugs increases enormously, so that larger and larger doses are required, resulting in a constant increase in expenditure for the drugs until the poor patient can no longer afford them; (2) in some people the opium derivatives produce nausea and vomiting; and (3) a few individuals become drug addicts.

To secure more or less permanent relief from the excruciating pain which is associated with cancer of the uterus, severe dysmenorrhoea, endometriosis, and the distressing pain of unknown origin, I recommend two useful procedures. The first is pelvic sympathectomy, or removal of that part of the sympathetic nerve plexus known as the presacral nerve or the superior hypogastric plexus. The second is intraspinal injection of alcohol.

\*Read before the Oxford Postgraduate School of Medicine on July 14, 1947.

Sympathectomy is an operation that any surgeon may perform readily. The risk involved is slight, the technique is not complicated, and local infiltration analgesia may be used for a large part of the operation and in some instances for the whole of it. Furthermore, since the abdomen must be opened to carry out this procedure, it enables one to determine the extent of the growth of endometriosis, the amount of carcinomatous involvement, and any pathological process not discovered before the operation.

Of the two questions that are rightfully raised the first is whether the fibres of the sympathetic system are really sensory. Ranson (1926, 1930) confirmed the proof that was offered by Edgeworth. All the motor fibres degenerate, but the sensory fibres remain intact if the roots of the spinal nerves are cut proximal to the spinal ganglia.

Vasoconstriction of the blood vessels of the internal genital organs and inhibition of the secretion of the genital glands are produced by the hypogastric plexus, whereas the parasympathetic nerves have an opposite effect. The normal menstrual cycle is not altered by section of the superior hypogastric plexus nor does it interfere with uterine contractions during labour; neither does section produce glandular atrophy or any disturbance in the motor function of the bladder or rectum. Therefore the nerve fibres of the superior hypogastric plexus are sensory and not motor. Their function is to carry sensations from the internal genital organs to the medullary centres. Hence resection of the portion of the superior hypogastric plexus above the hypogastric ganglion is a simple way of relieving a patient of severe pain arising in the pelvic organs.

The second question concerns any possible harm that may follow removal of a portion of the sympathetic nervous system. Ranson (1926, 1930) states that Cannon and his students completely removed "the sympathetic chain on both sides, from the highest cervical to the lowest sacral ganglion. Such completely sympathectomized cats have lived under laboratory conditions for many months. Everything indicates that almost any part of the sympathetic system can be removed without seriously endangering life."

### Indications for Pelvic Sympathectomy

Pelvic sympathectomy will almost completely relieve the intractable pain in about half of the cases of Group III and Group IV carcinoma of the cervix, and it will partially relieve many more. The operation (Greenhill and Schmitz, 1933) should be performed as a prophylactic measure in all cases in which a laparotomy is done for carcinoma of the cervix of the corpus uteri. Should recurrence of the cancer follow the procedure there will be considerably less pain than if the sympathectomy had not been performed. It has been reported by de Sousa Pereira (1946) that in women with cancer of the cervix subjected to pelvic sympathectomy the results of the post-operative irradiation are better than if sympathectomy had not been performed, because the vasodilatation produced by the sympathectomy improves the circulation. Pelvic sympathectomy is also indicated in selected cases of primary dysmenorrhoea in which all medication, including hormones and minor surgical measures, has been tried without avail. The results in dysmenorrhoea are excellent. I have not yet had a failure in my dysmenorrhoea cases (Greenhill, 1940).

Another but infrequent indication for pelvic sympathectomy is persistent pain in the lower abdomen not relieved by repeated laparotomies. Occasionally women are seen who have had several laparotomies for the relief of pain. Usually the first operation was an appendicectomy, then an operation for an ovarian cyst, and then one or more operations for adhesions. In such women, even if the cause of

the pain is not removed, dramatic relief will follow pelvic sympathectomy.

Still another field of usefulness for pelvic sympathectomy is in cases of endometriosis in which conservatism is advisable. Of course if both ovaries are removed the endometriotic areas cease to grow. However, spaying is not desirable in young women. In all instances in which conservatism is desired a pelvic sympathectomy should be performed. The operation not only relieves pain but also seems to have some beneficial effect on the endometriosis, probably due to the vasodilatation which follows the procedure.

### Technique of Pelvic Sympathectomy

The operation to be described was recommended by Cotte (1931, 1932). Since some patients who are subjected to this operation are poor surgical risks it is best to open the abdomen under direct infiltration analgesia. The rest of the operation is readily performed under a short ethylene or ether anaesthesia or even under infiltration analgesia. The patient is placed in the Trendelenburg position after a midline incision of 10-12 cm. has been made from the umbilicus down towards the pubis. After the peritoneal cavity is opened the small intestine is packed off and the sigmoid and rectum are pushed to the left side and held there with a wide retractor. Then the uterus, adnexa, and bladder may be inspected readily and palpated to determine the extent of the pathogenic processes. One may also detect a complication that can be remedied surgically. The area of the two lower lumbar vertebrae and the upper part of the sacrum is exposed. In some thin women the presacral plexus can be seen immediately beneath the peritoneum. Whether or not the plexus can be seen, the parietal peritoneum above and in the middle of the sacral promontory is elevated and incised. This incision is extended upwards and down along the sacrum for 4-5 cm. A layer of fibro-cellular connective tissue covered by adipose tissue will be exposed when the peritoneal flaps are pulled aside. This tissue can be separated easily from the peritoneum and the lower end of the aorta without hazard. The presacral plexus lies in this layer of tissue. With an aneurysm needle the tissue is elevated at the bifurcation of the aorta and the dissection is carried to a still higher level. As this is done it will be observed that in most instances the tissue spreads out triangularly. The middle sacral artery should be pushed away from the nerve, but if it is injured it can be ligated readily.

After the dissection is carried as high as desired the layer of nerve tissue is separated from the underlying tissue beyond the sacral promontory into the pelvic cavity. The plexus in this area is divided into two hypogastric nerves; hence it is necessary to dissect each nerve separately. At least 2 or 3 cm. of each hypogastric nerve should be resected in addition to 4 cm. or more of the superior hypogastric and the intermesenteric plexuses. The layer of fibrous tissue containing the hypogastric nerves is much more resistant than that containing the presacral plexus. As the dissection progresses nerve filaments projecting outward will be encountered. These should be followed as far laterally as possible before they are cut. In most instances ganglia will be included in the resection. It is preferable to remove the dissected tissue in one piece. It is not necessary or advisable to ligate the presacral plexus or the hypogastric nerves before cutting them, because only insignificant vasa nervorum are in intimate contact with them. Rarely is bleeding encountered that requires more than simple temporary pressure to check it. (When the mesosigmoid is extremely short, injury to the inferior mesenteric vessels must be avoided.) After the nerve tissue is resected the



posterior parietal peritoneum is sutured with plain catgut and the abdominal wall is closed in the customary way. Since women with inoperable carcinoma are usually cachectic and therefore show poor wound healing, silkworm gut or other permanent suture material should be used in closing the abdominal wall.

### Intraspinal (Subarachnoid) Alcohol Injections

The injection of alcohol into nerves for the relief of pain has been in use for many years, but not until recently has it been employed for the relief of pelvic pain. In 1931 Dogliotti recommended subarachnoid injection of alcohol for the relief of pain. He chose the subarachnoid space because this area is the most central one for attacking the nerve roots and its injection prevents all painful peripheral stimuli from reaching the medullary centres, even if the stimuli act at the level of the spinal ganglia, the intervertebral foramina, or the spinal roots. Absolute alcohol is the preferred drug because it has no secondary toxic effects. It is easily and rapidly diffused and has a specific gravity much lower than that of the spinal fluid, hence its rise immediately affects the nerves. Most of Dogliotti's patients had sciatic pains, but not one of them had carcinoma of the genitals. The first reports on the use of intraspinal alcohol injections for cervical carcinoma were published almost simultaneously in 1934 by Saltzstein and by Stern.

In 1934 I began using intraspinal injections of alcohol for excruciating pain associated with malignancy in the female pelvis (Greenhill and Schmitz, 1935, 1936). In a series of well over 100 cases of Group III and Group IV carcinoma of the cervix treated by Schmitz and myself complete relief was obtained in about 60% and partial relief in 10%. The relief usually lasts many months—sometimes until the patient dies of the cancer. The only patients with inoperable carcinoma of the cervix who are not suitable candidates for intraspinal alcohol injections are those whose pain is in the renal area and in the parametrium from stricture of the ureter associated with hydro-ureter and hydronephrosis. The technique of intraspinal (subarachnoid) injection of alcohol is simple, and it is performed quickly and with little discomfort. However, since there is a possibility that in some cases the spinal cord may be injured, the procedure should be used only in cases of cancer.

### Technique of Intraspinal Alcohol Injection

No preliminary medication is given, because observation of the immediate effects of the injection is desired. The pain in most patients with advanced carcinoma of the pelvic organs is more intense on one side than on the other. The patient is placed on the side opposite to that in which most of the pain is present. A pillow or pad is placed under the pelvis and side to elevate the sacral and lumbar portions of the spine, the back is arched as much as possible, the body is turned somewhat ventrally, and the head is lowered slightly. By placing the patient in this position the sacro-lumbar area of the spine is raised to the highest level, and at the same time the posterior or sensory nerve roots are caused to lie horizontally. The anterior or motor nerve roots come to lie in a plane that is usually out of reach of the alcohol. Even if the motor nerves are not removed from the field of the alcohol, as occurs in the cauda equina, they are often not affected, since sensory nerves are more susceptible than motor fibres to the effects of alcohol. This is because the sensory nerves have less myelin.

The patient should be held in the proper position. A weak solution of iodine or other antiseptic is applied over the

lumbar and upper sacral areas. Injection is made in the second, the third, or (usually) the fourth lumbar interspace with an ordinary lumbar-puncture needle with a stylet. Procaine ("novocain") is injected into the skin before the needle is inserted into the desired interspace just as for an ordinary lumbar puncture. After the needle is in the subarachnoid space, as shown by the flow of spinal fluid, 0.75 ml. of absolute or 95% alcohol is injected into the cerebrospinal fluid. For this purpose it is best to use a tuberculin syringe to ascertain that not more than 0.75 ml. of the solution is injected. Furthermore, the alcohol must be injected very slowly, drop by drop: about two minutes is allowed for the injection of the 0.75 ml. The alcohol rises and immediately surrounds the posterior roots because its specific gravity is about 806, whereas that of the spinal fluid is 1007 to 1001. No spinal fluid should be drawn into the syringe to mix with the alcohol. After the injection is made the needle is withdrawn and the puncture hole is covered with sterile gauze and adhesive tape.

Before the injection is completed the patient will complain that the upper leg feels numb or hot and that she cannot move her leg. The numbness is almost routine after the injection, but it disappears spontaneously after a few hours or days in most instances. In spite of what the patient says concerning her inability to move the leg, when she is requested to do so she will encounter no difficulty. At the same time that the patient remarks about the numbness she also says, either voluntarily or in answer to a query, that the pain has disappeared. The results are better if the patient is permitted to lie on the side for some time. Therefore she should be kept on the side for two hours after the injection; then she is permitted to get up and walk around. At times a patient may find difficulty in getting up from a chair because her "leg is asleep." In other instances the leg feels heavy and the patient experiences some trouble in walking up steps because the knee flexes readily. These sensations usually disappear in a few hours, although in some patients they may be present for a number of weeks.

Nearly all ambulatory patients may be permitted to go home within three hours after the injection without ill effects. However, it may be best to keep a patient in a hospital for twenty-four hours after the injection. I should like to emphasize that the intraspinal injection of alcohol may be carried out easily in a patient's home. This is important; since many individuals with cancer are bedridden at home, and there is no need to subject them to the inconvenience and expense of transporting them to office or hospital. If the patient has pain on both sides an intraspinal injection of alcohol is made a week later with the patient lying on the opposite side. The same amount of alcohol is injected.

### Comparison of Results

An analysis of my cases of carcinoma of the cervix treated by pelvic sympathectomy and by alcohol injections revealed that better results were obtained with intraspinal injections. In addition to the greater percentage of patients relieved by injections of alcohol, this procedure is far simpler than sympathectomy, since it does not require a stay in hospital. Therefore I believe that all women who have severe pain associated with carcinoma of the cervix should have an intraspinal injection of alcohol. More than half of such women will obtain complete relief and in a few others the benefit will be partial.

Intraspinal injections of alcohol should be used only in women with cancer, because there is definite risk of injury to the spinal cord. For women who have excruciating pain due to menstruation, endometriosis, and unknown causes pelvic sympathectomy is preferred.

## Summary

I have briefly described two procedures which may be used to relieve intractable pelvic pain in women. One of these—pelvic sympathectomy—has proved most helpful in cases of carcinoma of the uterus, dysmenorrhoea, endometriosis, and pelvic pain of unknown aetiology. In inoperable cases of cancer pelvic neurectomy is helpful not only for the relief of pain but also as a prophylactic procedure at the time of hysterectomy. Likewise, pelvic sympathectomy is of great benefit in cases of endometriosis treated conservatively, not only because it relieves the pain but also because it apparently improves the endometriosis. Nearly all cases of severe primary dysmenorrhoea can be cured by sympathectomy, but this operation should not be done until all conservative measures have proved futile. Finally, in cases subjected to a number of laparotomies without relief of pain pelvic sympathectomy will yield spectacular results.

Intraspinal (subarachnoid) injection of alcohol is another means of obtaining relief from excruciating pelvic pain. This procedure is much simpler than pelvic sympathectomy and does not even require treatment in hospital. Furthermore, the percentage of patients with uterine carcinoma who obtain relief is higher than with pelvic sympathectomy. Nevertheless, because this procedure may injure the spinal cord it should not be used for any individual except one with cancer.

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## RELIEF OF PAIN IN INTRACTABLE CANCER OF THE PELVIS

BY

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Cancer of the pelvic organs—intractable by surgery or radiation, or recurrent after such measures—may condemn a man or woman to unnumbered hours of pain before death. Such people may die hard, being often in the prime of life and general health, and capable of service and happiness in their remaining days if relief from pain could be given them without impairing their mental and bodily functions. Opiates in increasing doses, neurectomies, and intrathecal injection of alcohol often increase the nursing responsibilities and make the last days of the sufferer odious to himself and to his nearest.

The treatment of such patients is surely a part of the treatment of cancer, yet among the great number of papers devoted each year to the subject of cancer of the urogenital tract alone the means of relief in hopeless cases is barely mentioned, and the average practitioner, who must shoulder their care, may have the impression that skilled surgical procedures, sometimes unavailable or impracticable, offer the greatest measure of help.

Here is described a means of relief which has borne some careful trial and which is recommended for effect and simplicity and because it can be used at need again and again until the end. This is the method of caudal analgesia.

It has seemed right to me to describe it in some detail, for this paper is addressed particularly to the general practi-

tioner and to those in charge of the chronic sick in home and infirmaries who may not be familiar with the technique

## The Method

The apparatus consists of: Surgical spirit or "dettol" cream for cleaning the skin, and tincture of iodine or other colour antiseptic for surface-marking; 1 5-ml. Record syringe; Record-fitting needle, 8/10×1½ in. (3.75 cm.); 2 10-ml. Record syringes; 1 Record-fitting needle, 15/10×3 in. (7.5 cm.), bore: procaine, 1.5% solution; "proctocaine," 40–60 ml. (procaine 1.5% w/v, butyl p-aminobenzoate 6% w/v, with benzyl alcohol in arachis oil).

The patient is placed across the bed in the left lateral position and the buttocks and sacrococcygeal area are cleansed and disinfected. The caudal opening of the sacral canal is identified (usually with ease, and more easily in men than in parous women, who may have had the coccyx displaced in childbirth and marked with a dab of iodine. A subcutaneous wheal raised at this point with the 1½-in. needle attached to the 5-ml. syringe charged with the procaine 1.5% solution, and through this the tissues down to the tough fibrous membrane closing the sacral canal are infiltrated. The needle is then withdrawn, and after two minutes the stout 3-in. needle is made to follow the track of the first needle, at an angle of 45 degrees to the skin until the fibrous membrane is encountered and pierced; the needle is depressed to an angle of 15 degrees and pushed steadily on until the operator is sure that about 1 in. (2.5 cm.) of its length is lying freely movable within the space of the sacral canal. The needle, which after withdrawal of the piston reveals neither blood nor spinal fluid, is then attached to the 5-ml. syringe recharged with procaine and the whole is injected boldly. The beginner will know if he is posterior to the sacrum by the appearance of a subcutaneous swelling, anterior—between rectum and sacrum—by an exploring finger in the anus. Convinced of his correct position by the free flow of the anaesthetic and by his observations, the operator detaches the syringe and replaces it with one of the 10-ml. syringe charged with warmed proctocaine. He then steadily injects the proctocaine to an amount varying with the skeletal size of the patient—usually 40 to 60 ml.—taking some ten minutes to do so, meanwhile testing every minute the levels of cutaneous anaesthesia to pin-prick of the perineum, thighs, buttocks, abdominal wall, and asking the patient to say when relief of his pain takes place, although it is usually pleasantly evident from the gradual relaxation of attitude and expression. When this becomes known, or if the level of skin anaesthesia rises to nipp level, the injection is stopped and the syringe detached.

Sometimes complete relief is obtained at once, but sometimes it comes only when the patient is eased on to his right side, is made to stand up, or lies on his back with the foot of the bed raised for a few minutes. Sometimes the greatest relief comes after a period of lying on the back with the buttocks raised on a pillow, so as to allow the oily solution to seep higher, although it is better to inject 6 to 10 ml. more through the still present needle and obtain effect at once. For in this, as in all cases of long-continued and severe pain, the habit of suffering is best broken swiftly and convincingly. Most often the sufferer is at once so eased of the superflux of his pain that he endures the rest with fortitude and having co-operated to obtain the result—knowing that by such simple means relief can be obtained again if necessary and that probably the pain will come no more—a pride in living returns.

In such circumstances I have seen an old dancer brought into the clinic in a wheeled chair, with both thighs drawn up on to the abdomen in painful spasm due to cancerous infiltration of the psoas muscles, and then after the injection straighten herself off the couch, at first gingerly, and then smilingly assume several poses of the ballet before the watching delighted class of students and nurses.

I and my assistants have so treated 17 patients with cancer of the uterus, bladder, prostate, and vagina. Of these one—a man aged 58 with prostatic cancer, who was

incapacitated with pain for three months—was able to return to his work as a milk-roundsman for the rest of his life (nearly seven months) and die easily of a haemorrhage. He needed only one injection of 50 ml. of proctocaine. The ballet dancer, aged 46, died quietly of cardiac secondaries from cancer of the cervix uteri after two injections of 40 ml. of proctocaine, the second injection being fortified with 1 ml. of absolute alcohol, nine weeks after her first visit to us. The duration of relief with one to three injections varied in 11 others from three weeks to four months; in all but four this marked their natural term. The four developed painful secondaries in other regions, and one of them had a neurectomy for this reason.

One other, a tough Welsh miner of wonderful physique with extensive invasion of the abdominal wall by a cancer of the bladder, died apparently from exhaustion and haemorrhage under thiopentone anaesthesia, given before attempting the caudal injection, as in no other way could the unfortunate man bear being turned on his side. This was our only disaster. Necropsy was refused, so that oil embolism could not be ruled out as the immediate cause of the sudden death shortly after the caudal injection was begun. He had suffered hideous pain for some weeks before.

Two women with pelvic secondaries from uterine cancer had apparently complete relief for a few days after injection, but on return of symptoms failed to be relieved by further injection. In one, intestinal obstruction by secondaries was proved at necropsy; in the other, massive abdominal and pulmonary secondaries proved fatal under opiates.

One man with prostatic cancer was not relieved at all; radiography had revealed spinal metastases, and he was kept under morphine for the few weeks left.

I have not observed or been told of any urinary or faecal incompetence following caudal injection of proctocaine, with or without added alcohol, in any of the patients treated.

I wish to thank Drs. Constance Wood and Lilian Walter, of the Medical Research Council Radium Centre in the British Postgraduate Medical School, for referring to me patients in their wards; my colleague in the Department of Obstetrics, Dr. Hilda Roberts, who assisted me with many of the injections; and my colleagues of the Department of Surgery for asking me to treat most of the male patients mentioned in this paper.

"Diet in Pregnancy" was the subject chosen by Prof. W. C. W. Nixon for his lecture at the Royal Institute of Public Health and Hygiene on Nov. 12. Sir Jack Drummond, F.R.S., was in the chair. In a community where diet was faulty or restricted, said Prof. Nixon, the mother, expectant and nursing, and children suffered first. Did the pregnant woman differ from the rest of the community regarding her dietetic requirements? Everyone agreed that in pregnancy those were increased. Natural foodstuffs were far better than synthetic tablets. It may be argued that, with the present food restrictions, it was impossible to attain anything like the ideal diet for a pregnant woman. However, a remarkably good diet had been planned by, for example, a Scotch hospital. The nutrients were obtained only from natural foods, but the margarine was fortified with vitamins A and D, and full use made of the additional rations available for pregnant women. Recent reports from America showed the benefit that resulted from increasing the protein intake during pregnancy. It had been found that the incidence of toxæmia in pregnancy was twice as great in one group of pregnant women, where protein intake was 60-70 g. daily, as compared with a similar group whose protein intake ranged from 110 to 120 g. daily. The health of a nation could be gauged by the vital statistics of pregnancy and infancy. He would like to quote from the Report of the Chief Medical Officer of the Ministry of Health on the state of the public health during the six years of war (1939-45): "The national provision of milk and vitamin supplements . . . together with rationing and the greatly improved quality of the national loaf, has contributed to the gradual decline in the maternal, neonatal, and infant mortality and stillbirth rates." Women of younger years were only too willing to be educated in health matters when these were explained simply. It was in this way that the mothers of our country would be guided to contribute to one of the greatest measures in public health—proper nutrition.

## STAPHYLOCOCCAL INFECTION DUE TO PENICILLIN-RESISTANT STRAINS

BY

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The incidence of strains of *Staphylococcus pyogenes* that are grossly resistant to penicillin is clearly increasing rapidly. The rate of increase in this hospital at present is so rapid as to be somewhat alarming. In a previous study (Barber, 1947) all cultures of *Staph. pyogenes* occurring in the routine bacteriological laboratory were tested for penicillin sensitivity; out of a series of 200 patients yielding cultures of *Staph. pyogenes* penicillin-resistant strains were isolated from 25 (12.5%). Since then cultures have been tested for their reaction to penicillin only if they came from an infected lesion. In analysing a series of 100 patients with staphylococcal infection between February and June, 1947, it was found that as many as 38 yielded penicillin-resistant strains. Table I gives a comparison of the two series. In

TABLE I.—Analysis of Patients Yielding *Staph. Pyogenes*

	From Whole Hospital			From Unit X		
	Total	Penicillin-resistant		Total	Penicillin-resistant	
		No.	%		No.	%
Series 1. Apr.-Nov., 1946:						
All strains	200	25	12.5	80	13	16.25
Strains from infected lesions	99	14	14.1	14	4	28.55
Series 2. Feb.-June, 1947	100	38	38	25	14	56

order to make a fair comparison, in Series 1 the figures for staphylococci isolated from cases of infection are given separately as well as figures for all specimens tested. In view of the high incidence of resistant strains in Series 2 it was thought worth while to record this second series, together with some observations on the source of penicillin-resistant strains and the best method for their detection.

### Analysis of Resistant Strains

The degree of resistance was in all 38 cases gross (see Fig. 1), and all, except one strain which was not tested, were shown to produce penicillinase; 36 of the strains were found to have a sensitivity to streptomycin approximately equal to that of the Oxford staphylococcus; one strain was not tested against streptomycin; and one strain, which came from a patient with tuberculous meningitis who was being treated with streptomycin was resistant to it.

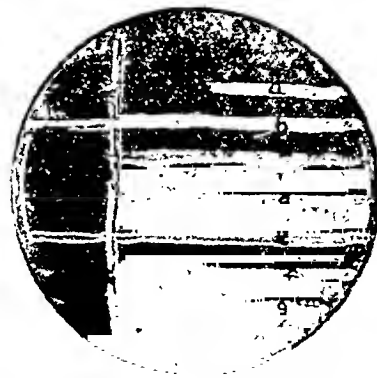


FIG. 1.—a, d, f, and g are penicillin-sensitive and b and c penicillin-resistant strains of *Staph. pyogenes*; c is a culture of *Salm. typhi*.

Table II analyses the patients according to type of infection. The case of septicaemia arose from an abscess in the buttock following injections for a refractory anaemia, and the outcome was fatal. The case of osteomyelitis was a chronic infection and gave a mixed growth of *Pseudomonas pyocyanea* and penicillin-resistant *Staph. pyogenes*.

TABLE II.—Type of Infection in 38 Patients Yielding Penicillin-resistant Strains of *Staph. Pyogenes*

Septicaemia .. .. .	1	Otitis media .. .. .	4
Extradural abscess .. .. .	1	Infected operation wounds .. .. .	3
Osteomyelitis .. .. .	1	Puerperal infection (local) .. .. .	2
Respiratory tract infections .. .. .	8	Superficial lesions .. .. .	5
Neonatal infections .. .. .	12	Tuberculous sinus .. .. .	1

The respiratory infections included bronchopneumonia, infected carcinoma of the lung, actinomycosis, bronchitis, and tracheitis. Several of these cases showed an interesting change in bacterial flora of the sputum during the course of penicillin treatment and will be referred to later. The neonatal infections consisted of four cases of ophthalmia neonatorum, two abscesses, one discharging ear, one buccal

originally sensitive staphylococci which have acquired resistance to penicillin by contact with it but are natural resistant strains which survive by a simple process of selection in penicillin-treated infections. That such changes in bacterial flora do take place during the course of penicillin treatment is becoming increasingly clear, and is well illustrated by five of the cases of lung infection in this series.

Patient R. C., a case of carcinoma of the lung, had a sputum heavily infected with *Staph. pyogenes* shortly after admission to hospital; 30 colonies picked from the original culture plate were as sensitive to penicillin as the Oxford staphylococci but when a mixed emulsion from this plate was replated on to a penicillin ditch-plate it was seen that a number of penicilli

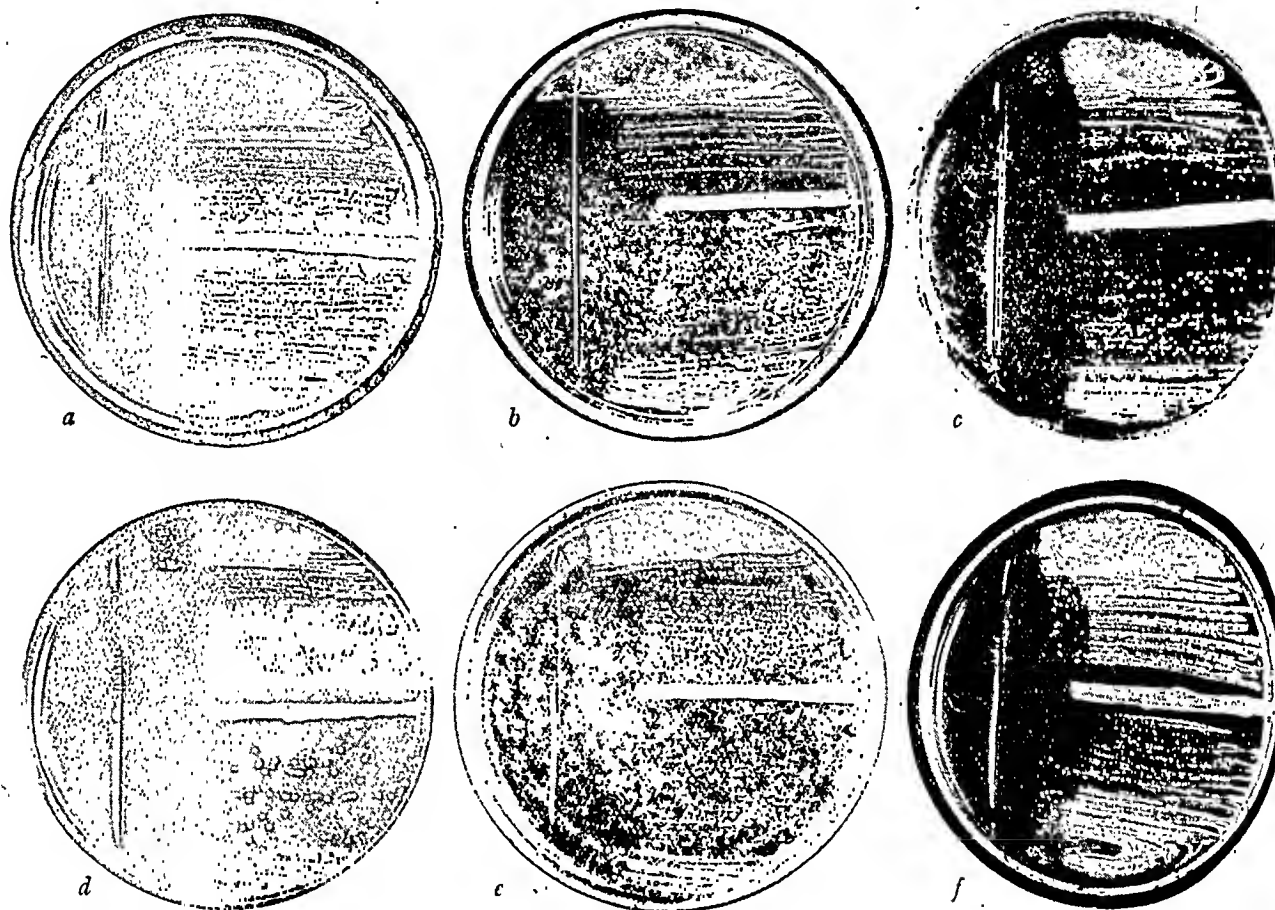


FIG. 2.—Emulsions of bacteria in broth plated out on penicillin ditch-plates with a central streak of the Oxford staphylococcus. (a) Pure culture of a penicillin-sensitive *Staph. pyogenes*. (b) Pure culture of a penicillin-resistant *Staph. pyogenes*. (c) One part penicillin-resistant to 10,000 parts penicillin-sensitive *Staph. pyogenes*. (d) One part penicillin-resistant to 5,000 parts penicillin-sensitive *Staph. pyogenes*. (e) One part penicillin-resistant to 250 parts penicillin-sensitive *Staph. pyogenes*. (f) Emulsion from sputum plate culture of patient R. C. replated on to penicillin ditch-plate, showing that approximately 1 in 250 of the staphylococci were penicillin-resistant.

ulcer, and four superficial lesions. In most of the 38 cases *Staph. pyogenes* was the only, or at least the predominant, organism isolated; from 10 patients both penicillin-sensitive and penicillin-resistant strains of *Staph. pyogenes* were isolated from the same specimen.

#### Source of Penicillin-resistant Strains

It is obvious that the main cause for this increase in penicillin-resistant strains of *Staph. pyogenes* is the widespread use of penicillin, although a patient yielding such an organism may not himself have ever had any. In the present series 28 of the 38 patients with penicillin-resistant staphylococci had had a fair amount of penicillin before the specimens were taken, two had had a few doses, and eight had had none. For the reasons stated in the previous paper (Barber, 1947) it is my opinion that these strains are not

resistant organisms were present (Fig. 2f). Twelve days later when the patient had had 2.8 million units of penicillin, the sputum again yielded a heavy growth of *Staph. pyogenes*, but 30 colonies tested were all found to be penicillin-resistant. Subcultures from three sensitive and three resistant colonies (one from the first sputum and two from the second) were typed by Dr. Allison and Dr. Hobbs; all three sensitive cultures were phage type 29/52 and serological type 1, whereas all three resistant cultures were serological type III and were not typable by the phage method.

Patients N. H., M. H., and M. S. all had bronchopneumonia. From each the first sputum tested contained no colonies of *Staph. pyogenes*. After 15.9, 11, and 4.8 million units of penicillin respectively, the sputum of all three patients yielded a heavy growth of *Staph. pyogenes*; in patients N. H. and M. H. all the colonies tested were penicillin-resistant, but in patient M. S., who had had the least penicillin, nine colonies were found to be resistant and one sensitive to penicillin.

Patient R. W. had actinomycosis of the lung with an empyema. On admission a heavy and pure growth of *actinomyces* was isolated, but after 21 million units of penicillin this organism disappeared and pus from the empyema gave a pure growth of penicillin-resistant *Staph. pyogenes*.

The question arises, Where do these penicillin-resistant organisms come from? In some cases—as, for example, Patient R. C.—they are clearly present in the original lesion overgrown by sensitive strains until penicillin treatment gives them a clear field by getting rid of the latter. Hospital infection with *Staph. pyogenes* is, however, fairly common, and, as Harley *et al.* (1946) have shown, penicillin-resistant staphylococci occur far more often in patients who have been in hospital some time than in new admissions. Any hospital using large quantities of penicillin (and what hospital is not nowadays?) bacteria resistant to its action are probably increasing at the expense of those that are sensitive, and it seems not impossible that in time the resistant organisms will be the sole survivors. That a penicillin-resistant strain of *Staph. pyogenes* once it has got footing in the hospital may spread from patient to patient is well illustrated by a series of cases occurring in a particular unit of this hospital, referred to hereafter as "Unit X." Throughout the two investigations the percentage of penicillin-resistant strains was higher in Unit X than elsewhere in the hospital (see Table I); five resistant and two sensitive cultures isolated from this unit during a single month were therefore sent to Dr. Allison and Dr. Hobbs for typing. The results are shown in Table III. It will be

TABLE III.—Strains of *Staph. Pyogenes* Isolated from Unit X

Source	Date of Isolation	Reaction to Penicillin	Phage Reaction	Serological Reaction
Raw milk .. ..	9/10/46	Resistant	6/47	III
" .. ..	18/10/46	"	6/47	III
Scarean wound ..	27/10/46	"	6/47	III
Cracked nipple ..	22/10/46	"	6/47	III
Chicken eye .. ..	4/11/46	"	6/47	III
Raw milk .. ..	20/10/46	Sensitive	Nil	I
" .. ..	20/10/46	"	Nil	I

seen that all five resistant strains were of the same type and that the sensitive organisms were of the same type as each other but different from that of the resistant bacteria.

#### Detection of Penicillin-resistant Strains

From observations made during this investigation it seems that the best method for the detection of penicillin-resistant bacteria in specimens sent to the laboratory is to plate out the infected material direct on to a penicillin ditch-plate, using a concentration of about 10 units of penicillin per ml. of agar in the ditch (Figs. 1 and 2). Although this method is in fact used in many routine bacteriological laboratories the following two reasons for its superiority over other methods are not generally appreciated.

1. Most methods described for determining the penicillin sensitivity of bacteria ignore the size of inoculum used, as it is claimed that within wide limits this made little or no difference to the results (Fleming, 1942; Abraham *et al.*, 1941). As shown by Luria (1946) and Barber (1947), this is far from the case with penicillinase-producing bacteria. With such organisms a small inoculum may appear to be fairly sensitive to penicillin, whereas a large inoculum will grow in a concentration of 100 or more units per ml. This is well illustrated by plating out pure cultures of penicillin-sensitive and penicillin-resistant staphylococci on penicillin ditch-plates. Fig. 2a shows sensitive culture which gives a fairly straight line of inhibition. Fig. 2b, on the other hand, shows a pure culture of penicillin-resistant staphylococci, and it will be seen that where the inoculum is heavy the organisms have grown right across the penicillin agar, but as the number of bacteria gets smaller an increasing amount of inhibition of growth occurs. Such a picture is seen only with penicillinase-producing organisms.

A bacterium, such as *Salmonella typhi*, which is resistant to penicillin but does not destroy it, when plated on a penicillin ditch-plate produces a straight line of growth which usually reaches the penicillin agar when a concentration of 10 units per ml. is used. Thus by this method some information on both the degree and the type of resistance is obtainable.

2. Swabs from many staphylococcal lesions contain a mixture of sensitive and resistant strains. In some cases before any penicillin treatment has been started the number of resistant bacteria is very small, as illustrated by Case R. C., and they may be missed by simply testing a number of individual colonies. If, however, the material is plated direct on to a penicillin ditch-plate, as few as 1 resistant to 10,000 sensitive bacteria may be detected (Fig. 2c), and by comparison with known mixtures some idea of the proportion of resistant to sensitive strains may be determined. Thus the bacteria in the sputum of R. C. when replated (Fig. 2f) showed a similar picture to a mixture of 1 part resistant to 250 parts sensitive staphylococci (Fig. 2e).

#### Summary

In studying strains of *Staph. pyogenes* isolated from 100 cases of staphylococcal infection 38 patients were found to have penicillin-resistant strains; 10 patients had a mixture of penicillin-resistant and penicillin-sensitive staphylococci.

The source of these strains and the best method for their detection are discussed.

My thanks are due to Drs. Allison and Hobbs for typing, and to Drs. Anderson and Fullerton for the primary isolation of many strains.

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## ALLERGY TO PENICILLIN WITH SYMPTOMS OF SERUM SICKNESS

BY

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Toxic side-reactions and allergic symptoms following the administration of penicillin have lately attracted a good deal of attention in the U.S.A. Two papers published there dealing with this subject (Morginson, 1946; Holden, 1947) include a fairly comprehensive review of the literature. In this country Suchecki (1946) and Willcox (1946) described series of cases, and the former reviewed some of the literature. A number of single case reports have also been published in both countries, and these emphasize the variety of symptoms which may occur. One of the severest syndromes is a reaction similar to serum sickness, with some of the symptoms of anaphylactic shock. Feinberg (1944) and Rostenberg and Welch (1945), investigating the origin of this hypersensitiveness, suggest that, at least in the U.S.A., sensitization is brought about by ingestion or inhalation of *Penicillium* spores. These produce subclinical infections in approximately 5 to 6% of persons of allergic diathesis. No such data are available for this country. Feinberg's skin tests suggest that some batches of penicillin are tolerated better than others by allergic persons.

The following account of a case with severe and at times alarming symptoms is interesting for two reasons: (1) the same symptoms occurred twice, with increased severity on



the second occasion; and (2) the fact that intracutaneous sensitivity tests made it reasonably certain that the impurities in the penicillin preparations were implicated more than the penicillin in causing the symptoms.

### Case History

On the night of July 24, 1945, a female patient aged 34, three weeks post partum, developed a sudden rigor. There was a painful induration and redness of the right lower quadrant of the right breast. During the next 24 hours her temperature varied between 102° and 103° F. (38.9° and 39.4° C.). From July 25 to 27 16,000 units of sodium penicillin were administered intramuscularly every three hours, together with sulphathiazole (2 g. stat., followed by 1 g. four-hourly for three days). Her temperature returned to normal within 48 hours and the local breast lesion cleared up completely within 72 hours.

Two weeks later urticarial weals appeared on the scalp. During the next five or six days there developed a massive urticaria and angioneurotic oedema of the face, trunk, and limbs, with severe pruritus. There was no rise in temperature. The patient complained of a feeling of tightness in the chest; she was very pale; the pulse was thin, with a rate of 80 to 90 a minute, her normal rate being about 60. Sitting up caused severe vertigo. Adrenaline and ephedrine were administered, but did not relieve the urticaria or the pruritus, and about 12 hours later paroxysms of tachycardia developed, with a pulse rate of 120 and upwards. Without further specific treatment the condition cleared up completely within five to six days. On account of the long interval between penicillin therapy and the onset of the allergic symptoms, penicillin was not suspected as a possible causative agent.

On Feb. 22, 1946, the patient complained of a red painful swelling in her right thumb. Within the next 12 hours the swelling increased rapidly and her temperature rose to 101.5° F. (38.6° C.). A course of 16,000 units of sodium penicillin intramuscularly at three-hourly intervals, together with sulphathiazole (2 g. stat., followed by 1 g. four-hourly), was started the next day. The first injection of penicillin into the gluteus maximus was extremely painful and the patient felt collapsed. The pulse volume was fairly good, with a frequency of 62 a minute. Recovery followed within half an hour. The penicillin injections were continued for five days without further untoward effects. The local and general condition improved rapidly, apart from a feeling of tightness in the chest on the fourth day of treatment, and after seven days the patient was quite well.

On March 5, 1946, 12 days after the start of penicillin treatment, oedema of the eyelids was noticed, and the patient complained of a general feeling of weakness. In the evening she was in a state nearing collapse, with slight rigors. The temperature was 99.6° F. (37.6° C.) and the pulse was thin and rapid. Patches of urticaria appeared on the arms and back. The next day there was a generalized giant urticaria with angioneurotic oedema. The patient was somnolent and very difficult to rouse, took no food or drink, and passed no urine during the next 24 hours. The pulse rate was 80-90.

The drowsiness persisted on the following day, and the patient had pains in the wrists and feet, which were swollen. The next day she complained of soreness and tightness of the throat, and on inspection an oedema of the fauces, and of the uvula in particular, was noticed. This passed off within 12 hours. On the fourth day the general condition had begun to improve. The oedema of the face was less, but oedema of hands and feet was still pronounced. The patient now began to take food, and there was rapid improvement during the next few days. On the ninth day she was normal except for a general feeling of weakness, which persisted about two weeks.

Eight weeks after the allergic symptoms had subsided skin-sensitivity tests were carried out to determine whether penicillin or sulphathiazole had caused the severe reaction. Patch tests and intradermal injections were the methods employed. All patch tests with solutions of penicillin (20,000 units per ml.), "sulphathiazole," and physiological saline were negative.

In the intracutaneous tests the following solutions were used: (1) a commercial preparation of impure penicillin (yellow); (2) a commercial preparation of pure crystalline (white) penicillin—both in a concentration of 16,000 units per ml.; and (3)

the disodium cinnamylidene dibisulphite derivative of sulphathiazole. The latter, known under the trade name of "sulthiazole," is in the form of a 45% solution, and was diluted one in five with sterile distilled water in order to obtain an isotonic solution. Quantities of 0.02 ml. of these solutions and of physiological saline as a control were injected intradermally into the upper arms, and the following reactions at the site of the injections were observed: penicillin (yellow), ++; penicillin (white), (+); sulphathiazole, 0; 0.85% sodium chloride, 0.

The marked reaction to yellow impure penicillin strongly suggests that the impurities played the main part in producing the severe allergic condition, though the very weak reaction to pure crystalline penicillin also seems to implicate the penicillin as a rather mild allergen. The tests excluded sulphathiazole as a possible allergen.

### Discussion

Although there are statements in the literature that renewed penicillin therapy does not necessarily produce a repetition of allergic symptoms, this case shows that the severity of the reactions may be increased considerably, and there is a possibility that each subsequent attack may tend to increase the degree of sensitivity still further. It is well to remember that there may be a considerable lag period between the administration of penicillin and the beginning of allergic manifestations. Occurrences as the one described should tend to discourage the use of penicillin in trivial infections which would clear up with the traditional conservative methods.

Willcox (1946) described the use of "benadryl" in cases with mild allergic symptoms, particularly those of urticaria after penicillin therapy. This was not freely available at the time. It remains to be seen whether severer symptoms such as the ones described in this case can be controlled effectively by antihistamine preparations.

We are indebted to Messrs. May and Baker Ltd. for a sample of "sulthiazole" and information regarding isotonic solution of the preparation; and to the Glaxo Laboratories Ltd. for a sample of white crystalline penicillin.

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## CHRONIC BATTLE NEUROSIS TREATED WITH LEUCOTOMY

BY

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From the time of Dunkirk onwards various ways of using physical methods in the treatment of acute and chronic battle neuroses have been a subject of research in this unit. Sleep treatment and barbiturate abreaction (Sargant and Slater, 1940), "front-line" sedation (Sargant, 1941, 1942), and modified insulin treatment (Sargant and Craske, 1941) have now found a generally recognized place in different stages of the rehabilitation of those breaking down under the battle stress. The value of these treatments emphasizes the physiological aspects of many neurotic conditions, but so far there has been no report of the use of leucotomy in this particular group. It is the purpose of this paper to report a case in which great improvement resulted after this brain operation, one of the effects of which appears to be to reduce self-perpetuating tension within the nervous system.

The possible application of leucotomy to the rehabilitation of the chronic battle casualty has been held up by a natural reluctance to employ it except in the final stages of psychiatric treatment. Since 1941, however, the possibilities of leucotomy in helping various types of chronic civilian neuroses have been carefully studied. Over thirty patients have now had the operation done, either at this hospital or at the Atkinson Morley Neurosurgical Unit by Mr. W. McKissock, or at the West End Hospital for Nervous Diseases by Mr. G. Knight. Certain criteria which may help to distinguish the suitable from the unsuitable patient have gradually emerged and have finally enabled this case of chronic battle neurosis to be operated upon with a reasonable probability of success.

### Case Report

The patient, a man aged 36, was admitted to the Sutton Emergency Hospital on Aug. 31, 1946. There was no history of serious neurotic or psychotic illness in the family. He was one of eight children, all considered stable, but the patient had been a more sensitive child than the rest. He had done reasonably well at school, was keen in sports, had completed a full seven-years apprenticeship as a printer, and was in regular work at this trade and in a munitions factory until he volunteered for the Army from a reserved occupation in 1942. His wife described him as happy, good-tempered, hard-working, and certainly not nervous, though still sensitive to criticism by others. He was perhaps over-particular about his personal appearance and habits, but conscientious about his work and interested in his home. Until the illness it had been a happy and successful marriage.

After preliminary training in amphibious warfare he had landed on the beach-head with the first batch of tanks on D Day. From then onwards he was in the heavy tank fighting in France, Belgium, Holland, and Germany. Many of his friends were gradually either killed or burnt to death in their tanks and the patient increasingly expected each day's fighting to be his last. "I had made up my mind that probably I was going to be killed and could not get out of it." During the investigation of possible traumatic incidents that might have caused his symptoms so many of them were found in his fighting experiences that they proved impossible to evaluate or disentangle. He managed to escape twice after his tank had received direct hits, and for some months he met battle stresses with a mounting tension and aggression but no breakdown, though he first started to feel pains in his legs at this time. Near Cologne he had received the second direct hit on his tank, which was blown open. Somehow he escaped in a dazed state and crawled to safety, with a small wound and fractured bone in his foot. He was sent back to England for treatment. When seen by his wife in hospital in November, 1944, he had obviously changed as a result of his battle experiences. He gradually became worse nervously in hospital, and was unable to face a return to duty some four months later when his foot was better, and was finally admitted to a military neurosis centre. He was discharged from the Army after some months' further treatment and was given a few shillings pension a week.

On return to civilian life he tried to resume work with his old firm as a printing-machine operator in August, 1945. He did so, but with increasingly frequent periods off work through pains in the legs, lethargy, headaches, irritability, and poor sleep. He became very sensitive to all criticism and irritable with his wife. His finances became desperate, and articles from the home had to be sold, which further increased his anxiety. When admitted to Sutton Emergency Hospital he was irritable, and begged for relief of his symptoms. He had severe headaches, fatigue, depression, and nagging pains in his legs. He was afraid of himself, was continually worrying about his war experiences, and felt that people criticized him because of his behaviour. On examination he was mildly depressed, was unable to settle at reading or any other occupation, was preoccupied with severe pain in his legs for which no organic cause could be found, was disgruntled at the treatment he had received with regard to his pension, and was worried that he would never get better. He

often expressed the opinion that it would have been luckier for him to have died in battle with his friends than to live on as he was. Schizophrenic symptoms were not present, but he was mildly paranoid, hypochondriacal, and tense under a superficial display of shallow affect. Home life, previously very happy, had been near breaking-point—despite an understanding, normal, and very helpful wife—because of his irritability, sudden tendency to flare up, and perpetual preoccupation with his neurotic symptoms. He was the same in hospital—continually demanding relief of his many pains, varying in attitude between superficial appreciation and sullen criticism of all efforts to help him. He sat in the ward most of the day watching the activities of others, but unable to occupy himself at anything. Apart from compulsive rumination there were no motor acts present of an obsessional kind. His intelligence was average and his memory good.

During nine months of very intensive treatment in hospital prior to leucotomy the patient had had many hours of psychotherapy, but always seemed unable to gain insight into his symptoms. In a dozen sessions of therapeutic exploration of battle experiences, using intravenous barbiturates or ether, many traumatic incidents were gone over, accompanied by a release of great emotion, but with little effect except to relieve some of his headache. Large doses of barbiturate were necessary to help his symptoms of tension, and he gained the greatest relief when insulin sopor was given twice a day, producing a more calm, relaxed, and friendly state but no permanent change. When tension could be relieved, however, he lost the apparent shallowness of his affect, was genuinely appreciative of help, and the pains in his legs were less evident. Because the presenting symptoms might be masking an atypical depression electric convulsion treatment was also tried alone, and then combined with insulin sopor; but it worsened rather than improved his condition and had to be stopped. A final attempt was made to abreact repressed traumatic material as he came out of insulin comas specially given for the purpose, but again with no lasting success. On several occasions he was sent home for periods of leave to see if he was any better in his home environment as a further check on treatment. Before operation, and despite all the treatment given, his condition was practically unchanged except for some relief of his headaches in the frontal region. He was still repeatedly demanding relief for his various pains, and felt an increased hopelessness of ever getting better.

Before operation he was submitted to Dr. L. Minski for an independent psychiatric opinion. The comment was as follows: "My impression of this man is that he is a hysteric—he is histrionic, talks glibly of his pains, etc., and is apathetic. He is not really depressed, but is self-centred and shallow. On talking of his pension he becomes irritable and fidgety, and my impression is that he is largely a compensation neurosis. Quite frankly, I agree that psychological and ordinary physical methods of treatment are not likely to help him, but I don't know what effect leucotomy will have on him. I can find no antisocial traits in his pre-neurotic personality."

With the wife's and the patient's consent, both having been warned of the risks entailed, leucotomy was performed on June 9, 1947, by Mr. W. McKissock. There was little post-operative confusion and the patient was up and about in six days. He was, however, lethargic and careless about the ward immediately after the operation, but this rapidly improved. He reported an immediate lessening of his symptoms, and within six weeks was asking to return to work. His whole attitude had changed to one of pleasant co-operation, friendliness, and sociability with other patients and the doctors. The pains in his legs were now rarely present and did not bother him. Tension was absent. He was sent home to spend three weeks with his wife before starting work. The patient and his wife were both subjected to an intensive questioning at the end of the three-weeks trial period. The wife insisted that he was now to all intents and purposes like he had been before his illness. He had again become kind, considerate, cheerful, good-tempered, and less sensitive. No mention had been made of the pains in his legs; his tension and self-pity had gone. He was still lacking in energy, but anxious to be back at work, and rather inclined to switch his interest of the moment too quickly while waiting.

The patient's examination bore out these favourable reports, as did his whole attitude and manner. He said he felt well again, looked it, and was anxious for permission to start work immediately. He now felt quite confident about returning to his job as a printer, which had been kept open for him. There was no euphoria or elation in his attitude but a reasonable appreciation of his past illness, what had been done for him, and what he should try to do in future to keep well. At the time of writing he is back at his old job, and both his work and home life are reported as satisfactory, with an increasing restoration of his old energy. In the face of repeated questioning his wife maintains that except for his energy "he is now as I first knew him."

Intelligence has shown slight drops of 116 to 110 in Wechsler and 48 to 45 in matrix testing. Some of this small drop may be due to reduced capacity for sustained attention and transient amnesic effects of the operation, the scores in the Wechsler being reduced only in information and vocabulary subtesting. Dr. M. Desai was also asked to do Rorschach tests before and after operation, with no reference to the clinical notes or history of the patient. He made the following summary of the changes observed in tests two days before and seven weeks after the operation. "The pre-leucotomy record indicated a rigid, uncompromising attitude, with hardly any regard for practical issues. In his second record there is a very marked swing towards normality, with willingness to compromise. The suspiciousness and projected hostility, the feelings of depression, insecurity, and unsureness which prevailed in his first record have disappeared. There is a reduction in the patient's tendency to get disorganized in the face of emotional stimuli. The uncontrolled emotionality which characterized his first record is very considerably reduced, and he shows in the second record an inclination towards more adapted emotional reactions. These changes seem to be due, however, not so much to an increase in control as to a reduction in sensitivity to external stimulations. Another aspect of the tendency is the patient's greater reliance, as shown by the tests, on his own inner resources than was the case before the operation. The general trend seems, therefore, to be towards a much more normal adaptation and a greater willingness to co-operate with his environment than that found in his first record."

### Discussion

The improvement of this patient has been among the most gratifying in the several thousand cases of war neurosis treated at Sutton in the past seven years. Relapse at a later date cannot be excluded, but, for various reasons connected with our follow-up of other patients, it is not considered probable. Those who have been ready to predict a gross deterioration in general personality, intelligence, or social behaviour whenever leucotomy is attempted may wish to reserve judgment on the opinion of the patient's wife and the doctors treating him that such gross changes were absent. But this has also not been an uncommon finding in our civilian neuroses selected for operation. The after-effects of brain operations and of cerebral trauma in general depend a lot on the previous personality of the patient. The better it is, and the better preserved it remains up to the time of operation, the fewer have been the undesirable after-effects with leucotomy. Another possible reason for the absence of marked deterioration in many of our patients may have been the attempt to modify, so far as is possible, the severity of the operation to suit the particular patient's symptoms. For the more extensive the brain damage inflicted the more such sequelae could be expected.

In a small group of chronic schizophrenics, treated along with the much larger number of neuroses and depressions, an added deterioration has, however, often followed the operation. Schizophrenic dilapidation and disordered brain function may become more clarified and obvious. Such a dilapidation is rarely seen in the better-preserved basic personalities. Decision to operate in a particular case has become somewhat easier recently by the finding that the more loath one has been in the past to carry out the

operation because of a continued preservation of general personality the better the quality of the eventual result. With its use in this type of patient it is of course necessary to have confidence, based on a long active experience in treatment, that as good a recovery by the other means now available is not to be expected.

This, however, helps to explain why some of our patients after leucotomy have been able to return to work as estate agents, clerks, housewives, calculating-machine operators, chefs, office managers, and the like after long illness and incapacity. But only one schizophrenic patient out of nine has done as well as these cases.

Certain temporary and permanent changes may be seen in all types of patient, such as lack of a former spontaneity and drive, some distractibility, a heightened irritability, lessened capacity to worry deeply about the misfortunes of others, and the easier acceptance of imposed standards of social behaviour and morals. But not even these are consistent findings. Hebb (1945) has reported a case in which both frontal lobes were removed for traumatic scarring causing epilepsy. No deterioration due to the removal could be detected in careful mental testing some years after the operation. Such changes have not always been easy to demonstrate clinically at an even earlier stage in some of our best results. And those present are often of academic and research interest rather than practical objections to the treatment, if cases are skilfully chosen for the operation from chronically suffering and severely incapacitated patients and operative interference is not too extensive.

It has already been pointed out that the present case of chronic battle neurosis was chosen as a result of previous observations and research on civilian neuroses. The reasons were as follows. The patient was considered incurable by other known methods after nine months of intensive study and active treatment in hospital and an illness of two and a half years' duration. The family history was good, and the patient's personality before illness showed none of the traits that suggest a more doubtful result with leucotomy, such as lack of basic drive, the presence of constitutional aggressiveness, marked general psychopathic qualities, severe manic-depressive mood swings, or tendencies to hysterical or schizoid withdrawal in the face of ordinary stresses. Favourable factors were a good previous social adjustment and drive, some over-meticulousness and sensitivity, a long period of proved stress well borne before final breakdown, and the presence during the whole illness of severe tension and rumination. This tension, seemingly aroused in the first place by battle experience, appeared to have finally become self-perpetuating in the nervous system, localized in intolerable hypochondriacal preoccupations, and superficially masked by hysterical, demanding, and paranoid attitudes without real insight. An important observation was that drugs which temporarily reduced tension, such as insulin and the barbiturates, helped the patient to become better integrated and to gain temporary insight and relief of symptoms. His condition was worsened by treatments of increased tension, such as convulsion therapy and wrongly directed forms of psychotherapy. Another important point was that both his home and his old job were still waiting for the patient if he recovered: the results of any treatment are often nullified by its delay till it is too late to remedy the social consequences of prolonged mental illness. There also seemed to be no real motivation to a continuance of illness if disabling symptoms could be abolished and working capacity and self-esteem restored. Such cases may be the exception rather than the rule in the average run of chronic war neuroses, but they are certainly to be found in all sections of the community and often struggling after outside ordinary psychiatric hospitals.

One further reason for reporting the case should be mentioned. The patient's wife became very alarmed, as have other relatives recently, when the operation was first suggested. This was in part because of her general practitioner's fears about leucotomy, which could have been derived from the correspondence column of the *British Medical Journal*. It is hoped, as a result of this report, that others who might benefit from this operation in the future will not lose their chance of being helped solely because of misinformed opinion or theoretical prejudice. A reasonable caution is bound to follow a careful study of actual results.

**Further Note.**—During proof correction the patient was again seen by one of us (C.M.S.) on November 4, 1947. He is working regularly with his old firm and his work on a printing machine is reported as satisfactory. He is still tired in the evenings and goes to bed earlier than usual. Frequency of micturition, present before the operation, is now increased. The wife reports a few minor bouts of irritability have occurred, which quickly pass; otherwise he remains thoughtful and considerate. He is again taking her to dances and resuming his old social contacts. He is normal sexually, his appetite is good, and he has gained weight.

Our thanks are due to Dr. L. Minski for providing the patients and the facilities for research at Sutton, and to colleagues at Sutton who have allowed us to examine leucotomy patients under their care.

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## Medical Memoranda

### An Unusual Knee Injury

The unusual nature of the following case makes it worthy of record.

## CASE REPORT

A young airman was admitted to hospital complaining that he could not straighten his right knee. He said that he and a friend had been cycling along a main road, when their cycles had become locked so that they had both been thrown to the ground. On inspection there were sundry abrasions and an obvious lateral displacement of the patella. Routine radiographs (Figs. 1 and 2) showed, much to my surprise, that there was also present a long metallic foreign body with a chisel-like edge. In view of the fact that there was no evidence of splitting of the bone it was considered that the foreign body was most probably lying in the suprapatellar pouch, and that one of the abrasions must be a partially closed wound of entry.



Fig. 1.—Radiograph showing lateral view of foreign body.

At operation unexpected difficulty was experienced in reducing the patellar dislocation. The suprapatellar pouch was empty, and on extending the incision downward the foreign body was found. Only about 1/4 in. (0.64 cm.) was projecting from the inferior surface of the medial femoral condyle. It was firmly wedged and great force was required to pull it out, when it was revealed as being 1 1/2 in. (4.7 cm.) of the distal end of a 1 7/8-in. (0.3-cm.) screwdriver.

The patient made a good recovery. Radiographs taken five weeks after the operation showed no irregularity of the articular cartilage. He was given faradism and after six weeks was discharged to an R.A.F. hospital, with no free fluid, and with full extension and active flexion to 80 degrees. A fortnight later he returned to his unit on light duties.

## COMMENT

To explain the presence of the screwdriver I had to suppose that the piece had been lying in the road and had been knocked up into a vertical position by the falling cycle and had been in this position when the patient's knee fell on it. This rather

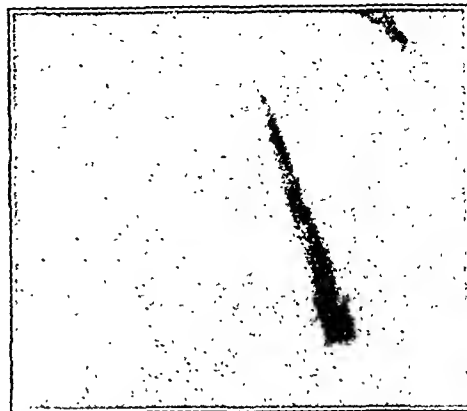


Fig. 2.—The foreign body from another aspect.

far-fetched theory held the field till the friend, who had been told of the findings, arrived with the rest of the screwdriver, which he had found in the tool-bag of his cycle in the condition shown in Fig. 3. Presumably the point of the screwdriver had

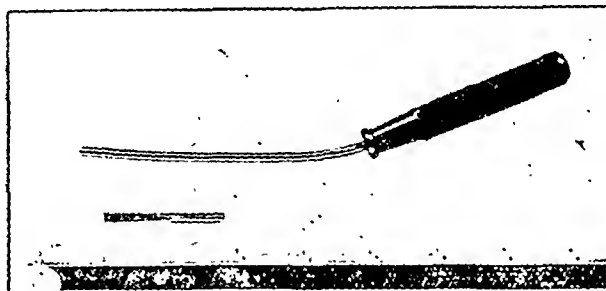


Fig. 3.—The broken screwdriver.

come out through the tool-bag flap in the fall, entered the femur, and got broken off, the rest of the screwdriver having fallen back into the tool-bag. The screwdriver was of poor quality, and the break was a fatigue fracture at the point of torsion.

The mechanism of the accident has been explained, but the absence of even a small split in the femur from an instrument which had penetrated a distance of 1 1/2 in. (3.8 cm.) and was so well adapted for shearing off the entire condyle is rather surprising. Perhaps the fact that the screwdriver entered slightly across the grain, coupled with the sudden breaking of its shaft, is the explanation.

I am indebted to Mr. Lloyd, radiographer to the hospital, for the x-ray prints; to Mr. Beven, of Messrs. Baker Perkins, Ltd., for the opinion on the screwdriver fracture, and to Mr. Guscott, of the same firm, for the photograph.

WM. MARSHALL, M.B., Ch.B.,  
Surgeon in charge of Service Fractures,  
Peterborough and District Memorial Hospital.

### Two Mongol Children in a Family

The rarity of the occurrence of two mongol children in the same family is sufficient warrant for putting any case on record. Brousseau in his monograph on mongolism quotes Goddard as stating that in an experience of 322 cases he had never met with more than one affected child in a family, nor had Schlapp, working among the mental defectives in New York. My own experience in more than 200 cases has been similar.

In the present instance both parents were strong and robust dalesfolk, and at the birth of the first child—a boy now 9 years of age—the father was 32, the mother 21. The second child, a girl, was born fourteen months later. There have been no subsequent pregnancies. Both babies were breast-fed, and both

show the typical physical and mental characteristics of mongolism but no other abnormalities, and the tongues are not fissured. Both have hyper-extensibility of the thumbs and both adopt the Buddha position when sitting on the floor. They show medium-grade imbecility and, as is always the case, are fond of music and keep themselves clean and tidy.

## COMMENTARY

The statement frequently made that the mongol most usually appears at the end of a large family when the parents are no longer young and the mother is approaching the climacteric requires modification, as may be seen from Table I, compiled from my own completed records and the figures given by Brousseau:

TABLE I.—Position of Mongol Child in Family

Order of Birth	Present Author (154 Cases) %	Brousseau (772 Cases) %
1st .. ..	23.3	25.2
2nd .. ..	23.3	19.8
3rd .. ..	10.4	13.5
4th .. ..	8.5	7.9
5th .. ..	8.5	6.5
6th .. ..	7.8	6.6
7th .. ..	7.8	6.7
8th .. ..	2.6	5.6
9th .. ..	2.6	5.3
10th .. ..	5.2	2.9

Thus 57% (58.5% according to Brousseau) of mongols occurred in the first three pregnancies, and in the greater number the parents appear to be perfectly normal physically and mentally. Benda found 124 mongols in 255 to belong to the first or second pregnancy. There is a progressive drop in successive pregnancies until the tenth is reached, when there is a small rise, which has little statistical value. Another very marked phenomenon is the rarity of mongolism in contradistinction to other forms of mental deficiency, and its comparative frequency amongst the more able and studious and the professional classes.

The age of the parents appears to play some part, the nature of which is obscure. Table II shows the percentages in two series of observations.

TABLE II.—Parents' Ages at Time of Birth of a Mongol Child

Age	Fathers %		Mothers %	
	Present Author	Brousseau	Present Author	Brousseau
Under 30 .. ..	20.2	19.2	18.1	27.1
31-35 .. ..	7.2	20.8	13.6	15.3
36-40 .. ..	23.2	21.6	30.1	26.3
41-50 .. ..	49.3	38.4	37.9	31.3
Total cases included	154	412	—	582

In his recent book, *Mongolism and Cretinism*, London, 1947, Benda states that 42% of the mothers were under 35, and quotes Beidleman as finding an identical percentage.

G. A. AUDEN, M.D., Ph.D., F.R.C.P.

### Angioneurotic Oedema as a Possible Sequel to Penicillin Administration

Angioneurotic oedema is rare enough to warrant attention, and the following case is of special interest in view of the possible aetiological connexion between the symptoms exhibited and the administration of penicillin.

## CASE REPORT

A young woman who had been very seriously ill with septicaemia in a London County Council general hospital was admitted here early in June, 1947, for rehabilitation. Her general condition, considering the severity of the illness, was surprisingly good—a fact we attributed to the large amount of penicillin she had received (15,840,000 units).

Progress was somewhat slow but, nevertheless, uninterrupted until on the evening of the twelfth day after admission she complained of severe pain in the right side of her neck. The temperature rose to 102°–103° F. (38.9°–39.4° C.), and a swelling began to develop below the styloid process. Penicillin in doses of 50,000 units four-

hourly was immediately started. By next day the swelling had greatly increased, and extended down the whole length of the sternomastoid muscle. Fluctuation was present and, although other cardinal symptoms of inflammation were absent, it was decided, in view of her previous history, to incise. A thorough exploration was made under thiopentone, but no pus was found. On the other hand the tissues were oedematous, especially the sternomastoid muscle, which was swollen to three times its normal size, and the subsequent dressings were wet with serum. Three days later everything had subsided and penicillin was discontinued. A tentative diagnosis of angioneurotic oedema, supported by a completely normal blood count, was made. The white cells numbered 6,000 per c.mm.

On the eighteenth day the temperature again rose abruptly to 103° F., and a painful fluctuating swelling developed over the supinator muscles below the right elbow. This rapidly increased in size to that of a large duck's egg. In view of the previous experience it was left severely alone, only ephedrine in 1/2-gr (32-mg.) doses three times a day being given. Three days later the swelling had disappeared and the temperature had returned to normal. The blood count was normal except for a slight reduction in platelet to 200,000 per c.mm.

A quiescent period followed, but on the nineteenth day from the resumption of penicillin therapy the temperature again rose and the patient developed a cough with frothy, watery sputum. Beyond slight catarrhal changes no physical signs could be detected, and x-ray examination revealed no abnormality. These symptoms again lasted for three days and were followed by acute abdominal pain in the right iliac fossa. This presented a difficult problem, as the maximum tenderness was exactly over McBurney's point, and with a temperature of 100° F. (37.8° C.) and a pulse of 98 there seemed little doubt but that the appendix, too, was oedematous. Fortunately for all concerned these symptoms subsided rapidly and the pain shifted to the left epigastric region and the left costal margin. The spleen was just palpable. Three days later the epigastric pain became intense and vomiting was frequent. Fluids were returned blood-stained, suggesting oedema and congestion of the gastric mucosa. Once again these symptoms persisted for three days.

During the whole of this period it was noted, especially by the nursing staff, that from time to time the patient became somewhat eccentric and irrational for short periods—symptoms which might point to small oedematous lesions in the brain. The condition now appeared to have burned itself out and there were no recurrences.

Other pathological investigations showed: a sedimentation rate increased to 13 mm. in the first hour, a clotting time slightly up at thirteen and a half minutes, and a bleeding time within normal limits at four minutes.

It will be noted that there were two separate attacks with an interval of ten days between. While it is impossible to dogmatize, the absence of any other aetiological factors and the fact that before each attack penicillin had been administered in large doses at least render it suspect as the causal factor. The patient had never suffered from such a condition before and there was nothing in her history even to suggest an allergic diathesis. Another curious feature was the site of election in each attack. During the first the skeletal musculature was singled out, while in the second the visceral and internal organs were involved.

J. OWEN REID, M.D.,

Medical Superintendent, Princess Mary's Hospital  
Margate.

Mr. L. Z. Cosin spoke on "Modern Methods in the Care of the Aged," at the Royal Institute of Public Health and Hygiene on Nov. 19. Mr. W. E. Tanner was in the chair. Mr. Cosin said that the aged population of Great Britain had risen from 2½ million (1901) to nearly 6½ million (1944) in about 40 years, while the Beveridge Report anticipated a further rise to 9½ million of pensionable age by 1971. The problem became more serious when they found that the number of invalids per 1,000 population rose steeply after the age of 60. More adequate treatment for their special needs; this required a different type of organization for their special needs; this had been referred to in the recently published Report of the British Medical Association on the care of the aged sick. This postulated the provision of geriatric departments in each district hospital of the Regional Hospital Boards. Pilot units in this country were working on these lines, and the results had been very gratifying. Patients could be transferred to appropriate long-stay annexes only when it was considered that maximum improvement had been attained. Thus there would be long-stay annexes for the sterile confining ambulant, for the permanently bed-fast, for the senile confining states, and for those patients whose needs were largely residential and nutritional. The most important specialists in a geriatric department were, first, a general physician experienced in the diagnosis and treatment of aged patients; secondly, a psychiatrist. It was unfortunate that the psychological difficulties of the aged were so little appreciated, because many of the senile confining states rapidly responded to treatment.



## Reviews

### MONGOL AND CRETIN

*Mongolism and Cretinism.* By Clemens E. Benda, M.D. (Pp. 310; 101 illustrations. 25s.) London: William Heinemann, Ltd. 1947.

Among the many problems associated with mental deficiency there are none so interesting as those which concern that type known as mongolism. The physical and psychological manifestations give a picture so uniform, and its prevalence irrespective of nationality is so evident, that it is no cause for surprise that various theories of its aetiology have been without being founded on fact—for example, racial regression, hereditary factors, syphilitic taint, and fertility exhaustion. Sporadic cretinism on the other hand, which is in some ways comparable, has a simpler aetiology, and its pathology is now well understood.

Dr. Clemens E. Benda, utilizing his unique opportunity as Director of the Wallace Research Laboratory at the great institution of Wrentham, Mass., has made a comparative study of these two forms of mental deficiency and has published his results in a book of the first importance. It has been estimated that mongol defectives form about 5% of the mentally deficient of all groups. Benda quotes Beidleman that mongolism occurred in 3.4 per 1,000 births at a large maternity hospital. Considering that to be an average sample of children born in the U.S.A. he calculates that between 6,000 and 9,000 mongols are born every year, and that, if their expectation of life is assumed to be ten years, at any given time there will be some 60,000 mongols in the population. The statistical surveys reveal other facts—notably the great rarity with which the condition occurs in more than one child in the family. Benda, who found two such cases in 400 families, quotes Orel as having collected 21 cases in the literature. Parents of a mongol are always fearful lest they may have a second, a point on which they can be reassured. The statement that mongolism occurs most frequently in a large family (when the mother is nearing the climacteric) is not altogether borne out by the figures. Thus both Benda and Beidleman found 42% of mothers to be under 35 years of age. In a series of 255 mongol births the former found 124 (48.6%) to be the first or second child, Brousseau (772 mongols) gives 45%, and in another smaller series the percentage was 46.6%.

Valuable as they are, these dry bones of statistical enumeration are but a scaffold round the main thesis—the pathological and histological investigations which form the chief part of the book. The author discusses each endocrine gland in turn and illustrates them by beautifully reproduced photomicrographs. He concludes that mongolism is a congenital hypopituitarism. The format and illustrations are remarkably good, and the book is likely to remain for a long time the standard work on mongolism.

G. A. AUDEN.

### NOTHING BY MOUTH

*Parenteral Alimentation in Surgery with Special Reference to Proteins and Amino Acids.* By Robert Elman, M.D. (Pp. 284; illustrated. 21s.) London: Hamish Hamilton Medical Books. 1947.

Until recently the results of progress made in the development of surgical procedures were impaired by the frequency of infection, collapse, or shock after operation, but advances in chemotherapy and transfusion techniques have now improved the situation. Blood transfusion is a form of parenteral alimentation as well as a means of rectifying the physiological imbalance due to oligæmia. Many types of fluid and food are used for parenteral alimentation. By this means, when the patient is unable to ingest, digest, or absorb sufficient food, it is possible to give essential nutrients—water, electrolytes, amino-acids, carbohydrates, and vitamins. Fat is not generally administered parenterally, since there is no stable emulsion that can be safely introduced into the circulation. In future intravenous fat will most probably become available as a means of giving much of the caloric requirements parenterally. It should be noted, how-

ever, that there has been a tendency to resort to parenteral alimentation in certain conditions which do not justify this procedure.

In this monograph, which was awarded the quinquennial Samuel D. Gross Prize of the Philadelphia Academy of Surgery for 1945, Elman gives a full account of the development and use of the various forms of parenteral alimentation. We welcome this account from the pen of one of the leading exponents of this method of feeding. As he points out, discussion of this mode of treatment is as appropriate to medical as to surgical patients. He pays special attention to protein and amino-acids, for he has had great experience of them.

In his introduction the author gives a most interesting history of the development of transfusion techniques. He credits Sir Christopher Wren with being the first person to introduce fluids intravenously. He then describes the general indications for and method of parenteral administration of fluids, with an adequate consideration of the factors leading to untoward reactions. There follow discussions on the requirements for water and electrolyte, energy-yielding nutrients, and vitamins. In the remaining two-thirds of the book he considers the protein needs of the body, protein deficiency, and the methods of parenteral protein administration, including the transfusion of plasma, amino-acids, and hydrolysed protein. In the penultimate chapter he sets out a practical programme for parenteral alimentation, and finally he reviews the clinical results. A historical appendix summarizes the salient data in the development of this mode of alimentation, and there is a useful author-subject index.

D. P. CUTHBERTSON.

### LEPROSY

*A Practical Textbook of Leprosy.* By R. G. Cochrane, M.D., Ch.B., F.R.C.P., D.T.M.&H. With foreword by George R. McRoberts, M.D., F.R.C.P., D.T.M.&H. Oxford Medical Publications. (Pp. 283; illustrated. 42s.) London: Geoffrey Cumberlege, Oxford University Press. 1947.

It has been calculated that there are about 1,200,000 people in India suffering from leprosy, and Dr. Cochrane says, "It is probably not an exaggeration to state that there may be as many as 300,000 cases of leprosy in the Madras Presidency alone." This statement itself is sufficient to justify the writing of a book discussing particularly leprosy as it is found in Madras. Dr. Cochrane writes from long experience, and the 22 chapters of his book are a rich mine of information on every aspect of the subject, though some of the seams may be rather hard to excavate. The 174 illustrations are excellent—photographs of lesions, photomicrographs of sections, pictures of buildings and rural scenes, and two coloured representations of *Mycobacterium leprae* in the tissues. These, even apart from the text, form an atlas of leprosy sufficient to make the book well worth studying.

The author deals with every feature of leprosy and gives a wealth of practical detail—perhaps most fully in the epidemiological and preventive aspects, and all who survey the problem or combat the disease should study these sections carefully. He fully discusses treatment with hydnocarpus oil, as well as the treatment of lepra reaction, neuritis, and other complications, but refers to the more recent sulphone therapy only in a few sentences. He adds a paragraph on the requirements for testing new remedies, which include facilities for histological work and a person capable of interpreting the sections. "If everyone would avoid publishing the results of treatment for two years much disappointment would be avoided."

The book unfortunately has some textual mistakes, and there are a few statements which have to be interpreted not as they read but in the light of the context. These defects are doubtless due to the author's absence in India making it difficult sufficiently to correct the proofs.

E. MUIR.

### BONE-MARROW CULTURE

*La Cultura in Vitro del Midollo Osseo.* By Aminta Fieschi and Giovanni Astaldi. (Pp. 309; illustrated. 1,000 lire.) Pavia: Tipografia del Libro. 1946.

In nine years of research into the application of tissue-culture methods to the problems of haematology Fieschi and Astaldi have accumulated much useful information, which they have summarized and reviewed in this book on bone-marrow culture.

They are not concerned with studies of cell metabolism, and for morphological studies they use a relatively simple technique. Bone marrow obtained by sternal puncture is transferred to a 4:1 mixture of plasma and chick-embryo extract. After this has coagulated, the culture is covered by a similar fluid medium prepared from serum, which has to be renewed every one or two days. For direct observation and for the preparation of smears the solid part of the culture may be made on cover-slips. The authors find the principal evidence for most of their interpretations in stained smears, and their successful results, illustrated in good photomicrographs and coloured plates, will make many wish to try their methods. They briefly consider other work on the subject and their own results with normal marrow in terms of Ferrata's theories of haemopoiesis, and then discuss in full their findings in pernicious anaemia, the leukaemias, and erythroblastic anaemia.

The book is interesting in spite of many repetitions and lengthy discussions, and some of the conclusions are remarkable. The marrow cells in cases of relapsed pernicious anaemia tend to mature normally in culture. In marrow taken immediately after beginning liver therapy basophil megakaryoblasts undergo early normoblastic maturation. Cells in cultures from cases of chronic leukaemia survive only as long as their normal counterparts, while those from cases of acute leukaemia can survive to a time when normally the parenchymatous tissue has been replaced by fibroblasts and macrophages—a difference connected with the relation of the leukaemias to malignant growths. The authors promise further investigation into this and other problems. Meanwhile they have produced a stimulating and well-documented work which many haematologists will wish to have in their library.

L. P. R. FOURMAN.

### SKIN DISEASES

*The 1946 Year Book of Dermatology and Syphilology.* Edited by Marion B. Sultzberger, M.D.; Assistant Editor, Rudolf L. Baer, M.D. (Pp. 638; illustrated. \$3.75 or 21s.) Chicago: The Year Book Publishers. London, H. K. Lewis and Co. 1947.

The indefatigable editors of this series have produced another very useful summary of a year's dermatological progress. As usual, they begin their volume with an article of some length on a topic of interest to both dermatologists and general physicians; and this year they discuss advances in management, drawing attention to several new remedies of great interest. Within the last few years a number of promising new drugs have been discovered, such as the sulphonamides, penicillin, tyrothricin, streptomycin, and the quinolines, and the editors carefully consider their advantages and disadvantages, their indications and contraindications. They also discuss the recent antihistamine drugs and—perhaps the most striking recent advance in skin therapy—the treatment of lupus by large doses of calciferol. It is impossible to summarize their remarks on all these matters here, but their attitude throughout is well balanced. After a formidable table of the dermatological dangers of penicillin they conclude that, "although valuable in exceptional cases, penicillin is *not* particularly valuable as a topical medicament for general use against bacterial infections of the skin." Medical men in Britain might bear this admonition in mind, for some now treat almost every skin case with penicillin cream as a routine, sometimes with deplorable results.

In addition to the introductory essay the *Year Book* presents most of its familiar features, including good abstracts of the dermatological literature of the year. Probably every important paper is mentioned, and the illustrations are well chosen and well reproduced. The "Quiz" on the jacket will reveal to many readers how numerous are the questions on recent dermatological work that they cannot answer, and, it is to be hoped, will prompt them to fill the gaps in their knowledge. We again recommend this book.

H. HALDIN-DAVIS.

*Transactions of the American Therapeutic Society*, Volume XLIII, 1943, edited by Francis M. Pottenger, jun., and published by the Society, contains the papers given at the Society's 44th and 45th annual meetings. Of most of them it can be said, in the words of one of the authors, "These observations are not original, but they are personal." They will therefore be of more interest to those who attended the meetings, and may wish to have some permanent reminder of what was said, than to the general medical public.

### BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

*The Kingdom of the Lost.* By J. A. Howard Ogdon. (Pp. 256. 10s. 6d.) London: The Bodley Head. 1947.

The author describes his recovery from schizophrenia with the aid of yoga.

*Recent Advances in Sex and Reproductive Physiology.* By J. M. Robson, M.D., D.Sc., F.R.S.Ed. 3rd ed. (Pp. 336. 21s.) London: J. and A. Churchill. 1947.

A summarized account of recently acquired knowledge of the reproductive system.

*A Short Textbook of Surgery.* By C. F. W. Illingworth, C.B.E., M.D., Ch.M., F.R.C.S.Ed. 4th ed. (Pp. 680. 30s.) London: J. and A. Churchill. 1947.

Includes new material on anticoagulants, thiouracil, protein hydrolysates, arterial injuries, and nerve injuries.

*The Occasion Fleeting.* By Hugh Barber, F.R.C.P. (Pp. 199. 15s.) London: H. K. Lewis. 1947.

Essays on the art of medicine.

*The Parathyroid Glands and Skeleton in Renal Disease.* By J. R. Gilmour, M.R.C.P. (Pp. 157. 18s.) London: Oxford University Press. Geoffrey Cumberlege. 1947.

An account of the parathyroid gland in 90 cases of renal disease.

*The Treatment of Rheumatism in General Practice.* By W. S. C. Copeman, O.B.E., M.A., M.D., F.R.C.P. 4th ed. (Pp. 258. 12s. 6d.) London: Edward Arnold and Co. 1946.

An account of acute and chronic rheumatic disorders and their treatment; for the general practitioner.

*Clinical Studies in Psychopathology.* By H. V. Dicks, M.A., M.D., M.R.C.P. 2nd ed. (Pp. 238. 15s.) London: Edward Arnold and Co. 1947.

Indented for the practitioner with clinical experience of the psychoneuroses.

*The Child's Lung.* By Stefan Engel, M.D. (Pp. 332. 40s.) London: Edward Arnold and Co. 1947.

An account of the structure, function, and diseases of the lung in children.

*An Atlas of Dental Histology.* By E. B. Manley, M.Sc., D.C.S. B.D.S., and E. B. Brain, F.I.B.P., F.R.P.S. (Pp. 49. 12s. 6d.) Oxford: Blackwell Scientific Publications. 1947.

Presents photomicrographs of dental tissues, and includes a section on histological technique.

*The Shakespeare Circle.* By C. Martin Mitchell. (Pp. 116. 12s. 6d.) Birmingham: Cornish Brothers, Limited. 1947.

A biography of Dr. John Hall, Shakespeare's son-in-law.

*National Insurance.* By John Gazdar, LL.B. (Pp. 74. 3s.) London: Stevens and Sons, Ltd. 1947.

A simply written account of the effects of the National Insurance Act, 1946.

*Die Klinik der energetisch-dynamischen Herzinsuffizienz.* By Robert Hegglin. (Pp. 120. 19 Swiss francs.) Basle and New York: S. Karger. 1947.

A monograph on cardiac insufficiency in metabolic disorders.

*The Epidemiological Significance of Grouping and Typing the Haemolytic Streptococci.* By Jörgen Ernst. (Pp. 379. 25 Danish crowns.) Copenhagen: Ejnar Munksgaard. London: Humphrey Milford, Oxford University Press. 1942.

The author discusses particularly scarlet-fever epidemics and endemics.

*Introduzione allo Studio dei Protozoi Parassiti dell' Uomo.* By Augusto Corradetti. (Pp. 100. No price.) Rome: Istituto Superiore di Sanità. 1947.

Includes the study of entamoebae, trichomonads, trypanosomes, and plasmodia.

*La Science de L'Hypnotisme.* By E. Bérillon. (Pp. 373. 14 francs.) Paris: Librairie Jouve et Cie. 1946.

The use of hypnotism in psychotherapy.

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## FOR AND AGAINST B.C.G.

We have referred editorially on several occasions during the past few years to the possibility of using B.C.G. vaccine in this country. It is now twenty-five years since it was first used in France: in other countries, notably Denmark, Norway, and Sweden, the method of employing it has been improved, and careful studies have been made which appear to afford sound evidence of its value. A considerable body of opinion among those interested in the treatment of tuberculosis in this country is in favour of the method, and recently an influential deputation requested the Minister of Health to sanction the use of the vaccine and to make it available. It is understood that the possibility of acceding to this request is being explored. Presumably the vaccine could be obtained from abroad until arrangements can be made for its manufacture here.

In a paper read to the International Congress of Physicians in London on Sept. 12, which we publish on page 855, Prof. G. S. Wilson takes, as he describes it, the part of devil's advocate, and marshals the arguments against the use of B.C.G., in order at least that we may be quite clear about what we are doing if it is to be introduced. He first criticizes the statistical evidence of its efficacy. It is generally admitted that the original observations in France mean very little; they were also based largely on oral administration, which has now been abandoned in favour of some form of injection. Among studies employing present-day methods that of Wallgren is vitiated by the absence of controls and that of Levine and Sackett in New York by a faulty method of selecting controls, while that of Rosenthal and his colleagues in Chicago affords incomplete information in several particulars. All these workers used the vaccine in infants. Among those who have given it to nurses Ferguson had no controls, and Heimbeck, whose work in Norway is generally considered to provide the surest backing for B.C.G. as a prophylactic, employs a method of presenting his results which involves a fallacy. Finally, although Aronson and Palmer's results among North American Indians are acknowledged to be very suggestive, it is pointed out that effects observed in so highly susceptible a race will not necessarily be duplicated in white peoples possessing a higher degree of basic immunity. Lest these well-founded criticisms should have an unduly deterrent effect, it is perhaps as well to remember that Wilson is deliberately arguing from the negative standpoint, and that a more difficult subject on which to produce statistically unassailable evidence is scarcely conceivable. The disease being one of low incidence and extreme chronicity, large numbers of persons must be observed for a period of years. We should also not forget that in the more manageable experimental field the immunizing power of B.C.G. has been well demonstrated; moreover, in the

human subject present-day methods of using it induce tuberculin-sensitiveness regularly. It may not be justifiable to transfer without qualification to ourselves conclusions based on effects in guinea-pigs, calves, or even American Indians, but at least the theory is sound and there is some expectation of the desired effect.

Everyone will agree with Wilson that if we are to use B.C.G. its first use should take the form of a properly controlled further investigation rather than the liberation of the vaccine for anyone to do what he likes with it. It is an important point that untoward effects from the vaccine in infants might easily prejudice subsequent immunization against diphtheria. Whatever method is employed, the effects of a living vaccine are always liable to take a form which will excite public animosity. B.C.G. injected subcutaneously gives rise to an abscess in a small proportion of cases; intracutaneous injection may result in an ulcer; and the multiple-puncture method, though rarely causing a destructive lesion, produces up to forty rather angry-looking red papules which persist for weeks. Care in the maintenance of the culture will ensure that untoward effects are rare, but they cannot entirely be eliminated. In the preparation of the vaccine a nice balance has to be struck between a degree of avirulence which renders it ineffective and an approach towards virulence which leads to the production of local lesions. An interesting account is given by K. A. Jensen<sup>1</sup> of the behaviour of B.C.G. at the State Serum Institute, Copenhagen, where he was responsible for preparing the vaccine for use in Denmark between 1927 and 1941. Two strains were used during that time, of which one was not sufficiently avirulent and had to be abandoned. The condition of the other could be kept fairly constant by interposing a few transfers on bile-potato medium after a series of generations on the Sauton medium employed for making the vaccine. Jensen has also devised an accurate method of assessing virulence, which consists in injecting four different doses intradermally into guinea-pigs and observing the exact duration of each nodule produced. One can well understand his reluctance, expressed at the International Congress for Microbiology last summer, to embark on the use of an alternative vaccine made from Wells's vole bacillus. His attitude was that, having spent twenty years in learning how to manage B.C.G., he had no wish to start again from the beginning. It should perhaps be added that the vole bacillus might well prove not to need so much managing.

That B.C.G. vaccination has disadvantages there is no denying, and everyone will demand with Wilson that the gains from it shall be commensurate. Where everyone will not follow him is when he seems to suggest that the need for a method of immunization against tuberculosis has been exaggerated. He mentions the fact that during the whole of the Prophit survey only two nurses under observation died of tuberculosis, "giving an annual mortality rate one-third of that for the female population of corresponding age in England and Wales." This isolated fact is misleading. It is generally conceded that nurses more often develop tuberculosis than comparable women in other occupations, and if our information refers only to morbidity and not to mortality it is because a follow-up

<sup>1</sup> *Acta tuberc. scand.*, 1946, 20, 1.

which will yield information on the latter has yet to be made. Authors adducing evidence of a high incidence of tuberculosis among nurses are Heimbeck<sup>2</sup> himself, E. L. Ross,<sup>3</sup> H. L. Israel *et al.*,<sup>4</sup> and D. W. Carmalt-Jones<sup>5</sup>: the last-named includes a comparison with female students of other subjects at the same age. The findings in the Prophit survey<sup>6</sup> deserve to be given more fully. The number of nurses on which conclusions are based was 2,572, and they were under observation for an average period of 2.8 years. They presumably included some who were first examined when the survey began in 1934, and had thus been observed for 8 years up to 1942, at which point for this purpose the survey terminated. They must also have included many observed for much shorter periods, and, too, some who were untraced and whose fate, if known, might have added to the number of those with tuberculosis. The number initially Mantoux-negative was 452, and of these no fewer than 33 (7%) developed clinical tuberculosis. It is true that only 2 of these nurses had died when the report was written, but 2 had spinal caries, 1 advanced tuberculous laryngitis, and 4 others active pulmonary disease; in the remainder the lesion was stated to be "arrested," "quiescent," "healed," or "recovered," but any such description can be only provisional in this disease. Of the originally Mantoux-positive 2,120 nurses only 43—a much lower proportion—had developed tuberculosis; the disease was still active in 14 and "quiescent" in 19. If the number of deaths in this series could be stated ten or even twenty years hence the picture would be very different: tuberculosis is a disease which takes a long time to kill. For the same reason the fact that only 1 child in 1,740 dies of tuberculosis in the first year of life does not present a true picture of the mortality from infection acquired at this time.

We would therefore question the conclusion that there is not enough to be gained by the use of B.C.G. even if its efficacy is proven. Any feasible method that will demonstrably increase resistance to tuberculosis in certain classes of person is surely well worth while. These classes certainly include tuberculin-negative nurses, and infants in infected households. It is possible, as Wilson suggests, that to aim at protection from undue exposure to infection would be a better policy, but this is even more difficult than it sounds: one of the chief dangers to nurses is the undiagnosed case, sometimes in a surgical ward. There is a field of usefulness for B.C.G. if the claims made for it are accepted. It seems a reasonable view that some contribution from this country to the study of this subject is overdue.

### THE WANING POWER OF PENICILLIN

It has been a general experience for some time past that penicillin-resistant staphylococci are encountered with increasing frequency. Almost unheard-of in the early days of penicillin treatment, they now form a substantial proportion of strains from patients for whom such treatment is contemplated, and usually cause it to fail. The magnitude

of this unwelcome change will be appreciated from the careful observations of Dr. Mary Barber, published in this issue of the *Journal* (p. 863). Of two hundred strains cultivated from patients at the Hammersmith Hospital during 1947, 12.5% were penicillin-resistant, or 14.1% if only those are considered which were derived from actual lesions. During the first half of 1947, only strains from actual lesions were tested, and in one hundred such the number found to be resistant was no less than thirty-eight. The main interest of these observations is their bearing on the future efficacy of penicillin treatment, but they involve two other matters with which this paper chiefly deals. One is the method used for testing sensitivity, and in this connexion it is perhaps not generally understood that when an organism forms penicillinase quite misleading results may be obtained by certain conventional methods if the size of the inoculum is not controlled. Fortunately a very fair picture of the true state of affairs can be obtained by applying the diffusion principle in primary culture, whether by the "ditch" method, as illustrated here, or by the use of "cups" in which solutions of different strengths are placed.

The second and more fundamental aspect of the subject with which Dr. Barber's paper deals is the origin of resistant strains. There is now a considerable literature dealing with the question whether the acquisition of penicillin-resistance in bacteria generally is the result of selection or of mutation. As it concerns staphylococci any answer to this question must take account of the fact that there are two quite distinct types of resistance. This was first pointed out by W. W. Spink and Viola Ferris,<sup>1</sup> who observed that whereas staphylococci artificially habituated to penicillin *in vitro* rapidly lost this property on transfer to normal media, and did not owe it to forming any inactivating substance, naturally resistant strains or those apparently acquiring resistance *in vivo* were permanently resistant, and contained a substance which was a potent inactivator of penicillin. That this substance is in fact penicillinase was shown by A. Bondi and Catherine C. Dietz.<sup>2</sup> Others who were early in recognizing this important distinction were J. E. Blair *et al.*,<sup>3</sup> and E. A. North and R. Christie,<sup>4</sup> who also demonstrated that naturally acquired resistance is accompanied by no loss of pathogenicity, whereas organisms artificially rendered resistant lose this property. These authors also claim to have shown in one patient that a highly resistant staphylococcus recovered after penicillin treatment was identical serologically and in every other property with the more sensitive strain isolated a fortnight earlier. This observation favours the mutation hypothesis, and is in conflict with the interesting finding reported in the present paper that sensitive and resistant organisms derived from the same patient, the former predominating before treatment and the latter entirely replacing them after it, were distinct both serologically and by phage typing. It is evidently desirable that further observations on these lines should be made, but common sense appears to favour the view held by Dr. Barber. There is no reason why two quite distinct types of resistance should result from habituation to penicillin, one in a test-tube and the other in the body, nor is the capacity

<sup>2</sup> *Arch. Intern. Med.*, 1928, 41, 336; 1931, 47, 901.

<sup>3</sup> *Canad. med. Ass. J.*, 1930, 22, 347.

<sup>4</sup> *J. Amer. med. Ass.*, 1941, 117, 839.

<sup>5</sup> *Tubercle*, 1933, 15, 59.

<sup>6</sup> Daniels, M., *Lancet*, 1944, 2, 165, 201.

<sup>1</sup> *Science*, 1945, Aug. 31, 221.

<sup>2</sup> *Proc. Soc. exper. Biol. Med.*, 1945, 60, 55.

<sup>3</sup> *J. Immunol.*, 1946, 62, 281.

<sup>4</sup> *Med. J. Austral.*, 1946, Feb. 9, 176.

to form penicillinase a property likely to be acquired in such a way. The best explanation of the facts is that penicillinase-producers are naturally resistant, and from very small beginnings are rapidly coming to occupy the places left vacant by their more vulnerable cousins.

The meaning of this for the future of penicillin treatment needs little emphasis. It is a problem not peculiar to staphylococcal infection, although more serious in relation to this than to any other. The capacity of staphylococci to acquire resistance, at least artificially *in vitro*, is very great; whether naturally resistant strains reach the same levels, or can increase their form of resistance in response to the same stimulus, is not clear. But in so far as *in vitro* behaviour is any guide, the findings of E. W. Todd and his colleagues<sup>5</sup> are of interest: whereas the resistance of *Staph. aureus* could be raised 3,000-fold (and others have since exceeded this figure) that of a pneumococcus could be raised only 27-fold and of *Strep. pyogenes* 5-fold. Thus we have less to fear from the latter at all events, but in view of its much greater sulphonamide sensitivity we may well wish that the two could change places in the matter of their long-term reaction to penicillin. It is for its power over grave staphylococcal infections that we have always had most reason to be grateful for the discovery of penicillin, and that power is already well on the wane. We must indeed look to a future in which the problem of treating these infections has almost to be faced afresh. Streptomycin is unlikely to do more than help to bridge a short gap between penicillin and some new form of chemotherapy: there are already abundant records to show that staphylococci, like other species, may acquire immense resistance to this antibiotic within a very short time. There is little that can be done to delay the time when a majority of staphylococcal infections will be resistant, at least to a dangerous degree, to treatment with penicillin. The correct policy is to test the sensitivity of the organism in each case, and to give from the first a dose which should be adequate to control it. This is not universally feasible, but another useful measure within the capacity of every practitioner is to restrict the use of penicillin to cases in which there are clear indications for it. The present enormous consumption of the drug can be accounted for only by a good deal of indiscriminate use, and it is generally considered that widespread use, particularly of inadequate doses, is a potent factor in breeding resistant strains of bacteria.

### RELIEF OF PAIN IN PELVIC CANCER

Incurable cancer of the pelvic organs, both male and female, is seen so frequently that it is surprising that more attention has not been paid to measures for relieving the distressing pain which usually marks its terminal stages. Greenhill and Meave Kenny, in articles elsewhere in this issue of the *Journal*, both point out that the usual treatment with ever-increasing doses of opiates has serious disadvantages in that it causes mental as well as physical deterioration and makes the patients' last days a trial both to themselves and to their attendants. The problem as it applies particularly to carcinoma of the cervix was fully discussed in 1937 in an important article by T. F. Todd,<sup>6</sup> who described

in detail the technique, indications, and limitations of pre-sacral neurectomy and intrathecal injection of alcohol—procedures which had been introduced several years earlier. However, it is probably true that they have not been used as often as they should, and Greenhill's reminder of their value is timely.

Todd emphasized that if renal pain is excluded pelvic cancer brings on two types of pain which must be differentiated if they are to be treated effectively. The pain caused by a lesion limited to the viscera is diffuse, bursting, or spasmodic in character, and can be relieved by resection of the pre-sacral nerve if not by a more direct surgical approach such as hysterectomy for pyometra following radiotherapy. The other type of pain is one which follows the distribution of one or more of the lumbo-sacral nerve roots into the lower limbs, and it is usually assumed that it is the result of the sacral plexus becoming involved in the neoplastic or inflammatory process. Todd points out, however, that there is rarely any evidence of this and the pathogenesis of root pains is obscure. When they occur it becomes necessary to block all the impulses travelling via the somatic nerves and spinal cord if relief is to be obtained. This has been done by chordotomy, but most would regard this as a formidable operation which is hardly justifiable in the circumstances. The injection of alcohol around the spinal cord in the lumbar region is preferable in that it is not only reasonably effective but is simple and free from serious risk. It is not devoid of all risk, however, for in addition to the usual hazards of spinal puncture it is sometimes followed by temporary loss of control of the sphincters and other sequelae implying damage to the spinal cord. Although these possibilities are not so serious as to outweigh the potential benefits to a patient whose outlook is hopeless, they make it necessary to emphasize that nearly all writers are agreed that intrathecal alcohol should be used only in cases of incurable malignant disease. It is therefore particularly important, though it may be difficult, to distinguish between a recurrence of growth and late tissue reactions to radiotherapy. Such reactions, sometimes resulting in fistula formation, are not infrequently seen in cases of carcinoma of the cervix and are thought to be the result of ischaemia. For these Todd advocates pre-sacral neurectomy, arguing that it not only relieves the intense pain which they cause, but that it may assist the healing process by producing vasodilatation.

The operation of pre-sacral neurectomy has no significant ill effects and can be used in the treatment of chronic pelvic pain caused by innocent as well as by malignant lesions. It is perhaps not quite so easy to perform as is implied by Greenhill, for the nerve fibres are usually widely dispersed and division of them all, which is essential for a good result, necessitates a fairly wide dissection of the area as far out as the ureters on each side. These, as well as the left common iliac vein and middle sacral vessels, are therefore exposed to risk. Moreover, it is not an uncommon experience to find visceral pain persisting after pre-sacral neurectomy, and it may be that in some cases more relief would be obtained if the autonomic nerves accompanying the ovarian vessels were also resected, as described by O'Donel Browne<sup>7</sup> for the treatment of ovarian dysmenorrhoea. Also it is possible, if not probable, that some sensory impulses are carried via the inferior hypogastric plexus and the visceral branches of the second, third, and fourth sacral nerves.

Epidural injections for the relief of pain in the pelvis and referred pain in the legs is also a comparatively old procedure, procaine (novocain) and saline having been used in the treatment of some forms of sciatica as well as pelvic

<sup>5</sup> *British Med. Journal*, 1945, 2, 603.

<sup>6</sup> *Lancet*, 1937, 2, 555.

<sup>7</sup> *J. Obstet. Gynaec. Brit. Emp.*, 1939, 45, 982.



carcinoma. By such means Todd was able to give patients suffering from carcinoma of the cervix relief for as long as six to eight weeks. Meave Kenny now describes a modification in which 40-60 ml. of "proctocaine" are used, and claims that this agent relieves the pain for one to four months, at the end of which time the injection can be repeated. She considers that the method is so simple and free from risk that it can be carried out in the patient's home. Injections into the sacral canal, however, demand some detailed knowledge of the anatomy of the area, and are not always so easy to place as might be imagined, even for those well versed in the technique; various accidents due to the injection of analgesic solutions behind, or in front of, the sacrum or into a low-lying subarachnoid space have been described. Some medical men may therefore hesitate to tackle this procedure in domiciliary practice and may find it easier to carry out the ordinary spinal puncture which is all that is necessary for injections of alcohol. This, however, should not be allowed to interfere with further trials of extradural injections of proctocaine, for they may well prove to have special advantages.

Valuable as they are, none of these methods can be relied on to relieve pain in all cases, and the duration of relief, when obtained, is variable. Some patients experience both visceral and somatic pain and require two types of treatment. If blocking of the spinal roots or pathways is to be successful the agent must be applied at or above the level of the roots carrying the sensations from the affected part. So far as resection of autonomic nerves is concerned, further progress is to some extent hindered by the incompleteness of our knowledge of the sensory pathways from the various pelvic viscera.

### PREGNANCY AFTER LUMBO-DORSAL SYMPATHECTOMY

Diseases such as phthisis and valvular disease of the heart in young women often become complicated by pregnancy and may then present difficult clinical problems. Another example is chronic hypertension, which was discussed by Browne<sup>1</sup> recently. In a leading article<sup>2</sup> commenting on his work reference was made to Adson and Allen's<sup>3</sup> report of a case of chronic hypertension treated by lower thoracic sympathectomy with good effect. A subsequent pregnancy, however, resulted in a rise in the blood pressure, which returned to normal only when abortion was induced. M. M. Peet<sup>4</sup> had a similar experience with a woman who suffered from malignant hypertension. That pregnancy does not always have such an adverse effect in this type of case is shown by J. L. Newell and R. H. Smithwick,<sup>5</sup> who gave an account of 14 patients successfully treated by lumbo-dorsal splanchnicectomy for benign or malignant hypertension. All these women conceived afterwards except one who was pregnant at the time of the operation. In 9 cases the blood pressure during pregnancy remained within normal limits; in the other 5 there was a significant rise during the last three months. One patient developed heavy albuminuria necessitating caesarean section at the thirty-fourth week. Only one baby was lost, but its mother had a living child the following year. All the women survived the pregnancy and were as well afterwards as before, so Newell and Smithwick conclude that given careful supervision it is permissible and safe for certain women to undertake child-

bearing after they have been successfully treated for hypertension. They note that women in the younger age groups tolerate pregnancy best. Study of the reports of published cases suggests that hypertensive subjects previously treated by sympathectomy react to pregnancy in a similar way to that of the untreated. None suffer permanent deterioration in their condition. Some go through pregnancy without any further rise in blood pressure, whereas others sustain sooner or later an increase in blood pressure and sometimes albuminuria as well. Also, in the description of one case there is a suggestion that there was a fall in blood pressure during the middle third of pregnancy.

One aspect of these cases of interest to the obstetrician and to the physiologist is the effect of such an extensive sympathectomy on uterine action. Unfortunately Newell and Smithwick make only brief mention of this. Caesarean section was carried out in three cases but in the remainder the comments suggest that pregnancy ended in normal delivery. One patient, however, is noted as having had a short and painless labour, and a second had no pain until the foetal head distended the perineum.

### INFANT MORTALITY AND SOCIAL CONDITIONS

The association of infant mortality with environmental and economic conditions is so well established that the former is generally accepted as an approximate index of the latter. Woolf<sup>1</sup> in a study of the infant mortality in the county boroughs during 1928-38 has used seven indices of social conditions: (1) percentage of families with more than one person per room; (2) average monthly percentage unemployment among insured adult males; (3) percentage of occupied males in Social Classes IV and V; (4) percentage of females aged 14 and over employed in manufacture; (5) degrees of latitude north of 50°30'; (6) gross reproduction rate; (7) weighted index of persons per acre. He examined the problem in great detail by means of multiple regression equations, obtaining equations in terms of the seven social indices for total infant mortality, age at death, stillbirths, and causes of death. An attempt was made to allot to each of the social indices the proportion of the infant mortality for which it was responsible. By inserting in the equation a zero value for the first four indices, putting the value of latitude at 50°30' (the extreme south of England), the gross reproduction rate at 0.6, and by using a weighted index of overcrowding at 2.6 persons per acre, the author obtained a minimum mortality which he termed the rate among the "better-off" population. By putting the overcrowding index at 100% and the percentage of persons in Social Classes IV and V at 100, the gross reproduction rate at 1.6, density at 80, and taking the mean latitude, a value was found for the "crowded poor"; and by putting the unemployed at 100% in this equation a value for the "unemployed crowded poor" was obtained.

The scope and limitations of the regression equation are very briefly indicated, but, since there is a tendency to-day in many inquiries to follow a set statistical procedure without consideration of the practical applications of the results, it would have been better if the author had emphasized the limitations of the method he employed. This aspect is important, especially in a scientific inquiry of socio-medical problems, for they have an emotional appeal and the general reader may draw unwarranted conclusions. Given a set of social indices of a county borough the expected infant mortality can be determined from the regression equation, and the agreement between the

<sup>1</sup> *British Medical Journal*, 1947, 2, 283.

<sup>2</sup> *Ibid.*, 1947, 2, 301.

<sup>3</sup> *Ann. Intern. Med.*, 1938, 11, 2151.

<sup>4</sup> *J. Int. Chir.*, 1940, 5, 1.

<sup>5</sup> *New Engl. J. Med.*, 1947, 236, 851.

<sup>1</sup> *Brit. J. Soc. Med.*, 1947, 1, 73.

"observed" and "calculated" values may be quite good, although even with seven indices the prediction is far from perfect. Extrapolation is not permissible, nor can it be argued that a reduction in the size of the indices in any town would lower the infant mortality, since correlation is not necessarily causation. If therefore we were given the values of the indices of some urban area of the same general socio-economic type as those used to calculate the constants of the equation and, even more important, if the values of the indices were within the range of values used to obtain the constants, it is likely that we should predict the infant mortality quite well; but if the values were outside the range the prediction might be wildly inaccurate. To assign shares on the basis of an equation such as this to the different indices in a material sense may be quite wrong. The indices, purposely chosen because they correlate with infant mortality, may be only indirect measures of the true cause, which is probably much more complex than a simple equation suggests. There is, for instance, no evidence that latitude itself has any direct bearing on infant mortality; the rate for Sweden and Norway was considerably below that for England and Wales in the pre-war period. In England, for various reasons, industrialization and its attendant evils started in the North, with the result that there is a geographical distribution of highly industrialized towns. Latitude, therefore, may be regarded as an indirect index of social conditions and not as an independent cause affecting infant mortality. The ideal population postulated by Woolf obviously can never exist. The concentration of the county boroughs into the South of England is incompatible with a density of 20 persons per acre; neither is it practicable that women should be excluded from industry. The present tendency is possibly towards employing larger numbers of women than in the pre-war years. With a gross reproduction rate of 0.6 the great problem would be that of increasing the birth rate and not of decreasing the infant mortality.

Nobody doubts that economic factors influence the level of the infant mortality; it would, however, be going much too far to infer from analyses such as this that economic factors are of supreme importance. The elimination of adverse environmental conditions would decrease the mortality, but by what extent is merely a matter of conjecture. A variety of factors, not all economic, contribute to infant mortality, but it is of course possible from published data to inquire only into the broad aspects of the problem, and a field inquiry would be necessary to obtain more details. These factors and their possible influence on infant mortality must be considered to appreciate the complexity and extent of the problem. Hereditary factors must play some part, but they can be ignored when considering how infant mortality can be reduced, since it is hardly likely that unsuitable stock will ever be prevented from breeding. The care and nurture of babies is of primary importance, but only a very small proportion of indifferent parents in the population is needed to make a large difference to the infant mortality rate. Thus a waste of 2% of the births by criminal negligence, stupidity, or bad traditions in hygiene or feeding would increase the infant mortality by 20 per 1,000. Education has played an important part in reducing the wastage of infant life. The most obvious example of this is the reduction in the mortality from over-laying, which has fallen considerably during the past forty years. Some of the old notions of child management were also inimical to health—for example, the administration of a soothing mixture with a high laudanum content, which proved, on occasions, to be a too effective quietener. The importance of reasonable living conditions cannot be exaggerated, but the improvement of such conditions is a long-

term policy, since it will take some years to solve the housing problem. The immediate hope of still further reducing infant mortality appears to lie in the greater diffusion of knowledge about the welfare and nutrition of babies. Many children are still unnecessarily exposed to risks of infection because of the parents' fatalistic views on the common infectious diseases of childhood.

### A COMMITTEE ON CERTIFICATES

The Minister of Health and the Secretary of State for Scotland have appointed a committee of five to recommend "how far it would be practicable to reduce the number of certificates to be signed by medical practitioners." The full terms of reference are: "To consider the medical certificates required under present enactments or regulations, or for other administrative purposes, and to advise, without excluding the possibility of amending legislation, how far it would be practicable to reduce the number of certificates to be signed by medical practitioners and to improve and simplify the forms of certificate and the rules governing their issue." The committee members are as follows: Mr. Archibald Safford (chairman), Dr. J. Clifford Arthur, Miss Florence Hancock, Dr. Walter Jope, Mr. A. W. Neville, Mr. R. L. Briggs (Ministry of Health, Secretary). Mr. Archibald Safford is the Recorder of Faversham; Drs. Arthur and Jope, both general practitioners, are members of Council of the British Medical Association; Miss Florence Hancock is Chairman of the General Council of the Trades Union Congress and joint author of the Report on Post-war Organization of Private Domestic Employment, 1945; and Mr. A. W. Neville was formerly Principal Assistant Secretary in the Ministry of Health.

### LASKER AWARD TO GREAT BRITAIN

The American Public Health Association at its meeting in October presented to Sir Wilson Jameson one of the Lasker Awards for 1947 "for food control in Great Britain and its effect on the health of the people." This came under the designation of "Group Awards," and took the form of a silver statuette. The award was made to the "British Ministries of Food and Health and to the four great leaders in the historic enterprise—Lord Woolton, Sir Jack Drummond, Sir Wilson Jameson, and Sir John Boyd Orr." The citation refers to the setting up in 1937 of an Advisory Committee on Nutrition by the Ministry of Health, and the subsequent establishment of the Ministry of Food. It records the fall during the war of the rates of infantile, neonatal, and maternal mortality, and states that, "although almost all other environmental factors that might influence the public health deteriorated under the stress of war, the public health of Great Britain was maintained and in many respects improved." The Lasker Awards Committee considers that the combined effort of the Ministry of Food and the Ministry of Health during the recent war "has been one of the greatest demonstrations of public health administration that the world has ever seen."

We believe this is the first time that the American Public Health Association has made a Lasker Award to a Government Department of another country, and no better choice could have been made. The burden falling on the chief medical officer of the Ministry of Health during those years of unprecedented stress was great, and the group to whom the Award was made could have had no more fitting recipient of it than Sir Wilson Jameson. (See also p. 881.)

## THE NEWCASTLE-UPON-TYNE OBSTETRIC EMERGENCY SERVICE\*

BY

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The Newcastle-upon-Tyne Obstetric Emergency Service has flourished since early in 1935, when it was founded by Prof. E. Farquhar Murray, and it is entirely due to his organization and enthusiasm that it has grown to its present strength. From that time until the end of 1946, 353 calls had been made, 8,356 miles travelled, 30 gallons of intravenous infusion given, and 37 women had died. It is felt that an assessment of its work would be timely.

This centre is probably unique in England for the reason that there is not another university centre within 120 miles to the northward and 90 miles to the southward. The furthest distances travelled have been: to the north, Berwick (64 miles); to the south, Barnard Castle (41 miles); and to the west, Haltwhistle (37 miles). The population in this area is about 2½ millions, though three towns—Sunderland, Stockton, and Darlington—have not made use of the facilities. With these exceptions arrangements for fees have been made with the local authorities. In 1935 only one call was made, but the next year there were 11, and by 1939 the number had risen to 47. The numbers fell during the war years, but rose in 1946 to a record of 56.

From time to time suggestions have been made that subsidiary centres should be established, and it is probably true that beyond thirty miles much of the value of the service is lost. There are, however, two necessities without which the service would be valueless. The first is frequent use: unless there is frequent need to resterilize the apparatus, and a quick turnover of blood and plasma, the use of these becomes dangerous. The second is that there should be available a person who is familiar with the urgent conditions met with, skilful, quick to handle infusion apparatus, and ready for any obstetric operation. While speed is desirable it is not nearly so important as these two factors, and it is unfortunate that the nickname "Flying Squad" has been applied to the service. The apparatus alone has always been available for use by any practitioner who wished; in actual fact, it has never once been called for without a request for the attendance of a consultant. In the early days of the service the aim was largely to render a woman temporarily fit to stand the ambulance journey to hospital. Intravenous saline was the most frequently used infusion, and it was not for some years that stored blood was available. Twenty-seven women who had suffered from loss of blood or shock were brought in after restorative measures and nine of them died. This high figure shows the danger of such a journey, which is nowadays almost never necessary.

### The Apparatus and Routine

The apparatus consists of six items and is accompanied by a nurse who has packed the bags and is familiar with the place of every detail in them. (1) A large box containing drugs, anaesthetics, antiseptics, mackintoshes, and ready sterilized bowls, douche-can, syringes, intravenous sets, and a canvas roll of instruments. (2) A small box containing sterile gowns, towels, gloves, and dressings for

minor operative procedures. (3) A theatre drum with contents as No. 2, but in sufficient quantity to carry out abdominal operation. (4) A crate of dried plasma, normal saline, and three or four pints of group O blood. It hoped soon to provide a constant stock of group O R negative blood and to carry it in a refrigerated container to avoid waste. (5) A bundle of blankets and hot-water bottles. These are scarcely ever needed, and now a often left behind. (6) A cylinder of oxygen and a B.L. mask. These have only rarely been needed.

A complete double set is available in case one set already in use or is being prepared.

A practitioner faced with an obstetric emergency telephones the Princess Mary Maternity Hospital and makes his request. If he asks for a particular consultant that consultant is communicated with first. Otherwise the consultants are telephoned in order of seniority until one is found available. It is thought to be essential for the efficient working of the service that a consultant should be quickly and immediately available, and it is no small price to the Newcastle obstetricians that even in the war years a call has not gone unanswered. By the time the consultant reaches the hospital the nurse is ready with the apparatus. Using his own car, he transports all to the patient's house and carries out any treatment necessary—often some hours' work. When the nurse returns she at once prepares the gear for use again. As soon as possible after a call the practitioner notifies the medical officer of health. The hospital makes a charge of one guinea for its services, and the consultant sends in an account in accordance with an agreed scale, depending on the services rendered, the mileage, and the time of day or night, together with a short description of the conditions found. In some instances the local authority may recover all or part of the fees from the patient, or the service may be used for a purely private case.

### Transport Difficulties

Mere distance is not such a difficulty as might be thought. There is a time lag of about twenty minutes getting the service into motion—taken in telephoning and reaching the hospital—so that even a case in the city is seldom reached in less than half an hour. At the other limit is Berwick where a time lag of two hours may be reckoned from receipt of the call until the patient is under treatment. It is the experience of those operating the service that much of the mortality is due to deaths within a few minutes of the emergency arising. Women who survive half an hour it is usually possible to save within a reasonably long time than this. On two occasions the squad failed to reach the patient. Once a car broke down, and a telephone call to the doctor showed that the emergency had passed. The second failure was due to a combination of an air raid, fog, and a very dark night with snow. Telephoned instructions were given to the doctor, and the next day the patient was brought into hospital, where she died. Great care must be used in taking exact instructions as to address, especially in the state of alarm that an obstetric emergency brings. Once a call came for Red Row. There are at least two villages in County Durham and two in Northumberland with this name. The fourth visited proved to be the right one. When nearing the objective small boys are easily the most efficient directors. At night take the local policeman aboard.

### The Conditions Treated

Among the 353 cases treated there were 41 miscarriages, 20 ante-partum conditions, 45 intra-partum, 231 immediate post-partum, 15 late post-partum, and one not pregnant. They will be discussed under these headings.

\*A paper read before the North of England Obstetrical and Gynaecological Society on June 6, 1947.

### Miscarriages

There were 41 cases, with two deaths, in this group. It is very rare for a woman to die of blood loss from miscarriage, and both the deaths in this series were due to sepsis, one within half an hour of arrival of the squad and one a fortnight later. Most of these women appeared to be too ill to bear transport to hospital. I have vivid recollections of a woman blanched from an incomplete abortion in the loft of a pitman's cottage from which the only exit was through a hatch and down a ladder. Every time her feet were lowered to get her down the ladder she fainted, remaining unconscious for a long time. Transfusion and digital emptying of the uterus were carried out in the loft and she made an excellent recovery.

### Ante-partum Conditions

The 20 cases (2 deaths) in the group were made up of 11 placenta praevia, 8 accidental haemorrhage, and 1 status eclampticus. Most of the haemorrhage cases received intravenous fluids and were then treated in various ways ranging from plugging of the vagina to caesarean section. Stored blood was not available until after 1940. Five of these cases were brought into hospital so that blood transfusion could be given, and it was in these five that the two deaths occurred. Since blood and plasma have been carried there has not been a single death in this group. Each of the two who died had intravenous glucose-saline, but the value of this was too temporary to protect her against an ambulance journey to hospital. They died shortly after admission, before blood transfusion could be established. There is no doubt that the pregnant woman who has lost blood must be saved an ambulance journey if at all possible, and this should be one of the prime objects of an obstetric emergency service. The patient with eclampsia had no further fits after the administration of morphine and intravenous magnesium sulphate. She was later safely delivered in hospital.

### Intra-partum Conditions

Among the 45 cases (6 deaths) in this group were 13 of "failed forceps" with three deaths. Apart from one due to face presentation and one due to foetal malformation the causes of failure were the usual ones of occipito-posterior lie, incompletely dilated os, and the administration of pituitary extract in the first stages of labour. Other intra-partum emergencies were: obstruction due to monstrosity (7 cases, 1 death); prolonged labour (8); impacted transverse lie (2); breech (3); failure to deliver the aftercoming head (3); impacted shoulder (1); prolapse of cord (1); contracted pelvis (2); retained second twin (2); failed version with arm, leg, and cord prolapsed (1); diabetic coma (1 case, 1 death); and intra-partum rupture of caesarean scar (1 case, 1 death). In four of these cases the cord was prolapsed. These mischances will arise so long as district midwifery continues. The bad old system of transporting these gravely ill and shocked women to hospital lessened their chances of subsequent recovery. The salvage of infant life in this group is small, but it would certainly have been less still if domiciliary treatment could not have been carried out.

### Immediate Post-partum Conditions

There were 231 cases, with 25 deaths. Fifteen patients were already dead when help arrived. It is in post-partum haemorrhage that the emergency service saves many lives and shows itself so dramatically necessary. Women blanched and moribund have been revived and restored to health. The lowest blood-pressure reading of a woman who recovered was 46/0, and systolic readings in the fifties are frequent. There were 186 cases of post-partum haemorrhage, divided into 88 with the placenta retained (8 deaths) and 98 after delivery of the placenta (10 deaths—3 associated with fibroids, 3 with heart disease, 6 with complete laceration of the perineum, and 1 with toxic goitre). There were, in addition to these cases of haemorrhage, 19 in which the placenta was retained without bleeding (2 deaths), 13 unexplained shock after delivery (1 death), 3 traumatic shock (1 death), 1 prolapse of cervix, 1 acute yellow atrophy of the liver (1 death), 4 incomplete rupture of the uterus (1 spontaneous), and 4 cases of acute inversion of the uterus (2 deaths).

With 18 deaths after post-partum haemorrhage in 186 cases it seems that some comment on the management of such

emergencies would not be out of place, for in many of the cases it was possible to surmise that had proper steps been taken earlier the emergency would never have arisen. The rarity of its occurrence in any one man's practice should not induce him to forget the grave condition that may arise if he does not act promptly when he has the first warning. In a great many instances a doctor was called in for post-partum haemorrhage by a midwife. All too often the subsequent treatment consisted of repeated and ever more forcible attempts to express the placenta by grasping the uterine fundus (so producing shock) and pushing downwards (so adding to it). Clot is repeatedly expressed, but the placenta does not follow, and in desperation oxytocics are given with the placenta still *in situ*. The bleeding ceases only when the woman is so exsanguinated and shocked that little blood is reaching the placental site. Should the placenta come away in the course of this treatment the woman is found to be white and collapsed.

In the normal delivery of the placenta the contracted uterus is used as a plunger to expel the placenta from the vault of the vagina or the lower uterine segment, and downward and backward pressure is correct; but no amount of downward and backward pressure will expel the placenta from the body of the uterus—it will merely produce shock by dragging on the broad ligaments and damaging the uterus and ovaries. The correct treatment is gentle massage of the uterus until it contracts, and if it fails to contract the accoucheur should proceed direct to the next step. If it contracts the fingers should be passed over the fundus and the organ squeezed as in squeezing a sponge. No pushing of the uterus downwards should be permitted unless and until the placenta separates.

If this manœuvre is ineffective it should not be repeated; without any delay the placenta should be extracted manually, for repetition produces the rapid summation of haemorrhage and shock. Failure to go boldly on to this step before the woman has lost condition is due to the pernicious teaching that manual removal of the placenta is "the most dangerous operation in obstetrics." It is a life-saving operation. It is easier and less dangerous than the application of forceps. If the indications for expression of the placenta are there the indications for manual removal are there. So soon as the former fails the latter should be done. The frightening teaching about the operation has led not only to avoidance of it but to timid and half-hearted attempts to carry it out. A placenta inside the uterus can never be reached by two fingers or even the half hand in the vagina. In a gravely ill woman an anaesthetic may be dispensed with, but usually it will be necessary. The whole hand is introduced, and by making the other hand outside the uterus do the greater part of the work the placenta is separated by the well-known manœuvre. The placenta is grasped and withdrawn. The hand immediately goes back into the uterus to make sure that every fragment of placental tissue has been removed.

Again teaching has been at fault in laying down that the hand should not be returned to the uterus once the placental site is laid bare. It should return as often as is necessary to be quite sure that not a fragment of placenta remains. With even a small piece of placenta left behind sepsis is almost inevitable. With an empty uterus it is rare. A douche is not necessary. If the readiness to perform forceps extraction of the child and the reluctance to perform manual removal of the placenta were reversed there would be many fewer calls on the emergency service. Seventy-seven placentae were removed manually in this series for post-partum haemorrhage. There were two deaths. One woman died six weeks later of heart disease and sepsis, and one failed to recover for no other reason than blood loss after having had the placenta removed. It does not appear that manual removal of the placenta is a dangerous operation. It is delay in its application that is perilous.

The four cases of acute inversion of the uterus are interesting. Two of these patients died before the squad arrived, a quarter and half an hour after the call was made. In one of the other two the uterus was immediately replaced and the patient made a good recovery; in the second it was replaced digitally four weeks later.

An unexplained and little-recorded type of case is that in which a woman is apparently dying with the placenta *in utero* though without bleeding and in which she recovers rapidly when

Table showing Types of Catastrophe met with

No.	Year	Diagnosis	Treatment	Remarks
1	1936	Retained placenta and P.P.H. Large uterine fibroid	Manual removal of placenta	Died three months later at operation for fibroid
2	1936	Impacted double monster	Delivery; intravenous saline; manual removal of placenta	Moribund on arrival
3	1938	Failed forceps; face presentation	Manual extraction of foetus and placenta	Died later of shock, haemorrhage, and sepsis
4	1938	Septic incomplete abortion	Oxygen	Moribund; died in half an hour
5	1938	xi-gravida; ruptured upper segment caesarean scar	Morphine; transport to hospital	Died half an hour after admission
6	1939	Incomplete abortion	Digital removal; blunt curettage	Died of sepsis a fortnight later
7	1939	Accidental haemorrhage	Intravenous saline (2 pts.; 1.14 litres); morphine; pituitary; transport to hospital	In hospital blood transfusion (1 pt.; 568 ml.); forceps delivery; died 5 hours after admission
8	1939	Accidental haemorrhage	Intravenous saline (2 pts.); morphine; rupture of membranes; transfer to hospital	In hospital blood transfusion. Died on delivery after three hours
9	1939	Post-partum shock after B.B.A.; submucous fibroid size grape-fruit	Transfer to hospital	Died 5 minutes after admission
10	1939	Moderate secondary P.P.H. 13 days after delivery; B.P. 80/44; removal of placental tissue; shock	Blood transfusion 12 oz. (340 ml.); morphine; lobeline	Died after three hours
11	1940	P.P.H. after delivery with placenta praevia	Intravenous saline (1½ pts.; 850 ml.); pituitary; transport to hospital	Died of blood loss 1½ hours after admission
12	1941	Failed forceps (twice) and pituitary extract shock	Blood transfusion; internal version and extraction	Died of shock soon after delivery; uterus wall intact
13	1942	P.P.H. and retained portion of placenta	Manual removal; transfer to hospital	Died 29 days later of mitral stenosis and sepsis
14	1942	P.P.H. from retained portion of placenta 12 hours after delivery	Removal of placental tissue; plasma (1 pt.); glucose-saline (1 pt.); transfer to hospital	Died 2 days later of acute yellow atrophy of the liver (necropsy)
15	1942	Shock and retained placenta	Plasma (1 pt.); manual removal of placenta	Died 19 hours later
16	1942	P.P.H. after twin; (1) normal delivery, (2) internal version after failed forceps; B.P. 76/40	Plasma (1 pt.); morphine; pituitary	Died ½ hour after arrival of squad
17	1943	P.P.H. after accidental haemorrhage	Blood (1 pt.); admitted to hospital 7 days later	Blood transfusion in hospital; died next day
18	1944	P.P.H. with retained placenta	Plasma (1 pt.); manual removal of placenta	Good immediate response, but died 3 hours later
19	1945	Post-partum shock and retained placenta after normal delivery of macerated foetus	Plasma (2 pts.); transfer to hospital	Blood transfusion in hospital but died after 5 hours
20	1946	Gangrene of vagina; general septic peritonitis 2 days after forceps delivery	Blood (4 pts.; 2.27 litres); penicillin	Died in another hospital
21	1946	Labour with diabetic coma	Transport to hospital	Died in coma day after admission
22	1946	Three calls: (1) failed forceps, os ½; (2) failed forceps; (3) shock due to rupture of vaginal vault into broad ligament	(1) morphine; (2) forceps delivery; (3) blood (2 pts.); transfer to hospital	Died as laparotomy about to be done

the placenta is removed. In a recent case the first glance at the woman made one think the squad had arrived too late, but she was found to have a pulse of 170, though this was impalpable at the wrist. Three pints (1.7 litres) of blood did not materially improve her condition. Five minutes after expression of the placenta she was chatting about housing and the weather and asking for food; she seemed to be almost a normal post-partum woman. Acute inversion of the uterus is analogous, for if the woman can survive the replacement of the organ the shock rapidly goes.

#### Late Post-partum Conditions

Fifteen calls came into this group, with 2 deaths. The cases comprised pulmonary embolism (2), macrocytic anaemia of pregnancy (1), puerperal sepsis (2 cases, 1 death), secondary post-partum haemorrhage from retained portions of placenta (9 cases, 1 death), and secondary post-partum haemorrhage from lacerations (1). It can be taken as axiomatic that in the absence of lacerations secondary post-partum haemorrhage means a retained piece of placenta.

#### Not Pregnant Case

There was one case of metrorrhagia haemorrhagica, blanched, fainting, and with no palpable pulse at the wrist, for which the service was used.

#### The Deaths

Of the 37 deaths 15 preceded the arrival of the squad. These 15 were made up of 2 with acute inversion of the uterus, 11 of post-partum haemorrhage, and 2 of post-partum shock. Eight were after normal delivery, 1 after twin, 1 after concealed accidental haemorrhage, 1 associated with shock after a difficult forceps delivery, and 1 after a difficult forceps delivery of a brow presentation in a woman with toxic goitre. The remaining 22 deaths occurred among 338 patients in whom treatment was possible. They are listed above as examples of the types of catastrophe which have been tackled. The acknowledged inadequacy of the nature and amount of intravenous infusions is noticeable in the earlier years. The introduction of an efficient blood bank was a gradual process, so that for some years blood was only available sporadically and then in small quantities. Now that there is always an available supply of blood, restorative measures can be undertaken with much more assurance of success.

#### Conclusion

It is a pity to end this account with a list of deaths. Rather should one say that out of 353 calls 338 patients were attended and 316 were saved. What proportion of these would have died without the attentions of the Emergency Service it is impossible to say, but many of them were so gravely ill that there can be little doubt that the number would have been large. In addition it is unquestioned that much subsequent ill-health was forestalled. There is little danger of the service degenerating into a replacement for hospital emergency admission, for the "nuisance value" of these cases in general practice is sufficient to deter practitioners from unnecessarily calling for domiciliary aid. With increased freedom of transport and release from some war conditions, greater demands are being made on the service (in the first half of 1947 the number of calls averaged two a week), but it is hoped that these demands will be met.

#### HASTINGS MEMORIAL AT WORCESTER

A memorial to Sir Charles Hastings, founder of the British Medical Association, was unveiled on Nov. 19 in the Board Room of Worcester Royal Infirmary, the room in which the Association was founded 115 years ago. The ceremony was performed by Dr. H. Guy Dain, Chairman of Council, who was accompanied by Mrs. Dain.

The memorial, which was erected by the Infirmary Committee of Management in 1943, is of oak, and bears the words carved and gilded, "To the memory of Sir Charles Hastings Doctor of Medicine and citizen of Worcester, who on July 18 1832, in this room, founded the Provincial Medical and Surgical Association, which later became the British Medical Association." Above it hangs an engraving of Sir Charles Hastings and below the inscription is the text of Sir Charles's address at the first meeting of the Provincial Medical and Surgical Association, with a short account of his life and work.

Dr. Dain said that the Provincial Medical and Surgical Association was founded in that room by some forty or fifty doctors from as far away as Bath, Bristol, Birmingham, Cheltenham, Warwick, Hereford, and elsewhere. With



most of the medical men of Worcester and the neighbouring towns, they met there at the invitation of Dr. Hastings. He came to the infirmary as a house-surgeon at the age of 18 without qualifications, went to Edinburgh and graduated, and returned to Worcester as a physician on the staff of the infirmary at the age of 24. He was a man of enormous energy and originality. He started *The Midland Medical and Surgical Reporter and Topographical and Statistical Journal*. In the final issue of this journal he wrote: "A wish has been warmly expressed and widely circulated that the members of the profession residing in the provinces should unite themselves into an association, friendly and scientific." In the prospectus of the Association the first four objects set out were the collection of useful information through case reports; the increase of knowledge of the medical topography of England through statistical and other inquiries; the investigation of endemic and epidemic diseases; and the advancement of medico-legal science. The fifth object was: maintenance of the honour and respectability of the profession generally, in the provinces, by promoting friendly intercourse and free communication of its members, and by establishing the harmony and good will which ought ever to characterize a liberal profession.

At the first historic meeting in this room Dr. Edward Johnstone, of Birmingham, was elected the first President, and Dr. Hastings and Mr. Sheppard were appointed secretaries.

The Association Hastings founded extended its scope and changed its name to the British Medical Association. To-day the B.M.A. had branches and daughter associations throughout the Empire and all over the world, and a membership of over 57,000.

Charles Hastings was one of those rare individuals who saw clearly where there was need for a great step forward, and he had the energy, tact, and persistence to secure that that step forward was taken. To-day the ideals of Hastings and the early pioneers were unchanged. The first aim of the B.M.A. was still "to promote the medical and allied sciences, and to maintain the honour and interests of the medical profession." In its present negotiations with the Government on the matter of Health Services the Association was maintaining the principles Charles Hastings laid down.

## THE HOUSE OF TO-MORROW

[FROM A CORRESPONDENT]

At the Building Exhibition at Olympia, which will remain open until December 4, the Ministry of Health has put forward some new ideas on the urban house of the future. The plans are in the blue-print stage, but if they survive the criticism of architects, builders, and others interested in the housing of the people they will be passed on to local authorities.

In this country the small house is traditionally of two stories. There are, of course, innumerable houses in towns with three or four or more stories, and in the country plenty of cottages and bungalows with only one, but the general pattern of working-class housing has been "an upstairs and a downstairs." The Ministry shows a model of a terrace of three-story houses with two rooms at each story intended for the accommodation of a family of five or—with rather more space though not more rooms—of seven. A terrace of ten three-story houses with no break between them is not aesthetically pleasing. A frontage with eight doors, with another door round the corner at each end of the terrace, is not perhaps the happiest arrangement, and the narrowness of the houses is emphasized by their height. On the other hand, this form of construction contrives to give rooms as large as possible, and there is a terrace roof which perhaps compensates for the additional stairs. This type of house is in a sense a reply to the garden city or suburb, which demands space and therefore cannot be planned near to the centre of large cities. These houses occupy the minimum of ground space and therefore may be built within easy distance of the business area.

Another design put forward by the Ministry consists of four-story combined maisonettes and flats, with access balconies. The maisonettes are intended to meet the needs of people who want to combine the convenience of a flat with the freedom of a house. They are of four or three rooms, and the flats in the same block are two-roomed. This is another departure from the stereotyped council house.

The encouraging thing about these developments is the attention which architects are paying to the small individual house and particularly to the arrangement of the working-class kitchen and living-room. Rural families, it is said, prefer the kitchen and living-room to be combined, while industrial families like to have their meals in the kitchen. The families of city workers mostly prefer to keep the kitchen for cooking and laundry only. Full-scale rooms show how each of these preferences may be met with a minimum of labour and with the greatest saving of space.

The Government exhibit, with which the Department of Scientific and Industrial Research is associated, is only a small part of what the building industry is presenting in the vast spaces of Olympia. With new methods of plastering, partition walls, insulated flooring, warming and cooking systems, and new arrangements in glass and timber and steel and aluminium, the shape of the house to come seems very desirable.

## THE LASKER GROUP AWARD, 1947 AMERICAN HONOUR FOR BRITAIN

The illustration below shows Dr. George Baehr (centre), chairman of the Lasker Awards Committee of the American Public Health Association and president of the New York Academy of Medicine, presenting one of the Lasker Group Awards to Sir Wilson Jameson, Chief Medical Officer of the British



[Press Association]

Ministry of Health, with Dr. Lowell J. Reed, of Johns Hopkins University, looking on. Sir Wilson accepted the award on behalf of the British Ministries of Food and Health for the wartime programme of food distribution in Britain.

Dr. Reed accepted a similar award for the U.S. Committee on Joint Causes of Death, of which he is chairman, for uniform

classification of statistical data on death and disease, facilitating the interchange of medical information between all countries of the world. Dr. Reed is vice-president of the Baltimore University.

The presentations were made at the 75th annual meeting of the American Public Health Association on Oct. 9, at Atlantic City.

## Reports of Societies

### BRACHIAL NEURALGIA

At a meeting of the Physical Medicine Section of the Royal Society of Medicine on Nov. 12, Dr. W. S. TEGNER, president of the Section, was in the chair.

Dr. W. RUSSELL BRAIN opened a discussion on brachial neuralgia, which he defined for this purpose as pain of nervous origin in the upper limb. Until recently the commonest cause was held to be brachial neuritis. So far as he knew no pathologist had ever observed a simple neuritis of the brachial plexus. The causes of brachial neuralgia were many and varied. Cervical rib held the field for a long time, until it was shown that symptoms might be present without the rib and absent with the rib. The way of wisdom was to make a frank confession of ignorance and to maintain a healthy scepticism towards the many theories put forward.

Dr. Brain said that with seventh cervical root or spinal nerve irritation there might be pain and tenderness in the neck and shoulder, in the scapular and pectoral region, and also along the dorsal aspects of the arm, forearm, and middle finger. It might be expected that all contiguous areas of the dermatome would suffer equally, but most lesions were partial ones which did not affect all forms of sensibility equally nor all areas to the same extent. Motor symptoms were less prominent than sensory, and muscular weakness was usually only slight. Congenital abnormalities were quite common in cervical or spinal nerve manifestations and played a part indirectly in the production of other symptoms. He described the clinical picture of herniated cervical intervertebral disk. The patient usually complained of considerable pain in the neck, which might develop quite suddenly, and he might be compelled to lie on his back because lying on either side increased the pain in the shoulder and arm. Occasionally a herniated cervical intervertebral disk would compress the spinal cord. Among major abnormalities found in this area Dr. Brain mentioned a fibrous band from the seventh cervical transverse process, abnormal shape or unusual height of the first rib, and abnormal origin and insertion of scalenus anticus. More than one of these anomalies might be present. It had been suggested that scalenus anticus spasm or hypertrophy alone might be responsible for symptoms. Dr. Brain also mentioned the costoclavicular syndrome, and illustrated one case with three cervical ribs. A spontaneous form of compression neuritis of the median nerve had only recently been described and recognized, though for some time it had been known that local injury of bone in the region of the wrist-joint might cause compression of the nerve.

Dr. Brain mentioned a condition occurring frequently among middle-aged or elderly women who had done a good deal of housework. They complained of tingling and pain in the region of the median nerve, associated with weakness and wasting of the muscles of the thenar eminence. The correct treatment if the condition was early and there was no muscular wasting was by rest and physiotherapy, provided they were able to give up manual work afterwards; if they were not able to do so they would almost certainly relapse. In cases which had gone on to muscular wasting and sensory loss surgical treatment was indicated, and those operated on had done exceedingly well. One curious manifestation during convalescence in some of these cases was the development to a mild extent of a Raynaud-like syndrome in the fingers, particularly during the first winter after the operation.

### Surgical Experience

Mr. D. W. C. NORTHFIELD reviewed a number of cases with pain in the arm as the presenting symptom. The first group consisted of cases in which the trouble was due to pressure or

traction on part of the brachial plexus. There were 27 cases in this group, in 6 of which the symptoms were bilateral. Females predominated, and the commonest age period was between 30 and 50. In at least half the cases x-ray examination showed the presence of at least a rudimentary cervical rib. On the whole the pain followed the distribution of the first thoracic nerve. At night some patients were more comfortable lying on the affected limb, and others lying on the back. In 18 cases there were complaints of circulatory changes, and in 19 the patients had noticed some disturbance of muscles or actual muscular wasting. Wasting and weakness of the intrinsic muscles of the hand and of the lateral part of the thenar eminence were frequent. Some impairment of sensation was noticed in 13 of the cases. The operation was primarily one of exploration. Even when x rays showed a cervical rib he did not start out with the idea of removing it, but decided the correct procedure in the light of the findings at operation.

His own feeling was that in cases which demanded operation the division of the scalenus anticus probably offered a good prospect of a satisfactory result. He thought also that nerve-pressure effects were due not so much to the nerve being pressed on or riding across the first rib as to compression of the subclavian artery, the pressure in the artery being transmitted to the nerve. It was this transmitted pressure rather than the rib itself which caused symptoms to appear.

A number of cases of thickening of the ulnar nerve at the elbow were mentioned. In 26 cases, predominantly male, the condition was bilateral in 3. There had been antecedent injury to the elbow, ranging from minor bruising to severe fracture, in 11. In this condition there might be an occupational factor: 2 of the patients were violinists, and 8 were labourers on heavy work. In 19 of the 26 cases pain was present, felt sharply around the elbow and radiating downwards to the little finger. In some of the cases wasting of the small muscles of the hand had been observed by the patient. Transplantation was the operation of choice. The nerve itself was found in some cases thickened to twice the normal size.

Ten cases of cervical intravertebral disk were described, in all but one of which protrusion was found. It was possible that the protrusion eventually became absorbed, but during the process it might cause scarring and thickening of the membrane. In the 9 proved cases the protrusion occurred between the fifth and sixth cervical vertebrae in 4, between the sixth and seventh in 2, and in the remaining 3 between the second and third, the third and fourth, and the fourth and fifth cervical vertebrae.

## DIET AND THE NATION'S HEALTH

### DEBATE BY THE HUNTERIAN SOCIETY

A debate was staged by the Hunterian Society at the Apothecaries Hall, London, on Nov. 17. Mr. ALEX. E. ROCHE presided over an attendance of between three and four hundred. The supporters of the motion "That our present diet is undermining the health of the nation" were two medical men and the opposers two doctors of science.

### The Missing Calories

Dr. FRANKLIN BICKNELL took the affirmative. Man required 3,000 calories a day. That was the figure agreed by the British Medical Association in 1932 and by the Ministry of Health in 1933, while the League of Nations Committee admitted a higher figure. From his rations, according to a statement by Dr. Summerskill (on Oct. 29), an adult British citizen obtained 1,530 calories. Since then potatoes had come on the ration, and, with an adjustment for bad potatoes, added 139 to the daily figure. How was the gap between 1,669 and 3,000 to be bridged? Unrationed foods such as offal and meat pies were the not with certainty obtainable, and fish and vegetables were the principal unrationed foods left. A Ministry of Food survey last July mentioned 2,237 calories as the average consumption per capita in a working-class family; this was before rationing and the cuts in cheese and sugar. Restaurant and canteen meals were cited as meeting the deficiency, but "meat out" per capita accounted for only 1½ main meals and 2½ small meals a week, and a main meal might be only about 350 calories. If anyone was surprised to be told that his calorie consumption now was only half what it was before the war:

should bear in mind that a meal of boiled fish, boiled potatoes, and bread and cheese would furnish about 300 calories, whereas the same fish and potatoes fried, and with butter on the bread, would add up to 1,000 calories. That was the explanation—absence of fat. The housewife, who had small chance of eating out, was told that she could have the redundant rations of her children; but those who knew the consuming capacity of a growing boy would be aware that there was not much to spare from that source.

How was it, then, that we were not always hungry and not very thin, and why did not the mortality and morbidity rates go up? Sir John Boyd Orr had said that the loss of genuine hunger was one of the earliest signs of malnutrition. Moreover, with an inadequate diet a person did not of necessity lose weight. The body conserved its resources by the simple process of lessening productivity. In explanation of the mortality figures he pointed to the advances in chemotherapy and in surgery during the last eight years, the advances also in maternal and child welfare and in diphtheria prophylaxis. It might have been expected that there would have been a much greater fall in mortality rates had not these advances been largely nullified by the inadequate diet. As for morbidity, the notifications of tuberculosis had gone up, eye diseases and skin diseases were more common, convalescence was longer. He even attributed some of the 'decay' in morals to the lassitude induced by inadequate feeding. Fatigue was one of the first evidences of deficiency.

#### Opposing Views

Sir JACK DRUMMOND declared that there was no objective evidence showing with clarity and precision that the nation was less well nourished than it had been in 1938. He agreed that the calorie situation was important. His old master, Sir William Bayliss, used to say, "Take care of the calories and the rest will take care of themselves." There was much misunderstanding on this point to-day. It was very easy to misinterpret the figure of 2,700 calories which the Government had recently announced. The population included young children and adults, sedentary workers, light-manual workers, heavy workers, and the requirements spread themselves over a very wide range from those of the infant to those, say, of the forester engaged in heavy labour in cold weather, whose calories might perhaps reach 5,000 a day.

Before the war there was maldistribution of food, resulting in the undernourishment of about one-third of the population, and as the food supplies were adequate for the whole population it meant that the other two-thirds were in a sense overfed. No one denied that present restrictions were grievous, but at least the war had equalized distribution and imposed equality of sacrifice. Since 1941 a close check had been kept on the nutritional value of food. No one liked the wartime diet, but it was all that could be obtained, and an analysis of it showed that nutritionally it was better than the pre-war diet.

As to the results, there was no more sensitive indication of health than vital statistics. The general death rate, the infant and maternal mortality rates, the death rate from tuberculosis had all improved since 1940. The incidence of anaemia in women and of rickets in children had declined; the rate of growth of children had increased. He spoke as one who had seen starvation in several Western European countries after D-day, and "We are not up against anything like that, thank God!" Bread and potato rationing had made the position grave, but he was not as apprehensive as Dr. Bicknell. Provided there was no major dietary deficiency, a simple calorie shortage was not a very serious matter. Inevitably it would reduce production. The present calorie level would only barely meet the estimated requirements, and this must mean that the heavy worker and the adolescent, whose energy requirements were high, would go hungry and their productive capacity would fall. That had happened in France and everywhere else, but it was not an undermining of health. These people might for a few months produce less than expected, but they would even up as things got better. While the present food situation was serious—far more serious than they ever thought it would be six months ago—there was no reason for believing that the diet, plain, unattractive, and monotonous as it was, would undermine health. In no country was the food so well distributed. In France, or even in Eire, the rich could feed as

well as they wanted, and the poor could go to the wall. In this country "we are having a devil of a time, but at least we are all more or less suffering together. I challenge those who support this motion to bring forward any clear objective evidence—not hearsay, not merely subjective impressions—that the health of the nation has been impaired."

#### Views of a General Practitioner

Dr. KENNETH MCFADYEAN, as a general practitioner, spoke in favour of the proposition. Someone had written in an editorial that the impressions of medical practitioners were founded on general complaints by patients of fatigue, lassitude, and an "out-of-sorts" feeling, but, the editorial went on, "no one has brought forward evidence to show that they are attributable directly or indirectly to lack of food." But what evidence was wanted? At least one general practitioner had drawn attention to the increasing number of cases of hypochromic anaemia, a condition in which frequently the only symptom was fatigue and there were no signs until the victim collapsed on the factory floor, but it had also been shown that the addition of protein to the ordinary rations banished hypochromic anaemia. It was all very well to quote figures concerning children, but what about the people between 20 and 50, the workers who had to maintain themselves and the children and the aged people? It was in the third to the fifth decade that hypochromic anaemia and other dietary deficiencies asserted themselves. How many women succeeded in nursing their babies for longer than four weeks? What about the increase in infantile gastro-enteritis? In a recent series of cases at Great Ormond Street, of 167 infants with gastro-enteritis admitted only one had been fed naturally. It took the mother all her time to feed herself, let alone her infant. He also referred to the increased prevalence of skin diseases in the adult population—impetigo and sycosis barbae. The latter condition formerly was not seen once in five years by a practitioner, now he saw any number of such cases. They were due to the absence of fatty acids to protect the skin. Ophthalmologists spoke of an increasing number of inflammatory conditions in the eye and of patches of choroid degeneration in young adults. Chronic rheumatic infections were increasing. The objective evidence "stuck out a mile." An army was expected to march on its stomach, but those who ordered our rations to-day apparently expected us to fly on air, blowing out gases from our empty exhausts, belching forth exports from empty stomachs. The general practitioner might not be a statistician, but there was knowledge and common sense behind his observation.

#### The Verdict from Statistics

Mr. MAGNUS PYKE said that nutritional health depended on the provision of a properly balanced diet, with proteins, fats, carbohydrates, and the rest, which had been demonstrated by experiment to be needed for the proper function of the body. There were many different patterns of diet. In no country did the official rations provide the sole food for the subsistence of the population. In addition to the strict rations there were unrationed meals distributed through restaurants and canteens, special rations for invalids, school meals, food from allotments, and certain unrationed articles of food such as fish, rabbits, and vegetables. If the health of the nation were being undermined it would show itself in the mortality tables, but the fall in that respect, which had been a feature of public health during the present generation, had continued during the war and into the post-war period. He had figures also showing the steady increase in the height and weight of children. The average weight of a number of 12-year-old children in Liverpool in 1935 was 33.4 kg., and in 1946 for a similar group it was just upon 35 kg. It was notoriously difficult to assess the nutritional state of the adult and to measure precisely whether his health was or was not undermined by diet. The biological system of man was infinitely adaptable to circumstances. But tuberculosis was closely related to nutrition, and if shortage of food were undermining the health the incidence of tuberculosis would have shown a marked increase, which was not the case. Tuberculosis mortality had fallen steadily since 1942. Old people, who had perhaps the greatest difficulty in obtaining a full diet, had shown a decreasing death rate in every quinquennium since 1926-30, but the greatest decrease was

shown in the quinquennium 1941-5. Conditions like obesity, alcoholism, high blood pressure had had less chance to operate.

Even when the full rigours of reduction of supplies came into force in 1948 the consumption level of 2,700 calories would still be sufficient to cover the population. That figure was made up as to 72% of calories distributed as rations, the remainder was derived from the diverse avenues of distribution he had already named. The average for each school meal was 349 calories.

### General Discussion

The PRESIDENT, in throwing open the meeting to discussion, said that it was not merely a question of the value of the diet, but of obtaining it. Many of the calories in the ration must be spent in queueing to get it. Dr. NEVIL LAYTON said that people were apt to compare European countries with Britain, to the latter's advantage, but actually, although the ration in Norway, Holland, and Czechoslovakia might not be generous, the fats were approximately double the amount obtainable in Great Britain. He had come across cases of nutritional oedema in this country. Dr. G. E. BREEN asked for the basis of the assertion that, before the war, one-third of the population was underfed. Assuming that the unemployed were underfed, they and their dependants would not have amounted to more than four-and-a-half millions, or 10% of the population. Surely the lowered rates of mortality or morbidity could justly be ascribed to the sulphonamides and penicillin, to diphtheria immunization, and to other advances which had made their appearance during the last ten years—one of the most revolutionary periods in the history of medicine. He complained of a certain presumption and arrogance on the part of professional nutritionists. He wondered how their bold statements would look in thirty years' time.

Mr. DICKSON WRIGHT came down heavily against the proposition that the present diet was undermining health. In the present company he could detect no signs of malnutrition; they gave the appearance of a very well fed assembly. Some of the arguments used in support of the proposition had been trivial. The occurrence of diseases like impetigo had been cited as evidence of malnutrition. Yet it was only a short time ago that a gentleman from the United States, that land of plenty, arrived at London Airport and was found to be suffering from impetigo, and was not allowed to remain but was sent back by the next aeroplane to his own country. If we were faced with real food deficiency, what about the millions we spent on alcoholic liquor and on tobacco? What food those millions would purchase! It had even been suggested by the principal speaker in favour of the proposition that our present diet was the cause of the decline in morals. It made him imagine a co-respondent in the divorce court begging the judge not to be too hard upon him because he had been underfed!

The openers made brief replies. Dr. BICKNELL begged for serious decision on the part of the meeting—a decision, he said, the effect of which would go beyond that assembly. Sir JACK DRUMMOND claimed that no concrete facts had been brought forward to support the view that there had been deterioration of health as a result of diet. All the objective evidence went to show that the health of the nation was not undermined. Indefinite statements about skin conditions, gastro-enteritis, chronic rheumatism, and the like, being attributable to diet should not be taken too seriously. He recalled that in 1940 the Parliamentary Secretary to the Ministry of Food announced that on the suggestion of the medical advisers to the Ministry it had been determined to add a proportion of calcium to flour. Within a week the Ministry received protests, which continued for months afterwards, declaring that the calcium in the loaf was responsible for all manner of ills. Medical men claimed that their patients were suffering as a result. Some of these medical men bore well-known names. Yet in actual fact, owing to a hold-up of supply, no calcium was added to flour for eighteen months after the announcement, and after it was added there were no complaints.

The question "That our present diet is undermining the health of the nation" was put to a show of hands, and the vote of the meeting was in the affirmative by about three to one.

Mr. MORTIMER WOOLF, in proposing a vote of thanks, said that after this array of statistics and arguments he still thought the best dietetic advice was given from the music-hall stage, "A little of what you fancy does you good."

## Correspondence

### Penicillin Blood Levels

SIR,—We have just finished investigations concerning the excretion and the role of penicillin in the organism, and we present here a preliminary report. Our first results, which will be published in detail elsewhere (*Acta Medica Hungarica*, Budapest) can be summed up as follows.

The investigations were carried out in order to raise the serum-penicillin level and to diminish its excretion. We found that the hippuric-acid content of the blood and the urine can be easily and continuously increased by means of vegetable protein meals, especially by oatmeal. The troublesome para-aminohippuric-acid drop infusion, suggested by Beyer and his collaborators, can be avoided thus. The serum-penicillin level can be considerably raised by an oatmeal diet, and its excretion can be reduced to such a degree that, six hours after a single injection of 60,000 units, a powerful bacteriostatic effect is still demonstrable in the serum. The quantity of the penicillin and the number of the injections can be reduced thus. A similar effect could be demonstrated by the administration of a single dose of amidopyrine, 0.3 g. per os. If this dose was repeated two-hourly, the bacteriostatic power of the serum could be maintained as long as six hours (20,000 i.u. of penicillin being administered before).

Clinical symptoms led us to assume deficiencies in some vitamins during prolonged penicillin treatment. This is particularly striking in the case of vitamin C. Considering the well-known role of vitamin C in infections, this relation can be of importance in future penicillin treatment and in the explanation of the bacteriostatic effect of the penicillin.

In connexion with sensitization phenomena as the result of penicillin treatment, it was possible to produce with the serum of one of our patients a positive Prausnitz-Küstner reaction (passive transfer of antibodies) after the administration of 21,000,000 units of penicillin. It was also possible to demonstrate changes in the appearance of different cutaneous tests—e.g., von Pirquet—during the penicillin treatment—i.e., the positive von Pirquet test became weaker after a few weeks' treatment or changed into a negative one.

Bacteriological studies revealed that in contrast to data already published in the *Journal* (Ellinger and Shattock, 1946), the bacterial flora of the alimentary tract remains substantially unchanged during the penicillin treatment. Haemolytic streptococci disappear from the flora of the mouth and throat, but other streptococci and staphylococci, as well as penicillin-insensitive bacilli, continue to be present in unaltered quantities. The intestinal flora remains likewise unchanged.

In view of the fact that great quantities of penicillin—excreted in the saliva and in the bile, the eventual changes of the pH of the saliva and the digestive potency of the intestinal enzymes were investigated after penicillin treatment. The pH of the saliva diminished in every case during the treatment. The diastase values (Wohlgemuth) of the faeces have decreased similarly. These contributions may be of importance in the nutrition of patients during penicillin treatment.

Investigations into the diffusion properties of penicillin reveal the fact that 0.5 i.u. of penicillin does not pierce a layer of fibrin 3 mm. in depth prepared from pure thrombin solution and crystallized fibrinogen solution *in vitro*, but it will be adsorbed by it, since 0.5 ml. of precipitated fibrinogen adsorbs less than 1 but more than 0.5 i.u. of penicillin. This adsorption can be inhibited and adsorbed penicillin can be eluted again by adding a solution of sodium dehydrocholicum.

Difficulties encountered in treating the heart-failure symptoms of penicillin-treated cases of endocarditis led us to investigate the possible interference of penicillin and digitalis. Electrocardiographic changes in penicillin-treated pigeons and their altered response to pure digitoxin show that prolonged penicillin treatment has an influence perhaps directly on the sinus node. There is no real interference between the two drugs, but subclinical sensitization with penicillin and lessening of the B<sub>1</sub>-vitamin content of the organism may cause an increase of lipoids, especially of cholesterol. The latter is apt to attack one part of the digitalis glycoside.

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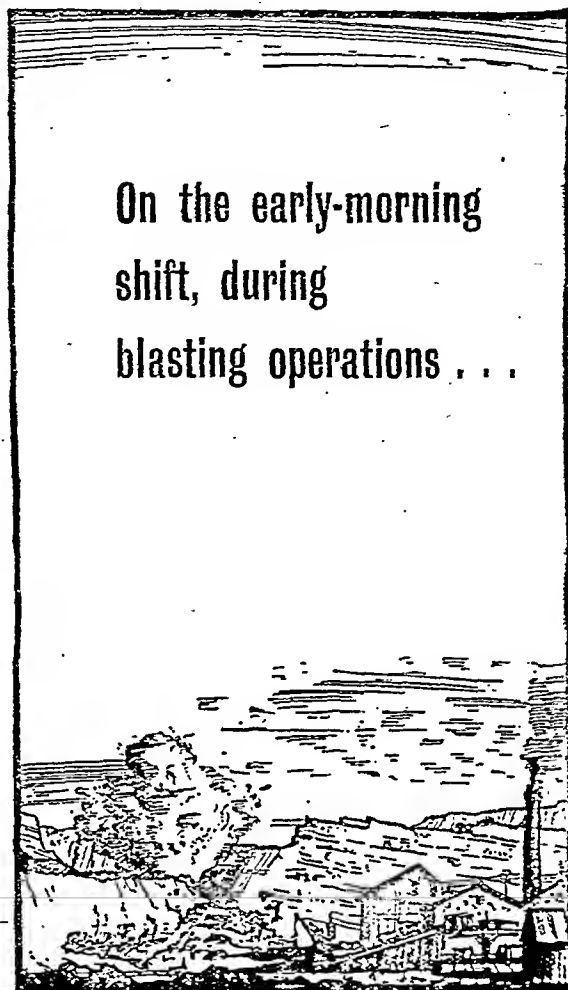
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Detailed communications in connexion with this work appeared or will be published in the *Orvosok Lapja* and *Magyar Belorvosi Archivum*, both in Budapest, *Acta Medica Scandinavica*, Stockholm, and *Schweizerische Medizinische Wochenschrift*, Basle.—We are, etc.,

L. MOSONYI.

R. HELD.

E. OBLATT.

G. SZÉCSEY.

G. DUCKS.

C. KOSÁRN.

M. SURJÁN.

A. SZENDEI.

Budapest.

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## Penicillin for Infected Hands

SIR.—In his letter on the use of penicillin in the treatment of infected fingers (Nov. 1, p. 707) Dr. E. Jaffe suggests that prophylactic penicillin may be used with some success in very early cases to abort the condition. I wonder if this is not rather a precarious statement to make in view of the possible severe consequences. I have recently seen two cases of palmar-space infection which appear to illustrate the risks which may be involved by conservative treatment. It is because of the extreme difficulty of diagnosing the presence or otherwise of pus in these cases that I wondered if Dr. Jaffe or anyone else had experienced any similar recurrences in very early cases of pulp infection.

The first, a young man, reported sick with a diffuse swelling of the palm of his left hand of twelve hours' duration. The swelling was compatible with an early inflammation of the middle palmar space, but was only tender to moderate pressure. He had slept well during the night and had experienced no pain. He had no fever, lymphangitis, or lymphadenitis. He was sent to hospital immediately, where he received a course of 750,000 units of penicillin given in equal three-hourly doses over a period of ninety hours. There was no surgical interference. He was discharged two days later symptom-free and with full function of the hand.

After seventeen days he had six carious teeth extracted. Twenty-four hours later he presented with a similar swelling on his hand, which was throbbing and acutely painful. He was running a slight temperature. He was returned to hospital, where a good result was obtained with surgical drainage of the palmar space followed by a further course of penicillin.

The second case, also a young man, presented with a painless swelling of the palm of his right hand of approximately sixteen hours' duration. The swelling suggested an inflammation of the middle palmar space, but it was tender on deep palpation only. There was no constitutional disturbance. He was sent to hospital, where he received exactly the same conservative treatment as the previous case. On discharge he was symptom-free and had full function of the hand. Fourteen days later he caught his hand in a trapdoor, resulting in mild bruising. The skin was not broken, but the same evening his hand became intensely painful and swollen on the palmar side. When I saw him at midnight (fourteen hours after injury) he presented the clinical picture of very acute middle palmar-space infection. He was returned to hospital, where the condition was successfully treated with surgical drainage followed by a prolonged course of penicillin. The final result was excellent. (There had been no bony injury.)

It would appear probable that despite the short duration of the original symptoms a small pocket of pus had formed in both cases, that the first course of penicillin had been sufficient to sterilize this pus and render it quiescent for a relatively long period, and that reinfection of the focus was brought about in the first case by a transient bacteraemia and in the second by moderate trauma. These cases demonstrate the results which may follow neglect of the simple rule that chemotherapy should never be used in cases of suppuration in the absence of adequate surgical drainage. But, with this in mind, they further show the extreme difficulty of diagnosing the presence or absence of pus in very early cases. The severity of the second infection and the increased loss of man-hours involved, despite clinically adequate treatment with penicillin, demonstrate the dire results which may follow misjudgment in the case of palmar-space

infections. I wondered at the time whether more intensive penicillin therapy in the first instance, despite the clinical cure, would have prevented the recurrences of infection.

It would be interesting to know if others have had similar experience with fascial-space infections, and whether the earlier appearance of pain in pulp infections does in fact increase the chances of successfully instituting penicillin therapy before the actual formation of pus.—I am, etc.,

Leamington Spa.

A. GORDON DINGLEY.

## British Food Resources and Requirements

SIR.—According to the report of the conference arranged by the Nutrition Society (Nov. 15, p. 786) I said that the agreement of estimates of food supplied and consumed "was as good as could be expected in view of the low degree of accuracy of dietary surveys." What I actually said was that the agreement was better than could be expected in view of the inaccuracy of estimates of the amount of food imported and produced in the country. The point is important, for if we were getting an average 2,800 calories per head, as reckoned from estimates of imports and production, there would be no need to worry about calories.—I am, etc.,

London, E.1.

J. R. MARRACK.

## Food Cuts and Vitamins

SIR.—Your interesting and valuable leading article entitled "Food Cuts and Vitamins" (Nov. 1, p. 696) calls for comment on three separate matters.

First, I conceive it a pity to refer to "the new standards of the National Research Council of the U.S.A." That body, in both editions of its reports and through the mouths of several of its members on a number of occasions, has consistently asserted that it was not laying down dietary standards. It has called its estimates, and given convincing reasons for so doing, "Recommended Dietary Allowances." These allowances, unlike any estimates of requirements, are intended to allow for at least part of the losses that occur during processing, transport, storage, and cooking, and are also meant to "take up the slack" for those individuals at one end of the scale of requirements for any given nutrient. Nothing is more striking in such recent publications as the invaluable monograph of Widdowson on school-children's diets than the extraordinarily wide range of intakes, and these strongly suggest a correspondingly wide range of requirements. The American recommendations are intended to take care of the higher of these requirements and so would obviously supply more than is necessary to those with lower requirements. They cannot, therefore, be themselves regarded as figures for requirements, and are, as their promulgators make clear, simply recommended allowances.

Secondly, I am a little surprised that your comments on riboflavin intake ignore one of the most striking and in some ways entertaining facts revealed by wartime studies of diet. In this country, at any rate, beer and tea can provide an appreciable part of the daily intake of riboflavin and also of nicotinic acid; for the more intemperate they may even provide major contributions.

Finally, there seems to me a serious error in your parenthetical observation that "as is now the accepted practice in this country, the vitamin-A value of  $\beta$ -carotene is taken as 1 i.u. per 0.6  $\mu$ g." Dr. Leslie Harris's article (p. 681), to which you make specific reference in your leader, says quite clearly "carotene is only about one-half or one-third as well utilized by the animal body compared with an equal amount of vitamin A." Without going into elaborate arithmetical details it must suffice here to say that although 0.6  $\mu$ g. of pure  $\beta$ -carotene has, by definition, the activity of 1 i.u. of vitamin A, this refers to comparative tests under carefully standardized conditions of vitamin-A-depleted albino or piebald rats. It is universally accepted that the efficiency of converting carotene to vitamin A is much less for man and other domestic animals receiving mixed diets and not obviously short of vitamin A. There is some evidence that the efficiency of conversion diminishes with increasing levels of vitamin A in the diet. If that is so, any figure for equivalence of the vitamin and the provitamin can be only a rough approximation. Experts in this country and the United States seem, on this matter at any rate, to be largely in agreement that the only safe assumption for the

nutritionist to make is that 2  $\mu\text{g.}$  of carotene is required to supply in an ordinary diet the equivalent of 1 i.u. of vitamin A. This, incidentally, is a highly practical question and not an academic matter of figure manipulation. If a daily intake of 2,500 i.u. is required and 500 of these are supplied as preformed vitamin A, the amount of carotene needed in addition will be either 1,200  $\mu\text{g.}$  or 4,000  $\mu\text{g.}$  per day, according as we take 0.6  $\mu\text{g.}$  or 2  $\mu\text{g.}$  to be equivalent to 1 i.u. This, according to "Nutritive Values of War-Time Foods," represents the difference between 12 and 40 g. of fresh summer carrots or between 3 and 10 oz. (85 and 284 ml.) of liquid summer milk.

Incidentally, the Medical Research Council War Memorandum No. 14, to which I refer above, contained on p. 4 of the original edition an unfortunate printer's error, whereby it is stated that 1 i.u. has, by definition, the potency of 0.06  $\mu\text{g.}$  of  $\beta$ -carotene; this was subsequently corrected by an erratum slip to the correct figure of 0.6. I would, however, again emphasize that this equivalence is a matter of definition applying to certain specified laboratory conditions and that for practical purposes the biological activity of carotene so defined has to be divided by 3 or 4.—I am, etc.,

London, N.W.3.

A. L. BACHARACH.

### Duodenal Ulcer and Priority Foods

SIR,—I think Dr. A. H. Morley (Nov. 8, p. 745) is a little hard on his patients. While the milk ration for children remains so small, who knows what pressure is brought to bear on father to cultivate his gastric symptoms? I believe that gastric sufferers are given milk and eggs as it is assumed they are unable to eat meat. If the issue of milk certificates automatically cancelled meat and bacon rations it would cause no hardship to genuine sufferers and discourage others from renewing priorities unnecessarily.—I am, etc.,

E. Molesey, Surrey.

E. M. COLLINS.

### Belladonna Poisoning

SIR,—When it was my privilege—many years ago—to work under the late Dr. Hughlings Jackson at the London Hospital as his house-physician, several cases were contacted in which it was difficult to decide whether the patient was suffering from post-epileptic delirium or belladonna poisoning. Dr. Hughlings Jackson advised that in such cases of doubt a few drops of the patient's urine should be instilled into the eye of a cat, which is extremely sensitive to the drug. This was done; and on several occasions both then and since this procedure, by causing rapid dilatation of the cat's pupil, has proved valuable in determining the diagnosis. This simple help may not be generally known.—I am, etc.,

Manchester.

WILLIAM COATES.

SIR,—I was interested in the case of belladonna poisoning reported by Drs. M. Hamilton and A. B. Sclare (Oct. 18, p. 611) because I am surprised such cases are rare, but chiefly because I suspect the aetiology of the reported case may have been similar to a "near miss" of my own. At all events such cases may serve as a timely warning to Service M.O.s; particularly the more recent entrants.

The incident which prompts me to write this occurred when I had been in the R.A.F. only a month or so. I had under my care an airman with symptoms of peptic ulceration, and ordered for him, in writing, a mixture of magnesium trisilicate (stock) to which should be added 10 min. (0.6 ml.) of tincture of belladonna per dose. The dispensing of this I left in the hands of an orderly. When I came to check the final mixture (which I may have neglected to do) I discovered that liquid extract of belladonna had been added instead of the tincture. Fortunately the patient did not receive any, but two points were brought home to me. First, it is unwise (and, as I later discovered, contrary to Air Force Regulations) to allow inexperienced and unskilled, albeit "kccn," orderlies to carry out even simple dispensing. Personal dispensing will benefit both the patient and the half-forgotten pharmacology of the doctor. Secondly, of the tinctures commonly used in civilian practice many are replaced in the Services, presumably for reasons of economy, by liquid extracts with their lower maximum doses.—I am, etc.,

R. L. G., R.A.F.V.R.

### Genetics and Science in the U.S.S.R.

SIR,—After the self-righteous indignation of the leading article entitled "Ourselves and the Russians" (Aug. 30, p. 339) I was surprised at the crude attack on Soviet science and scientists printed under the title "Genetics and Science in the U.S.S.R." (Oct. 18, p. 616). I do not wish to discuss the scientific pros and cons of the Soviet genetics controversy, but the totally inadequate account given in your article suggests that its author is either extraordinarily ill informed or determined not to do the matter justice. Up to the present one has been inclined to take the more charitable view that your reviewers of Soviet medicine tend to be but poorly briefed. An example is the surprising ignorance of your annotator who thought fit to review work on spinal pumping (July 12, p. 62) though unaware of the existence of an English translation of Speransky's work for no less than twelve years.

In the present case, however, this conclusion is hardly possible. Though no less than five and a half columns were lavished upon the article, a little under one and a half was devoted to an inadequate account of the scientific controversy, and the rest to a vicious attack on Soviet scientific honesty, with a lengthy and slavish reproduction of the totally unfounded allegations of Darlington. It is necessary to state most emphatically that there is not a shred of evidence produced by Darlington or anyone else to suggest either that the death of Vavilov was due to other than natural causes or that he or any other geneticist was at any time under detention. Not only is there no word of truth in these allegations, but those who made them had ample evidence to the contrary before them when they wrote. The monograph of Hudson and Richens to which you pay such tribute contains conclusive proof of the existence and active work of a large Mendelian school in the U.S.S.R. enjoying the full support of the Soviet Government. Furthermore, Zhebrak, the leader of this school, far from being subjected to a "heresy hunt" as you would have us believe, was in May of this year elected president of the Byelo-Russian Academy of Science and is head of the Moscow Agricultural Academy.

One is therefore forced to the conclusion that your article is nothing more than an attempt to blacken Soviet science and is inspired by a determined hostility which readily accepts any scurrilous fable without asking for proof, while at the same time ignoring facts that do not suit your book. In fact the criticisms of Radbil (*Meditsinsky Rabotnik*, July 3, 1947) do not now seem to be so wide of the mark. Nor is it sufficient, in order to protest your innocence, to produce a list of articles by Soviet authors which have appeared in the *B.M.J.* if these were all published during or immediately after the war. In those days the most unexpected people found it necessary to pay lip service to the contribution of a gallant ally, but it is by their subsequent behaviour that the sincerity of these people has been tested. Your own recent attitude has been characterized by a stony silence broken by an ill-informed annotation and two hostile quasi-political editorials. It is a pity that the objectivity and impartiality of Hudson and Richens, to which you pay tribute, cannot also be found in your own attitude. Instead it shows every evidence of the very thing to which you pretend to object—ideological motives obscuring scientific truth.—I am, etc.,

Taunton.

J. R. HAWKINGS.

\* In view of the statements made by Dr. Hawkings we submitted his letter to Dr. Darlington, whose reply follows.—Ed. *B.M.J.*

SIR,—The circumstances of the imprisonment and killing of Vavilov and other leading Russian biologists have been reported this year as follows: Darlington, C. D., *Discovery*, 1947, 8, 40 (February); *Nineteenth Century*, 1947, 142, 157 (September); *J. Heredity*, 1947, 38, 143 (May). Th. Dobzhansky, "N. I. Vavilov, a Martyr of Genetics, 1887-1942," *J. Heredity*, 1947, 38, 227 (August). Eric Ashby, *Manchester Guardian*, Nov. 1, 1947. These reports, disgraceful to the Soviet Government, have never been contradicted officially or unofficially from any Soviet source.

Your correspondent's denial of "scurrilous fables" does not therefore take us any further. We must continue to rely on

that is written in Russia rather than on what is said in Somerset. This difficulty *Pravda*, I think, gives us what we need. On p. 2 the great Moscow journal attempted to answer my "slanders" and to show where genetics, and indeed science in general, stands in Russia. Its attempt was sufficiently convincing to have been quoted and discussed by the *Manchester Guardian* of Sept. 26 in England and the *Dagens Nyheter* of Nov. 4 in Sweden.

In its article entitled "Antipatriotic Acts in the Guise of Scientific Criticism" (for whose translation I am indebted to Prof. Dobzhansky, of Columbia University), *Pravda* rebuked Soviet geneticists Zhebrak and Dubinin for various offences: for believing that there is such a thing as "pure science" and a "single biology" for the world; for having the *petit bourgeois* impertinence to declare that Academician Lysenko was not rewarded by the Supreme Soviet for his success in genetics but only in agriculture; for having defamed their compatriot in "a foreign journal," one "which specializes in maligning Soviet scientists" (to wit, *Science*); and for having lied themselves in so doing with "Darlington, Sax, and their obscurantists from the reactionary capitalist camp" and with "open enemies of the Soviet people" such as Dobzhansky and Timoféeff-Ressovsky.

"A backward part of our Soviet intelligentsia," *Pravda* concludes, "still carries a slavish servility for bourgeois science," whose "rotten roots it is necessary to pull out decisively and pitilessly." Thus there is no denial that Russian geneticists have been put to death; there is merely a threat that the survivors will be pitilessly eradicated.

The *Manchester Guardian*, the *Dagens Nyheter*, Prof. Ashby, and I differ somewhat in our estimates of the seriousness of his threat to the open continuation of honest biological research in Russia. But none of us imagines that the threat is anything less than a matter of life and death for the individuals concerned.—I am, etc.,

John Innes Horticultural Institution.

C. D. DARLINGTON.

SIR.—At first a Victorian reader of your leading article (Oct. 18, p. 616) might feel some doubt whether a non-medical subject bound to stir emotion were suitable for the columns of a medical journal, but reflection suggests that perhaps nowhere else can it be discussed usefully—I mean without pyrotechnic displays of emotions. Doctors, like other men, are swayed by emotion, but have been trained to control its expression. Before we can classify the deaths under discussion, say whether those who died were martyrs in the ordinary sense of the word, we must know whether Communism—by which I mean Russian Communism—is a religion. By religion I mean not the *religio* of Lucretius—viz., fear of the "gods"—but faith in "the eternal not ourselves which makes for righteousness"—Matthew Arnold's definition of God.

In Prof. Arthur Rosenberg's *History of Bolshevism* (O.U.P., 1934, pp. 6-7) we read:

"He (sc. Hegel) believed in an incessant spiritual progress that was always in opposition to itself. Each appearance of the world-spirit (*Weltgeist*) at a definite period in history of necessity gave rise to opposition. It was out of the conflict of power with power that a new and third force was born. This dialectic method when applied by Hegel to his own age clearly taught that the thesis (middle-class society) must be overcome by the antithesis (proletariat) in order to prepare the way for the new synthesis. . . . Only the world-spirit itself is absolute in its eternal progression. In these ideas of Hegel are to be found the chief elements composing Marx's materialistic conception of history."

My first question, directed to those readers who have studied Hegel, is whether Prof. Rosenberg has correctly summarized Hegel's position. The summary seems to imply that Hegel foresaw an infinite succession of conflicts—viz., that the proletarian triumph must yield to another antithesis, the triumph of which would give place to another and so forth. My next question is, do Marxians adopt this philosophy or do they regard the triumph of the proletarian antithesis producing a classless society as definitive, in fact very much as Christians regard the second coming of Christ? If they do, Communism is a religion and a religion implies heretics. If they do not, the question of martyr does not arise, although there may be other questions we could usefully discuss.—I am, etc.,

MAJOR GREENWOOD.

SIR.—Reading the leading article on "Genetics and Science in the U.S.S.R." (Oct. 18, p. 616) I was uncomfortably reminded of the Russian accusation "sham political neutrality of the *B.M.J.*," which was so indignantly denied by you in the *Journal* of Aug. 30 (p. 339). Can it be that the accusation was, after all, correct in essence, if not in detail?

In the autumn number of the *Modern Quarterly* you will find two articles and an editorial footnote devoted to the genetics controversy in the Soviet Union. Two of the writers, geneticists working with the School of Agriculture in Cambridge, while themselves dismissing Lysenko's theory as worthless and regretting the official favour enjoyed by it, make it clear that flourishing schools of orthodox genetics exist and are in fact increasing in importance. And as for the alleged persecution of the Mendelian geneticists, the footnote points out that "Zhebrak, Lysenko's chief opponent, far from being liquidated. . . is very much alive and has just been made President of the Byelo-Russian Academy of Science and is head of the Moscow Agricultural Academy (*Moscow News*, May 17, 1947)."

It seems most regrettable that the *B.M.J.* should lay itself open to a charge of political bias by quoting mischievous rumour from a daily paper without taking the trouble to verify the facts.—I am, etc.,

Birmingham, 15.

C. BACHETIN.

\* The "mischievous rumour" was taken from *Pravda* of Sept. 2, 1947, and has been verified.—Ed., *B.M.J.*

SIR.—The correspondents who have written to you concerning your fair and enlightened leading article, "Genetics and Science in the U.S.S.R." (Oct. 18, p. 616), will find complete answers to their idiotic criticisms in a book *I Chose Freedom* (Hale) just published. It is the political history of a high Russian official, Victor Kravchenko.

You rightly say that "Darlington has done a great service to truth in putting these facts on record." The same applies to Kravchenko about the gruesome facts he also has put on record.—I am, etc.,

T. GERALD GARRY.

SIR.—I was extremely grateful for your courageous leading article on "Genetics and Science in the U.S.S.R." (Oct. 18, p. 616). It is high time that such facts, which have long been available, be made more widely known in face of the pressure to which scientific workers are treated in the way of propagandizing the Soviet Union as the scientist's paradise. The protesting chorus of the faithful may be met, if you will permit me, by invoking a favourite "dialectical" platitude, that art, philosophy, and science are all determined by the form of society in which they are produced, and that, as may be anticipated from this, science is not the only intellectual activity in the U.S.S.R. tyrannized by a mediaeval Inquisition modernized with Gestapo technique.

One may quote the outlawing of psycho-analysis, the imposition of so-called Socialist Realism in art, and the subsequent sudden eclipse of writers and artists who fail to express the "forward march," "aspirations," etc., of "the masses," or who allow "degenerate" bourgeois themes to steal into their symphonies. Recently Shostakovich, the composer, and Eisenstein, the tragic film director—once a leading figure in cinema art—have again performed the nauseating public breast-beating ritual for their "deviations," the new synonym for heresy, and this alone should make your correspondent, who refers to the *B.M.J.* article as "simply another set-piece of anti-Soviet pyrotechnics," squirm; and, if this does not, perhaps the fact that many more artists who are less known perform their confession in the decent privacy provided by the N.K.V.D. will.

One further illustration of the attitude to truth of the Soviet ruling class and its adherents elsewhere is the suppression of the official *History of the Soviet Revolution*. In the Soviet Union itself every available copy was withdrawn and a new version issued in which history was turned on its head, Lenin's "general staff of the revolution" portrayed as counter-revolutionary "mad-dogs," Trotsky, the founder of the Red Army, becoming the arch-saboteur. As far as possible, even the surviving witnesses of historic events were liquidated together with archivists of the Marx-Engels-Lenin Institute in Moscow. In

this country one may still pick up John Reed's stirring account of the revolution, *Ten Days that Shook the World*, which was approved by Lenin, who wrote a foreword to it; yet it is, in the U.S.S.R. and to members of Communist parties elsewhere, a banned book, on the "Index Expurgatorius." The reason is simple: Trotsky is mentioned honourably on every page, Stalin once—as the signatory to a document.

The scientific method, objectivity, and culture as we understand the terms can no more survive in this atmosphere than in Nazi Germany, and they have not flourished so long here that we can afford to be lax in guarding them jealously.—I am, etc.,

Virginia Water Surrey.

HAROLD BOURNE.

\*.\* This correspondence is now closed.—Ed., B.M.J.

### Treatment of Varicose Veins

SIR.—It was with some consternation that I read Dr. R. Simpson Harvey's letter (Nov. 15, p. 793) referring to my method of sclerosing varicose veins by mechanical scarification of the intima (Oct. 25, p. 671) as "barbarous." I have no knowledge of the treatment of varicose veins in barbarian communities, but if he means to infer that the method is cruel to the patient I can reassure him on this point.

The bulk of my cases are done under local analgesia to the incision in the groin (or behind the knee in the case of the external saphena) after usual morphine-scopolamine premedication. About one-third of the patients give no indication that they feel anything; the rest respond with varying degree by movement of the limb operated on, but a little reassurance is all that is necessary to get them to submit with good grace to "seraping" of the vein. The discomfort caused by this method is not to be compared with the painful cramps which follow sclerosing injections with salicylates or sodium chloride.—I am, etc.,

Birmingham.

J. W. RIDDOCH.

### A Word of Praise

SIR.—For thirty-five years, rain or shine, in sickness or in health, for better or for worse, I have not missed reading the *Journal* each week (for a number of years, as you know, it was a duty as well as a pleasure), and I should like to tell you that I have never seen a better number than this week's with the Sherrington symposium. It would perhaps be rash to call it the very best number, but I repeat that I do not remember a better—not primarily because of the excellent articles about Sir Charles Sherrington (I am, alas! but little of a neurologist) but because, in these days when politics overwhelm us all, in and out of the medical profession, it is so refreshing to find in a weekly newspaper the pure light of science held aloft as a beacon for us doctors.

I admire, too, the technical skill with which the *Journal* is reduced, with something in it for everyone (including the dical politicians), from "Synchronous Combined Total trectomy" to "Jugged Hair," the evident authority in the ing articles and the variety in the thirty-three letters to the itor—the life-blood of any weekly journal. In these days of paper restrictions and production difficulties I hope, Sir, that you will allow me to give you and your staff a public word of well-merited praise.—I am, etc.,

London, W 1.

R. SCOTT STEVENSON.

### POINTS FROM LETTERS

#### Bodies for Dissection

Dr. MURIEL KEYES (Harrogate) writes: "D. M. A." (Oct. 11, p. 590) suggests a "Body Donors' Society." Until such be formed it is so simple to bequeath oneself by will to a particular medical school, with the proviso that if distance at time of death make this impracticable then it be offered to the nearest school. An important point is, do the schools prefer us fresh or pickled? Modern embalming by qualified morticians is reasonable in cost and facilitates transport. I believe both Guy's and Liverpool have used bodies so preserved, and I understand that, if so desired, embalming can be followed later by the customary pickling tank. It does not seem generally known how helpful embalming is in ordinary practice. Particularly in cases of unexpected death, relatives who have had to travel from afar have been most grateful to find the face with contour and colouring as they last knew it, and a perfect-looking body with, of course, no suggestion of decomposition.

## Obituary

SIR ALEXANDER MACCORMICK,  
K.C.M.G., M.D., F.R.C.S.

Sir Alexander MacCormick died, on Oct. 25 at his Jersey home, where he had retired after an unusually long career in Sydney in order to be near his children and grandchildren. He was 91, and well known as a surgeon in this country and in Australia.

Alexander MacCormick was born at Tainish, Argyllshire, in 1856. He graduated M.B., C.M. at Edinburgh in 1880, took the M.R.C.S. a year later, and proceeded M.D. in 1885. He had been a house-surgeon at the Liverpool Royal Infirmary and demonstrator in physiology at Edinburgh University before he took up, in 1883, his appointment as demonstrator of anatomy at the University of Sydney, where the late Sir Thomas Anderson Stuart was then demonstrator of physiology. MacCormick was later elected to the surgical staff of the Royal Prince Alfred Hospital and St. Vincent's Hospital, Sydney. He was also consulting surgeon to the St. Vincent Hospital and the Coast Hospital, Little Bay. He was one of the founders of the Royal Australasian College of Surgeons, and he was made an honorary fellow of the Royal College of Surgeons of England in 1900 and of the Edinburgh College in 1905. He was mentioned in dispatches for his services as consulting surgeon with the British Army in the South African War, and he was knighted in 1913. He served in France as a consulting surgeon with the rank of colonel in the 1914-18 war, when he lost his eldest son, Campbell, who was an officer in the Argyll and Sutherland Highlanders. MacCormick had always hoped that Campbell would succeed him at "The Terraces." He was created K.C.M.G. in 1926.



The work of MacCormick and Anderson Stuart was epoch-making in the medical school of the University of Sydney. Anderson Stuart was a great administrator and a great dean of the medical faculty, as well as an able physiologist. MacCormick excelled as an anatomist and as a surgeon, and he was soon appointed lecturer in surgery to the University. Sixty years ago the splitting of surgery into specialties had scarcely begun, and forty years ago, when the older members of the present generation began to know MacCormick well, one would find on his afternoon's operation list at Prince Alfred Hospital a wide range of cases: a cerebral case; a knee-joint; a stomach, gall-bladder, or renal case (for all three); almost always a case of hydatid disease; frequently a carcinoma of the breast, or of the tongue with deposits in the glands of the neck; or a mastoid. One instance of his thoroughness may be given. He had operated upon a patient for epithelioma of the lip, with very extensive glandular involvement. Later there was a recurrence, and the patient stated that he would commit suicide if something more could not be done. MacCormick operated again, but after the metastases had been eradicated the pharynx could not be closed and the skin had to be sutured to the pharyngeal mucous membrane. The patient lived subsequently for twenty years, with his arytenoids and larynx in full view through the pharyngeal window. It was on this patient that Anderson Stuart worked out the mechanism of swallowing. When the patient wanted to swallow a meal he closed the opening by covering it.

Modern methods of confirming diagnosis had not reached their present dependable position at the time when MacCormick started active practice, but his clinical knowledge was unusually sound, his diagnosis shrewd and penetrating. In the operating theatre his practical knowledge of anatomy together with his skill made his approach appear easy. His technique was that of hurry, but his precision was such that operations were



inished cleanly and quickly. It was an especial pleasure to watch his breast operations. Quickly displaying the distal part of the brachial plexus, he cleaned the axillary artery and vein from below upwards, using his own double-ended dissector—one end plain for dissection, the other carrying a ligature. Each tributary vessel was cleaned, ligated, and divided with a technique peculiarly his own; he left a dry dissection behind and advanced on a level front until the axilla was completely cleaned. The extensive dissection of the neck for neglected carcinoma of the tongue, which was all too frequent then, was carried out in the same precise, purposeful manner. In those days private hospitals scarcely existed. Traffic was horse-drawn and big distances had to be covered. MacCormick would perform a fore-quarter amputation, or any other operation, under conditions which were often primitive and with inadequate lighting. Because of this he built his own private hospital, "The Terraces," and thereafter worked in comfort. He appeared to be quite inexhaustible. He arrived at "The Terraces" at 6.30 a.m. and began operating at 7 a.m.; his operations at Prince Alfred Hospital or at the Coast Hospital in the afternoon started at 1.30 p.m. and might go on until after dinner.

He retired from the Prince Alfred Hospital at the age of 65, but he continued to operate for several years more at St. Vincent's Hospital. His mental alertness at the age of 90 is shown by one incident. Knowing that he would enjoy it, the British Council gave a private showing of a recent film. When the pathologist appeared on the screen and made the statement, "It is a squamous-cell carcinoma of the bronchus," quick as thought MacCormick whispered, "How does a squamous-cell carcinoma occur in a bronchus?" He wrote little compared with the vast amount and high quality of his work, but he was responsible for a treatise on the myology of the wild cat and for a number of papers on, for example, cystotomy. Being a canny Scot with unusual business ability, he was in request for the boards of insurance and other companies. He read deeply. His hobby was yachting, and at the age of 73, with two friends of almost the same age and a crew, he sailed his 60-ton yacht from England to Sydney by way of the Panama Canal. His portrait, here reproduced, was painted by John Longstaff and unveiled by H.R.H. the Duke of York in the Great Hall of Sydney University on March 29, 1927. He married in 1895 Miss Ada Cropper, who survives him with his second son and two daughters.

#### CYRIL STRICKLAND, M.D.

Dr. Cyril Strickland, who died at the age of 66 on Nov. 3 in Jersey after a long illness, was born in Port Elizabeth, Cape Colony, in 1881. He was educated at St. Andrew's College, Grahamstown, Oundle School, and Caius College. He graduated at Cambridge with first-class honours in 1902. While he was at St. Bartholomew's Hospital he accepted an invitation to study protozoology at Cambridge under Prof. G. H. F. Nuttall, whose assistant he became. In that capacity he made the interesting discovery that the trypanosomiasis of rats was normally transmitted from rat to rat by the ingestion of infected fleas which were caught and masticated by the animals. Previously it had been assumed that transmission was by the bites of the insects. During this period he found time to take his degree in medicine.

In 1912 he was appointed by the Federated Malay States Government to a post connected with malaria control. Sir Malcolm Watson had already achieved remarkable success in the prevention of malaria by drainage in the low-lying coastal land, but the disease in the jungle upland areas was still a baffling problem. In 1915 Strickland announced the discovery that the hill jungle of Malaya remained free from malaria till clearing operations made the watercourses and pools suitable as breeding-places for the vector mosquitoes. The importance of this discovery was recognized by the Government, which issued an order that jungle must not be cut down close to water collections without an official permit. In India Sir Pardee Lusk, writing in the *Indian Journal of Medical Research*, referred to this work as a "brilliant discovery." Despite this recognition Strickland ever since that time harboured a sense of grievance because of the inadequate acknowledgment accorded to him for so far-reaching an advance in malaria-control methods.

After a short spell of military duty with the New Zealand forces Strickland went to India, where he was employed in work on the prevention of plague till 1922, when he was appointed to the newly established professorship of medical entomology at the Calcutta School of Tropical Medicine and Hygiene. He held this post for seventeen years, and in his own words "during this long period his heart was always in the prevention of malaria by the utilization of his discovery in Malaya, and as far as the tea-gardens of Assam and North Bengal went he had considerable success. A large number of tea-garden doctors took up the story, aided by the great Agency Houses of Calcutta and the estate managers, until the tea-gardens became comparative health resorts, mainly by the use of jungle over the malarifogenic waterways."

In addition to his other fruitful work in teaching and research Strickland made a special study of the association between the formation of deltaic areas and malaria. In 1939 he published a book, *Deltaic Formation*, in which he dealt specially with the deltas of the Ganges and Brahmaputra rivers. He contemplated further work on this subject, especially a correlation of the vast amount of data that he had collected in connexion with the incidence of malaria in Eastern India, but this task was never completed because of his superannuation in 1939. He was then employed by the Army till 1942 in organizing malaria work with special reference to the anticipated Burma campaign.

Dr. GEORGE CLEMENS SCHWIZER was fatally injured in a car accident on Oct. 21. Born in 1903, Schwizer qualified in his native city of Vienna in 1929. After holding several house appointments, one of them under von Eiselsberg, he settled in a small town on the Danube as a general practitioner and surgeon. A Roman Catholic of Jewish descent, he had to leave Austria abruptly in 1938. He came to England and took the conjoint diploma in 1941. After a short spell in general practice he accepted a post as industrial medical officer with the Shell Refinery at Port Ellesmere. There he spared no effort and used all his knowledge and experience in creating a model medical department.—H. G. K.

Dr. DAVID DAVEY ROSEWARNE died suddenly on Nov. 4. A robust New Zealander, he played rugby for St. Mary's Hospital, and after being house-physician there he served in the R.A.M.C. in the 1914-18 war, and then took up practice in East London. His humanity, humour, and hard work, combined with an extensive knowledge of medicine and an intolerance of shams, soon ensured him a large practice. He was one of a rota of doctors who remained permanently on duty throughout the recent war and the blitz, often sleeping in a church crypt. He leaves a widow, his son, Dr. D. D. Rosewarne, and a grandson.—F. S.

## The Services

The President of the U.S.A. has conferred the following decorations in recognition of distinguished services in the cause of the Allies:

*Legion of Merit, Degree of Commander*.—Lieutenant-General Sir Alexander Hood, G.B.E., K.C.B., K.H.P., late R.A.M.C.

*Legion of Merit, Degree of Officer*.—Major-General R. E. Barnsley, C.B., M.C., K.H.S., late R.A.M.C.; Major-General Sir P. S. Tomlinson, K.B.E., C.B., D.S.O., Colonel Commandant, R.A.M.C.; Brigadier (Temporary) E. C. Beddows, O.B.E., M.C., late R.A.M.C.; Colonels (Temporary) E. Bulmer, O.B.E., and A. E. Porritt, C.B.E., and Colonel (local) T. J. L. Thompson, O.B.E., M.C., R.A.M.C.

*Legion of Merit, Degree of Legionnaire*.—Colonel (Temporary) J. P. Douglas, M.B.E., R.A.M.C.

*Bronze Star Medal*.—Major D. H. Thompson, O.B.E., and Captain G. Forrest-Hay, R.A.M.C.

The President of the Czechoslovak Republic has conferred the Medal of Merit 1st Class upon Air Commodores E. D. D. Dickson, C.B.E., and P. C. Livingston, C.B.E., A.F.C., R.A.F., in recognition of valuable services rendered in connexion with the war.

The Efficiency Decoration has been conferred upon the following officers of the Territorial Army: Lieutenant-Colonel (Honorary Colonel) E. N. P. Marland, Lieutenant-Colonel D. A. McMillan, Crawford, O.B.E., Majors (Honorary Lieutenant-Colonels) J. E. Flood, D. M. Mitchell, and G. M. Warrack, D.S.O., O.B.E., Majors W. N. S. Donaldson and M. W. Gonin, D.S.O., and Captain (Honorary Major) D. Arnott, R.A.M.C.

## Medical Notes in Parliament

### Medical Practitioners and Pharmacists Bill

LORD HENDERSON, in the House of Lords on Nov. 11, moved the Second Reading of this Bill, which, he said, was intended to dispose of wartime problems associated with the British medical registration of doctors not possessing British qualifications. It also dealt with pharmacists qualified abroad. The Medical Act of 1886 laid down that admission to the *Medical Register* of doctors holding only diplomas obtained abroad should be conditional upon the existence of reciprocal arrangements. The only foreign countries with which reciprocal arrangements were made were Belgium, Italy, and Japan, and these were cancelled in 1920, 1940, and 1942 respectively. When the war came and doctors from all parts of the world found their way to this country some temporary amendment of the law was called for and was effected in July, 1940, by Defence Regulation 32B, which empowered the General Medical Council to register practitioners qualified to practise outside the United Kingdom. By the time temporary legislation ceased nationals of twenty-six countries had been registered by virtue of foreign diplomas. Independent practice was not permitted, but the help given by these doctors was substantial and a large number served with H.M. Forces or those of allies, while many gave valuable service in hospitals, in the public health services of local authorities, or as assistants in general practice. No further grant of temporary registration was made after February, 1946, but doctors already registered remained so till the end of 1947. The Bill proposed that those who remained in this country and who had given good service in the Forces or in civilian life could obtain permanent registration. When temporary registration ceased there were about 3,500 on the *Register*, including many American and Canadian doctors. Of the others, Germans, Austrians, Poles, and Czechs were the largest classes. It was estimated that not more than 1,500 to 2,000 would avail themselves of the Bill. The figure might be much less, and it would include Polish doctors who had come to this country under the Polish resettlement scheme. The Bill also provided for certain groups who were not registered at all: foreign doctors who had served overseas with British forces and were allowed to enter and remain in the United Kingdom; and doctors who were allowed to enter or remain here during the war but had not been employed in forms of medical work specified in the temporary registration orders. Some had given the country useful service in medical research. This group would include graduates of the Polish school of medicine. It was proposed that for this group registration should in the first place be provisional. During the provisional period they would be required to work in hospitals or other institutions under supervision to enable the General Medical Council to judge their suitability for permanent registration. This provision would be limited to doctors who were in the country when the Bill was introduced. Any question of permanently modifying the general laws which made the registration of foreign doctors dependent on reciprocity would be beyond the intention of the Bill. Clause 8 of Part 1 contained the only provision which would be permanent. Its purpose was to regularize the position of doctors from abroad who visited this country for limited periods to do professional work in hospitals as teachers or as postgraduate students. Many of these visitors were not eligible for registration under the Act of 1886, and it was undesirable that there should be any doubt on the propriety of a registered practitioner co-operating with one of these distinguished visitors. A second group to be covered by this Clause were doctors qualified abroad who came to this country to continue their professional education in temporary appointments at hospitals. The desirable practice of exchanging doctors with the Dominions was in some cases made difficult by the absence of registration. Even if no legal difficulties had arisen in the past the risk had been there and should be removed, especially as hospitals would soon become a State responsibility. Registration would be for the duration of the appointment and only in respect of the appointment, and the Bill gave the General Medical Council the task of assessing the value of medical diplomas held by applicants under the Bill. Part 2 of the Bill changed the law on the registration of pharmacists holding qualifications obtained abroad and also provided for foreign qualified pharmacists.

LORD LLEWELLIN, on behalf of the Conservative Opposition, welcomed the Bill. Lord ALTRINCHAM pointed out that Clause 8, subsection 3, laid down that those who were to be given temporary recognition must hold a colonial or a foreign diploma. If the word colonial was intended to cover the

Dominions it was an improper description and should be altered. Lord HENDERSON promised to look into this and other points, and the Bill was read a second time.

### Committee Stage

The Bill was taken in Committee of the whole House on Nov. 18. On Clause 1 Lord HENDERSON moved to leave out "colonial" and to insert "commonwealth." Since 1886 the *Register* had included separate lists for colonial and foreign practitioners. The unsuitability of the word to present-day conditions was obvious. This amendment and subsequent proposed the use of "commonwealth" and would thus achieve the intention of the Bill without offending the Dominions. The House agreed to the amendment. Meeting a point made previously by Lord Llewellyn, Lord Henderson then moved that the House accept an amendment making subsection 5 of Clause 1 read that direction shall be given only in the case of a person who is resident in the United Kingdom and who is resident therein otherwise than for a temporary purpose.

On Clause 4 Lord Henderson moved an amendment to meet the case of a number of Polish doctors—there were 43 of them—who were not registered and who were still awaiting transfer to this country; they might not arrive by the end of the year. The amendment was accepted. Lord Henderson also accepted an amendment by Lord Llewellyn to extend to "other institutions" the provision for the registration of commonwealth or foreign practitioners temporarily employed in British hospitals. Lord Henderson moved to insert a new clause after Clause 8, substituting "commonwealth" for "colonial" in Part 2 of the Medical Act, 1886. The House agreed to this.

The remaining Clause of the Bill was agreed to and the Committee Stage concluded. The Report Stage was put down for Nov. 25.

### Venereal Disease in the Army

MR. SHINWELL furnished the following table showing the incidence of venereal disease among British troops during the twelve months ended June 30, 1947.

Annual rates per 100 strength

	Officers	Other Ranks	Women's Services
United Kingdom .. .. .	0.4	2.8	1.0 (d)
British Army of the Rhine .. .. .	1.9	16.8	1.2 (d)
Central Mediterranean Force (a) .. .. .	1.8	13.3	
British Troops in Austria (b) .. .. .	1.2	15.2	Not available
Middle East Land Forces (c) .. .. .	0.6	3.0	
Far East Land Forces .. .. .	4.1	13.9	
British Commonwealth Occupation Force (Japan) (d) .. .. .	1.6	30.9	

(a) Includes Austria up to the end of 1946.

(b) Estimated annual rate based on the first 6 months of 1947.

(c) Includes Malta and East Africa from April 1, 1947.

(d) The number of British troops in this Command is small; accordingly the percentage rate is liable to fluctuate considerably.

(e) Officers and other ranks: separate figures for the two categories are not available. As far as is known, however, there were no cases among officers of the Women's Services during this period.

### Cancer Research

MR. HERBERT MORRISON said on Nov. 20 that expenditure on cancer research from the Parliamentary grant-in-aid for the work of the Medical Research Council had been at the rate of approximately £6,000 per annum during the greater part of the last twenty years, this provision being supplementary to the much larger expenditure from the endowments and other resources of unofficial organizations concerned with this particular field. Expenditure from the same source in the financial year 1946-7 was about £12,000, and expenditure in the present financial year was estimated at £31,000 (including £14,000 of a non-recurrent nature). Substantial additional expenditure in the future had been approved for research on the application of atomic physics to the treatment of cancer. These activities were not affected by the National Health Service Act, 1946.

MR. FREEMAN asked if Mr. Morrison knew that deaths from cancer had increased during all this period. He asked whether the Minister was satisfied that the most satisfactory method was applied in allocating the money. Mr. MORRISON said the allocation was the best which could be done. He shared Mr. Freeman's disappointment that the problem had not been solved.

MR. SOMERVILLE HASTINGS asked whether the sum Mr. Morrison had mentioned sufficed for the legitimate demands of the engaged in this research. Mr. MORRISON said he thought that met the needs of the useful activities which could be conducted

Considerable sums were spent elsewhere in the field of research under the Ministry of Health and the hospitals. He would consider further developments in expenditure if useful avenues of research were available.

Lord WINTERTON said that in the opinion of laymen, of hospital authorities, and of the highest members of the medical profession the money in question was being admirably spent. Mr. MORRISON replied that this was his impression.

Dr. MORGAN asked Mr. Morrison to review the evidence on a substance called H 11 which had been used in private research work and to see whether it could be obtained at less cost. Mr. MORRISON said that if he were given particulars he would make inquiries. Sir CHARLES MACANDREW, as a member of the Medical Research Council, said the difficulty was not to secure money, but research experts. He added that the Medical Research Council knew all about H 11. (A leading article on H 11 and papers by H. A. Kidd and by W. E. Gye, R. J. Ludford, and Hilda Barlow appeared in our issue of July 17, 1943.)

**Hospital Contracts.**—Mr. DE LA BERE asked on Nov. 18 whether all contracts made by hospitals would be honoured by the Ministry of Health when the hospitals were taken over. Mr. BEVAN replied that rights and liabilities under contracts made for carrying on the work of a hospital transferable under the National Health Service Act were themselves transferable under Section 6 of the Act.

**Mental Defectives.**—Mr. BEVAN stated on Nov. 20 that premises acquired by local authorities will provide 160 beds for mental defectives in the immediate future. Further accommodation will be available in the new year in three mental deficiency colonies released by Service Departments. Mental defectives awaiting institutional accommodation were 3,890 on Jan. 1, 1947.

## Universities and Colleges

### UNIVERSITY OF CAMBRIDGE

John Henry Dean, M.B., B.Chir., has been appointed University Assistant Pathologist to Addenbrooke's Hospital for three years from Oct. 1.

The degree of M.D. was conferred on E. B. Jarrett and N. D. Compton on Nov. 15.

### UNIVERSITY OF ABERDEEN

In announcing the appointment of Dr. John Craig as the new Professor of Child Health in the University (Nov. 8, p. 753) we wrongly described him as M.R.C.O.G.

Dr. James Walker has been appointed Lecturer in Midwifery and Gynaecology in the University.

### UNIVERSITY OF WALES

The following candidates for the degrees of M.B., B.Ch. at the Welsh National School of Medicine have satisfied the examiners at the examinations indicated:

**PATHOLOGY AND BACTERIOLOGY.**—G. J. Davies, H. E. F. Davies, F. J. Davis, D. M. D. King, J. D. Thomas.

**HYGIENE.**—Maurice M. Bassett, N. V. Chivers, S. I. Cohen, A. V. Coleman, D. P. Davies, G. J. Davies, H. E. F. Davies, F. J. Davis, Joan V. Davis, E. H. Evans, E. F. Griffiths, Anne Guy, E. J. Hargadon, J. M. E. Hyde, E. G. A. Jackson, Marjorie L. James, J. H. Jones, T. D. Jones, D. M. D. King, R. H. Lewis, Joan A. McLay, Lilian M. Morgan, M. A. Owen, E. G. Rees, G. M. Reynolds, Frances M. Richards, J. M. Richards, Sybil H. Stephens, C. E. Stroud, Mary C. Sumption, Augusta J. Taylor, G. Thomas, J. H. S. Wakelin, J. A. Wilkinson.

\* With distinction.

### UNIVERSITY OF LIVERPOOL

Thomas Cecil Gray, M.D., D.A., has been appointed to the newly established whole-time Readership in Anaesthesia in the University. He will organize the teaching of undergraduates and graduates and engage in research.

### UNIVERSITY OF SHEFFIELD

Harry Norman Green, M.D., professor of pathology in the University, has been granted the additional title of Director of Cancer Research.

The Council of the University has received the resignation of John Rennie, M.D., of the post of professor of public health on his retirement from the position of medical officer of health for the City of Sheffield, and has thanked Dr. Rennie for his services to the University.

### ROYAL COLLEGE OF SURGEONS OF ENGLAND

Owing to the rise in costs it has been found necessary to increase the charge for the monthly College dinners from £1 1s. to £1 5s (including drinks). The new charge will come into force from Jan. 1, 1948.

At an ordinary meeting of the Council of the College, held on Nov. 13, with Sir Alfred Webb-Johnson, Bt., President, in the chair a Loyal Address in connexion with the impending marriage of H.R.H. The Princess Elizabeth was adopted.

Mr. James M. Wyatt was admitted as a co-opted Member of the Council.

Mr. H. S. Souttar was appointed Hunterian Orator and Mr. L. E. C. Norbury, Bradshaw Lecturer.

The Hallett Prize was awarded to David Henry Cave Harland (St. Bartholomew's).

The following were elected Fellows in Dental Surgery of the College: Sir Frank Colyer, Prof. E. C. Sprawson, Colonel E. B. Dowsett, Mr. Frank Coleman, Mr. T. W. Widdowson, Mr. F. N. Doubleday, Mr. J. H. Badcock, Mr. Wm. Warwick James, Mr. J. G. Turner, Dr. Lilian Lindsay, Mr. A. E. Rowlett, Mr. Bryan J. Wood, Mr. C. S. Morris, Mr. Harold Round, Brigadier R. A. Broderick, and Mr. J. Sim Wallace.

Dr. R. J. Last, Anatomical Curator, was reappointed Bland-Sutton Scholar for a further year; Dr. F. S. Gorrill was appointed Anatomical Curator and Lecturer in Anatomy; and Dr. B. Schofield was appointed Lecturer in Physiology.

Leverulme Scholarships were awarded to Mr. E. S. R. Hughes for research into spontaneous thrombosis of the axillary vein and to Mr. H. Daintree Johnson for research into gastric physiology in relation to surgery and cardiovascular surgery, particularly in relation to portal hypertension.

The following hospitals were recognized in respect of the resident surgical posts required of candidates for the Final Fellowship examination: Chase Farm Hospital (two assistant surgeons, four senior house-surgeons, and one casualty officer); City General Hospital, Leicester (resident surgical officer and two house-surgeons); Luton and Dunstable Hospital (casualty house-surgeon and orthopaedic house-surgeon); Churchill Hospital, Headington (one house-surgeon (B2)); Scunthorpe and District Hospital (resident surgical officer and orthopaedic house-surgeon).

### Diplomas

Diplomas of Membership were granted to D. J. Parr and J. C. E. Pougher and to the 129 successful candidates whose names were printed in the report of the meeting of the Royal College of Physicians of London in the *Journal* of Nov. 15 (p. 800); as were the names of the successful candidates for the Diplomas in Child Health and in Medical Radio-Diagnosis.

Diplomas in Medical Radiotherapy were granted to D. K. Sambrook and to the other successful candidates whose names were printed in the report of the meeting of the Royal College of Physicians of London in the *Journal* of Nov. 15 (p. 800).

Diplomas in Physical Medicine were granted, jointly with the Royal College of Physicians of London, to W. R. Grant and A. K. Tyler, and a Diploma in Ophthalmic Medicine and Surgery, also jointly, to E. Hefferman.

### ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW

Dr. William Evans, F.R.C.P., will deliver the Finlayson Memorial Lecture in the Hall of the Faculty (242, St. Vincent Street, Glasgow) on Wednesday, Dec. 3, at 5 p.m. The title of the lecture is "Heart Murmurs." All medical practitioners are invited to attend.

### ROYAL COLLEGE OF PHYSICIANS OF IRELAND

At a meeting of the President and Fellows of the College on Nov. 7 the following were admitted to the Membership: T. J. Ryan, J. W. Wagner, M. Millard, G. A. C. Miller.

### CONJOINT BOARD IN SCOTLAND

The following candidates, having passed the final examinations, have been granted the diploma of L.R.C.P.Ed., L.R.C.S.Ed., L.R.F.P.S.Glasg.: A. Alakija, J. M. Brownlie, L. Charles, W. J. C. Colin-Thome, R. S. Cowie, A. M. Darwish, T. P. Edwards, P. H. T. Fok, S. Gordon, J. A. Gray, W. S. Hall, M. Harris, Patricia E. Hartley, J. M. Hillock, E. Katz, D. P. Keith, S. Lipson, M. Lloyd-Jones, P. Macpherson, Hilary E. C. Millar, H. G. C. Payne, A. I. Richardson, J. R. Scott, Joan C. R. Shiell, H. Simmons, H. S. Sloane, J. D. Stewart.

# INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Nov. 8.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included), (b) London (administrative county), (c) Scotland, (d) Eire, (e) Northern Ireland. Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London), (b) London (administrative county), (c) The 16 principal towns in Scotland, (d) The 13 principal towns in Eire, (e) The 10 principal towns in Northern Ireland. A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1947					1946 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	39	3	23	2	—	46	4	25	2	3
Deaths ..	—	1	1	—	—	—	—	—	—	—
Diphtheria ..	219	21	55	24	6	314	20	88	30	6
Deaths ..	5	1	2	—	—	2	—	1	—	—
Dysentery ..	105	4	21	—	—	65	13	48	1	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Encephalitis lethargica, acute ..	1	—	1	—	—	—	—	—	—	—
Deaths ..	—	—	41	8	4	—	—	47	4	5
Erysipelas ..	—	—	—	—	—	—	—	—	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Infective enteritis or diarrhoea under 2 years ..	61	3	22	—	—	68	17	57	5	7
Deaths ..	—	—	—	—	—	—	—	—	—	—
Measles* ..	2,179	72	191	205	7	3,987	157	231	65	23
Deaths ..	1	—	1	—	—	—	—	—	—	—
Ophthalmia neonatorum ..	54	3	9	—	—	—	—	—	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Paratyphoid fever ..	6	2	—	—	—	—	—	—	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Pneumonia, Influenzal ..	571	44	3	2	1	601	29	11	2	11
Deaths (from influenza)* ..	14	2	—	—	—	16	2	4	—	—
Pneumonia, primary ..	43	305	23	8	10	49	276	15	7	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Polio-encephalitis, acute ..	12	1	—	—	—	—	—	—	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Polio-myelitis, acute ..	198	16	39	12	7	21	—	—	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Puerperal fever ..	—	1	20	—	—	—	—	—	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Puerperal pyrexia† ..	107	8	9	1	1	125	10	13	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Relapsing fever ..	—	—	—	—	—	—	—	—	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Scarlet fever ..	1,730	116	296	57	63	1,323	110	319	31	41
Deaths ..	—	—	—	—	—	—	—	—	—	—
Smallpox ..	—	—	—	—	—	—	—	—	—	—
Deaths ..	—	—	—	—	—	—	—	—	—	—
Whooping-cough* ..	—	9	2	—	4	—	5	—	—	—
Deaths ..	—	1	—	—	—	—	—	—	—	—
Deaths (0-1 year) ..	—	—	—	—	—	—	—	—	—	—
Infant mortality rate (per 1,000 live births) ..	—	—	—	—	—	—	—	—	—	—
Deaths (excluding stillbirths) ..	4,569	771	618	170	126	4,729	742	643	175	135
Annual death rate (per 1,000 persons living) ..	—	—	—	—	—	—	—	—	—	—
Live births ..	7,869	1292	924	401	240	9,118	1425	1120	350	260
Annual rate per 1,000 persons living ..	—	—	—	—	—	—	—	—	—	—
Stillbirths ..	186	29	24	—	—	262	26	45	—	—
Rate per 1,000 total births (including stillborn) ..	—	—	—	—	—	—	—	—	—	—

\* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.  
† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.  
‡ Includes puerperal fever for England and Wales and Eire.

## EPIDEMIOLOGICAL NOTES

Neonatal Gastro-enteritis at Scunthorpe  
There have been five deaths recently among babies in the children's ward at the Scunthorpe War Memorial Hospital. The details are as follows:

1. A male aged 6 months had previously been under treatment for a cleft lip. He was admitted on Oct. 25 as a possible case of tuberculous meningitis. He died two days later after vomiting several times and a moderate degree of enteritis. Post-mortem examination showed evidence of enteritis.
2. A girl aged 4 months had been under investigation from Oct. 26 to 28 and had been readmitted on Oct. 30 with a strangulated hernia, which was operated on. She started with diarrhoea and vomiting on Oct. 31 and died on Nov. 14.
3. A male aged 8 weeks was admitted on Oct. 8 with pyloric stenosis. He developed diarrhoea and vomiting on Nov. 3 and died on Nov. 10.
4. A male aged 6 weeks was admitted on Nov. 2 with pyloric stenosis. Diarrhoea and vomiting appeared on Nov. 8 and the boy died on Nov. 12.
5. A male aged 14 months had been admitted on June 18 with coeliac disease. Diarrhoea and vomiting were noted on Nov. 8 and he died on Nov. 17.

Other babies were infected, and in two of them diarrhoea and vomiting appeared on Oct. 31. The others developed the same symptoms on Nov. 1, 3, 4, and 17. One was a convalescent poliomyelitis case, two were admitted with meningitis, one had bronchopneumonia, and two were orthopaedic cases. No organisms were isolated from the faeces of any of the cases or from samples taken from the remaining 17 children in the hospital ward. None of these babies were breast fed. All were bottle fed on National dried milk, and all bottles and teats were pooled for boiling after each feed.

### Poliomyelitis

The fall in the notifications of poliomyelitis 186 (198) was again a small one, and there was a small rise in those of poliomyelitis 15 (12) in the week ending Nov. 15. Figures for the previous week are shown in parentheses. Notifications of poliomyelitis in London A.C. were 12 (16), and most of the southern counties showed small reductions except Kent 15 (4) and East Sussex 9 (3). The northern counties also showed reductions for the most part, but there was a tendency to small increases in East Anglia and the West.

### Discussion of Table

In England and Wales an increase was recorded in the notifications of scarlet fever 201, measles 127, diphtheria 41, and whooping-cough 35. Decreases were reported in the incidence of acute poliomyelitis 23 and dysentery 21.

A small rise in the incidence of scarlet fever was recorded in most areas of the country; the largest rise was that of Yorkshire West Riding 31. The largest increases in the notifications of measles were those of Lancashire 54, Monmouthshire 41, Glamorganshire 35, and Derbyshire 33; the largest decreases in Yorkshire West Riding 62.

The only notable variation in the returns for diphtheria was an increase of 19 in Lancashire; the notifications in Liverpool C.B. rose from 21 to 32. A further 53 cases of dysentery were notified from the outbreak in Berkshire, Wallingford R.D.; 368 cases have been notified in this area during the past three weeks (see Nov. 22, p. 850).

The largest returns of poliomyelitis were Lancashire 34, Middlesex 19, and London 16. Two outbreaks of gastro-enteritis in maternity hospitals have been reported. The outbreak in Cardiff caused the deaths of 8 babies aged under one month, and the outbreak in Lincolnshire resulted in 5 deaths.

In Scotland there were increases in the notifications of acute primary pneumonia 90, measles 60, and scarlet fever 10. The only falls in incidence were diphtheria 8, and acute poliomyelitis 7. The increased incidence was mainly confined to the city of Glasgow, where there were rises in the notification of acute primary pneumonia 79, and measles 54. In Eire a rise was reported in the incidence of diarrhoea and enteritis 15 and whooping-cough 15. Cases of diphtheria, scarlet fever 16 and whooping-cough 15. Cases of diphtheria were reported from 14 administrative areas, compared with areas last week.

# Vitamin Therapy—its uses and limitations

## GROWTH REQUIREMENTS IN CHILDHOOD

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(Riboflavin)		Iron	2.7 mg.	hydrate	39%
Nicotinic Acid	1.7 mg.	Copper	0.45 mg.	Fibre	2%
Vitamin B <sub>6</sub>	0.45 mg.			Calorific Value	104

References: Shortage of space precludes list of references but full documentation may be obtained on application to Clinical Research Dept. 27A.

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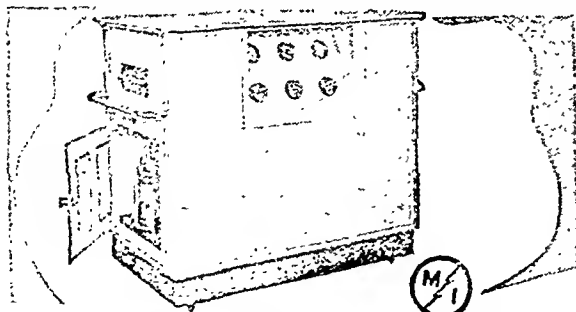
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In Northern Ireland an increase of 15 in the notifications of scarlet fever resulted in the largest return for this disease in recent months. Of the 63 cases of scarlet fever 32 were notified in Belfast C.B.

### Week Ending November 15

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,947, whooping-cough 1,217, diphtheria 195, measles 2,355, acute pneumonia 582, cerebrospinal fever 40, acute poliomyelitis 186, acute poliomyelitis 15, dysentery 95, paratyphoid 8, and typhoid 11.

## Medical News

### Hearing-aids and Audiometers

The Committee on Electro-acoustics, which was appointed by the Medical Research Council in February, 1944, has now issued its Report on Hearing Aids and Audiometers (Med. Res. Cncl. Spec. Rep. Ser. No. 261). This committee is one of three that were appointed by the Medical Research Council in 1944 in response to a request by the Ministry of Health for advice on how to deal with the problem of deafness in the nation; the other two committees were those on Medical and Surgical Problems of Deafness, and on the Education of the Deaf. The members of the Committee on Electro-acoustics are as follows: Mr. W. G. Radley, Ph.D. (Chairman); Sir W. Lawrence Bragg, F.R.S.; Mr. R. S. Dadson, M.A.; Dr. C. S. Hallpike; Col. D. McMillan; Mr. L. C. Pocock, M.Sc.; and Mr. T. S. Littler, M.Sc. (Secretary). The committee undertook two principal tasks: (1) to determine the practicability of designing a single type of electrically operated hearing-aid which would be small, light, reasonably cheap, and be suitable for most persons with deafness of types that can be benefited by mechanical appliances; (2) to determine satisfactory performance specifications for pure-tone audiometers for use in the early diagnosis and accurate assessment of different types of deafness. Details of the committee's investigations are contained in this Report. The Ministry of Health has already arranged for the large-scale manufacture of a hearing-aid on the lines recommended in this Report, and it is hoped that it will be possible to start distributing the aids by the time the National Health Service Act, 1946, comes into operation. The Ministry of Health states that in due course a public announcement will be made about the clinical testing of deaf people and supplying the Government hearing-aid. It is proposed that they should be issued to deaf patients on the recommendation of ear specialists at a number of hospital clinics throughout the country, and plans are being made for providing the clinics with the technical services required for the efficient dispensing and maintenance of the aids. The Ministry hope also to provide at these clinics a standard type of pure-tone audiometer which will satisfy the committee's requirements.

### The Gordon Hospital

The Duchess of Kent will formally reopen the Gordon Hospital (Vauxhall Bridge Road, London, S.W.) on Tuesday, Dec. 2, at 3 p.m. During the war the hospital was used as a Services club.

### New Member of Spens Committees

The Minister of Health and Secretary of State for Scotland have appointed Sir Horace P. Hamilton to be a member of the inter-departmental committees under the chairmanship of Sir Will Spens which are considering (a) what ought to be the range of total professional income of a registered dental practitioner in any publicly organized service of general dental practice, and (b) what ought to be the range of remuneration in the different branches of consultant and specialist practice in any publicly organized hospital and specialist service. He succeeds Sir Thomas Gardiner, who has been appointed Chairman of the New Town Development Corporation for Stevenage. Sir Horace Hamilton was the Permanent Under-Secretary of State for Scotland from 1937 to 1946.

### Chelsea Clinical Society

The second dinner meeting of the new session was held on Nov. 11 with the President, Dr. Neil MacLay, in the chair. Mr. Geoffrey Parker described his experiences as surgeon to the Maquis.

### Anaesthetists in the South-west

A Society of Anaesthetists of the South-west Region has been formed. The inaugural meeting was held at Bristol on Nov. 14 and 15, when Dr. Bradbeer, of Bristol, was elected President for the coming year. Prof. R. R. Macintosh lectured on "Anaesthesia used for Research Purposes."

### Anaesthetist Visits Italy

Dr. G. Organe, consultant anaesthetist to Westminster Hospital, has gone for a three weeks' lecture tour in Italy to introduce the latest methods of anaesthesia to the Italian medical profession. Dr. Organe will lecture in Italian and will give demonstrations in Rome, Naples, Bologna, and Milan.

### British Council Scholarships

The British Council has awarded 256 scholarships to graduates from 62 countries, including the Dominions and Colonies, and extended the scholarships of 106 other scholars. Forty-four of these scholarships are in medical subjects, and the scholars will train at many of the leading hospitals in the country, including the Royal Derbyshire Infirmary; the Royal Infirmary, Glasgow; the Plastic Surgery Unit, Oxford; the Children's Hospital, Birmingham; the Royal Cancer Hospital, London; the Manchester Royal Infirmary; and the Children's Hospital, Great Ormond Street, London.

### General Smuts

General Smuts, the Prime Minister of South Africa, was admitted to Honorary Fellowship of the Royal College of Obstetricians and Gynaecologists on Nov. 22.

### Sir Godfrey Huggins

Sir Godfrey Martin Huggins, F.R.C.S., who has been Premier of Southern Rhodesia since 1934, has been appointed to the Privy Council.

### Atomic Energy Commission

The United States Atomic Energy Commission has appointed Dr. Shields Warren, Director of the Massachusetts State Tumor Diagnosis Unit, interim director of its newly established Division of Biology and Medicine. The Division will correlate research in the A.E.C. and private laboratories.

### City of Plymouth Mental Hospital

The City of Plymouth Mental Hospital, previously known to Plymouthians as Blackadon, has been renamed Moorhaven Hospital. The early treatment unit will continue to be known as Moorfields Hospital. The postal address in each case is Ivybridge, S. Devon.

### New Birth Certificates

A new form of birth certificate will be brought into use on Dec. 15. It will not show particulars of parentage or adoption, but only the name and surname, sex, date of birth, and place of birth.

### Penicillin Factory

The penicillin factory at Speke, Liverpool, which has been operated for the Ministry of Supply by the Distillers Company Ltd. since Dec., 1945, will become a commercial undertaking on Dec. 1 of this year. A new company has been formed for the purpose; it will be called the Distillers Company (Biochemicals) Ltd.

### Wills

Dr. Robert George Clements, of Southport, left £18,047. Dr. Lancelot Raoul Lempriere, of Ware, Herts, left £32,456. Mr. William Ernest Miles, formerly consulting surgeon to the Royal Cancer Hospital, left £14,856. Dr. Walter Ramsden, Johnston Professor of Biochemistry at Liverpool University, 1914-31, and formerly lecturer in chemical physiology at Oxford, left £23,169.

## COMING EVENTS

### Ethics and Science

A conference will take place on Dec. 4, beginning at 10.30 a.m., in the Livingstone Hall, Tothill Street, Westminster, S.W.1. Its main theme will be "Society and the Individual," which will be considered under two aspects—namely, "The Value Society Sets Upon the Individual," and "The Values the Individual Sets Before Himself." There will be discussions after both the morning and afternoon sessions and at an open meeting in the evening. The aim of the conference is to effect in some measure a synthesis between the spiritual and the scientific interpretations of life. The chair will be taken by Prof. Winifred Cullis and Dr. E. B. Sirauss. Further information and tickets (members of Council 2s. 6d., others 3s. 6d.) may be obtained from the British Social Hygiene Council, Tavistock House North, Tavistock Square, London, W.C.1 (Tel. Euston 4732).

### Faculty of Homoeopathy

A meeting of the Faculty of Homoeopathy will be held at the London Homoeopathic Hospital, Great Ormond Street, W.C., on Thursday, Dec. 4, at 5 p.m., when Mr. Harold Dodd will give an address on "Five Ailments Aggravated by Present Austerity Conditions."

**Metallie Contaminants in Foodstuffs**

A joint meeting of the Food Group of the Society of Chemical Industry and the Society of Public Analysts and Other Analytical Chemists will be held at the Chemical Society's Rooms (Burlington House, Piccadilly, London, W.) on Wednesday, Dec. 3, at 7 p.m., when papers on "The Occurrence, Physiological Importance and Estimation of Metallic Contaminants in Foodstuffs" will be presented by Messrs. G. E. Forstner, G. W. Monier-Williams, W. F. J. Cuthbertson, and N. L. Allport and D. E. Garratt. A discussion will follow.

**Medical Society of the L.C.C. Service**

A clinical meeting of the Medical Society of the L.C.C. Service will be held at Lewisham Hospital on Thursday, Dec. 4, at 3 p.m.

**Heberden Society**

A clinical meeting of the Heberden Society will be held at West London Hospital, Hammersmith, W., on Friday, Dec. 5, at 5 p.m.

**Housing and Health**

Dr. J. H. F. Brotherton will lecture on "Housing and Health" on Dec. 16 at the Housing Centre, 13, Suffolk Street, Haymarket, London, S.W.1 (Tel. Whitehall 2881).

**SOCIETIES AND LECTURES****ROYAL SOCIETY OF MEDICINE**

*Section of Orthopaedics.*—Tuesday, Dec. 2, 5.30 p.m. (Cases at 4.30 p.m.) Cases will be shown.

*Section of History of Medicine.*—Wednesday, Dec. 3, 2.30 p.m. Papers by Dr. E. Ashworth Underwood; Charles Creighton (1847-1927): Scholar, Historian, and Epidemiologist; Prof. Major Greenwood: Certain Aspects of the Epidemiology of Creighton.

*Section of Epidemiology and State Medicine.*—Members of this Section are specially invited to attend.

*Section of Surgery.*—Wednesday, Dec. 3, 8 p.m. Discussion: The Treatment of Carcinoma of the Breast. Openers: Sir Gordon Gordon-Taylor, Mr. R. McWhirter, and Sir Stanford Cade.

*Section of Radiology.*—Members of this Section are specially invited to attend.

*Section of Neurology.*—Thursday, Dec. 4, 8 p.m. Discussion: Electro-encephalogram in Organic Cerebral Disease. Opener: Dr. W. Grey Walter. Followed by: Drs. Denis Hill and Denis Williams.

*Section of Otolaryngology.*—Friday, Dec. 5, 10.30 a.m. Papers by Mr. I. Simson Hall and Dr. A. Young: Penicillin Treatment in Acute Suppurative Otitis Media with Special Reference to Long-term Hearing.

*Section of Laryngology.*—Friday, Dec. 5, 2.30 p.m. Films: Mr. G. H. Bateman: Organic Disorders of the Larynx; Mr. V. E. Negus: Bell Telephone Film of Larynx.

*Section of Anaesthetics.*—Friday, Dec. 5, 5.30 p.m. Paper by Dr. J. K. Hasler: Posture in Anaesthesia.

**CHADWICK TRUST.**—At St. Mary's Hospital Medical School, Norfolk Place, Praed Street, W., Thursday, December 4, 4.30 p.m. Dr. G. B. Mitchell-Heggs: Some Changes in Dermatology since the time of Sir Malcolm Morris.

**DON UNIVERSITY.**—At Goldsmiths' College, Lewisham Way, New Cross, S.E. Monday, Dec. 1, 7.30 p.m. Speech-demonstration: Stammering. Orator. Short addresses by members of Speech Disability Classes.

**ROYAL MEDICAL SOCIETY.** 7, Melbourne Place, Edinburgh.—Friday, Dec. 5, 8 p.m. Dissertation by Mr. M. D. W. Low: Uræmia and Some Methods of Treatment.

**POSTGRADUATE DIARY**

**EDINBURGH UNIVERSITY.**—Monday, May 3, 1948, 9 a.m., 12th General Fortnight Refresher Course begins. Intended primarily for demobilized medical officers (Class II) and for insurance practitioners. Fee for graduates not claiming expenses from Government sources, 10 gns.

**INSTITUTE OF DERMATOLOGY.** 5, Lisle Street, Leicester Square, London, W.C.—Tuesday, Dec. 2, 5 p.m. Dr. R. M. B. MacKenna: The Erythema Group of Eruptions. Thursday, Dec. 4, 5 p.m. Dr. R. T. Brain: Filtrable Viruses.

**LONDON CHEST HOSPITAL.** Victoria Park, E.—Friday, Dec. 5, 5 p.m. Dr. S. Roodhouse-Glyne: Pneumoconiosis.

A clinico-pathological demonstration will be held in the Meyerstein Lecture Theatre of the Westminster Hospital School of Medicine, Horseferry Road, London, S.W.1, on Monday, Dec. 1, at 5 p.m. The condition to be demonstrated is osteogenic sarcoma.

**APPOINTMENTS**

Dr. R. F. MacKenzie has been appointed medical officer of the North-eastern and Scottish Areas of the L.N.E.R. in succession to Dr. J. D. Gunn, who has retired.

Dr. MacKenzie qualified at Glasgow University in 1937; in 1944 he was appointed medical officer of the Silicosis Board at Cardiff, and remained there until May, 1946.

Mr. R. J. Fenney, B.A., previously Assistant Secretary, has been appointed Secretary and Chief Executive Officer of the Central Midwives Board in succession to Mr. A. J. Bennett, M.A., who has been appointed Secretary to the North-west Metropolitan Regional Hospital Board.

Dr. Luiz Araujo has been appointed President of the Medical Surgical Society of Pará, Brazil.

Lieut.-Col. C. Newton-Davis, M.C., J.P., I.M.S. (ret.), has been appointed chairman of the Health Committee of the Hampshire County Council.

Major G. M. Thomson, M.D., M.R.C.P.Ed., D.P.H., has been appointed Adviser on Venereal Diseases Control to the West Indian Governments.

Major-Gen. E. A. Sutton, C.B., C.B.E., M.C., K.H.S., succeeds Lieut.-Col. A. D. Stewart as Superintendent of the Royal Infirmary Edinburgh.

Previous appointments that Major-Gen. Sutton has held include that of D.D.M.S. Western Desert Force under Lord Wavell, D.M.S. East Africa Command, and Chief (British) Medical Adviser, S.H.A.E.F.

BROWNE, O'DONELL, T. D., M.B., B.Ch., F.R.C.P.I., F.R.C.O.G., Professor of Midwifery, Trinity College, Dublin, has been appointed Master of the Rotunda Hospital, Dublin, in succession to Dr. Ninian McL. Falkner, F.R.C.P.I., F.R.C.O.G., who completed his seven years' term as Master on Nov. 7.

MCNAB, G. R., M.D., F.R.C.P.Ed., Assistant Physician, Berks and Bucks Joint Sanatorium, Peppard Common, Henley-on-Thames, Oxon.

SUTTON, EVELYN ALEXANDER, C.B., C.B.E., M.C., M.R.C.S., L.R.C.P., Major-General, late R.A.M.C., Honorary Surgeon to the King, has been appointed Superintendent of the Edinburgh Royal Infirmary.

THOMPSON, W., F.R.C.S., Chief Assistant to a Surgical Unit, Manchester Royal Infirmary.

**BIRTHS, MARRIAGES, AND DEATHS****BIRTHS**

Hartley.—On Nov. 6, 1947, at Radmoor Nursing Home, Loughborough, to Wendy (Joyce Bell) and Peter L. M. Hartley, M.B., B.Ch., a son—Peter Rupert.

Lister.—On Nov. 13, 1947, at Parkgrove, Glasgow, to Nancy B. Thomson, M.A., wife of Dr. James A. Lister, 549, Alexandra Parade, Glasgow, a son—Alas Andrew.

MacAuliffe.—On Oct. 30, 1947, at Purey Cust Nursing Home, York, to Lady (née Baldry), wife of Dr. Richard MacAuliffe, a daughter—Jane Mary.

Podoloff.—On Nov. 8, 1947, at South London Hospital for Women, to Diana (née Myott), M.B., B.S., wife of Paul Podoloff, a son.

**MARRIAGE**

Whowell—Murray.—On Nov. 15, 1947, in London, W. Brian Whowell, M.B., B.S., to Joy Murray, M.S.R.

**DEATHS**

Atkinson-Fleming.—On Nov. 14, 1947, in London, Frederick Charles Atkinson-Fleming, M.C., M.B., B.Ch., Major R.A.M.C., retired.

Bentall.—On Nov. 16, 1947, William Charles Bentall, O.B.E., F.R.C.S.Ed., Knight of the Order of St. John of Jerusalem.

Bourman.—On Nov. 8, 1947, at Amsterdam, Prof. K. H. Bourman, M.D., aged 73.

Cosgrove.—On Nov. 17, 1947, at Sydney, Australia, Charles Cosgrove, M.C., F.R.C.P.S.Ed.

Eaves.—On Nov. 21, 1947, Elizabeth Cowper Eaves, M.D., D.P.M., at 2, The Mount, Sheffield.

Farquharson.—On Nov. 16, 1947, at All Saints' Hospital, Southsea, SE, George Sinclair Farquharson, M.B.

Herring.—On Nov. 22, 1947, at 50, Harley Street, London, W., Herbert Thomas Herring, O.B.E., M.B., B.S.

Hunt.—On Nov. 22, 1947, in London, David Mackenzie Hunt, L.M.S.S.A.

Knight.—On Nov. 18, 1947, at Falkland House, Painswick, Charles Victor Knight, M.D., aged 75.

Lapcumb.—On Nov. 19, 1947, at Kewick, Thomas Walter Lapcumb, M.B., M.Ch., F.R.A.C.S., of Sydney, Australia.

Macintosh.—On Nov. 21, 1947, at Edinburgh, Ebenezer Crombie Macintosh, F.R.C.P.S.Ed.

McRae.—On Nov. 20, 1947, at 63, Organs Road, Edinburgh, Douglas Alexander Clouston McRae, M.B., Ch.B., aged 32.

Mannew.—On Nov. 6, 1947, at Sandway Lodge, Prestatyn, Henry John Mannew, M.D., aged 82.

Montgomery.—On Nov. 19, 1947, at 3, High Street, Walsington, Staffs, Pauline Montgomery, M.D.

O'Donnell.—Sir Thomas Joseph O'Donnell, K.C.I.E., C.B., D.S.O., F.R.C.P.I., Major-General A.M.S., retired.

Rosewarne.—On Nov. 4, 1947, David Davey Rosewarne, M.R.C.S.

Sharpe.—On Nov. 17, 1947, Harry Arthur Sharpe, M.R.C.S.

Wood.—On Nov. 23, 1947, at City Hospital, Edinburgh, Robert Cameron Wood, M.B., Ch.B.

## Any Questions?

*Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.*

### B.C.G. Vaccination

**Q.**—Is it advisable to vaccinate a healthy child of three months with B.C.G.? He lives with his father, who has open pulmonary tuberculosis. It is an only child and the mother is healthy. At what age is B.C.G. used and how many injections are necessary? Are there any dangers?

**A.**—B.C.G. is not yet obtainable in this country, but the Ministry of Health is understood to be taking steps to make it available. Its use will then presumably be entrusted to tuberculosis officers and others with special experience, who will undertake to administer it according to some prearranged plan and for certain definite indications. Opinion on the value of B.C.G. vaccination is not unanimous, and it seems desirable that its use in this country should be controlled until more evidence has been obtained. The infant with a sputum-positive parent has always been considered a candidate for this treatment; vaccination has usually been carried out shortly after birth and the child removed from the household for several months afterwards in order that it may have time to develop immunity before exposure to infection. (See also the opening article in this week's issue and our leading article at p. 873.)

### Effects and Legality of Sterilization

**Q.**—(a) Does vasectomy have any effect, other than producing sterility, on male functions generally—libido and coitus in particular? (b) Is sterilization of males or females illegal? If so, does this apply also to sterilization for therapeutic reasons?

**A.**—(a) It is rare for a sterilizing operation such as vasectomy to have any effect on libido or coitus. The writer can recall only one patient who complained of a diminution in the volume of the ejaculate after he had undergone division of the vasa, but even he did not consider that this brought about a lowering of satisfaction. Theoretically (on the basis of Ancel's and Bouin's experiments on animals) ligation should bring about an increase in sexual desire, but in practice in human beings this has not been found to be the case.

(a) There is no statute which prohibits sterilization. Such a procedure may be an example of the common-law crime of "mayhem," or maiming, but no prosecution has been instituted for this offence in recent times, and it is generally regarded now as obsolete. Sterilization, like any other surgical procedure, may amount to an assault unless carried out with the patient's consent; or, if the patient is under legal disability (for example, is a minor or of unsound mind), the consent must be obtained from the person who has authority to give it on his behalf. No action for assault will lie if such consent has been obtained and if there are reasonable grounds for the treatment, such as to save life or to cure disease. For example, it would be quite reasonable to sterilize a woman suffering from rheumatic carditis to such a degree as to make pregnancy dangerous to life. It is quite proper to ligate the spermatic cords in a male during the operation of prostatectomy in order to reduce the risk of epididymitis. Special precautions are advisable when the patient is married, and it is best to obtain the consent not only of the patient but also of the partner, after a full explanation of the circumstances of the case. One of the medical protection societies has suggested standard forms of consent worded as follows:

1. For a woman: "I, ..... of ..... hereby consent to undergo the operation of ..... the effect and nature of which have been explained to me."

2. For a husband: "I, ..... of ..... the husband of the above-named ..... hereby also consent to such operation."

3. For either sex: "I, ..... of ..... hereby consent to undergo the operation of ..... and/or such further or alternative operative measures as may be found to be necessary during the course of such operation."

(The latter part of the third formula could be deleted if not required.)

In view of the serious and irrevocable consequences which follow a sterilization operation, it is often advisable, as in the case of a contemplated operation to terminate pregnancy, to obtain the opinion of an independent medical colleague before carrying out the operation. Sterilization is sometimes advocated on eugenic grounds—for instance, to prevent the transmission of hereditary disease; it is probably illegal to perform such an operation, but the point has not so far been tested in the courts.

### Prophylaxis of Dental Caries

**Q.**—Is there any effective preventive treatment for recurrent exacerbations of dental caries in young adolescents? In view of the amount of calcium in the present flour, and of calciferol in butter and margarine, should additional doses of these essential dentine-forming substances be given? Is massive dosage with vitamin D to be recommended? Among other aetiological factors a deficiency of fluorine has been mentioned. Another possible factor in causation of dental caries in adolescents may be traceable to overdosage with vitamin D during the early 1930's, when the enthusiasm of manufacturers tended to outrun discretion, with the result that children were given daily doses greatly in excess of 2,000 i.u.

**A.**—Our knowledge of the precise aetiology of dental caries is unfortunately still so incomplete that no single prophylactic measure can be advised that will certainly lessen the incidence in adolescents. Recently doubt has been cast on the validity of Miller's (carbohydrate-fermentation, lactic acid) theory, and more attention has been paid to the possible role of the organic portion of the enamel as the potential portal of entry. The evidence at present is that a civilized diet certainly appears to be one of the major factors in aetiology, though other factors, such as heredity, enter into it. Additional calcium will do no harm, but the evidence that calcium and vitamin D have any effect upon the disease, once the teeth have calcified, is not very striking. Overdosage with vitamin D is unlikely to cause any increase in the disease, so far as is known. Ingested fluorides do appear to have a marked inhibitory effect, particularly if absorbed while the teeth are calcifying. Large-scale experiments are at present being undertaken in the United States to assess the value of fluorides artificially added to the water supply.

### Complicated Labour

**Q.**—(a) What is the cause of extension of the legs in a breech presentation? (b) What is the treatment for a young primipara, fifteen hours in labour, head on pelvic floor, cervix two fingers dilated, when foetal distress is present? (c) What is the treatment of a primipara with a marked degree of pelvic contraction and heavy vaginal infection at term?

**A.**—(a) For reasons unknown, probably as the result of chance, the foetal legs sometimes become extended early in pregnancy, and it is the extension which causes the breech presentation, and not vice versa. This effect is mostly seen when the uterus has good tone, as in primigravidae. In most multigravidae, and in a few primigravidae, the uterus is sufficiently relaxed to allow the foetus to alter the attitude of its legs or even to allow spontaneous version with the legs extended. There is therefore much to be said for regarding extension of the foetal legs as "normal" and desirable when the breech presents in a primigravida. Indeed, in primigravidae if the foetal legs are not extended a diligent search should be made for another cause for the breech presentation, such as contracted pelvis or placenta praevia.

(b) If the baby's life is to be saved without undue risk to the mother the alternatives are: (1) lower-segment caesarean section followed by chemotherapy; (2) single or multiple incisions of the cervix followed by forceps delivery. The latter procedure is safe only when the cervix, although incompletely dilated, is extremely thin, and even then should be carried out only by an expert working in a fully equipped theatre. It

should always be borne in mind, however, that the occurrence of foetal distress in circumstances such as those described—that is, when the stress of labour has been so little as to make the onset of foetal distress unexpected—should raise doubts as to whether the foetus is normally developed. Before any treatment is decided on it is desirable in such cases to examine the foetus by x rays for evidence of spina bifida, etc. Other possibilities, such as looping of the cord round the neck or trunk, should also be kept in mind.

(c) It is not stated what sort of vaginal infection is in question. In the case of infection with trichomonas or fungus there need be little anxiety, because such organisms rarely, if ever, infect the upper genital tract. Apart from these, the only common infection in the lower genital tract is gonorrhoea. If the patient is not in labour, then treatment for the disproportion should be delayed a few days until treatment appropriate to whatever organism is present has been instituted and the infection is under control. If delay is impossible, then caesarean section is not contraindicated, provided the lower-segment technique is employed and chemotherapy is started immediately. The vagina might be disinfected as thoroughly as possible by washing out and painting with "Bonney's blue" immediately before operation, but the value of previous vaginal preparation has not been convincingly demonstrated and is not essential.

### Atopic Dermatitis

**Q.**—For five years a woman aged 43, otherwise healthy, has had seborrhoea sicca and an allergic dermatitis of her scalp, neck, arms, and shoulders. There is no demonstrable area of focal sepsis. She cannot tolerate any kind of soap or spirit and has been proved to be allergic to eggs, horses, and dogs. Most treatment seems to cause a flare-up, though a local calamine ointment does help to relieve the intense burning and itching. What treatment do you suggest?

**A.**—The diagnosis would appear to be between atopic dermatitis, contact dermatitis, and seborrhoeic dermatitis. That she has been proved allergic to eggs, horses, and dogs and has severe pruritus would suggest that it is an atopic dermatitis. Investigation and treatment would be by trial elimination of the common foods from the diet for six weeks, possibly a little longer. Scratch and intracutaneous tests are usually positive in this condition, but their value in tracing the offending allergen is doubtful. The most likely foods are egg, wheat, milk, and potato, in this order. Each food must be eliminated completely during the trial period. The age is in favour of a contact dermatitis, and patch tests would help in this condition. Location of the primary site might give a clue to the allergen. If the scalp were first involved it would suggest hair dyes, hair tonics, cosmetics, etc.; if the neck, an article of clothing, the dye in such article, etc. Symptomatically, the use of one of the new antihistamine drugs is well worth a trial. "Benadryl" in doses of 50 to 100 mg. might help, especially at night, owing to its tendency to cause drowsiness. "Nethisan" (pyranisamine maleate) is used in doses of 400 to 600 mg a day and is less likely to cause drowsiness.

### Constipation in an Infant

**Q.**—A male child aged 4 months, although in excellent condition, gaining weight, and contented, has settled down to one motion a week. The stool is normal in colour and consistency. Until the age of 6 weeks his bowels acted normally, then for about a month he passed slightly frothy stools, gradually changing to his present constipated routine. As the child is so well, what should I do about its condition?

**A.**—Although frequency of stools varies considerably in normal infants, the present interval is so long that it does suggest the possibility of Hirschsprung's disease. As the stools are normal in consistency and colour, it would be advisable in the first instance to try the use of a soap stick or vaselined glass rod inserted into the anus daily at the same hour, to see if a more frequent habit could be instituted. It would also be advisable to have a barium follow-through to elicit any radiological evidence of a congenital abnormality. It is inadvisable to use liquid paraffin or purgatives routinely at this age, and unless a congenital abnormality can be demonstrated it is unlikely that any surgical treatment will be required in the absence of distension or general symptoms.

## NOTES AND COMMENTS

**Ringworm of Scalp.**—Dr. J. T. DUNCAN (Department Medical Mycology, London School of Hygiene and Tropical Medicine) writes: Col. W. H. Crichton (Oct. 18, p. 640) describes his successful treatment of a number of cases of head ringworm in children in North Devon by means of a saturated solution of potassium permanganate. The species of ringworm fungus concerned was not mentioned, but readers may assume that it was the common parasite *Microsporum audouinii*. The experience of nearly half a century leaves no doubt that infection of the hair by *M. audouinii* is extremely difficult to cure by any local treatment except epilation by the use of x rays. On the other hand infection of the hair in children by the alien and less well adapted parasite *Microsporum canis* is known, with a few exceptions, to yield readily to topical treatments. In South Devon the predominating dermatophyte found in tinea capitis of children is *M. canis*, and this is true also of parts of North Devon. It cannot too strongly be urged that the identity of the infecting dermatophyte should be established before treatment of tinea capitis is undertaken, and it is especially important that the name of the causative fungus should be stated in connexion with reports on the treatment of head ringworm. (Since I wrote the accompanying note I have consulted our records and found that between October, 1946, and May, 1947, we identified 37 cases of infection by *Microsporum canis* from specimens of hair of children in the Barnstaple area of North Devon sent to us by Dr. W. Crichton.)

**Food Allergy.**—Dr. JOHN FREEMAN, of the Wright-Fleming Institute of Microbiology, writes: A well-known London physician has called my attention to the question and answer on food allergy (Oct. 11, p. 598). He says your answer is not good, and I quite agree with him. The question as stated gives the presumption that the child is egg-sensitive. Though that is quite unlikely to be the whole of the story, it is important to know whether or not this presumption is correct. Trial dieting is very fallacious and has many disadvantages. The way to test is by a skin test with egg protein; this is quite reliable for finding a positive or negative to that particular sensitivity. This test is, however, only one item in the necessary investigation. If the child is sensitive to egg, and this is playing a big part in producing symptoms (and that is a big assumption), the child can be desensitized with egg protein, though this is not a job for the inexperienced. It is probably preferable with a child of that age that egg should simply be avoided in the diet. Lastly, doping a patient with "benadryl" has its disadvantages, though it may be a useful temporary expedient in some cases. I agree that immunization with diphtheria toxoid and pertussis vaccine is very unlikely to have any bad effect on this child.

**"Pen Friends" for the Old.**—Miss M. A. PRATT ("Hillview," Bryants Bottom, Great Missenden, Bucks) writes: In spite of schemes for the care of our aged and chronic sick folk, it seems inevitable that for years to come most of them will spend their days in institutions, where too often they are completely cut off from the outside world. . . . For some years the Pen Friends' Guild has provided correspondents for inmates of L.C.C. institutions who never get a letter. The service has been much appreciated and is being extended to other counties. Offers of help, either as correspondents or as county organizers, would be very welcome.

**Pink Disease.**—Dr. G. M. B. HALES (Sydney, New South Wales) writes: In the *Journal* of June 21 (p. 911) a correspondent asks for advice about a case of pink disease. During the past ten years both at the Renwick Hospital for Infants, Sydney, and privately I have treated these patients with intramuscular injections of Vit. E extract and vitamin B<sub>12</sub>, 15 mg., twice weekly. In the majority of cases, and particularly if seen early, there is marked improvement and loss of the characteristic irritability after the third or fourth injection. It is rarely that more than twelve injections are required and recovery is generally complete in about eight weeks.

All communications with regard to editorial business should be addressed to the EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: ARCTIC WESTCENT, LONDON. ORIGINAL ARTICLES AND LETTERS (forwarded for publication are understood to be offered to the *British Medical Journal* unless the contrary be stated.

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# SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY NOVEMBER 29 1947

## PROTECTION OF PRACTICES SCHEMES REPORT OF THE LONDON SCHEME

When it seemed possible that the country was likely to be involved in war a scheme was evolved for the protection of the practices of the practitioners who might be called upon to undertake national service and the treatment of the patients attached to those practices. The scheme was adopted for the administrative County of London at a meeting of London insurance practitioners held at B.M.A. House on Dec. 20, 1938. The London Insurance Committee were asked to administer the scheme in their area, and the committee decided that they would willingly co-operate as regards the administration of it as part of the scheme which related to National Health Insurance practice.

### The London Scheme

All medical practitioners in London were invited to participate in the scheme and, as an indication of their assent thereto, to enter into an agreement subscribing to the terms of the scheme, the administration of which was entrusted to a committee which was known as the Local Emergency Committee and was representative of the interests of practitioners engaged in all classes of practice. The scheme was put into operation in London immediately on the outbreak of war. Practically all the practitioners engaged in National Health Insurance practice in London ultimately became signatories to the scheme, which operated in London on an entirely voluntary basis. The suggestion of making it compulsory was considered, but it was decided not to adopt that course.

The scheme had two objects: (1) to protect the practice of the absent practitioner, and (2) to provide treatment for his patients during his absence. A notice was exhibited at the surgery of each absentee practitioner whose practice was conducted under the Protection Scheme stating that fact and advising patients to apply to any local practitioner and to present to him their medical cards. The names of the nearest practitioners to the surgery of the absentee practitioner were given. The practitioner applied to accepted the insured person provisionally and forwarded the acceptance to the insurance committee for registration. There were created what were known as "provisional lists" for acting practitioners. On an absentee practitioner undertaking national service 50% of his National Health Insurance remuneration was paid to him, and with the other 50% a fund was created from which acting practitioners were remunerated.

The practice of an insurance practitioner in London ordinarily extends two miles from his surgery (north, south, east, and west), with the exception that the River Thames forms a natural line of demarcation. This gives a "practice area" of 124 square miles. It will be realized from this that insured patients on the list of an absentee practitioner were not restricted in their choice of an acting practitioner to one practising near to the surgery of the absentee but could choose any acting practitioner within the radius mentioned. Patients on the boundary of a "practice area" were free to select an acting practitioner two miles from such boundary, and the area within which some patients of an absentee practitioner might conveniently find an acting practitioner was thus increased from 124 square miles to 50 square miles. It was thought at the beginning that the practice of an absentee would fall to be conducted by, say, four or six practitioners within the immediate vicinity of the surgery, but the working of the scheme demonstrated this theory to be without foundation, for, in view of the wide range, patients of an absentee became distributed

among a large number of practitioners. As examples of this, it may be mentioned that in one case 1,322 insured persons on the list of an absentee were distributed among 79 acting practitioners, two of whom between them took 675 of the number mentioned. In another case, although the acting practitioner was actually "sitting" at the surgery of the absentee—in this case a deceased practitioner—239 patients who were not accepted by the acting practitioner were distributed among no fewer than 53 other acting practitioners.

The administration of the London Insurance Committee proved of extreme importance and of great value in the protection of an absentee's practice inasmuch as the possession of a medical card, although many years old, was usually tangible evidence that the patient was an insured person on the list of the absentee and entitled to obtain treatment from him. It was in this respect that the administration of the National Health Insurance side of an absentee's practice was so much easier to provide for than the private side of the practice, for the production of the medical card at once informed the acting practitioner of his liability to accept the insured person as a patient of the absentee.

The scheme provided not only for the conduct of practices of practitioners who were absent from their practices on national service but also for the conduct of practices of deceased practitioners, both absentee and acting, and of practitioners who were temporarily unable to carry on their practices. The total number of practitioners who went on service and took advantage of the scheme was 450, and during the period of operation the staff of the London Insurance Committee dealt with approximately a quarter of a million acceptances and the same number of deletions. During the peak period it was quite a common thing for the acceptances to number anything between twenty and fifty thousand each quarter. In addition to the 450 cases referred to of practitioners absent from their respective practices on national service, the scheme was applied in the cases of seven practitioners who were killed by enemy action at home and fifteen others who died. Cases of temporary incapacity in which the aid of the scheme was invoked numbered 20, and the grand total of practitioners (or their dependants) who took advantage of the scheme was 492. It may be stated that during the absence of a practitioner no insured person was removed from his list who would not have been removed had the practitioner himself been in the practice. It is true that the lists of absentees decreased, but this was due to the fact that lists moved mainly by way of deletions, there being very few acceptances made on behalf of absentee practitioners.

The scheme was an undoubted boon to the dependants of practitioners who died. During the war it was impossible to sell a practice to advantage, and by placing the practice under the scheme it was possible to await a more favourable opportunity for the disposal of the practice; in the meantime the dependants continued to derive 50% of the income. As a proof of this it will suffice to say that during the period (five years) in which one such practice was conducted under the scheme the insurance committee paid no less than £4,372 to the dependants of the deceased practitioner, and a similar sum was paid to the practitioner who acted as the principal deputy in respect of the provisional acceptances made by him.

### Separate Pools

An interesting development after a short time was the creation of what were known as "separate pools." The idea had as its genesis the practice of two partners, the junior of whom was called up for service. The senior partner remained

at home and carried on the work of the practice. The practice was operated under the scheme, and by the creation of a separate pool for the particular practice the acting practitioner (in this case the senior partner) was spared the necessity of accepting his absent partner's patients. The London Insurance Committee staff were also relieved of the necessity for registering and crediting acceptances and the issue of new medical cards, thereby saving not only time and labour but also material. The arrangement proved so successful that it was afterwards extended to practices where the absentee practitioner was fortunate enough to be able to secure the services of a full-time deputy.

The method of working these separate pools was as follows. The patients were given the opportunity of continuing to go to the surgery of the absentee practitioner, where they were seen by the practitioner acting as the principal deputy, but they were also given the opportunity of going to another acting practitioner if they wished. Half of the absentee practitioner's remuneration was paid according to his directions, while the remaining half constituted the separate pool. From that payment was made, as a first charge, to any other acting practitioner who accepted patients of the practice; the authorized charge for administration was deducted and the balance paid according to the directions of the absentee practitioner. In this way the practice continued to receive approximately 95% of the total remuneration due from the insurance committee.

Financially, the broad basis of the scheme was that 50% of an absentee practitioner's remuneration was paid according to his directions while the remaining 50% was carried to the credit of the London "pool." From that pool the acting practitioners were remunerated in proportion to the number of provisional acceptances made by them, and it is interesting to note the following unit value per annum.

Year	Rate per Unit
1939 (September to December—four months only)	8s. 1-376d.
1940	11s. 9-253d.
1941	11s. 8-367d.
1942	9s. 11-404d.
1943	8s. 5-447d.
1944	8s. 4d.
1945	8s. 3-815d.
1946	15s. 0-569d.
1947 (January to June—two quarters only)	7s. 7-432d.

The total amount paid to absentee practitioners was £329,258 9s. 11d., and that paid to acting practitioners was £319,890 1s. 3d. The administration costs were comparatively small, and a deduction of 24% per quarter was generally sufficient to provide for the cost of administration. In respect of two quarters only was a deduction of 5% made, but on no occasion did the deduction exceed that figure.

The scheme was officially brought to an end on Sept. 30, 1947.

While the experience of the administration of the scheme might, and no doubt would, lead to modification being made in any further effort of this description, it cannot be gainsaid that the scheme, so far as National Health Insurance practice is concerned, accomplished all that it was designed to do, and that it worked satisfactorily and to the advantage of those who participated in it, either as absentee or as acting practitioners, and also the insured persons. Whether it is humanly possible to devise a scheme which will solve any and every problem is doubtful, as so much depends on the good will, tolerance and helpfulness of all concerned.

#### REPORT OF THE KENT PROTECTION OF PRACTICES COMMITTEE

The Kent Branch prepared the scheme based on the model issued by the Association. There were some modifications, the most important being (1) the arrangement for the payment by the insurance committee of the amount due (50%) on N.H.I. fees to the legal representatives of the absentee doctors, and (2) the accountancy arrangements on private fees whereby the acting doctor retained 50% of the fees and paid the balance to the bureau, except in the case of partnerships, where the partner of the absentee practitioner was not required to supply any records of any private patient who would normally receive treatment from the absentee partner. Mr. Lloyd, clerk of the Kent Insurance Committee, acted as the administrative officer

of the scheme, and 47 meetings of local committees were held to deal with questions of its working. The gross amount disbursed was £209,845.

While the scheme provided that a partner of an absentee practitioner was not required to keep and supply records in respect of any private patient who would normally receive his treatment from the absentee partner, no special provision was made for insured persons on absentee partners' lists. The committee decided that the lead given in the case of private patients should be applied to these insured persons. Therefore acting partners were notified that it was not necessary for them to accept the medical cards of insured persons on the lists of their absentee partners, that a separate pool would be formed from which other acting doctors accepting any of the insured persons from the list would first be paid on the basis of two units for each person, and that the balance would be paid to the acting partner.

The evacuation of the coastal towns and the consequent serious effect this had on medical practices was considered by the committee, who decided that practitioners who had to leave the area should be considered as absentee practitioners provided they took appointments in other areas. In all cases practitioners met this condition. The majority of those who remained in the coastal towns were appointed to the Emergency Medical Service, and the committee were able to give material assistance in obtaining better financial conditions for them than those originally arranged. The committee acted as the agent of the Ministry of Health in the collection of moneys, and to meet the special circumstances suggested to the E.M.S. practitioners the formation of "town pools." This method of the collection and distribution of fees was agreed by the practitioners and provided an equitable distribution of funds. The aggregate amount of fees (N.H.I. and private) dealt with under this arrangement was £70,624.

It was possible for arrangements to be made by the bureau for carrying on practices by other acting doctors where a practitioner became ill, was interned, or died. Twenty-nine practices were carried on during the temporary incapacity of the practitioner; four doctors who were interned for a short time were assisted under this arrangement; and thirteen death vacancies were covered until such time as the executors were able to dispose of the respective practices.

The accounts collected by the bureau were few in number and small in amount. This is accounted for by the fact that the bureau was not asked to collect accounts until all efforts on the part of the doctor giving treatment to recover his fees had been exhausted. Every absentee doctor on his return to practice was supplied with a detailed return giving the names of acting doctors and the total amounts of private fees sent by them to the bureau on his behalf. The total number of signed agreements received was 768, though these were not all in force at any one time as there were day-to-day changes in the number of doctors. It is estimated that the number received represented approximately 90% of the profession in the area. The total number of practices placed under the scheme was 313 (174 on service, 13 on national service, 47 coastal practitioners, 33 E.M.S. practitioners, 29 sickness cases, 4 interned practitioners, 13 death vacancies), and the highest number at any one period was 208 in 1942.

A number of letters have been received from doctors expressing appreciation of the availability of the scheme and the benefits received by them through its application in their cases. At the meeting of the committee on June 24, 1947, a presentation of an inscribed silver salver was made to the chairman, Dr. G. R. F. Stilwell. The committee placed on record their thanks to the clerk (Mr. J. H. Loyd) for his administrative work in the practical application of the scheme.

The report of the committee concludes: "The committee are of opinion that despite the failure of some acting practitioners to observe the contract the scheme has been of material assistance to absentee practitioners and has been most useful in maintaining a service. Some of the practitioners who refused to sign the agreement have evidently felt there was a need for it as they have made payments to absentee doctors either direct or by using the bureau to re-transmit their cheques. They have also asked the insurance committee to re-transfer the insured persons they have accepted."

## HEARD AT HEADQUARTERS

### Promotions

eldom if ever can there have been so many promotions of medical officers listed on a council's agenda as appear on the agenda of the London County Council for Nov. 18. They number 57—all men. Four are promoted to be senior physicians at a maximum salary of £1,800; 13 to be senior physicians commencing salary of £1,500; 4 to be surgeon specialists at a maximum salary of £1,800; 12 to be surgeon specialists at commencing salary of £1,500; 7 to be physician superintendents at a maximum salary of £1,800, and 6 at a commencing salary of £1,700; 10 to be assistant senior physicians commencing salaries from £1,050 to £1,300, and one to be assistant surgeon specialist at a commencing salary of £1,000. 24 of the cases of senior physicians, surgeon specialists, and assistant senior physicians £50 is added to the yearly salary because the persons concerned will be acting as deputies to superintendents. The recommendations are in conformity with an earlier proposal of the Council to provide adequate specialist staff in its hospital service.

### Certification of the Blind

The certification of the blind or partially blind is not the simplest matter it might appear to the non-ophthalmologist. Mr. Stenhouse Stewart told the Royal Society of Medicine on the other day of two men who, with doubtful justification, had enjoyed protected employment as certified blind men in the lean years before the war. When the war offered more remunerative employment they both sought and obtained it in a more active capacity. After the war they applied for recertification. One of them was refused by one examining ophthalmic surgeon; the other was accepted by another. The first man was dissatisfied at his rejection and requested the services of a referee, and the authority itself decided to seek the referee's opinion in the second case. As a result, both opinions were reversed; the man who had been refused recertification was readmitted, and the man already readmitted was rejected. It is easy, of course, to blame the examiner, but Mr. Stewart pointed out, the examiner is required to reach an absolute judgment on a relative matter, based on uncertain data, with the attached responsibility in some cases of either authorizing the disbursement of £3 a week or more for the next fifty years from public funds or of withholding that support from a man so seriously disabled as to have poor prospects of regular employment. The decision is usually reached at a single examination on evidence of visual impairment exhibited by the patient. The medical man who accepts the responsibility of forming this opinion may have received no special instruction for the work and is unlikely to have an extensive knowledge of the requirements of various types of employment.

### Colonial Medical Service Salary Scales

The urgent need for the revision of the salary scales of the Colonial Medical Service was apparent at the last meeting of the Council. The Council considered reports from overseas branches on the difficulties that officers of the Colonial Medical Service were experiencing. The whole of the Colonial Service is, of course, affected by the rise in the cost of living in the Colonial territories, which in some cases is even greater than in this country. While the Council recognized that commissions had been appointed to review the salaries of the Civil Services in some parts of the Empire, it considered that the salaries of the medical officers should be related to the remuneration of practitioners in this country, and the Secretary of State for the Colonies has therefore been informed that the Council proposes to raise the question of the revision of the existing salary scales in the light of the findings of the Spens Committees. In the meantime, however, the Council feels that action must be taken to relieve the financial circumstances of Colonial medical officers, and it has therefore requested that an immediate overall percentage increase, similar to the second

interim revision of the Askwith Scale, be made to the salaries of these officers. The Secretary of State has been asked to regard the matter as one of extreme urgency, and the Council will consider the position again at its next meeting, taking into consideration the reply received to its interim proposals.

### Many Questions

The Psychological Medicine Group of the Association had a conference the other day the agenda of which was almost entirely a question paper. Members of the Group had sent in 24 questions in advance, all of them bearing on the subject of psychiatry and the National Health Service. However, Dr. W. Rees Thomas, of the Mental Health Division of the Ministry, gave a preliminary address, and when he had finished very few of the questions remained to be put, even though the answer in some cases could be at present only a quotation from the Act, which may leave quite a lot to the imagination. There is evidently among psychiatrists a good deal of anxiety about the future liaison of regional and local mental health services in regard to certification and early treatment of mental illness, ascertainment and supervision of mental defectives, and child guidance. How many local-authority services will continue in operation and how many will be handed over to the regional board? Will local authorities continue to employ their own psychiatrists? In one way psychiatrists are favoured over and above other specialists, for it is laid down that of the 15 medical practitioners on the Central Council two shall be selected for their knowledge of mental illness and mental defectiveness, and on the regional boards there must be members with experience in mental services.

### Stolen Drugs

Chief constables are frequently having to ask the B.B.C. to broadcast messages about drugs or poisons stolen from doctors' cars. A short time ago the Home Office therefore asked the Council of the B.M.A. if it would take steps to urge doctors to lock their cars when they leave dangerous drugs in them, or, alternatively, to remove the drugs from them. Obviously doctors would like to do all they could to stop this petty thieving, if for no other reason than that it seriously interferes with their work. But the question arises whether locking a car is really an adequate safeguard. Locking a car should, of course, deter the casual pilferer, the spiv who pinches something because he has got nothing better to do. But for the thief who takes his job seriously a locked car is child's play, because he is, we understand, usually well provided with the keys of all makes of cars, their locks being standardized. It might even be argued that a locked car would suggest to the thief that there was something in it worth stealing. However inadequate, locking a car is, nevertheless, some safeguard, and we would urge doctors not to forget this even though they may leave their cars only for a short time.

There is another side to this which perhaps has not yet been considered, and that is that a "Doctor" sign on a car does attract the attention of thieves who may be peddling drugs for addicts. The Council of the B.M.A. has decided that it is proper for "Doctor" signs to be affixed to cars, and we agree that there is much exaggeration in the belief that such a sign would act as personal advertisement. But it does advertise the fact that there may be something in the car worth stealing.

### Prescribing Dangerous Drugs

Another matter that is worrying the Home Office is the fact that many medical practitioners are now ordering dangerous drugs and poisons by telephone. This is contrary to the Dangerous Drugs Regulations, 1937, which lay down clearly that no authorized seller of poisons is allowed to supply a dangerous drug unless he receives a prescription in writing signed and dated by the person giving it. The use of the telephone saves a lot of time, and in these days when medical men are so overworked it is understandable that they should try to save time in any way possible. But apart from the obvious dangers of such a practice medical men should recognize that they put the pharmacist in an embarrassing position. For fear of losing a customer the pharmacist may feel disinclined to

do what is clearly his duty, and if he knows the doctor well he may naturally feel inclined to ease his burden by this irregular practice.

According to the *Pharmaceutical Journal* (July 12, 1947) the Home Office is also concerned by the fact that drug addicts are making greater use of forged prescriptions. There has apparently been no instance in which a drug addict has ordered a prescription by telephone, but no doubt they will jump to this dodge if they know it is becoming an increasing habit amongst medical men. We would therefore urge doctors to be punctilious in meeting the requirements of the Dangerous Drugs Acts.

## FACULTY OF OPHTHALMOLOGISTS

At the Council Meeting on Oct. 10 it was reported that the Medico-Political Standing Committee had submitted a memorandum to the Evidence Committee, sitting under the chairmanship of the President of the Royal College of Surgeons, on the remuneration of consultants and specialists.

The local authorities would not accept a salary scale for orthoptists approved by the Faculty or any other professional body, but asked for a properly negotiated scale between employers and employees. It was, however, noted that the Joint Negotiating Committee's salary scale was acceptable to the Faculty, and therefore it was decided to take no further action.

The question of standards of vision for orthoptic students was reviewed and the following resolution adopted:

Visual acuity should be 6/9 corrected in each eye, with full binocular vision. It is undesirable to have more than 7 D refractive error in any meridian, but such cases could be accepted at the discretion of an ophthalmic surgeon.

A letter had been received from the Ministry of Education requesting the Faculty's opinion on plastic lenses for school-children. It was decided that, in view of the present state of development of plastic lenses, particularly their softness and their liability to scratch, the Council did not consider that they were a practical proposition for universal use at the moment.

Following correspondence with a joint committee set up by the B.M.A. and the Pharmaceutical Society to compile a national formulary suitable for use in the National Health Service, the Faculty nominated three representatives to serve on a subcommittee to consider the draft section of the formulary concerning ophthalmology.

The attention of the Faculty Council was called to the fees for school ophthalmic work from two sources. In view of the fact that the scale of fees for all local-authority work had been negotiated by the B.M.A. for all consultant and specialist work, it was decided that no further action could be taken at the moment.

## REGIONAL HOSPITAL BOARD APPOINTMENTS

The Minister of Health has made the following appointments to Regional Hospital Boards:

*Leeds.*—Mrs. N. Fienburgh, Deputy Chairman of the Health and Housing Committee of Bradford Corporation, to fill the vacancy caused by the resignation of Councillor A. Walker.

*Birmingham.*—Alderman W. T. Bowen, Chairman of Birmingham Public Health Committee, to fill the vacancy caused by the resignation of Mr. D. J. Evans owing to pressure of other work.

## TRADE UNION MEMBERSHIP

The following is a list of local authorities which are understood to require employees to be members of a trade union or other organization:

*County Borough Councils.*—Barnsley, Gateshead.

*Metropolitan Borough Councils.*—Fulham, Hackney, Poplar.

*Non-County Borough Councils.*—Dartford, Leyton, Radcliffe (limited to future appointments), Tottenham, Wallsend.

*Urban District Councils.*—Denton, Droylsden, Houghton-le-Spring, Huyton-with-Roby, Portslade, Redditch (restricted to new appointments), Stanley (Co. Durham), Tyldesley.

*Scottish Burghs.*—Motherwell and Wishaw.

## Correspondence

### Basic Petrol

SIR.—Here is some more of the evidence Dr. L. R. Atkinson (Nov. 8, p. 113) asks you to collect. (1) In the summer of 1946 I was obliged to ask for more professional petrol before the period ended, and got it. (2) This summer I expended my professional and basic ration one month before the end of the period I applied for more, and got it. (3) At the beginning of the present period, when making the usual application, I drew attention to the fact that I had had no holiday, that I had made two Sunday outings using about six gallons of my basic, that I had subsidized my professional allowance from my basic and had nevertheless been a month short. In view of this I applied for a bigger allowance. I received about 20% less for the next six months. I doubt if I can run for much over three months without reapplying.—I am, etc.,

Teignmouth, Devon.

JOHN A. TIPPEL

SIR.—When I applied for my petrol ration I asked for half the amount of the previous allotment, because, as I explained, I had given up some of my work. This application was cut by 10%. Evidently the fiat has gone forth that we are all criminals and that every application is to be cut.—I am, etc.,

S. Godstone, Surrey.

H. E. GIBSON

### National Health Service

SIR.—My letter (Nov. 1, p. 100) has drawn forth a very rapid and warm response from Mr. A. Staveley Gough (Nov. 8, p. 112), who accuses me of issuing propaganda in favour of a full-time salaried State service. Not so fast, Mr. Gough. You cannot by misrepresentation dismiss the viewpoint held by hundreds of doctors who, like myself, practise in colliery areas. On the contrary, I agree rather with the views expressed in a letter from Dr. G. T. Allerton (p. 112). The latter points out that if the National Health Service is implemented in July, 1948, the work of G.P.s will be approximately doubled, and the result will be chaos. Yet I am expected to thank Mr. Gough and his colleagues on the B.M.A. Council for having voted against fixed hours of duty.

When I opined that the genuine G.P. sees in the National Health Service a chance of release from the bondage of a 24 hours-a-day shift, I should have underlined the word "chance". Now is the time for all G.P.s to make it quite plain to the Minister of Health that they are desirous of initiating the principle of fixed hours of duty and leisure, in order that efficiency and opportunity to practise medicine may be enhanced. If we do not do this, the weeds in our "Slough of Despond" will grow even more tangled, and where once efficiency and enthusiasm flourished there will remain instead black despair and apathy.

With reference to Mr. Staveley Gough's remarks about the failure of G.P.s to manage a large practice being due to lack of ability and personality, I would like a more concise definition of what is meant by "ability." Does he mean the ability to see a panel or "club" patient out of his consulting-room within one minute? Mr. Gough, by the exercise of his "personality" is able to persuade his colleagues to give continuity of treatment to his large number of panel patients, in order that he may find time to sit on the Hospitals, Building, and Public Relations Committees of the B.M.A. By further dispensation of doctors his "personality" he is able to make his patients feel that the visiting doctor is chosen by, and is closely in contact with, their own doctor and not any other doctor chosen by that remote body the "State." Really, Mr. Gough! I would like to see myself as a pupil to you in order to learn how this "personality" can be developed. Apparently I am very much lacking in that department. On the occasions when I have found the locumtenent on behalf of an absent colleague I have found the continuity of certification and not treatment was the primary concern of the patient. When, reciprocally, I have left a practice for a day or two, I have found on my return the patients undergoing active treatment have refused to see a locum, but have preferred instead to await my return.

I have already intimated that, in my opinion, the time is not yet opportune for the introduction of a complete National Health Service.

Health Service. But of this I am certain: there will eventually be a comprehensive State service whether the diehards of the B.M.A. desire it or not, and it is my contention that the seeds of better working conditions and status for the G.P. should be sown now. A reasonable daily spell of duty is the *sine qua non* of such betterment. Otherwise we will continue to see young men who began general practice with enthusiasm degenerating into disinterested automata, while house-surgeons and house-physicians will continue to earn miserable pittance in hospitals rather than stigmatize themselves with the odium associated with general practice. Therefore, Sir, as I find myself being pushed nearer and nearer towards the brink of the abyss, I again raise my somewhat enfeebled voice in a plea for all-round improvement in the lot of the G.P.—I am, etc.,

N. Wingfield, Derbyshire.

H. FIRMAN.

### The N.H.S. and Compensation

SIR,—I see that Dr. Dain stated (*Supplement*, Nov. 8, p. 107) that compensation for doctors' practices had not been discussed with the Minister, as they had had no instruction from the Representative Body that it would be willing to accept the loss of goodwill which compensation would involve. As it has been previously stated that these negotiations do not bind the medical profession to any course, I cannot see why this most important point has not been discussed. Surely there is no harm in knowing what the Government has in mind? Everybody in practice must be interested in compensation and how it is to be applied. As it is we must remain in the dark even when the results of the negotiations are revealed.

The Representative Body has now turned down any scheme for working hours in the National Health Service and also stopped any discussions on compensation. It is pertinent to ask whom this body represent. I have the greatest admiration and gratitude to the doctors who are giving up their time on the apparently endless committees and subcommittees, and, while they may represent some of the profession, I would point out that they must not allow their outlook to become so narrow that they cannot appreciate differing views. Are our representatives, in not discussing every aspect of this scheme, acting in the best interests of the profession at large?—I am, etc.,

Barnsley, Yorks.

D. W. MAYMAN.

### N.H.S. for the Old?

SIR,—In *The Times* of Nov. 6 Mr. Griffiths, Minister of National Insurance, is reported as having said: "The self-employed man would get his contribution card . . . and would have to stamp it each week. . . . In return the self-employed man or woman would receive sickness benefit. . . . If he was over 65 or a woman was over 60 at the beginning of the scheme, he or she would not be in the scheme at all." Does this mean that these people will be excluded from medical service under the National Health scheme? If so, this scheme cannot be described as covering 100% of the population.—I am, etc.,

London, S.W.10.

A. E. BERYL HARDING.

\* The benefits of the National Health Service are not dependent on any insurance qualification.—Ed., *B.M.J.*

### Working Day in the Services

SIR,—Being neither in the position of the F.O. (Sept. 13, p. 66) and F./Lieut. (Oct. 18, p. 92) who, quite understandably, refrain from giving their names, or of the Wing Commander who, equally understandably, has no hesitation in supplying his (Nov. 8, p. 113), I feel in a more favourable position than either party to contribute to this subject. For over six years I (a) satisfied myself that the station water supply was pure and adequate; (b) did the same for milk and other food supplies, and so on. I did a great deal more. I delved into such dark mysteries as the blocking up of the W.A.A.F. water-closets, a matter which not only involved my inspection and report but an independent inspection and report from the sanitary corporal from group headquarters, a visit from the wing commander himself, a conference with the C.O. of the station, the visits and reports of various W.A.A.F. officers, and the visit and report of an itinerant nursing sister. I accepted the fact that such matters were part of my duties as a medical officer. But ought they to have been?

Was it to the benefit of the Service or of the taxpayer that a qualified medical practitioner should be employed at a salary of some six or eight hundred pounds a year in doing duties which were well within the scope of a sanitary corporal?

Now I do not expect Wing Commander R. E. W. Fisher to concern himself about the taxpayer or to devote his energies to working out schemes to save medical man-power. These things are obviously none of his business. But it seems to me wrong that just because he himself is willing to forget he was trained to be a doctor and is content to occupy himself with a mass of extraneous detail he should assume that others ought to be content to do the same. Clearly, it is desirable that the best possible use should be made of the special knowledge which the medical officer possesses, and this quite definitely is not being done. And there seems no reason why it should not be done. It is merely necessary to cut down the number of medical officers until their days are fully employed on duties of a purely medical nature. As regards the Air Force, medical officers can be made exceptionally mobile, and there is no reason why one medical officer should not have six or more stations under his care and still provide as efficient a medical service and be as readily available in case of sudden illness or accident as it would be reasonable to expect in civilian life (It is of course natural that Service chiefs should prefer to have a medical service standing by, night and day, to deal with any possible emergency, but this is a luxury that no member of the public enjoys, and should not be allowed.)

The only difficulty that I see is how to initiate such a change. It is clearly a matter which is unlikely to receive attention if brought forward by a junior officer, nor can one see any likelihood of officers of higher rank interesting themselves in such changes. The only hope seems to lie in the initiative of some distinguished and disinterested member of the profession outside the Services who is concerned with medical education and who is not content to see the long and expensive training of the qualified medical practitioner frittered away in this manner and subjected to such abject abuses.—I am, etc.,

NIGEL LORING.

London, S.W.7.

Late Squadron-Leader, R.A.F.V.R.

SIR,—It was obviously only a question of time before an answer on the lines of Wing Commander R. E. W. Fisher's (Nov. 8, p. 113) was made to F.O.'s and F./Lieut.'s reasonable complaints. It was the standard answer during the war, when there was admittedly much more justification for urging medical officers to undertake all the duties he enumerates, but even then it was sometimes impossible to keep oneself usefully occupied for more than a few hours a day. There is, for instance, a limit to the number of times one can profitably test the purity of an adequate water supply from strictly supervised mains, and similar arguments apply to the other duties. Further, there are sanitary officers, welfare officers, education officers, and catering officers to perform many of them, to say nothing of the padre.

The time should be past when the medical officer is expected to perform every job from clerk and bottle-washer to bar officer in the mess. No doubt he often can, and sometimes should, bear a hand outside "medicine" as such, but that is no reason for misapplying his training and side-tracking his special interests. One cannot turn a clinician into a combination of epidemiologist, public-health officer, psychiatrist, and administrator simply by giving him a commission.—I am, etc.,

LATE SQUADRON-LEADER, R.A.F.V.R.

SIR,—The point of this discussion, and possibly the spirit in which it was raised, would appear to have eluded Wing Commander R. E. W. Fisher (Nov. 8, p. 113). The matter is one of under-employment and not a "bind" against mis-employment. The importance of preventive medicine and sanitation is rightly stressed, and a high standard in this can be maintained by a sanitary round once or twice monthly. To assume that we neglect this and are ignorant of first aid is unwarrantable and a little unkind.

The sole criterion should be how and where the young doctor can best serve his country and discharge his obligations under the N.S.A. The contention that this particular pump is overmanned would appear to be unshaken.—I am, etc.,

F.O.

\* This correspondence is now closed.—Ed., *B.M.J.*



**B.M.A. LIBRARY**

The following books have been added to the Library:

- Anderson, J. R.: Ocular Vertical Deviations. 1947.  
 Babcock, W. W.: Principles and Practice of Surgery. 1946.  
 Banerjee, J. C., and Chatterjee, P. K.: A Handbook of Clinical Medicine, Vol. I. Diseases of the Heart and Kidney. 1947.  
 Bell, E. T.: Renal Diseases. 1946.  
 Conference on Fertility: The Problem of Fertility, edited by Earl T. Engle. 1946.  
 Conway, E. J.: Microdiffusion Analysis and Volumetric Error. Second edition. 1947.  
 Cushny, A. R.: Pharmacology and Therapeutics. Thirteenth edition by A. Grollman and D. Slaughter. 1947.  
 Flemming, C.: Minor Surgery. Twenty-third edition. 1946.  
 Geikie-Cobb, I.: The Glands of Destiny: a study of personality. Third edition. 1947.  
 Golden, R.: Radiologic Examination of Small Intestine. 1945.  
 Gordonoff, T.: Rezeptierkunde: Leitfaden zum Verschreiben und Anfertigen von Rezepten, 4 Aufl. 1947.  
 Haden, R. L.: Principles of Hematology. Third edition. 1946.  
 Harant, H.: Médicaments et Médications. 1947.  
 Hawk, P. B., et al.: Practical Physiological Chemistry. Twelfth edition. 1947.  
 Leithauser, D. J.: Early Ambulation and Related Procedures in Surgical Management. 1946.  
 Leriche, R.: Thromboses Artérielles: physiologie pathologique et traitement chirurgical. 1946.  
 London, L. S.: Libido and Delusion. Second edition. 1946.  
 Macintosh, R. R., and Mushin, W. W.: Local Anaesthesia of Brachial Plexus. Second edition. 1947.  
 McMenemy, W. H.: A History of the Worcester Royal Infirmary. 1947.  
 Minnitt, R. J.: Gas and Air Analgesia. Third edition. 1947.  
 Moeschlin, S.: Die Milzpunktion: diagnostische und hämatologische Ergebnisse. 1947.  
 Olson, L. M.: Improvised Equipment in the Home Care of Sick. Fourth edition. 1947.  
 Seagrave, G. S.: Burma Surgeon Returns. 1946.  
 Smout, C. F. V., and McDowall, R. J. S.: Anatomy and Physiology for Students of Physiotherapy. Second edition. 1947.  
 Society of Chemical Industry: The Nation's Food: a survey of scientific data. 1946.  
 Spies, T. D.: Experiences with Folic Acid. 1947.  
 Strominger, L.: Appendicite et Urologie. 1946.  
 Fassman, I. S.: The Eye Manifestations of Internal Diseases. Second edition. 1946.  
 Titus, P.: The Management of Obstetric Difficulties. Third edition. 1944.  
 Fomski, H. W.: Pharmaco-therapeutic Notebook. 1946.  
 Treves, Sir Frederick: The Student's Handbook of Surgical Operations. Eighth edition revised by C. P. G. Wakeley. 1946.  
 Wallace, V. H.: Women and Children: an outline of a population policy for Australia. 1947.  
 War Office: Memoranda on Medical Diseases in Tropical and Sub-tropical Areas. Eighth edition. 1946.

**H.M. Forces Appointments****ROYAL NAVY**

Acting Surgeon Lieutenants H. R. Malloes and S. D. Walsh to be Surgeon Lieutenants.

**ROYAL NAVAL VOLUNTEER RESERVE**

Temporary Surgeon Lieutenant G. M. Pearson has been transferred to List I of the permanent R.N.V.R., in the rank of Surgeon Lieutenant-Commander.

Temporary Surgeon Lieutenant J. F. F. Smith has been transferred to List I of the permanent R.N.V.R.

Temporary Acting Surgeon Lieutenants H. F. Hills, T. D. Hanraity, and A. A. R. Meek to be Temporary Surgeon Lieutenants.

Probationary Temporary Surgeon Lieutenants D. G. James, W. W. McPhail, and S. S. Meighan to be Temporary Surgeon Lieutenants.

**ARMY**

Colonel (Acting Major-General) J. R. N. Warburton, M.C., late R.A.M.C., to be Temporary Major-General.

Colonel R. A. Austin, M.C., late R.A.M.C., having completed four years in the rank, is retained on the Active List supernumerary. Major H. R. Edwards, late R.A.M.C., has been restored to the rank of Lieutenant-Colonel on ceasing to be re-employed.

Major F. P. Lauder, late R.A.M.C., retired and re-employed, has ceased to be employed on account of disability, and has been restored to the rank of Lieutenant-Colonel.

**ARMY IN BURMA RESERVE OF OFFICERS**

To be Lieutenants: T. Maung and M. M. Gyi.

**Association Notices****AREAS OF BELFAST AND NORTH-EAST ULSTER DIVISIONS**

Notice is hereby given by the Council to all concerned:

I. That the area of the Belfast Division be redefined as follows: The City of Belfast; that part of County Antrim south of, but excluding, Toonbridge, Ballymena, Carnlough; eastern part of County Down.

II. That the area of the North-east Ulster Division be redefined as follows: That part of County Antrim north of, but including, Toonbridge, Ballymena, Carnlough; the eastern part of County Londonderry.

Any member affected by these proposals and objecting thereto is requested to write to the Secretary of the Association by December 29, 1947, stating the objection and the ground therefor.

CHARLES HILL,  
Secretary

**SCHOLARSHIPS IN AID OF SCIENTIFIC RESEARCH**

The Council of the British Medical Association is prepared to receive applications for Research Scholarships as follows: An Ernest Hart Memorial Scholarship of the value of £200 per annum, a Walter Dixon Scholarship of the value of £200 per annum, and four Research Scholarships each of the value of £150 per annum. These scholarships are given to candidates whom the Science Committee of the Association recommends as qualified to undertake research in any subject (including State medicine) relating to the causation, prevention, or treatment of disease. Preference will be given, other things being equal, to members of the medical profession.

Each scholarship is tenable for one year starting on Oct. 1, 1948. The scholar may be reappointed for not more than two additional terms. A scholar is not necessarily required to devote the whole of his or her time to the work of research but may hold an appointment at a university, medical school, or hospital, provided the duties of such an appointment do not interfere with his or her work as a scholar.

In addition, applications are invited for the first award of the Insole Scholarship of the value of £250 for research into the causes and cure of venereal disease.

**Conditions of Award: Applications**

Applications for scholarships must be made not later than Friday April 30, 1948, on the prescribed form, a copy of which will be supplied on application to the Secretary of the Association, B.M.A. House, Tavistock Square, London, W.C.1. Applicants will be required to furnish the names of three referees who are competent to speak of their capacity for the research contemplated.

**Branch and Division Meetings to be Held**

CLEVELAND DIVISION.—At Coatham Hotel, Redcar, Thursday Dec. 4. B.M.A. Lecture by Mr. A. Lawrence Abel: Some Common Diseases of the Rectum and Anal Canal. Illustrated by cinematograph pictures. Lecture to be preceded by supper at 7.15 p.m.

GOOLE AND SELBY DIVISION.—At the Lodge, Smith, Thursday, Dec. 4, 8 p.m., Paper by W. N. Pickles: The Country Doctor.

METROPOLITAN COUNTIES BRANCH.—At B.M.A. House, Tavistock Square, London, W.C., Tuesday, Dec. 2, 5 p.m. Dr. Robert Foster The Medical Witness.

MID-ESSEX DIVISION.—At Chelmsford and Essex Hospital, Sunday, Dec. 7, 10 a.m. Dr. Sleigh Johnson and Dr. Charles Warren Allergic Diseases.

NUNEATON AND TAMWORTH DIVISION.—At Red Lion Hotel, Aston, Wednesday, Dec. 3, 8.30 p.m. Paper by Mr. L. H. Backache and Sciatia.

STOCKTON DIVISION.—At Stockton and Thornaby Hospital, Barnfield Lane, Stockton-on-Tees, Monday, Dec. 1, 8.30 p.m. Paper by Mr. Harvey Evers.

WESTMINSTER AND HOLBORN DIVISION.—At St. Francis Hall, Caxton Street, London, S.W., Thursday, Dec. 4, 7.30 p.m. Meeting. Dr. R. W. Durand: Common Difficulties in Practice.

**Meetings of Branches and Divisions****NORTH DEVON (BARNSTAPLE) DIVISION**

At a meeting of the Division on Nov. 11 the following resolution was passed:  
 "That this Division of the B.M.A. is gravely concerned at the lack of consultation with the profession by the County Medical Officer in drawing up his scheme. We are further concerned at the lack of representation of the profession, particularly the general practitioners in active practice, on the Health Committee of the Devon County Council."

LONDON SATURDAY DECEMBER 6 1947

## STREPTOMYCIN AND TUBERCULOUS MENINGITIS IN CHILDREN

### PRELIMINARY NOTE

BY

ROBERT DEBRÉ ST. THIEFFRY ED. BRISSAUD AND H. NOUFFLARD

(From the Clinique Médicale des Enfants, Hôpital des Enfants Malades, Paris)

It is neither usual nor generally desirable to publish work on a new treatment before proof of its effectiveness and a knowledge of its limitations have been obtained. But the problem of tuberculous meningitis and of the first treatment known to have any effect on the disease is so important that it seems legitimate to draw attention to our preliminary trials, if only to point out our mistakes to our colleagues. We believe we have at the Hôpital des Enfants Malades in Paris one of the richest sources of experience in this field; the investigation is being carried out by a team of paediatricians, ophthalmologists, neurosurgeons, pathologists, bacteriologists, and chemists. In this article our preliminary work is being reported for the first time.

#### Importance of Early Diagnosis

We would at once emphasize that we make every effort to detect tuberculous meningitis in children at an early stage in order to be able to treat it in good time. Formerly no great haste was shown in obtaining the depressing confirmation of the disease in cases where meningitis was suspected and there was a risk that a lumbar puncture might even bring it on or be accused of so doing. It is known that tuberculous meningitis often becomes apparent in children at an early stage of the infection: out of 51 cases in our first series in which we were able to observe the onset of allergy 42 developed tuberculous meningitis within six months. The symptoms which should strike one at this stage are headache, vomiting (though this may be only occasional), sudden anorexia, fever, which is always present, and emaciation—but this last to a lesser degree only. If the tuberculosis is of longer duration, as was the case with 22 of our small patients, it is these same symptoms (with the addition of personality changes and insomnia), and here again not the emaciation, which should first attract the attention.

In acute or subacute miliary tuberculosis, which is often so difficult to detect and which is revealed by radiological examination of the lung, latent tuberculous meningitis is not uncommon. We therefore emphasize the fact that it is essential in such cases to employ lumbar puncture as a systematic routine procedure.

In these circumstances we cannot insist sufficiently on the absolute necessity, at the present time, of employing lumbar puncture in all cases where there is the slightest doubt, and, in some instances, of making repeated punctures. The examination of the fundus oculi, an excellent exploratory method, should also be widely used. Choroidal tubercles and changes in the optic disk are frequently observed. (According to data supplied by our colleagues

Monbrun and Lavat, there were 18% of choroidal changes and 47% of disk changes in the cases of meningitis alone, 75% of choroidal tubercles and 56% of disk changes in the cases of miliary tuberculosis with established meningitis, no disk changes and 50% of chorio-retinal changes in the cases of miliary tuberculosis without meningitis.) The detection of these lesions is useful in determining the tuberculous nature of a neurological disturbance of which the diagnosis is indefinite, and observation of them makes it possible, to a large extent, to determine the effect of the treatment.

The importance of these indications lies in the fact that the immediate prognosis of tuberculous meningitis depends chiefly on early diagnosis, and also, undoubtedly, on the energy and duration of streptomycin treatment. Can the decision whether to employ streptomycin therapy, which carries with it grave risks, be based on direct observation of the bacillus in the cerebrospinal fluid? Our answer is "No." In our own statistics, which include 90 definite cases of tuberculous meningitis, direct examination showed acid-alcohol-resistant bacilli in 41 instances only—that is, in about half the cases. Nor can the line to be followed be based absolutely on negative Pirquet's reactions: in four out of 90 cases Pirquet's reaction was negative, but the intradermal reaction was positive. These facts, which have been a matter of common knowledge for some time, have, up to date, been of purely theoretical interest, but they have now come to be of great practical value. Such findings as these are not sufficient reason for refusing to undertake streptomycin therapy when the clinical conditions demand immediate energetic and prolonged action.

The decision is therefore taken after thorough discussion in which all the diagnostic elements are considered: history, knowledge of a recent contact, mode of onset, evolution, cytochemical abnormalities of the cerebrospinal fluid, and even, where necessary, examination of the ventricular fluid, which we found valuable in two cases in infants.

It is possible to determine the exact nature of the disease, with some delay but with absolute certainty, from the results of cultures of the cerebrospinal fluid on Loewenstein's medium, a test which practically never fails.

#### Prognostic Factors

The Clinique Médicale des Enfants has handled a very large number of patients, who often come from great distances, travelling in uncomfortable conditions, and presenting at very varied stages of the disease. This explains why we finally decided to base our preliminary conclusions on

Details of Cases of Tuberculosis			Last lumbar
	Days		

Details of Cases of Tuberculous Meningitis Treated with Streptomycin																	
Case No.	Sex	Age (Years)	Weight (Kg.)	Diagnosis Confirmed	X-ray Findings in Lungs	Fundus Oculi	Dosage (g.)				Days of Treatment	Complications	Last Lumbar Puncture		Outcome	Days after Starting Treatment	Remarks
							I.M.	Spinal	Effective	Total			Cells per c.mm.	Protein (g./100 ml.)			
1 M		3	12	Clinically	Normal	No tubercles seen	104	2-2	105	180	None	20	0-45	Alive	240	Operated on for hydrocephalus; well	
2 F		1	9	Bacteriologically	Primary infection	"	57	3-5	60	135	Eruption	407	1-20	Dead	135	Relapse	
4 F		2	12	"	Normal	"	53	2-4	45	90	None	15	0-60	"	90	Relapse; operated on for hydrocephalus	
6 M		11	28	"	Primary infection	"	93	3-5	40	90	None	60	1-40	Alive	85	Relapse	
7 F		9	20	"	Miliary tubercu- losis	Not examined	60	1-7	42	85	Deafness	3	0-85	Alive	210	Well	
8 F		15	42	"	Normal	"	135	2-5	15	15	None	272	1-20	Dead	66	Died after slight improvement	
9 F		14	38	"	Primary infection	No tubercles seen	14	1-2	15	30	Eruption	71	0-60	"	15	Died without marked remission	
10 M		9	21	"	Normal	Not examined	32	1-8	30	30	None	18	0-60	"	30	Rapidly fatal issue	
11 M		3	4	"	Miliary tubercu- losis	No tubercles seen	2	1-4	7	7	None	161	—	"	51	Died after partial remission	
12 F		1	18	Anatomically	Primary infection	"	100	1-1	45	55	Eruption; convulsions	148	1-30	"	85	Died in convulsions	
13 F		8	15	"	Normal	"	86	3-0	48	81	Eruption; convulsions	8	0-80	"	8	Died after partial remission	
17 F		5	15	Bacteriologically	Primary infection	"	12	0-9	23	23	Eruption; convulsions	57	1-65	"	23	Died without marked remission	
18 F		4	12	"	Normal	"	37	1-1	23	23	Eruption; convulsions	8	0-30	Alive	180	Well	
19 F		4	10	Clinically	Primary infection	"	105	1-5	111	180	Eruption; convulsions	208	1-40	Dead	45	Hydrocephalus not operated	
20 F		1	9	Bacteriologically	Normal	"	64	0-5	32	32	None	29	1-00	"	60	Removed by her family 5 after treatment started	
21 M		6	15	"	Primary infection	"	7	0-5	5	5	"	4	1-30	Alive	180	Well	
23 F		3	12	"	Normal	Not examined	145	6-0	150	180	Deafness; convulsions	161	1-80	Dead	21	Operated on for hydrocephalus	
24 M		3	12	"	Miliary tubercu- losis	Choroidal tubercles	28	0-6	21	21	Eruption; deafness	5	1-80	Alive	180	Well	
25 M		2	11	"	Normal	No tubercles seen	274	5-0	150	180	Eruption; deafness	29	0-80	Dead	8	Condition good	
26 F		14	40	"	Normal	No tubercles seen	269	3-2	105	135	Eruption; convulsions	—	—	"	36	Rapidly fatal issue	
27 M		7	20	"	Normal	Not examined	17	1-1	20	20	None	—	—	"	8	Died in convulsions	
29 M		5	15	"	Normal	No tubercles seen	30	1-5	20	20	Eruption; convulsions	92	1-60	"	36	Died rapidly without improvement	
30 M		2	11	"	Normal	No tubercles seen	45	1-9	19	19	Eruption	29	1-80	"	141	Hydrocephalus operated	
31 M		7	25	"	Miliary tubercu- losis	Choroidal tubercles	162	4-5	97	141	Convulsions	365	1-40	"	17	Hemiplegia; gross tubercle	
32 F		4	14	Anatomically	Primary infection	Not examined	21	1-3	17	17	None	161	2-80	"	5	Rapidly fatal issue	
33 F		Under 1	7	Bacteriologically	Primary infection	No tubercles seen	15	0-5	5	5	"	104	1-60	Alive	165	Condition very good	
34 M		9	21	"	Normal	"	10	0-5	5	5	Eruption	0-2	0-20	Dead	35	Hydrocephalus operated	
36 F		2	4	"	Primary infection	"	12-5	1-1	105	135	None	21	0-25	Alive	90	Died after partial remission	
37 F		4	16	"	Normal	"	12-5	1-1	11	11	Deafness	14	5-60	Alive	165	Condition good	
38 M		1	8	"	Primary infection	"	80	1-8	36	80	Eruption; deafness	10	0-50	"	165	Condition fairly good	
39 F		7	18	"	Normal	"	267	4-7	120	165	Eruption; deafness ± convulsions	26	2-40	"	11	Rapidly fatal issue	
40 M		12	29	"	Normal	"	271	3-6	120	135	Deafness	232	3-20	Dead	21	Died without marked remission	
42 M		9	20	Clinically	Miliary tubercu- losis	Choroidal tubercles	12	1-2	11	11	Convulsions	280	1-90	"	21	Removed by her father	
43 F		2	8	"	Primary infection	No tubercles seen	25	1-0	21	21	None	158	3-80	Alive	165	Condition good	
44 F		Under 1	9	"	Normal	"	15	0-6	6	6	Deafness	21	1-80	"	150	"	
45 F		11	23	"	Primary infection	"	262	4-15	135	165	Eruption; deafness	11	0-40	"	150	Hydrocephalus condition fairly good	
46 M		10	30	Clinically	Primary infection	"	180	4-0	97	120	Deafness	180	1-40	"	150	Received 83 g. in 1st residual tubercle	
49 M		11	30	Bacteriologically	"	Choroidal tubercles	227	4-7	120	150	Eruption	1	0-20	"	156	Condition good	
50 M		9	31	Clinically	Miliary tubercu- losis	Choroidal tubercles	253	2-0	90	105	None	29	0-60	"	150	Hemiplegia shown	
51 M		9	20	Bacteriologically	Normal	No tubercles seen	165	2-9	91	116	Convulsions	3	0-20	"	151	Condition good	
53 M		14	33	"	Normal	"	80	3-1	105	120	None	2	0-25	Dead	9	Condition good	
54 F		6	15	"	Primary infection	"	145	4-15	110	151	None	280	6-40	Dead	17	Rapidly fatal issue	
55 F		10	25	"	Miliary tubercu- losis	Choroidal tubercles	12	0-9	9	9	"	68	1-20	"	16	Removed by her father	
56 M		9	15	"	Normal	"	21	0-2	7	7	"	304	1-60	"	21	Died without remission	
57 F		14	40	"	Primary infection	No tubercles seen	11-2	0-8	8	8	"	121	2-00	"	149	Well	
60 F		3	12	"	"	"	42	2-0	21	21	"	5	0-80	Alive	15	Convulsions started	
61 F		5	15	"	"	"	154	3-4	124	149	Convulsions	6	0-40	Alive	149	Well	
62 F		11	22	"	Miliary tubercu- losis	Choroidal tubercles	62	1-1	11	11	None	90	1-00	Alive	14	Rapidly fatal	
63 F		9	22	Clinically	Normal	No tubercles seen	193	5-3	141	149	None	3	0-20	Alive	150	Well	
64 F		3	12	Bacteriologically	Primary infection	"	15	2-0	120	120	Eruption	181	2-40	Dead	10	Rapidly fatal	
65 M		17	60	"	Normal	"	250	2-3	118	122	None	118	0-90	"	120	Removed by 3rd day	
66 M		13	35	"	Miliary tubercu- losis	No tubercles seen	271	4-6	7	10	None	201	1-00	"	14	Rapidly fatal	
67 F		14	38	"	Normal	"	14	0-6	6	6	"	91	1-20	"	105	Operated on	
69 M		7	18	"	Miliary tubercu- losis	"	69	3-6	36	45	"	38	32-00	"	135	Well	
71 F		13	36	"	Normal	"	23	1-4	14	14	Eruption	4	0-70	Alive	21	Died with ment	
72 M		5	15	"	Miliary tubercu- losis	Choroidal tubercles	74	3-4	49	71	Deafness	"	3-20	Dead	45	Died after symptom	
73 F		4	14	"	Normal	No tubercles seen	264	3-25	129	135	"	12	6-40	"	135	Well	
74 F		5	15	"	"	Choroidal tubercles	38	4-95	19	19	Eruption	12	0-45	Alive	135	Well	
76 M		10	31	"	Primary infection	No tubercles seen	83	3-0	27	45	Eruption; convulsions	12	0-45	Alive	135	Well	
77 F		8	20	"	Normal	"	206	1-5	112	135	Eruption; convulsions	26	19-20	Dead	98	Hydrocephalus	
78 F		7	18	"	Primary infection	Choroidal tubercles	198	5-0	72	80	Deafness	48	1-00	Alive	127	Rapidly fatal	
80 F		11	31	"	Normal	No tubercles seen	43	1-6	16	19	None	161	0-60	"	122	Well	
81 F		12	30	Clinically	Primary infection	"	107	3-3	104	127	Eruption	29	0-40	"	123	Not yet	
82 M		3	10	Bacteriologically	Normal	"	204	2-0	120	122	Deafness	46	0-40	"	123	Not yet	
83 M		4	20	"	"	"	142	1-7	112	123	"						
84 M		8	18	"	"	"											
87 F		7	18	"	"	"											

*Details of Cases of Tuberculous Meningitis Treated with Streptomycin (cont.)*

Case No.	Sex	Age (Years)	Weight (Kg.)	Diagnosis Confirmed	X-ray Findings in Lungs	Fundus Oculi	Dosage (g.)		Days of Treatment	Complications	Last Lumbar Puncture		Outcome	Days after Starting Treatment	Remarks	
							I.M.	Spinal			Effective	Total				Cells per c.mm.
88	F	8	20	Bacteriologically	Primary infection	No tubercles seen	57	2.0	28	32	Eruption; deafness	51	1.00	Dead	75	Hydrocephalus operated on
89	F	1	7	"	Miliary tubercu- losis	"	31	0.8	13	13	Convulsions	248	0.40	"	13	Rapidly fatal issue
91	M	1	7	"	"	Choroidal tubercles	123	2.0	90	120	Eruption	59	2.00	"	120	Hydrocephalus; condition poor
92	M	21	52	"	"	"	310	1.7	115	138	"	101	7.00	Alive	"	"
93	F	4	13	"	"	"	39	1.3	13	15	None	85	1.00	Dead	13	Rapidly fatal issue
94	M	14	54	"	Primary infection	No tubercles seen	134	1.4	78	94	"	30	3.20	Alive	135	Exploration of optic chiasma; well
95	F	10	25	Clinically	Miliary tubercu- losis	Choroidal tubercles	83	0.6	48	55	Eruption	5	0.45	"	97	Well
97	M	8	17	Bacteriologically	Normal	"	120	1.3	75	75	None	21	3.20	"	75	Fairly well
98	M	4	13	"	"	No tubercles seen	47	1.1	66	66	"	31	0.90	"	66	Well
99	F	10	20	"	Miliary tubercu- losis	Choroidal tubercles	113	3.5	64	64	"	12	2.40	"	64	Hydrocephalus not yet operated on
100	M	13	34	"	Pulmonary tuberculosis	No tubercles seen	156	0.6	63	63	Eruption	28	0.60	"	63	Well
101	M	12	34	"	"	"	21	1.1	7	7	None	"	"	Dead	7	Rapidly fatal issue
102	F	16	44	"	Pleurisy	"	218	1.5	45	45	"	30	1.40	Alive	45	Well
103	M	6	21	Clinically	Primary infection	"	90	0.7	45	45	"	3	0.20	"	45	"
104	M	4	14	Bacteriologically	Normal	"	61	1.0	46	46	"	21	1.00	"	46	"
106	F	11	22	"	"	Choroidal tubercles	108	1.3	36	36	"	17	1.20	"	36	"
107	M	1	7.5	"	Primary infection	"	48	1.6	64	64	"	29	1.60	"	64	"
108	F	3	12	"	Normal	No tubercles seen	64	0.9	33	33	"	12	0.40	"	33	"
109	M	4	15	"	"	Choroidal tubercles	42	1.8	28	28	"	3	0.40	"	28	Hydrocephalus not yet operated on
110	F	14	42	"	"	No tubercles seen	121	1.1	28	25	Deafness	21	2.00	"	28	Fairly well
112	M	13	26	"	Miliary tubercu- losis	Choroidal tubercles	81	2.4	27	27	None	22	0.80	"	27	Well
113	M	20	54	Clinically	"	"	72	0.7	24	24	"	21	2.40	"	24	"
114	F	13	25	"	Normal	No tubercles seen	65	0.95	26	26	Eruption	13	0.80	"	26	"
115	M	17	47	Bacteriologically	"	"	86	0.9	22	24	None	372	1.75	"	26	Fairly well
117	F	2	9	"	Miliary tubercu- losis	Choroidal tubercles	20	0.9	20	20	"	38	1.10	"	20	Very ill; disturbance of con- sciousness
118	F	14	52	Clinically	"	"	59	0.7	14	14	"	29	0.70	"	14	Well

NOTE.—As the table was received some time after the text, cases treated since the article was written have been included.

70 cases only, leaving aside those patients who died almost at once and in whom the treatment could not have begun to take effect.

So far as one can at the present time attempt to define the new clinical picture of tuberculous meningitis, there are three possible ways in which the disease may develop: (i) some cases deteriorate whatever action is taken; (ii) others, after an encouraging improvement, seem to become stabilized, but gradually the disease, from being subacute, becomes chronic; (iii) others develop favourably and present every clinical appearance of good—even excellent—health, but we do not yet know whether it is possible to describe them as cured or whether relapses will occur.

In the first group were included the cases which developed fatally within a few days (13 of our first 50 patients), those which did so a little more slowly but without showing the slightest improvement (14), and those which succumbed after a very transitory abatement of symptoms (2). These were nearly all cases whose treatment was started too late. At the beginning of the experiment we gave up all idea of instituting streptomycin treatment in patients whose condition seemed to us beyond hope. Of all the unfavourable signs there is only one, in our opinion, which has an absolute value, and that is coma, by which we mean complete abolition of consciousness, absolute insensitivity to the strongest stimuli. This is the only condition in which we consider all hope to be lost. One cannot be so completely pessimistic when confronted by somnolence or torpor, even when this is marked, if one manages to lift the child out of it, even temporarily, and to drag a few coherent answers from him. One must also be on one's guard, in estimating disturbances of consciousness on the child's admittance to hospital, against the transitory aggravation due to being moved and to travelling.

**Early Essays in Treatment**

While we were still clarifying these elements in the prognosis we instituted, at an early stage of our investigation, a method of treatment of which the general principles were: (i) employment of large doses of the order of 100,000 to 200,000 units per kilogram of body weight per day; (2) administration of the drug by both the intraspinal and the systemic route; (3) prolonged treatment, with the highest doses compatible with tolerance for as long as possible.

This method of large doses administered both systemically and locally over a prolonged period was instituted at a time when we had only very vague data on the dosage and toxicity of streptomycin. With experience we found it to be dangerous, as it was the cause of severe—sometimes extremely severe—toxic disturbances. In future the method can only be accepted with reserve. Certain conclusions can be drawn from these results, and above all they provide a profitable lesson for those who may have to handle streptomycin for the first time.

When tuberculous meningitis is treated in this way an embarrassing situation arises out of the concurrence of symptoms and signs caused on the one hand by the disease and on the other by the drug.

The problem now becomes an extremely difficult one to solve, as streptomycin itself, introduced in this way in massive doses, creates an experimental disease that must be recognized in order to avoid therapeutic errors the consequences of which may be fatal to the patients. The disease thus created comprises (a) general toxic disturbances, (b) cutaneous reactions, and (c) meningeal reactions.

(a) The general toxic disturbances completely upset the temperature and weight charts, so that if treatment with large doses (more than 50,000 units per kg. per day) is carried out

no reliance can be placed on either fever or weight as a guide. Streptomycin produces very varied temperature curves: sometimes large waves, or, more especially, wide daily oscillations of the order of 1-2°; sometimes only moderate fever; but the temperature is never normal. Under the same therapeutic conditions the patient does not gain weight: he may lose weight at an extraordinary rate (10 kg. in about a fortnight). Still under the same therapeutic conditions, it is impossible to use the state of consciousness as a basis for estimating the progress of the meningitis. The somnolence and clouding of the mind may be caused by the toxic effects of the drug. If one interprets the fever, emaciation, and somnolence as indications for continuing the treatment, convulsions may well ensue, and these often end fatally or, at best, give rise to that well-known complication of streptomycin therapy, deafness, which has occurred in 15 of our cases, and the onset of which is particularly difficult to detect in the presence of such serious disturbances of consciousness. We should add toxic vomiting to this picture, a symptom which may occur even without intraspinal treatment. We would also mention, as symptoms of less frequent occurrence whose mechanism is still unexplained, tetany (in two cases), hyperazotaemia, and sometimes slight albuminuria.

(b) The cutaneous reactions, in spite of the fact that they may be chronologically independent of the general toxic manifestations, often give some warning: there may be transient erythema resembling that of scarlet fever, measles, or rubella; this is usually accompanied by fever and is in itself a painful complication.

(c) The meningeal reactions are characterized by stiff neck, sharp pain at each fresh injection of the drug, and special symptoms of sudden onset, i.e., severe convulsions with opisthotonos.

We must also mention a point which in our opinion is very important: the fact that repeated large doses of streptomycin introduced into the meninges always produce a violent histological reaction (wide daily variations in the lymphocyte count of the order of 50 to 400 and even 800 cells per c.mm.).

If one adds to the intoxication and meningeal reactions the sufferings caused by local injections whose high concentration makes them irritant and liable to produce abscesses and scars, one finds that practically every case presents a pitiful picture. If, unaware as we were at the beginning of our researches of the general toxicity of streptomycin, one perseveres in the belief that these symptoms constitute a development of the meningitis one is heading straight for disaster. In practice it is essential sooner or later (within from one to three weeks) to cease treatment, possibly for some time if the patient is threatened with deafness. Cessation of treatment is accompanied by improvement or, to be more correct, a veritable resurrection: the temperature falls with surprising rapidity, the weight increases as quickly as it decreased, and the disturbance of consciousness disappears.

If there is too much delay in resuming treatment a probably fatal relapse ensues sometimes after an interval as short as a week, sometimes after the patient has been normal for as long as 85 days. This may happen with devastating rapidity.

It is impossible, therefore, to adopt such a method; that is the first point to be learnt from this therapeutic trial. It is a great strain for the patient, and causes numerous toxic manifestations and sometimes permanent infirmity. It also necessitates, sooner or later, stopping the treatment in circumstances such that one hesitates to resume the administration of the drug. It is essential to recognize all these disadvantages. On the other hand, it should be remembered that such energetic treatment seems to ensure the most rapid improvement in the cellular reaction of the cerebrospinal fluid: we shall see the importance of this later. In order both to exploit the advantages and to avoid

the disadvantages of this method, we finally adopted new therapeutic procedure, which we will now describe its principles and applications.

### Treatment in Present Use

The treatment which we are now using against tuberculous meningitis comprises two distinct phases: the *phase of attack*, followed by the *phase of maintenance*.

The phase of attack consists of large doses: 100,000 units per kilogram per day by the parenteral route and at the same time two intraspinal injections per day of 50,000 to 100,000 units. This treatment is continued for about a week, with some variations to suit individual reactions. In the second phase, treatment is maintained at doses below 50,000 units per kilogram per day by means of parenteral injections alone, no intraspinal injections being given as a rule.

Carried out in this way the phase of attack takes place without any serious disturbances. It may, on occasion, be modified if meningeal intolerance makes this necessary; this would involve giving the intraspinal injections at longer intervals or even stopping them altogether.

The dosage to adopt in the maintenance phase of treatment is a difficult question to settle. Its level may be lowered if there are manifestations of intolerance and particularly if signs of intoxication appear (the much rarer cases of deafness may be encountered even with small continuous doses). What is more difficult still is to assess the progress of the meningitis. It very often happens that the patient appears at this stage to be in excellent condition. What points reveal the state of his meninges? For our part, setting aside the information derived from the comparison of the x-ray plates in the case of associated military tuberculosis of the lungs, we note, among the clinical elements, the development of the pyrexia: any rise in temperature or any wave modifying a curve which has normally been following a progressively downward trend should arouse attention once the possibility of drug fever has been eliminated.

We attach the greatest importance, however, to the essential supplementary examinations—i.e., those of the fundus oculi and the cerebrospinal fluid.

For the observation of a case of meningitis the collaboration of the ophthalmologist is indispensable, as the examination of the fundus oculi is one of the most delicate methods by which it is possible to keep a watch on the progress of the meningitis: the choroidal tubercles, under the influence of the treatment, lose their original aspect and gradually heal or disappear, leaving residual pigmentation. At the same time it often happens that the specialist detects the appearance of fresh tubercles well before the clinician has noticed anything abnormal.

The second indispensable method of investigation is the examination of the cerebrospinal fluid. It required a whole series of accidental circumstances, comparisons of estimations, and discussions before we accorded to the lymphocyte count the importance which it now seems to us to merit. If one takes the trouble to work out the significance of the changes in the lymphocyte count incidental to local treatment, and to study the general trend of the count from a curve plotted from estimations at suitable intervals (about every eight days), one cannot fail to be struck by the importance of the evidence afforded by this means. Thus, in favourable cases it is possible to obtain a count which remains normal or subnormal; in 16 of the cases at present under observation the number of cells per cubic millimetre is always below 10, and generally of the order of 4 or less. On cessation of treatment a sudden rise in the number of lymphocytes may be observed; this appears to precede



clinical recurrence of the infection. If the dosage is diminished a sudden or progressive increase in the number of leucocytes may be noticed. To obtain this return of the cerebrospinal fluid to normal, which we consider dispensable, the minimum dosage varies from one patient to another; in certain cases the minimum effective dose is very close to or even exceeds the toxic dose. This is the virtuality to be dreaded most in practice, and though the situation may not be conclusive it is too soon to be certain at this point.

These are the broad outlines of the treatment which is at present being tried out at the Clinique Médicale des Enfants. The immediate results of the method are good. At the present moment 46 children who have been undergoing treatment for from 2 to 10 months are behaving like normal beings. The tuberculous meningitis ward is like a playroom, where the liveliness provides a constantly changing scene.

The problem arises, or will arise sooner or later, of when to stop the treatment, and this is the most difficult question of all. In every country doctors are asking themselves, when and on what indications can one stop the treatment? For our own part, forewarned by our early mistakes of the ravidity of premature cessation of treatment followed by fatal relapses, we have not yet dared to make the decision. We are treating the children continuously, as diabetics are treated with insulin. Here, to be honest, we come up against an unfavourable factor in the occurrence of streptomycin resistance in the tubercle bacilli, but we have not arrived at any definite conclusions on this still very obscure problem; at the same time there is a favourable factor in the tendency shown by the lesions to heal by degrees as the duration of the tuberculosis increases. We have now decided not to cease treatment until we have the support of a large number of reassuring signs: absence of all clinical meningeal symptoms, an ascending weight curve, complete apyrexia, normal sedimentation rate, and a spinal lymphocyte count below 10 per c.mm. at repeated examinations. We would add to this, absence of tubercle bacilli in culture and, if possible, a normal quantity of cerebrospinal albumin. This last point is justified by an extremely important observation concerning the evolution of certain cases of meningitis treated by streptomycin.

#### Symptoms after Apparent Cure

A fourth group of patients develops in a very peculiar manner, and a knowledge of the facts involved constitutes an indirect advance in the streptomycin therapy of tuberculosis. Though apparently cured of meningitis in so far as they no longer present any clinical syndrome of the infection, are practically free from fever, and there is no longer any serious cellular reaction in their cerebrospinal fluid, these patients do not recover their liveliness like the others, and do not regain weight. Sometimes their neurological examination is not completely negative (there may be cutaneous hyperaesthesia, Babinski's sign, or slight tremor). In this case very careful attention must be given to the examination of the eye and of the cerebrospinal albumin. In these patients the possibility of a mechanical lesion, particularly the setting up of hydrocephalus secondary to meningeal adhesions, should be considered. This is where the neurosurgeon is called in to deal with the new situation; we are not yet certain whether this is the result of tuberculous meningitis or the consequence of a cerebral tubercle against which streptomycin does not seem so far to be as completely effective as against meningitis. The decision to operate was taken in 6 cases. In 5 of these the findings were widespread leptomeningitis or pachymeningitis of the cisterna pontis; in the sixth case there was a large

meningeal tubercle round the chiasma. In two of these cases the results were remarkable, one patient, who was comatose and blind at the time of operation, being one of those who are now giving us the greatest hope. In the new treatment of tuberculous meningitis the neurosurgeon is associated with the physician, as the chest surgeon is associated with the phthisiologist in certain cases of chronic pulmonary tuberculosis.

## THE TROPICAL LICHEN PLANUS SYNDROME

BY

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An unusual disease with striking cutaneous manifestations has been observed in Australian, American, and New Zealand troops serving in widely scattered areas of the Pacific. Because of its geographical distribution, and from some clinical and histological resemblances, it has become commonly known as tropical lichen planus. The condition was briefly referred to by Myers (1944) in the course of a review of skin diseases affecting Australian troops in New Guinea. A detailed account of the findings in some American cases has been given by Bagby (1945).

The aetiology is not definitely established, but there is substantial evidence that the disease has some relation to the use of mepacrine as a malaria suppressive. The public revelation that an identical syndrome has been observed for some time in military forces using mepacrine suppression in Europe and the Middle East substantially confirms this belief (*Lancet*, 1945, 2, 711).

In his account Bagby mentions that the total number of cases in American troops would be impossible to estimate. A reasonable assessment of the incidence, as well as some conclusions from the geographical distribution, can be made from an analysis of the figures for a New Zealand force which operated in the Pacific Zone. This was a relatively small force of some 18,000 men, and it maintained independent medical services. Divisional troops comprised about 12,000 men, and all evacuations from this group came ultimately to a single base hospital, where all skin cases were seen by me. Most of the men in the force had served for periods of six months to two years in Fiji prior to November, 1942. Individual battalions had been stationed also in Tonga and Norfolk Islands. In November, 1942, the force proceeded to New Caledonia. Although some of these islands are quite tropical in climate, none of them is malarious, and therefore no mepacrine suppression was employed. No case of tropical lichen planus, or any condition resembling it, was seen at that time, though the usual tropical dermatoses were prevalent.

In August and September, 1943, the combatant part of the force moved to Guadalcanal, one of the Solomon Islands, some units spending a few weeks on the New Hebrides en route. In the following 12 months they were divided into two groups, which operated independently on various islands in the Solomon region. All these islands are highly malarious, and suppressive mepacrine was started when troops left New Caledonia, being maintained continuously until their return. The rate of administration was 0.1 g. of mepacrine daily for six days in each week.

The first case of tropical lichen planus in this force was evacuated to the base hospital in early December, 1943, and five further cases were received in the following five months. This suggests, at first consideration, a steady trickle of cases, but examination of the histories shows that

of the original symptoms were reported to be negative. Although positive serological findings develop relatively late in pinta it was felt that this diagnosis need no longer be entertained. The improvement in one case following neosarsphenamine was presumably a non-specific effect.

The world-wide distribution of this disorder, its involvement of different racial types, its independence of climate, and its invariable association with the use of mepacrine seem to leave no doubt of that drug's causative role. It also raises the question whether less typical cases may have escaped detection. Out of a profusion of ordinary tropical dermatoses only one other patient seen at the same time as the above group warrants brief description:

Sapper E., when admitted, displayed infiltrated erythematous plaques on the dorsum of both feet, on the extensor surface of his arms, on the back of the hands, ears, face, front and back of the neck, and a few in the axillae. He showed also some patchy loss of scalp hair. He had been taking mepacrine for eight months. The lesions had appeared ten weeks after he started taking the drug, and had advanced slowly thereafter. He had no symptoms. Shortly after his admission, at which time his case was tentatively diagnosed as subacute lupus erythematosus, a peculiar gross patchy hyperkeratosis of his palms appeared, with similar but smaller lesions on the feet. It was identical with that displayed in the typical tropical lichen planus cases. He had no constitutional symptoms. His lesions gradually improved over the next two months, and he was then lost sight of.

Review of the history of Case 3 reveals a considerable resemblance to disseminated lupus erythematosus. Suggestive of this disease were the onset following unusual exposure to sunshine at a picnic—he was an orderly-room clerk and mostly kept indoors—the period of diarrhoea associated with an exacerbation of his rash several weeks after he had stopped taking mepacrine, and the persistently raised sedimentation rate. Against this, and supporting its classification as tropical lichen planus, were the relation to mepacrine, the complete absence of lesions of the face, and the extensive and severe involvement of the palmar and plantar regions.

Biopsy of a fresh macular lesion of the trunk in this case showed a non-specific histology resembling acute solar dermatitis. A hypertrophied scaly papule from the wrist appeared like typical lichen planus in most of its details. It showed hyperkeratosis, increase of the granular layer, acanthosis, liquefaction degeneration of the basal layer, and a diffuse infiltration of the upper cutis by lymphocytes and plasma cells merging with the basal cell layer. In the deeper part of the corium this infiltration was associated with vessels and hair follicles, and there were also some oedema and proliferation of the endothelium of the smaller vessels.

### Summary

In a group of troops serving in scattered tropical areas, both malarious and non-malarious, tropical lichen planus was noted only in those who had taken mepacrine for malaria suppression. The incidence was approximately 1 per 2,000 troops. The initial symptoms appeared when mepacrine had been used for between two and three months. Some of the residual lesions seemed to be permanent. Some resemblance to disseminated lupus erythematosus is noted.

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## POLIOMYELITIS: A SECOND ATTACK

BY

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It is generally believed that second attacks of poliomyelitis are very uncommon, and this seems to be borne out by the small number of such instances reported in the literature. Quigley (1934) collected 12 cases, while Bridge *et al.* (1946) reported 6 among approximately 1,100 cases of poliomyelitis in and around Buffalo during the summer of 1944. In all some 37 cases have been reported in various American publications.

We feel, therefore, that it would be of interest to record the following case of a second attack which came to our notice recently. This was one of the 21 cases admitted to hospital in the Swansea area.

### Clinical Summary

*First Attack.*—A girl aged 3½ was admitted to Hill House Isolation Hospital on Aug. 28, 1938, at the height of a poliomyelitis epidemic. The child had been generally out of sorts and listless for a few days, later becoming febrile, with occasional twitching of face and body. There was no history of obvious contact with infection, but her father worked in close association with a man whose child had been admitted to the same hospital on Aug. 19 suffering from poliomyelitis. On admission the child was pyrexial—temperature 102° F. (38.9° C.)—and showed left-sided facial paralysis and weakness of the abdominal muscles. C.S.F. findings were: colourless slightly granular fluid; 39 cells per c.mm. (all lymphocytes); globulin, faint trace; protein, 30 mg. per 100 ml.; glucose, 74 mg. per 100 ml.; chlorides, 702 mg. per 100 ml.; Lange curve, 0012210000. A facial hook was fitted and the child kept in bed for five weeks. She was discharged a week later with the hook still *in situ*. Subsequently she was seen at regular intervals by an orthopaedic specialist, and at the end of six months the facial muscles showed complete recovery of power and the facial hook was discontinued.

*Second Attack.*—During the current epidemic of poliomyelitis the child, now aged 12, was admitted to Hill House Hospital on Oct. 9, 1947, with a definite attack of the disease. She had had a cold a week previously, followed later by aches and pains "like flu." On the day of admission she became feverish, developed a stiff neck, and had some difficulty in moving her right leg. Again there was no definite history of contact with infection, but a month previously two young children living opposite the patient had been admitted to hospital with poliomyelitis, and the parents of the two families had had frequent contact. On admission the temperature was 100.4° F. (38° C.); there was stiffness of the neck and spine, and a sluggish knee-jerk on the right side. Next day there was paresis of the right gluteus medius and quadriceps with loss of the knee-jerk on the same side and weakness of abdominals. C.S.F. findings were: clear fluid; 89 cells per c.mm. (90% lymphocytes); globulin, trace; protein, 100 mg. per 100 ml.; glucose, 80 mg. per 100 ml.; chlorides, 731 mg. per 100 ml.; Lange curve, ‡12110000.

It will be noted that the following factors were common to both attacks: (1) A fairly typical history in the presence of an epidemic; (2) muscle paralysis and weakness; (3) changes in the C.S.F.—namely, increased cell count and raised protein content—which are consistent with a diagnosis of poliomyelitis. These, we feel, serve to demonstrate the true nature of the illness in both instances.

### Discussion

The occurrence of a clinically recognizable second attack of poliomyelitis, in the ratio of one such case to a total of

only 21 cases, naturally raises a suspicion that immunity acquired after an attack of the disease may not be as complete and lasting as one is generally led to believe. This is the more significant in the light of modern teaching that latent and mild non-paralytic infections are exceedingly numerous during epidemic periods, and that the development of paralysis is an uncommon and unfortunate complication in a minority of cases. Mild atypical cases are unfortunately often missed; at best diagnosis can be confirmed only by expensive and impracticable animal-inoculation tests. In such circumstances it is very likely that atypical second attacks frequently go undetected. In an attempt to ascertain the degree and effectiveness of immunity following an attack of poliomyelitis, Bridge *et al.* (1946) investigated during an epidemic the incidence of illnesses regarded as mild poliomyelitic infections among 168 persons who had had the disease previously. There was definite evidence that 77 of the 168 had been further exposed, and 17% of those exposed revealed symptoms, such as fever, vomiting, muscle spasm, and transient weakness, suggestive of a mild form of the disease.

Whereas little is known of the antigenic structure of the viruses, there is definite evidence that different strains of the poliomyelitis virus exist. Rhodes (1947) describes the main members of the poliomyelitis group of viruses to be the monkey-pathogenic or simian strains, the Lansing, K., and M.M., strains, and Theiler's virus. It is possible that these strains are immunologically different and that each strain affords protection only against itself, despite the fact that the clinical syndrome may be the same in each case. Trask *et al.* (1937a and b) showed that strains isolated from various outbreaks in 1930 and 1931 were immunologically different, while Burnet and Macnamara (1929, 1931) found that monkeys which survived infection with one strain succumbed later to a different strain. Similarly, in 1937 Flexner showed that it was possible for monkeys to suffer two or even three attacks of poliomyelitis—an observation which had also been noted as early as 1913 by Kling and Levaditi.

Poliomyelitis occurs principally in infancy and childhood. Adults are not commonly attacked, presumably because of acquired immunity following latent or subclinical attacks. Nevertheless during the last war the incidence of poliomyelitis was much higher in troops stationed in the Middle East and India than in those in this country, one of the possible explanations being that the former were exposed to a strain against which they had no previous immunity (McAlpine, 1945). It is obvious, therefore, that we should be cautious about accepting the statement that an attack of poliomyelitis confers lifelong immunity, for the immunological link in our chain of evidence is faulty. It is surely our measures for the prevention and control of the disease will be equally faulty.

We are indebted to Dr. H. R. Tighe, Medical Officer of Health, Wanslea, for his interest, advice, and permission to publish this article, and to Dr. A. F. Stadden for his reports on the C.S.F. findings.

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## THE TETRALOGY OF FALLOT AND ITS SURGICAL TREATMENT

BY

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The congenital heart lesion known by the popular name of "blue baby" was first introduced by the Englishman, Peacock, as the "blue maladie." Later on, in 1888, Fallot discussed the syndrome and provided the description which is characteristic of the condition as we know it to-day.

It was of interest to inquire into the incidence of the disease. White has stated that congenital heart disease constitutes between 2 and 3% of all cardiac lesions. The tetralogy of Fallot constitutes about 5% of the cases of congenital heart disease. If, however, a case of congenital heart disease has cyanosis, the probabilities are about 75% that the diagnosis is the tetralogy of Fallot.

The characteristic features of the syndrome described by Fallot are: (1) Stenosis of the pulmonary artery, (2) patent interventricular septum, (3) dextra position of the aorta, (4) hypertrophy of the right ventricle. Obviously there will be many variations from this particular set-up. In some the stenosis is greater than in others and the condition is apt to be associated with other congenital lesions.

Considering the possible causes of these defects occurring during the early development of the heart, Maude Abbott (1936) and Blalock and Taussig (1945) have suggested infectious disease of the mother during the first three months of pregnancy. German measles seems to be the commonest offender in this respect, but other conditions affecting the mother's health during this stage of development, when the cardiac chambers and such are being formed, may play an important part.

#### Signs and Symptoms

The clinical findings in the disease are as follows. (1) Cyanosis of the infant. It is usually present at birth, is continuous, and never disappears. (2) There is a strong systolic murmur that is heard best in the pulmonary area and may be heard fairly widely over the praecordium and sometimes in the interscapular region. (3) Clubbing and marked cyanosis of the fingers and toes. (4) The most characteristic sign, apart from the cyanosis, is the limited tolerance of exercise. The patient has marked dyspnoea on the slightest exertion. The cyanosis increases and the child is able to walk only a short distance, when he becomes exhausted and squats down in a characteristic fashion.

Further investigation adds much to substantiate the diagnosis. To compensate for the lack of aeration of the blood there is a polycythaemia, which may be as high as 10,000,000 red cells per c.mm. or more. The haemoglobin is increased in proportion and may rise from normal up to 185 to 190%, and the volume of packed cells (haematocrit) up to 75%. The oxygen saturation of arterial blood is diminished, and in the worst cases it may be below 30%. In patients with a level such as this the exercise tolerance is greatly reduced. When the oxygen saturation is between 60 and 70% the exercise tolerance is improved, and above this level the clinical sign of cyanosis is not present.

The electrocardiogram shows right-axis deviation. X-ray examination of the heart shows enlargement. The characteristic enlargement is a projection of the left ventricle to the left with double apices, and an enlargement

of the right ventricle, the whole suggesting the shape of a Dutch wooden shoe. There is no pulsation in the area of the pulmonary vessels or conus arteriosus, and there is a defect in the heart shadow here which indicates lack of development of these structures. There is no pulsation in the lung fields, so the condition cannot be confused with Eisenmenger's disease.

Further important information may be obtained by catheterization of the heart as described by Cournand *et al.* (1945) and as used by Bing (1946) in Blalock's clinic. The catheter is passed through one of the superficial veins to reach the right auricle under fluoroscopic control. From the auricle blood for oxygen saturation is taken and the pressure recorded. The catheter is then passed on into the right ventricle, when more blood samples are taken for oxygen saturation and pressures are recorded. The catheter can then usually be passed into the pulmonary artery, and saturation and pressures are again recorded. From this evidence one can determine the presence of an interauricular septal defect, an interventricular septal defect, or pulmonary stenosis. The proportionate amount of flow through the pulmonary circulation can also be determined on this information. The information is useful in making a diagnosis, in forming a decision on whether operation is indicated, and in considering the improvement to be expected from it.

Most of the children with this condition die at birth or soon after. A few live to 6 or 7 years, even to 10 or 12. Very occasionally one will survive to adult life. The patient suitable for surgery is the child who has survived for perhaps a year or more, has limited exercise tolerance, and has the findings already enumerated.

#### Treatment

I think the physicians will agree that there is no specific medical treatment that will alter the course of this disease to any great extent. It is due to the pioneer work of Blalock and Taussig (1945) that fairly effective surgical treatment has been devised. The principle of such treatment is to take a large branch from the aorta and anastomose it with the pulmonary artery so that more blood passes through the pulmonary circulation (Murray, 1940). When successfully carried out with a large branch, the results are very impressive. The patient turns from blue to a satisfactory pink colour.

Naturally the operation is one of considerable magnitude and the dangers are not few. In Blalock's early series the mortality rate was about 25%; but according to a more recent publication he has reduced this to 17%. Such a mortality is not surprising, since the patient is a poor subject to stand operation. Moreover, the adjustment in circulation necessary after operation imposes considerable strain on a poorly developed organ. In some patients the heart is too defective, and the cardiac reserve too small, to withstand the change.

In my series of 60 cases of congenital heart disease operated upon there were 40 of Fallot's tetralogy, 11 of patent ductus arteriosus, and 9 others, with an overall mortality of 11.7% and in the tetralogies 7.5% (see Table).

Disorder	No. of Operations	Deaths
Fallot's tetralogy .. .. .	40	3 (7.5%)
Patent ductus arteriosus .. .. .	11	0
Others:		
Pulmonary stenosis, no patent septum .. .. .	1	
No pulmonary artery .. .. .	1	
Persistent truncus arteriosus .. .. .	2	
Eisenmenger's malformation .. .. .	3	
Single pulmonary artery .. .. .	1	
Roger's malformation .. .. .	1	
Total .. .. .	9	4
Total .. .. .	60	7 (11.7%)

After operation the patients are nursed in an oxygen tent for a few days. If a satisfactory anastomosis has been performed, their recovery is surprisingly smooth and the benefits of improved oxygen saturation are obvious usually within a matter of hours. All my patients have received heparin (Murray, 1940) post-operatively to aid in keeping the anastomosis patent.

The surgical treatment of many cases of the tetralogy of Fallot is very satisfactory, bringing relief of symptoms, improvement in colour, and greatly increased vigour.

I wish to thank Dr. Edmund Delorme, Dr. Joseph Janes, Dr. David Bohnen, and Mr. Newell Thomas for their assistance. Dr. Stephen Evelyn's excellent efforts in giving the anaesthetics are gratefully acknowledged. The Trustees of the Toronto General Hospital very kindly provided space for these patients. Otherwise this work was carried on with private funds and without other assistance, except for limited facilities provided by the Banting Institute.

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## COMPLETE HEART BLOCK IN YOUNG PEOPLE

BY

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Persistent complete auriculo-ventricular heart block is rarely seen in young people, and when it does occur it is almost always congenital. Cardiac irregularities, with varying degrees of defective conduction between auricles and ventricles, are not uncommon during the course of diphtheria, acute rheumatism, and occasionally other infections. If complete heart block develops, however, the usual outcome is either recovery, with restoration of normal rhythm, or death.

We describe in this paper three cases of persistent complete auriculo-ventricular block in young people. The first case (O. C.) came under our observation at the age of 12 years; the second (J. M. D.) when she was 17, though the pulse rate was known to have been slow from the age of 7; and the third, a male (D. R.), when he was 18 years old, though his cardiac condition was noted a few weeks after birth.

The following review of the literature shows the comparative rarity of complete auriculo-ventricular heart block even in adults. White (1944) states that 10,000 patients with cardiac signs or symptoms were examined by electrocardiograph at Massachusetts General Hospital: auriculo-ventricular heart block was diagnosed in 641, and of these 79 (0.79% of the total) had complete heart block. He thinks that cases of acquired complete heart block except those due to coronary disease are rare. Yater (1929), described 30 cases of congenital heart block. Jaleski and Morrison (1943) state that up to 1942 only 80 cases of congenital complete heart block had been described; they reported two cases in female patients aged 20 and 21, both living normal lives, in whom the lesion was diagnosed at the age of 6 years and a few months respectively.

Campbell and Suzman (1934) reported 8 cases between the ages of 12 and 33 years. Campbell (1943) had followed up these 8 cases, and of the 7 alive all were in good health and were then between the ages of 22 and 42 years. He states that few of the reported cases of congenital complete heart block have been over the age of 20 years. Leys (1943) described a girl of 23 with complete heart block, dextrocardia, and septal defect. The dextrocardia had been known for some years, but the heart block was first noticed at the age of 20. Peel (1943) reported a similar case in a woman still in good health at the age of 46. The lesion was diagnosed at the age of 38, though at 5 her heart was known to be defective.

Most authors agree on the even greater rarity of persistent post-diphtheritic complete heart block. Jones and White (1928) investigated 100 cases who had suffered from diphtheria at least five years before. In this series the electrocardiograms did not show one example of complete heart block. Fishberg (1940) states that he has seen only one patient surviving the appearance of complete heart block in diphtheria. He refers to 19 cases described by Stechner in 1928, all of which were fatal.

Leys (1945), however, reported a case of complete dissociation of auricle and ventricle in a married woman aged 25 who had had severe diphtheria with palatal and ocular palsies at the age of 10. The available evidence suggested that the lesion was diphtheritic in origin, but proof of a normal heart before the infection was not available. Cookson (1945) investigated 83 cases of diphtheria and stated that the cardiac lesion, however severe, clears up completely if the patient survives; exceptions to this rule are extremely rare.

### Case Reports

**Case 1.**—O. C. attended the children's out-patient department of the Leeds General Infirmary in November, 1929, at the age of 6 on account of her obesity. She was regarded as a case of pituitary dysfunction, but there was no record at that time of the pulse rate or cardiac findings. She was seen again early in March, 1935, suffering from psoriasis, and her notes record a pulse rate of 60 per minute. Almost immediately afterwards (March 13, 1935) she was admitted to the Seacroft Infectious Diseases Hospital, Leeds, with moderately severe faucial diphtheria, which was uncomplicated; the pulse rate on admission varied between 40 and 58 per minute. Three weeks after her discharge on Sept. 7, 1935, when she again attended the Leeds General Infirmary, an electrocardiogram (Fig. 1)

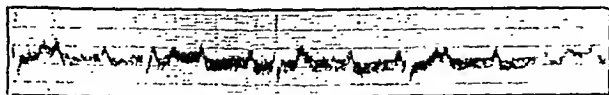


FIG. 1.—Case 1, 1935. Complete heart block; ventricular rate 50 per minute (lead II).

showed complete heart block with ventricular rate of 50 per minute. She lived a normal life with few complaints until June, 1944; she then began to have attacks of "light-headedness," but without actual fainting or loss of consciousness; these have persisted.



FIG. 2.—Case 1. Some increase in transverse cardiac diameter.

She has recently been admitted to St. James's Hospital, Leeds, with the diagnosis of high-grade mental deficiency. Her present weight is 13 stone 12 lb. (87 kg.), and her obesity is of the pituitary type. The heart is slightly enlarged to the left, and a loud blowing systolic bruit can be heard all over the praecordium; B.P. is 120/80; lungs, abdomen, and C.N.S. are normal. Skiagram (Fig. 21 of

chest showed normal lung fields, some increase in the transverse cardiac diameter, but no posterior enlargement. Blood count showed no anaemia or alteration in white-cell count; B.M.R. was +2. Electrocardiograms taken at intervals during 11 years have always shown a complete heart block with a ventricular rate of about 40 per minute (Figs. 3 and 4).

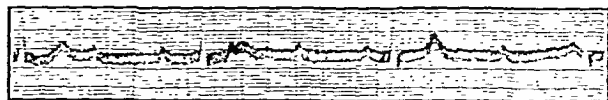


FIG. 3.—Case 1, 1940. Complete heart block; ventricular rate about 40 per minute (lead II).

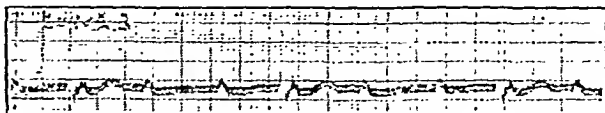


FIG. 4.—Case 1, 1946 (lead II).

This is considered to be a case of congenital complete heart block with ventricular septal defect complicated by pituitary dysfunction and high-grade mental deficiency. The attacks of dizziness are regarded as of the Stokes-Adams type, and it is noteworthy that these did not appear until she was 21 years old—nine years after the complete heart block had been demonstrated cardiographically; moreover, apart from her mental condition her general health is unimpaired. Particularly interesting is the comparatively high ventricular rate up to the age of 13; it probably accounts for the lesion not being diagnosed in spite of the fact that the patient was attending hospital for various other conditions.

**Case 2.**—J. M. D., a single girl, was first seen on June 6, 1944, at the age of 17 complaining of transient attacks of "light-headedness" without loss of consciousness. She gave a history of diphtheria at the age of 7, for which she was treated at the City Fever Hospital, Bradford. This attack apparently was severe, for she was kept in hospital for a period of 80 days, and her mother was told that the state of the child's heart was endangering her life. Palatal paralysis also occurred. She had a year's convalescence before being allowed to go back to school. For five years she was free of symptoms, but at the age of 12 her present symptoms appeared—i.e., attacks of transient dizziness. These do not seem to cause her much inconvenience, and her general health is good. She is in regular employment as an office clerk.



FIG. 5.—Case 2. Cardiac outline normal.

Physical examination revealed a slim girl who weighed 7 stone 5 lb. (46 kg.). The radial pulse was regular at 42 beats per minute; the heart was normal in size, and on auscultation presented no abnormality except a short basal systolic bruit; the B.P. was 120/75; a skiagram of the chest (Fig. 5) showed no lung lesion, and the cardiac outline was normal in size and shape; the blood count and B.S.R. were normal. An electrocardiogram (Fig. 6) showed complete dissociation between auricles and ventricles, with auricular rate of 80 and ventricular rate of 42 per minute. There is no earlier electrocardiogram, but the general practitioner commented on the slowness of the pulse after the diphtheria. The girl's condition has remained unchanged since 1944; she continues her work as an office clerk and lives a normal life; serial electrocardiograms show no change in the block (Figs. 7 and 8).

This case is one of persistent complete heart block which has certainly been present from the age of 7 to the patient's present age of 21. The lesion was first noted after a severe attack of diphtheria at the age of 7; there is no record of the heart rate before this. The patient's own medical practitioner, however, tells us that before the diphtheria the rate was normal, that this was observed during the course of several small ailments.



and that he compared and contrasted the heart condition on her return from the fever hospital with that before her return. The patient's general health has not been affected although she has had the lesion for 14 years. The attacks of faintness are regarded as those of Stokes-Adams type; they first appeared five

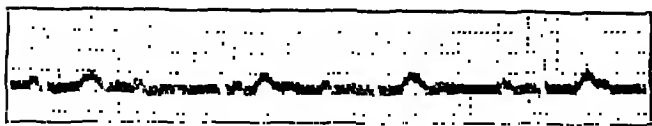


FIG. 6.—Case 2, 1944. Complete heart block; ventricular rate 42 per minute (lead II).

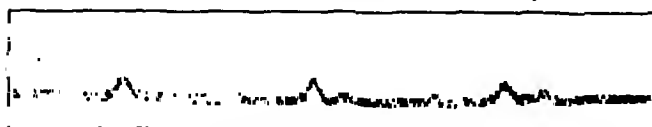


FIG. 7.—Case 2, 1945 (lead II).

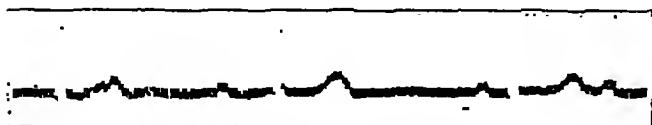


FIG. 8.—Case 2, 1946 (lead II).

years after the slow pulse was noted. The severity of the attack of diphtheria, the fact that the cardiac condition was regarded as grave at the time, and the absence of an associated congenital lesion raise the possibility that this is a post-diphtheritic lesion.

**Case 3.**—A young man (D. R.) was first seen on Nov. 22, 1946; he was then 18. His father stated that he had been told shortly after the child's birth that the heart was defective. The patient never suffered from rheumatism, chorea, or diphtheria, and throughout his boyhood he was free of symptoms. He went away to boarding-school and has since been doing heavy work on his father's farm. In February, 1946, he developed a pyrexial illness. The abnormal temperature lasted three days; on the tenth day the patient had an epistaxis followed by a series of faints occurring as often as one every minute. After three days these ceased; he has had none since. However, he



FIG. 9.—Case 3, 1946. Complete heart block; ventricular rate 42 per minute (lead II).

has never completely recovered from this illness and has since been listless, disinclined to do much, and readily fatigued.

Examination revealed the presence of aortic incompetence with a long diastolic murmur down the left border of the sternum and a systolic bruit at the apex. The skiagram showed considerable left ventricular enlargement; the B.P. was 170/60 and in keeping with the valve defect. The electrocardiogram (Fig. 9) showed complete heart block with a ventricular rate of 42 per minute.

This is regarded as a case of congenital aortic incompetence with complete heart block. For 17 years the patient was symptom-free until February, 1946, when he developed fainting attacks of the Stokes-Adams type followed by incipient heart failure.

### Summary

Three cases are recorded of complete heart block, which was first noted at the ages of a few months, 7 years, and 13 years respectively. In all of these there is a history of transient attacks of faintness first manifest at long intervals (17, 10, and 9 years) after the heart block was discovered. In two of the three cases there is an associated congenital heart defect: in one, patent ventricular septum; in the other, aortic incompetence. The third case is regarded as free from a congenital heart lesion.

Two of the three cases are in good general health. The third case has led a normal life (including, up to the age of 17, five years at a boarding-school and two years working on a farm) although the lesion was noted shortly after birth.

Two of the cases (1 and 2) had diphtheria; two of the three cases (1 and 3) are certainly of congenital origin; Case 2 is regarded as diphtheritic in origin.

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## TONSILLECTOMY AND ADENOIDECTOMY UNSATISFACTORY RESULTS DUE TO CHRONIC MAXILLARY SINUSITIS

BY

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Ayrshire, 1,132 square miles in extent, partly industrial and partly rural in character, has a pre-school population of approximately 23,000 and a school population of approximately 47,000. In this county since 1936 the local authority has reserved a minimum number of 25 beds for such children as have required operative treatment for affections of the ear, nose, and throat. The number of beds at present so reserved is 34.

In the case of the children who have been dealt with under the treatment scheme in question—children who have been referred by the school medical officers or by private practitioners—the notes about the operations and the follow-up notes were made by the operator himself. The case histories were taken under the supervision of one person—the matron in charge of the hospital.

It became more and more apparent during recent years that a considerable proportion of the cases which were referred for operative treatment of tonsils and adenoids had failed to benefit thereby, even though the operations were technically perfect. With increasing frequency children who had been operated upon months or years previously were referred afresh by school medical officer or family doctor, disgruntled parents declaring that the child's signs and symptoms were much as they had been before operation or that they had become more pronounced. The position was studied, therefore, and it became evident that the unsatisfactory results were due to infection of the maxillary antra.

The following data were derived from the cases of chronic maxillary sinusitis found among the total number of cases referred for tonsillectomy and adenoidectomy in 1946. Of the 1,779 cases operated upon that year—boys and girls in equal proportion—for the removal of tonsils and adenoids, 442 (or 25% of the total) were considered to have sufficient signs or symptoms, or both, to warrant the proof-puncturing of both antra immediately before operation. (The method used was to continue lavage through the antral cannula with normal saline until all traces of pus had disappeared. Swabs were taken at once from the gross pus and sent for culture. In 106 cases no pus was

collected, because in some it passed into the nasopharynx and was swallowed or contaminated, and in others no actual infection was present. Incompleteness of reports in 24 of these 106 cases brings the number to be considered down to 82. In the remaining 336 cases—i.e., in 19% of the 1,779 cases—the material was grossly purulent, mucopurulent, or mucoid. A number of the results of swab examination were lost, however, and some of the case histories were incomplete, so that for these and related reasons 46 cases have to be deducted. The number of cases on which this paper is based is therefore 290, or 16% of the total.

### Signs and Symptoms

In recording the signs or symptoms noticed by parents attention was paid to such matters as headaches, pyrexia of short duration and unknown origin, and repeated "bronchial attacks"—not true attacks of bronchitis—characterized by pyrexia and a hacking spasmodic cough. The following code was used: (1) Interference with breathing, day or night; mouth breathing; snoring. (2) Alteration of voice. (3) Pain in, or discharge from, ears. (4) Cervical gland enlargement. (5) Sore throat. (6) Mucopurulent nasal discharge. (7) Night terrors and restless sleep. (8) Spasmodic cough. (9) Frequent colds.

In Table I is given the total percentage incidence of each of the nine items which are covered by the code in (a) a random sample, 2,000 in number, of the cases of tonsillectomy and adenoidectomy dealt with over the past seven years; (b) 290 cases in which pus was present in the antra and was washed out at the time of tonsillectomy and adenoidectomy; and (c) 82 cases in which no pus was found, although expected on clinical grounds. In each of the three groups the total percentage incidence of certain infectious diseases is also given.

TABLE I

	Code Number									Infectious Diseases				
	1	2	3	4	5	6	7	8	9	Scarlet Fever	Diphtheria	Measles	Whooping- cough	Pneumonia
Percentage in group (a) ..	69	60	15	30	64	46	6	7	64	12	8	50	20	1
" (b) ..	57	44	19	17	36	48	27	36	59	5	11	60	33	9
" (c) ..	73	46	31	21	46	57	29	39	74	6	14	64	32	6

It is of interest to note that glandular swelling was twice as common in uncomplicated cases as in cases with sinusitis, and that night terrors and spasmodic cough were five times more common in the latter group than in the uncomplicated cases. Certain signs and symptoms—viz., those indicative of sinusitis—noticed by the nurse, the surgeon, and the anaesthetist were also recorded. Thus the nurse, on the morning of the operation, made each child blow his nose into a swab; each case in which there was considerable purulent discharge was recorded as "dirty nose." The surgeon recorded the presence of such signs as nasopharyngeal discharge of purulent or mucopurulent material; pus under, around, or above the inferior turbinates; dermatitis of the nasal vestibule and of the upper lip; and a pinkish tinge of all the structures of the middle ear. The anaesthetist kept in mind the fact that there is a greater tendency for a patient with maxillary sinusitis to cough in the initial stages of anaesthesia with ethyl chloride or gas, oxygen, and trilene, and that when a direct laryngoscope is used for endotracheal intubation the anaesthetist commonly notices a marked general congestion of the larynx and the presence of copious pus.

**Operation Findings.**—These are given in Table II. The condition of the tonsils is classified as follows: (1) Tonsils

"normal": no macroscopic evidence of sepsis on closing the guillotine. (2) Tonsils "septic": some pus extracted on closing the guillotine. (3) Tonsils "very septic": large quantities of pus extracted on closing the guillotine. Of the adenoids, one + sign indicates a normal quantity of tissue, two + signs a mass causing considerable obstruction, and three + signs a very large mass.

TABLE II

Operation Findings	Tonsils Normal	Tonsils Septic	Tonsils Very Septic	No Adenoids	Adenoids +	Adenoids ++	Adenoids +++
Percentage in group (a)	23	50	27	27	18	46	9
" (b)	11	66	23	24	61	14	1
" (c)	3	55	42	8	60	32	—

It will be noted that in group (b)—cases complicated by the presence of sinusitis—the incidence of abnormal tonsils was high (89%) whereas that of abnormal adenoids was low (15%).

**Post-operative Findings.**—The throats, which were examined night and morning during the 48 hours after operation, showed much more purulent material in the complicated cases than in the uncomplicated. There were long streams of purulent discharge flowing down the posterior pharyngeal wall, and the nasal discharge was often profuse also.

**Seasonal Incidence.**—There was no appreciable difference, month by month, in the proportion of the complicated cases in relation to the total number.

**Sex Incidence.**—Boys constituted 54% of the 290 cases, girls 46%.

**Locality.**—The 290 cases with sinusitis came from 56 different towns or villages. The county medical officer of health, whose comment was invited, replied that he could find no ruling factor.

**Social Position.**—This appears to have no bearing on the incidence of the condition, for the percentage of complicated cases was 22% of a smaller series of tonsil and adenoid operations done in nursing-homes during the same year.

**Age Incidence.**—This is shown in Table III. So few cases fell in the last two age groups that the percentage figures shown are of little value.

TABLE III

Age in Years	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Per cent of total (1,779)	12	19	23	16	22	25	17	13	16	18	25	11	14	14	25

**Bacteriological Findings.**—One single type of organism was present in 35% of the cultures, while 2, 3, or 4 different organisms were present in the others. The most common single type of organism was *Streptococcus viridans*, which was found in 11% of the total. *Micrococcus catarrhalis* was present in 49% of all the cultures, *Str. viridans* in 38%, diphtheroids in 25%, *Staphylococcus albus* in 23%, *Staph. aureus* in 17%, haemolytic streptococci in 8%, pneumococci in 6%, *Bacterium coli* in 1%, *Pseudomonas pyocyanea* in 0.7%.

### Results of Treatment

The children were asked to report at follow-up clinics three months after the date of operation. Cure was considered to be complete when all signs and symptoms had disappeared, the opinion being confirmed by radiographic examination in many cases. Of the 290 cases 29 failed to report, 153 were completely cured, and 128 were still unsatisfactory. Of the 82 children in group (c), from whom no pus was obtained on washing out the antra at the time

of tonsillectomy and adenoidectomy although the clinical picture suggested that it was present, 78 attended again, and of these 64 were cured and 14 still showed clinical and radiographic evidence of chronic antral infection. Investigation failed to show that it was easier to eliminate one particular organism or group of organisms than another.

Before 1946 the use of Proetz suction with 0.5% ephedrine in normal saline gave some satisfactory results, but this method was not found suitable for the great majority of these cases because of the large area over which the patients were scattered and the need for repetitions of the treatment. Instillation, after antral wash-out, of "sulfex" and penicillin (10,000 units in 1 ml. of fluid) into different series of cases proved to be no more effective than ordinary antral wash-outs, nor did the use of neutral acriflavine or boric-acid lotion prove to be superior to normal saline.

The unsatisfactory cases reported once weekly for an antral wash-out under general anaesthetic. If the condition was not clear by the time six wash-outs had been given, the children were admitted to hospital for a double antrostomy; this was followed by five days' treatment by chemotherapy and full doses of penicillin. It is too early yet to assess the results of this last method of treatment.

### Comment

Adenoidal enlargement, which in this area at least has been seen much less often in recent years, is certainly not related to sinusitis in children, but diseased tonsils are closely associated with the condition, although there is no indication whether tonsils or sinuses are diseased first. During 1946 about 50% of the cases of sinusitis were cured by one antral wash-out combined with the removal of tonsils and, when present, adenoids. Whether the antral wash-out was necessary is problematical, but during the present year no antral wash-outs are being done at the same time as tonsillectomy and adenoidectomy. This year the cases of clinical chronic sinusitis are being noted, and the parents are being informed that a nasal condition is also present and that they will be asked to bring their children back in three months' time. It is hoped in a year's time to give comparative figures for cases of chronic sinusitis treated by tonsillectomy and adenoidectomy alone.

### Summary

Analysis of the 1,779 cases in Ayrshire operated on for tonsils and adenoids in 1946 has shown that unsatisfactory results following tonsillectomy and adenoidectomy are due, in the great majority of instances, to the presence of chronic maxillary sinusitis, a condition which in children is often associated with night terrors, restless sleep, chronic cough, headache, and pyrexial attacks of short duration. Maxillary sinusitis in children of this particular area does not appear to have any direct connexion with climate, diet, housing conditions, previous infectious diseases, or infection with any particular organism.

I should like to acknowledge the help given to me by the Maïron and the nursing and clerical staffs of Seafild Children's Hospital, Ayr, in compiling the figures recorded above.

The Registrar-General announces that from Monday, Dec. 15, a new and short form of birth certificate, costing sixpence, will be available showing only the name and surname, sex, date of birth and (where possible) place of birth. There will be no particulars of parentage or adoption. In the case of births registered in England or Wales application can be made to the Superintendent Registrar of the district in which the birth occurred or to the General Register Office, Somerset House, London, W.C.2. A short certificate can also be obtained from the local Registrar at the time of registration of the birth. Where births have been registered abroad and entered in Army, Air Force, Consular, or Marine records deposited with the Registrar-General, certificates can be obtained only from the General Register Office, Somerset House. This applies also to certificates relating to adopted children.

## Medical Memoranda

### "Spontaneous Rupture" of Spleen Associated with Infective Mononucleosis

Although it is well known that spleens that are enlarged in fevers such as malaria are very easily injured, the following case of so-called "spontaneous rupture" in infective mononucleosis seems rare enough to be worth recording.

#### CASE HISTORY

An airman aged 25 was admitted to hospital early one morning with the "provisional diagnosis" of a perforated peptic ulcer. He had been taken off a train in which he had suddenly become prostrated with severe abdominal pain. His previous movements are of interest: he had travelled in overcrowded trains for several hours, and on the last lap of the journey he had been sitting doubled up on a kitbag in one of the corridors. An hour or two before the onset of the acute symptoms he had experienced a mild pain in the left side which gradually passed off.

On admission he was found to be very restless and in too much pain to answer questions coherently. He was considerably shocked, and there was a board-like rigidity of the abdomen. The clinical picture was strongly suggestive of blood in the peritoneum, but it was difficult to reconcile this with the history given. The extreme restlessness was all against the presence of a perforation. The temperature was 100° F. (37.8° C.).

Laparotomy was performed through a right upper paramedian incision, and the peritoneum was found to contain a large quantity of dark blood. The spleen was twice the normal size, and there was a subcapsular haematoma, the capsule having ruptured near the lower pole of the organ. Splenectomy was carried out without difficulty and the abdomen closed.

Post-operatively, plasma and glucose-saline infusions helped to combat the shock, but later in the day the temperature rose to 102° F. (38.9° C.). A blood examination showed: R.B.C., 4,380,000 per c.mm.; Hb, 84%; colour index, 1; leucocytes, 29,600 per c.mm. (polymorphs, 44%; lymphocytes, 45%; monocytes, 11%); platelets, 512,000 per c.mm. The red cells were normal in all respects, but many of the lymphocytes were irregular in size. The result of a Paul-Bunnell test the following day was positive in serum dilutions 1 in 3 to 1 in 12, and negative from 1 in 24 upwards; this titre increased, and one week later there was a positive result from 1 in 3 to 1 in 24, with negative findings from 1 in 48 upwards.

During the first post-operative week the temperature "swung" between 102° and 100° F., and there were a few palpable lymph nodes in the axillae and left posterior triangle of the neck. The results of absorption tests against both guinea-pig kidney and ox cells were negative in dilutions from 1 in 3 upwards, suggesting a serum-sickness reaction.

Although the absorption tests did not give confirmatory evidence of glandular fever, the blood picture, then and subsequently, was characteristic of that disease. A later count showed: R.B.C., 5,100,000 per c.mm.; Hb, 100%; colour index, 1; leucocytes, 11,200 per c.mm. (polymorphs, 40%; lymphocytes, 57%; monocytes, 1%; basophils, 1%; eosinophils, 1%). Sections of the removed spleen revealed the normal splenic architecture and a gross infiltration of the parenchyma with lymphocytes and monocytes, all intermediate types being seen.

In the absence of a sufficient titre in the Paul-Bunnell reactions, and the fact that the absorption was not the type usually seen in infective mononucleosis, it is difficult to be certain of the diagnosis of infective mononucleosis. On the other hand the blood picture and splenic histology were characteristic of this disease. The patient had not been abroad, and at no time was there any evidence of malarial parasites.

Unfortunately this patient developed a left-sided pleural effusion, which doubled his recovery time but did not affect his ultimate full recovery and return to duty.

#### COMMENT

The spontaneous rupturing of a spleen in glandular fever must be a comparative rarity, but this case proves it to be an actual possibility, the trauma having been no more than "subminimal." It would appear wise, therefore, to bear this in mind when treating known or suspected cases of this disorder and when diagnosing an unexplained abdominal crisis.

My thanks are due to Dr. J. H. Gubbin, medical superintendent, E.M.S. Hospital, Salisbury, for permission to publish this case.

W. O. SPENCE, M.B., Ch.B.  
Graded Surgeon, E.M.S.

## Reviews

### PRELUDE TO MEDICINE

*Medicine. Volume I. The Patient and his Disease.* By A. E. Clark-Kennedy, M.D., F.R.C.P. Complete in two volumes. (Pp. 383. 20s.) Edinburgh: E. and S. Livingstone. 1947.

Dr. Clark-Kennedy has had an unusual career, for he is at the same time a fellow of a Cambridge college, a physician, and the dean of a London medical school. It is, therefore, not surprising that, with his intimate experience of different aspects of the teaching and practice of medicine, he has written an unusual book. There is reason to believe that he wrote much of it during the war, when the hours of waiting provided leisure to think, and the threat of imminent destruction prompted thought on the meaning of existence and the role of the physician in the prevention of sickness and premature death. Nevertheless the spirit of the university inspires him rather than that of the medical school, the university in which men of different faculties and disciplines meet in a single community and have the opportunity to share and test each other's ideas. The author's aim is to provide a philosophical foundation on which a knowledge of medicine can be built as experience accumulates. In this first volume he considers body and mind, symptoms and signs, heredity and environment, reactions of the body and the mind, and the nature of disease. The author admits that this "may seem a strange and unusual prelude to the study of clinical medicine. But the art of medicine is concerned with human bodies made of matter, transforming one form of energy into another. They are partly dominated by mind and individual personality. Everyone does live a finite life in space and time in a mysterious universe. It is natural and logical to start by considering the nature of matter, energy, life and mind, and the relationships which exist between them in so far as matter, energy, life and mind are really comprehensible to the limited capacity of the mind of man. Clinical medicine cannot altogether avoid metaphysics and philosophy."

The adult medical reader will enjoy this delightful book: there has been nothing quite like it since Trotter's writings. The author expresses himself clearly, and again and again excites our imagination by synthesizing information from widely different fields. Many will find it an excellent bedside book, an aid to knitting up the unravelled threads of the day. It is difficult to know how it will affect the beginner. We wonder whether its individualistic flavour will be altogether to the taste of the younger generation. It contains nothing about positive health, social medicine, or demography; in fact, as the subtitle indicates, the author is concerned with the patient and his disease. Though the cash nexus between patient and doctor may be broken, sickness must always remain a problem of the individual as well as of the community. Dr. Clark-Kennedy clearly presents the problem and the solutions which materialist and idealist have given to it.

L. J. WITTS.

### FERTILITY

*The Problem of Fertility.* Proceedings of the Conference on Fertility held under the Auspices of the National Committee on Maternal Health. Edited by Earl T. Engle. (Pp. 254. \$3.75 or 21s.) Princeton: Princeton University Press. London: Geoffrey Cumberlege (Oxford University Press). 1946.

This book consists of 17 papers presented at a conference whose main purpose was the discussion of recent investigations into the processes of reproduction in domestic animals. Only four of the papers are directly about human fertility, yet the book will be of great interest to medical practitioners, for the study of the comparative physiology of reproduction is fascinating in itself, and from it arise many possible suggestions for research and treatment in the human field—a point brought out clearly in the discussions that followed the papers. For example, it has been shown that in sheep and goats the survival power and speed of travel of spermatozoa in the female genital tract are lower when ovulation is stimulated by artificial means than at the time of natural oestrus, which prompts the question whether there is sometimes a similar

explanation for the poor results which attend the use of gonadotrophic hormones in the treatment of the infertile woman. Again, the demonstration that thyroid treatment prevents the normal summer decline in spermatogenesis in rams, and that it raises the fertility of some bulls, is consistent with its reported beneficial effect in some cases of infertility in man.

The subjects discussed include patterns of oestrus cycles; the induction of ovulation and its mechanism and hormonal control in different species; the characteristics of cervical mucus in relation to menstruation and fertility; the viability and metabolism of bovine, human, rabbit, and equine spermatozoa; and artificial insemination in animals. Many of the advances and discoveries made by biologists and veterinary surgeons in recent years do not ordinarily come to the notice of the clinician and the clinical research worker, and the converse also is true; this book is a line of communication between the two groups. As a corrective to those who underrate the knowledge of our forebears A. R. Abarbanel pays a tribute to Dr. W. Tyler Smith, an Englishman who in 1855 described not only the cyclical changes in human cervical mucus but also the function of the cervical plug and the significance of its softening at the optimum time for conception; and J. W. Bartlett reports that artificial insemination was successfully carried out on a mare by an Arab chief as long ago as 1322. This volume is a worthy successor to that of 1945; the subject matter is different but of a high standard, stimulating as well as informative, factual rather than theoretical. It merits the attention of all those interested in human fertility.

T. N. A. JEFFCOATE.

### MANUAL FOR THE TROPICS

*Memoranda on Medical Diseases in Tropical and Sub-Tropical Areas.* Eighth edition. (Pp. 396. Illustrated. 7s. 6d.) London: H.M. Stationery Office. 1946.

This manual will continue to help medical men practising in the Tropics or in the Mediterranean or other sub-tropical countries. As Lieut.-Gen. Sir Alexander Hood notes in a short preface, the memoranda were originally compiled by Sir Andrew Balfour for medical officers serving abroad in the war of 1914-18 and expanded in two subsequent editions by Lieut.-Gen. Sir William MacArthur. For the present edition, which is anonymous, the text has been largely rewritten and brought up to date. As the title implies, the book is not a condensed treatise on tropical medicine but a selection of those points likely to be useful in the diagnosis, treatment, and prevention of some 40 or more diseases—accounts of which are arranged alphabetically—of the Tropics and sub-tropical lands, and it presents a digest of the varied medical experience of tropical conditions and diseases gained by the Army in the recent war.

The information about antimalarial drugs and modern ideas of treatment is well set out, though the reviewer does not consider that quinine should now ever be given intramuscularly. In the section on arthropod pests it would have been useful to have a brief note on "mites," which were so important in the war, and even one on "leeches," but space no doubt has been limited. The book is of convenient size and, unlike the seventh edition, bound in boards. There are 37 plates illustrating diseases and disease vectors, and a number of figures in the text. The use of D.D.T. against insect pests is described in an appendix, and there is a note on zoological nomenclature quoting the more important of the Articles of the International Rules of Zoological Nomenclature.

S. R. CHRISTOPHERS.

### STUDY OF ALCOHOLISM

*Recent Trends in Alcoholism and in Alcohol Consumption.* By E. M. Jellinek, Sc.D. (Pp. 42. \$0.50.) New Haven, Connecticut: Hillhouse Press. 1947.

The author is concerned with the fact that from time to time extravagant conclusions have been attached to observations on alcoholism which relate to highly specific and small units—conclusions which find their way into the news irrespective of whether they are based on superficial judgments or on proper investigation. His statistical study is intended to answer questions which are disturbing the public mind, and he analyses

consumption statistics, the rates of alcoholism in the adult population, the number of first admissions for alcoholic mental disorders to mental hospitals, and other indices of inebriety.

Dr. Jellinek points out that such a question as, "Is drinking on the increase?" lacks precision, since modifications in the consumption of alcoholic beverages may arise if the number of drinkers or individual consumption changes. Comparison of the consumption rates of a head does not disclose the nature of the changes in the drinking habit of a nation or of a group within the nation. The entire increase in the rate of chronic alcoholism in America since 1930 has appeared in urban areas, while the rate in the rural areas has slightly decreased. Dr. Jellinek finds that a large consumption of distilled spirits and a small consumption of beer are together usually an indication that the drinkers are relatively few in number but individually are heavy consumers. He believes that in America approximately 3 drinkers out of every 200 become chronic alcoholics. He refutes the assertion that inebriety among women is increasing at a higher rate than among men, and states that while female inebriety increased during the war it has not increased faster than male inebriety, and the rates in both sexes remain far below those found before Prohibition. He finds no statistical evidence to support the impression that alcoholism has recently been occurring in younger people than formerly, and he considers that the significance of the description of first admissions for alcoholism to mental hospitals is more limited and less definite than the statistical estimates of chronic alcoholism, since they relate to a highly selected portion of the alcoholic population and contain certain artifacts. He also believes that the "trend of death from alcoholism" does little more than reflect the progress of medicine in the treatment of the diseases of chronic alcoholism. The essay is clear and precise and should help to dispel some of the loose thinking which is occasionally apparent in discussions on alcoholism.

W. NORWOOD EAST.

### LIVER DISEASE

*Nouvelles Études Cliniques et Biologiques sur la Pathologie du Foie.* By Étienne Chabrol. (Pp. 184; 24 figures. 250 francs.) Paris: Masson et Cie. 1946.

The writer of this review (and of many unsigned in this *Journal* in the past) has often drawn attention, and does so again, to the isolated and independent point of view expressed in French medical literature in comparison with that found in American, British, and pre-war German writings. Writers in these three countries express their ideas in similar terminology, though in their own tongue, and usually discuss their subject in fundamentally the same way. French writings reveal a quite different outlook, and, except for a few classical and often old papers, the Frenchman seldom refers to any literature except his own. We probably miss much by somewhat neglecting modern French medical writing, but the Frenchman seems to miss more if, as we may assume by his omitting the references, he is unfamiliar with the work being done in other countries.

This volume by the well-known Prof. Chabrol, of Paris, contains a series of essays on different aspects of the clinical pathology of the liver. In some of them he discusses the recent work, essentially French in its origin, on the lipoids of the blood and the esterification of cholesterol in hepatic disease. In a chapter entitled "La Maladie de Hanot Existe-t-Elle?" he discourses on the study of an old French conception. In other sections he considers the premonitory haematurias of cirrhosis, hepatitis "en tache de bougie," the curable anasarca of jaundice, hepatic colic in heart disease, and so on. Such chapters reveal, as we have suggested, an approach quite different from ours to hepatic disease, and a terminology to which we are not accustomed. The whole book is of great interest and value to a student of diseases of the liver, but the ideas expressed require considerable rearrangement if we are to interpret and correlate them with our own.

J. W. MCNEE.

The Minister of Health has accepted further recommendations of the Mental Nurses Subcommittee (Notes No. 9, H.M.S.O., 9d.) and has informed the relevant authorities that the additional expenditure incurred in adopting these recommendations will be met in the usual way by an Exchequer grant.

### BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

*Lehrbuch der Medizinischen Entomologie.* By Prof. Dr. E. Martini. 3rd. ed. (Pp. 633. Paper covers, Rm.27; stiff covers, Rm.29.) Jena: Gustav Fischer. 1946.

A profusely illustrated textbook of the insects met with in medicine.

*Kurzes Handbuch der Ohrenheilkunde.* By Prof. Dr. Hermann Marx. 2nd ed. (Pp. 888. Paper covers, Rm.46; stiff covers, Rm.48.50.) Jena: Gustav Fischer. 1947.

A textbook of diseases of the ear, nose, and throat.

*Manual of Physical Diagnosis.* By E. B. Freilich, M.D., F.A.C.P., and G. C. Coe, M.D. 3rd. ed. (Pp. 351. 55 or 27s. 6d.) Chicago: The Year Book Publishers, Inc. London: H. K. Lewis and Co. 1947.

The clinical examination of patients; an account intended particularly for students.

*Dark Legend: A Study in Murder.* By F. Wertham. (Pp. 116s.) London: Victor Gollancz, Ltd. 1947.

A study of a boy who killed his mother.

*Personality and Problems of Adjustment.* By Kimball Young. (Pp. 868. 35s.) London: Kegan Paul, Trench, Trubner and Co. 1947.

An account of the development of the individual from childhood onwards in society.

*Your Health in War and Peace.* By J. Halliwell. (Pp. 60. 2s. 6d.) Essays in popular journalism on various aspects of health.

*Emotional Problems of Living.* By O. S. English, M.D., and G. H. J. Pearson, M.D. (Pp. 438. 16s.) London: George and Unwin. 1947.

A psycho-analytic account of mental development; intended for the intelligent reader untrained in psycho-analysis.

*Old Age: Its Compensations and Rewards.* By A. L. Visch M.D. (Pp. 200. 12s. 6d.) London: George Allen and Unwin. 1947.

Discusses the problems of ageing and the aged; for the layman.

*Genetics in Relation to Clinical Medicine.* By F. A. E. M.D., D.Sc., Ph.D., F.R.S., F.R.C.P.Ed. (Pp. 111. Edinburgh and London: Oliver and Boyd. 1947.

Intended to instruct medical students and postgraduates taking D.P.H. in the role played by genetic factors in the causation of disease.

*Peace of Mind.* By J. L. Liebman. (Pp. 203. 8s. 6d.) London: William Heinemann. 1946.

A discussion for the layman of problems in human conduct.

*Chiropody To-day.* By E. S. and F. Boothway, M.A.C.Ch. L.Ch. 2nd ed. (Pp. 141. 7s. 6d.) London: Hutchinson. 1946.

An introduction to the practice of chiropody.

*The Chess Pilot.* By J. Mieses. (Pp. 64. 3s. 6d.) London: Williams and Norgate. 1947.

An introductory account of the openings in chess.

*Stammering.* By K. Emil-Behnke. (Pp. 97. 6s.) London: Williams and Norgate. 1947.

An account of stammering and its treatment.

*The American Illustrated Medical Dictionary.* By W. Newman Dorland, A.M., M.D., F.A.C.S. 21st ed. (42s. indexed 40s. plain.) Philadelphia and London: W. B. Saunders Company. 1947.

Many new terms from war medicine, pharmacology, and nuclear physics are included in this edition.

*Vade Mecum of Medical Treatment.* By W. Gordon Se M.D., M.R.C.P. 5th ed. (Pp. 407. 10s. 6d.) London: Edward Arnold. 1947.

A summarized account of the treatment of those diseases met with most commonly in general practice.

*Wayfarers in Medicine.* By W. Doolin. (Pp. 284. 21s.) London: William Heinemann. 1947.

Essays on unusual subjects in medical history.



## BRITISH MEDICAL JOURNAL

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STREPTOMYCIN IN TUBERCULOUS  
MENINGITIS

Streptomycin does two things which penicillin does not: it acts vigorously on almost all Gram-negative bacilli and on the tubercle bacillus. Grave infections such as meningitis or septicaemia due to Gram-negative bacilli are comparatively rare, hence streptomycin as a life-saving agent finds its principal use in tuberculosis. The study of this form of treatment was for some time pursued exclusively in the U.S.A.; some account of the results, as communicated to a conference in London this summer, was given recently in this *Journal*.<sup>1</sup> Among other published accounts is that included in a general report on streptomycin therapy<sup>2</sup> by the National Research Council of the U.S.A., and one by H. C. Hinshaw and his colleagues<sup>3</sup> on the results obtained in 100 cases of various forms of the disease. Apart from clinical work, the careful experimental studies of W. H. Feldman<sup>4</sup> have shown that streptomycin has a remarkable effect on the disease in guinea-pigs, even under the most severe conditions, such as intravenous inoculation with a large dose of bacilli or the deferment of treatment until six weeks after inoculation by the ordinary route. These studies afford a sound basis for attempting the treatment in man and answer a number of questions which naturally arise in this connexion. Feldman showed, for instance, that 10 strains of *Myco. tuberculosis*, of which 2 were bovine, all reacted alike, and brought out the interesting point that tubercle bacilli do not acquire resistance to the drug in guinea-pigs, although this is unfortunately a common occurrence during the treatment of human patients. He also studied the response to different dosage intervals, with somewhat surprising results which have yet to be duplicated in the clinical field.

Clinical experience in the U.S.A. has provisionally defined the indications for streptomycin treatment fairly clearly. In general it is not indicated in chronic forms of the disease or in cases with a good prognosis apart from such treatment. The second proviso is dictated not merely by the need for economy but by the risks involved, which must be balanced against those of the disease itself. R. F. Farrington and his colleagues<sup>5</sup> have found that streptomycin of a high degree of purity has almost all of the toxic effects which it was hoped to be able to attribute to impurities in earlier products. Hence the more acute and severe the infection the clearer the indication for streptomycin, and it was natural that the clinical trials embarked

on at a limited number of centres in Great Britain at the beginning of this year should be restricted to cases of miliary tuberculosis and of tuberculous meningitis. Pending a report on the results obtained here, it is of great interest to bear of further extensive experience in another country, and we publish in the opening pages of this issue an account by R. Debré and his colleagues of the treatment of no fewer than 118 cases of tuberculous meningitis at the Hôpital des Enfants Malades in Paris. Their paper gives only a general survey of this extensive material, but many details of each individual case are tabulated and will provide much information for those more closely interested in this subject.

These authors first emphasize the necessity for early diagnosis, contrasting this with an evident reluctance to take the necessary steps to this end which existed before any effective treatment was available. Actual coma is the only quite hopeless prognostic sign, but the earlier treatment is begun the better, and lumbar puncture to detect "latent" meningitis is indicated in any patient with signs of miliary spread. Emphasis is laid on the value of retinoscopy in diagnosis. The specific results of diagnostic lumbar puncture are disappointing in this series. That tubercle bacilli should have been found in films of only 41 cerebrospinal fluids among 90 definite cases of tuberculous meningitis is out of accord with experience elsewhere. It should be possible to find them in a much higher proportion of cases, if not in all. As these authors remark, it is almost always possible to confirm the presence of tubercle bacilli by cultivation, and the culture then affords equivalent if belated justification for treatment. It is not clear whether in the 13 cases in this series in which the diagnosis apparently rested on clinical grounds alone cultivation of the cerebrospinal fluid was omitted, or failed.

Treatment was first attempted by the administration of comparatively large doses, using both the intramuscular and intrathecal route. The maximum dose mentioned—200,000 units per kilogram of body weight per day—is equivalent to a daily dose of about 10,000,000 units (10 g.) in an adult, and is thus two or three times greater than the maximum dose advocated by American authors. This system of treatment produced an "embarrassing situation" in which the symptoms and signs of a new "experimental disease" had to be distinguished from those of the disease being treated. The manifestations attributed to streptomycin intoxication include fever, rapid loss of weight, somnolence and mental changes, deafness, skin eruptions, and meningeal reactions, including rigidity and even convulsions as well as cerebrospinal-fluid pleocytosis. Deafness, which may be very difficult to detect in unconscious or semi-conscious patients, was produced in 15 cases: this is of course the most serious of the known toxic effects of streptomycin. There appear also to have been serious reactions at the sites of injection, including abscess formation. When this heroic treatment was performed abandoned the change is described as "a veritable resurrection." The scheme of treatment was then changed: doses of the same order were given for only one week, which is described as the "phase of attack." This is followed by the "phase

<sup>1</sup> July 26, 1947, p. 136.<sup>2</sup> *J. Amer. med. Ass.*, 1946, 132, 4, 70.<sup>3</sup> *Ibid.*, 1946, 132, 778.<sup>4</sup> *Trans. Studies Coll. Physic. Phila.*, 1946, 14, 51.<sup>5</sup> *J. Amer. med. Ass.*, 1947, 134, 679.

of maintenance," during which smaller doses are continued by the intramuscular route only. If we understand Debré and his colleagues aright all the 46 survivors in this series are still receiving treatment, the duration of which now varies among them from 2 to 10 months. It must indeed, as they say, be difficult to know when to stop. Meanwhile a single ward which is more like a playroom owing to the liveliness of 46 children who ought to be dead must be a unique and very gratifying spectacle.

The ultimate prognosis in some of these patients must inevitably remain in doubt for some time. The hard core of success would appear to consist of 22 bacteriologically verified cases which have survived for 120 days or more. Deafness is recorded as a complication in 6 of them. The cell count in the cerebrospinal fluid has been found the most reliable guide to the state of the disease in these later stages. It is of course almost meaningless while intrathecal treatment is continued, since the drug itself causes a pleocytosis. A persistently raised protein content associated with failure to regain weight and activity suggests a block due to meningeal adhesions. It is particularly interesting that 6 such cases were operated on, with marked success in 2. This series takes us a long way further towards deciding whether streptomycin may or must be used in treating this disease. The provisional answer seems to be that no patient who has not reached the stage of coma should be denied its possible benefit. The best scheme of administration will probably not be decided on for some time. Meanwhile it is valuable to have the results of the new policy pursued here: maximal doses by both routes for a week only, followed by a maintenance dose intramuscularly. It may be doubted whether continuation beyond ten or perhaps six months or even less will ultimately be found worth while. It is known that *Mycobacterium tuberculosis* often acquires streptomycin resistance during prolonged treatment, and success may well depend on killing a high enough proportion of the bacilli within the first few weeks. Estimations of the degree of resistance of bacilli cultivated post mortem from late fatalities should give important information on this point.

### HIGH-TEMPERATURE SHORT-TIME PASTEURIZATION

Before the war only one method of pasteurizing milk was officially recognized in England and Wales. This was the so-called "holder process," in which the milk is held in a closed container for not less than 30 minutes at a temperature of 145–150° F. (62.8–65.6° C.), after which it is cooled to a temperature of 55° F. (12.8° C.) or below. The plant required for this process is bulky and expensive, and the time spent in filling and emptying the holder tank, in addition to the holding period itself, is considerable. During the warm summer of 1940 so much raw milk went sour before it reached the public that in the national interest measures had to be introduced to prevent further waste of a highly important article in the nation's dietary. Two steps were taken. With the assistance of the Ministry of Agriculture and the larger dairy companies the Ministry

of Food sponsored an experiment for testing the keeping quality of milk. As a result a national milk-testing and advisory scheme was established by the Ministry of Agriculture, having the double object of educating the ignorant or careless farmer and protecting the creameries by allowing them to reject milk of very poor keeping quality. In the second place permission was given for the use of an alternative method of pasteurization that demanded less bulky and costly plant and that dealt with a much larger quantity of milk in a given time than the holder method.

The new method—High-Temperature Short-Time (H.T.S.T.) process—had been developed mainly in the U.S.A., where it had been officially recognized by certain health authorities for many years. The Ministry of Health regulations<sup>1</sup> governing its use in England laid down that milk to which the special designation "pasteurized" was applied should be retained at a temperature of not less than 162° F. (72.2° C.) for at least 15 seconds and be immediately cooled to a temperature of 55° F. (12.8° C.) or below. Since the method is a continuous flow process special injunctions had to be issued that the apparatus should be thermostatically controlled and be provided with a device that should automatically divert the flow of any milk which had not been retained at a temperature of 162° F. (72.2° C.) or over for at least 15 seconds.

Some concern was felt at the time about whether the safety margin of the H.T.S.T. process was as great as that of the holder process. It is true that laboratory observations had shown that the time-temperature combination enjoined was sufficient to bring about approximately the same degree of bacterial destruction as that caused by holding milk at 145° F. (62.8° C.) for 30 minutes, but no account had been taken of the lag period of response of the two main controlling instruments in the commercial plant, the automatic thermoregulator and the flow diversion valve. If, for instance, the lag period of these instruments was half a second, then one-thirtieth of the milk might pass through the heating section without being exposed to the full temperature of 162° F. (72.2° C.) for the whole time of 15 seconds. It was pointed out that reduction in thermometric lag might be achieved by the use of the thermocouple,<sup>2</sup> but it has been found that the speed of the thermocouple is too fast to enable the more slowly reacting heating system to be adjusted to it. However, the latest type of mercury-in-steel thermometer has a lag period of under half a second. The introduction in 1944 by the Ministry of Health<sup>3</sup> of the phosphatase test as a statutory test for the control of pasteurized milk was soon followed by the accumulation of results showing that the processing of the milk by the H.T.S.T. method was, in general, as satisfactory as that by the holder method. Even this, however, was insufficient to convince all dairy experts of the safety of the new process. Mr. Enock<sup>4</sup> drew

<sup>1</sup> Milk (Special Designations) Regulations, 1941, and Circular No. 2423, Ministry of Health, London.

<sup>2</sup> Hiscox, E. R., *J. Soc. chem. Industr.*, 1944, 83, 298.

<sup>3</sup> Heat-Treated Milk (Prescribed Tests) Order, 1944, Ministry of Health London.

<sup>4</sup> Enock, A. G., *This Milk Business*, 1943, H. K. Lewis and Co. Ltd., London.

<sup>5</sup> Kay, H. D., Aschaffenburg, R., and Neave, F. K., "The Phosphatase Test for Control of Efficiency of Pasteurization," 1939, *Imperial Bur. Dairy Sci. Tec. Comm.*, No. 1.

<sup>6</sup> Kaplan, E., *J. Ass. offic. agric. Chem.*, 1943, 28, 259.

attention to the almost complete absence of information on the effect of the H.T.S.T. process on the survival of tubercle bacilli under practical operating conditions. In the laboratory tubercle bacilli in milk are destroyed by exposure to a temperature of 162° F. (72.2° C.) in 9 seconds, or to a temperature of 159° F. (70.6° C.) in 15 seconds, but owing to the uneven flow of fluid through the heating pipe or plates it could not legitimately be concluded that in commercial processing the same results would follow; though it should be added, in parenthesis, that many dairy firms attempt to compensate for possible under-exposure by heating the milk to 162.5° F. (72.5° C.) for not less than 16 seconds. The fact, however, that the destruction of phosphatase in milk requires a slightly greater degree of heat than does the destruction of tubercle bacilli, and that the phosphatase test is usually negative on milk pasteurized by the H.T.S.T. method, led most workers to conclude that the objection raised by Mr. Enock was more of academic than of practical significance. In a matter, however, of such importance, it was felt that no doubt should be left, and the Chief Chemist to United Dairies, Ltd., therefore arranged with Dr. Porteous, of St. Mary's Hospital Inoculation Department, for a series of tests for tubercle bacilli to be carried out by the guinea-pig inoculation method on bulked milk before and after pasteurization by the H.T.S.T. process. The results are recorded in a letter to the Editor which we print on page 927.

Samples were taken from three different plants over a period of two years. Altogether 129 samples of milk that had been found to contain tubercle bacilli before processing were taken after pasteurization; every one of these responded negatively to the phosphatase test and was shown to be free from tubercle bacilli. This evidence indicates that in properly designed and properly operated plants of the H.T.S.T. pattern there is little risk of tubercle bacilli surviving the heat treatment. It is nevertheless dangerous to generalize too freely from limited observations, however conclusive their results may be. It is more difficult, for example, to make sure that the regulations are being complied with in an H.T.S.T. than in a holder type of plant, and undue reliance has therefore to be placed on the results of laboratory tests. These, of course, are based on the examination of samples representing only a minute fraction of the total amount of milk processed, and, if negative, can do no more than show that the milk at the time at which the particular samples were taken was being satisfactorily heat-treated. Moreover, trouble is occasionally met with in carrying out the phosphatase test, due to unsatisfactory quality of the chemical reagents, to the growth of phenol-producing organisms,<sup>5</sup> to the presence of bacteria capable of hydrolysing the substrate,<sup>6</sup> or to some other cause, leading in inexperienced hands to a possible false result. It would probably be wise, therefore, for health authorities to ask for a guinea-pig inoculation test to be carried out on a proportion, say 5%, of the pasteurized and heat-treated milks that they submit to the laboratory for examination, in order to make sure that the processing method, of whatever type it may be, is doing what it is in fact intended to do—namely, destroying all pathogenic organisms of importance in the milk.

## PENICILLIN IN SCARLET FEVER

Recent reports advocating the use of penicillin in the treatment of scarlet fever make it worth while considering the nature of the problem to be attacked. Three factors must be borne in mind. To begin with, many of the initial signs and symptoms, such as rash, vomiting, oedema of the throat, and lymphadenitis, are almost certainly manifestations of a specific toxæmia calling for the early administration of a potent antitoxin. But even when shorn of its toxic element the disease process is not inactivated; the streptococci have not been bereft of their invasive power, and the patient may still develop otitis media or sinusitis as an extension of his tonsillitis. Finally, although he may have acquired some resistance to his own infecting organism, in the usual open ward he may be further subjected to persistent bombardment by the streptococci of his bed-mates, and a "late" otitis or sinusitis may further prolong his illness. The three risks of scarlet fever, then, are the primary toxæmia, the early endogenous invasion, and the late exogenous reinfection, and no one treatment is likely to combat all three. Thus antitoxin is often regarded with disfavour because otitis media, for which it bears little responsibility, still occurs after its administration. At present, when we are dealing for the most part with a disease in which the toxic element is not predominant, it should be appreciated that the effects of streptococcal invasion, whether primary or secondary, are of the greatest importance. Unfortunately, the sulphonamides cannot be relied on to deal with this invasion. Some workers have considered them of value, but French,<sup>1</sup> whose experiment was carefully controlled, was unable to show real benefit in cases of scarlet fever, and her study has never been effectively refuted. It is hard to say what this relative failure should be ascribed to, but despite the American work on chemoprophylaxis it seems possible that sulphonamides taken orally have little effect upon the tonsillar infection save to drive the organisms temporarily underground, only to reappear when treatment is stopped. Another point is that the inhibiting effect of pus, the natural sequence of streptococcal invasion, limits the value of sulphonamides in such conditions as sinusitis and otitis media.

Penicillin overcomes the latter disadvantage, yet presents other problems. Meads and his colleagues<sup>2</sup> studied a small group of cases and found that local therapy was inferior to parenteral; they regarded treatment for at least seven days as essential. Jennings and De Lamater<sup>3</sup> record the results of different methods of treatment in cases of scarlet fever infected with a type 17 *Str. pyogenes* resistant to sulphonamides. With such a pure strain infection no difficulties arose from cross-infection with different types, although, since the patients were all treated in the same ward, reinfection was still possible. When patients were given a daily dose of 100,000 to 200,000 units of penicillin for less than four days throat swabs became consistently negative on culture in only 6 out of 47 cases. When doses of the order of 400,000 units daily were administered over periods of from two to seven days cultures from 15 out of 24 cases became negative. In this penicillin-treated group 7 examples were seen of otitis media or mastoiditis: 3 had begun before penicillin was started, 2 occurred after the treatment had stopped, and 2 developed during its administration.

<sup>1</sup> *J. Hyg.*, 1945, 59, 581.

<sup>2</sup> *J. Amer. med. Ass.*, 1945, 129, 715.

<sup>3</sup> *Amer. J. Med.*, 1947, 2, 1 (Jan. 1).

<sup>4</sup> *British Medical Journal*, 1947, 2, 538.

<sup>5</sup> *J. Infect. Dis.*, 1945, 57, 68.

Though this therapeutic trial had many imperfections, certain conclusions may be inferred. Parenteral doses of penicillin of the order of 0.5 mega unit a day must be given for at least a week to be effective in ridding the patient rapidly of his streptococci. Such a dose may seem unnecessarily large, but sterilization of the tonsils does present peculiar difficulties which have already been noted in the treatment of diphtheria carriers with penicillin.<sup>4</sup> Even this dosage will not clear the throat of streptococci in all cases, and a few persistent carriers must be expected. In open wards such carriers would constitute a continuing danger to their companions. It would seem desirable, therefore, when penicillin treatment is stopped to search for these resistant cases and remove them from the ward. In this connexion the valuable work of Hamburger and his colleagues<sup>5</sup> on the nasal carrier should be recalled. Further, during their continued stay in the open ward even those who responded initially should have their throats swabbed again from time to time so as to detect early any patient who relapses. In this way the incidence of complications due to primary invasion should be diminished, and by effecting a reduction in the load of *Str. pyogenes* in the air of open wards some of the late complications of scarlet fever should be prevented.

### COSMIC RADIATION AND CANCER

The suggestion that cosmic radiation, to which mankind is permanently exposed, may contribute significantly to carcinogenesis, as it has already been shown to contribute to the production of mutations, is not one which can be ruled out without investigation, however discouraging such a conclusion might be. It is probably because of the virtual omnipresence of cosmic radiation that the question has not before been put to the test. An attempt which has lately been made by Dr. F. H. J. Figge at the University of Maryland<sup>1</sup> is described by the author as preliminary, and his experimental results should therefore be regarded rather as a pointer to further investigation than as a demonstration against which no criticism could be advanced. The experiment consisted in a comparison of the latent periods of groups of methylcholanthrene-injected mice when kept in cages on different floors of a six-story ferro-concrete building and with or without one or more quarter-inch lead plates above their cages. The effect of the lead plates would be to distribute the energy of incident radiation among a larger number of particles, which individually would be of lower energy, and it might be expected that the more massive members of the building would also contribute in lesser degree to this effect. Also, since the controls, with two exceptions out of 67, all developed tumours within the 22-weeks period of observation, the measurement was one of increased speed of development rather than of increased incidence. Three groups, totalling 65 mice, without lead plates averaged a latent period of 11.3 weeks; four groups, totalling 88 mice, with one lead plate, 8.7 weeks; and the remaining group of 22 mice, with two lead plates, 7.5 weeks.

Criticism could be advanced both against the small numbers of mice used in the experiment and the absence of physical information as to the variation in radiation between different groups. Also, as the author himself points out, it is clearly desirable that control observations should be made in a heavily protected laboratory in which effective exposure to cosmic radiation is substantially reduced. At least one such laboratory is avail-

able in Great Britain, and it may well seem that a sufficient case has been made out for Figge's suggestion to be followed up. It would also be of interest to compare the natural incidence of cancer in human populations at sea level and at high altitudes—for example, Quito in the Andes and the Tibetan plateau. Figures for the former are no doubt available, but whether they could be regarded as comparable in the absence of some special and long-term investigation might be open to question. In the meantime it should perhaps be made clear that, although a ferro-concrete building formed part of Figge's experimental arrangements, his figures give no indication of any significant difference between the results of residence in the top or bottom of the building.

### PETROL FOR DOCTORS

The General Practice Committee of the B.M.A. has recently discussed with the Minister of Fuel and Power the effect on the medical man of the discontinuance of the basic petrol ration. Medical men naturally expect to share with the rest of the community the various hardships to which we are these days all exposed. But the motor-car is very much a part of the doctor's professional equipment. The doctor, and especially the general practitioner, is to all intents and purposes on duty twenty-four hours of the day. His opportunities for leisure and relaxation are few. It is, therefore, all the more necessary that he should seize what chance he may have of a break from work whenever he can, and no member of the public, we are sure, would grudge him this. Even when a doctor does break off from work he knows that he may be suddenly recalled by a patient in urgent need of help. It would seem, therefore, reasonable that a doctor should be able to go to a club or a cinema by car so that he can respond to a call on his services with the minimum of delay. The Minister of Fuel and Power has met this reasonable request of the General Practice Committee in a reasonable manner. The Minister rightly insists that a doctor using his car for social and recreational purposes should leave at his house exact information as to his whereabouts. And if a doctor has made alternative arrangements for his patients it would be clearly unjustifiable for him to use his car for social purposes. Regional Petroleum Officers have also been instructed that petrol may be allowed for doctors to attend B.M.A. and other professional meetings in their locality. As the Minister of Fuel and Power has recognized the special position of the doctors as consumers of petrol, medical men will, we feel sure, respond by not abusing the special facilities granted them.

### THE MINISTRY'S HEARING-AID

Deafness may be prevented or cured by medical or surgical measures; its disabilities may be lessened by education or alleviated by mechanical devices. This natural division of the practical problems of deafness underlies the planning of the three Committees on deafness appointed by the Medical Research Council in April, 1944: the Medical and Surgical Committee, the Educational Committee, and the Electro-Acoustics Committee. The responsibilities of the last-named have been particularly heavy, concerned as they have been with the design not only of electrical hearing-aids but also of audiometric equipment for the accurate assessment of deafness. The recent publication of the

<sup>1</sup> Science, 1947, 105, 323.

Committee's report,<sup>1</sup> completed in April, 1946, has been awaited with keen interest by all concerned with the welfare of the deaf. The Committee's problems have throughout been essentially practical ones demanding practical solutions, solutions moreover which could be based only upon the results of an extensive programme of investigation and experiment.

In the field of hearing-aid design the Committee has had to face the fact that the high cost of electrical hearing-aids has in the past debarred many from using them, a fact dependent in large measure upon the multiplicity of designs and methods of manufacture of commercial instruments. At the outset of its work, therefore, the Committee tried to find answers to two questions: first, was it possible to design a single type of hearing-aid suitable for the majority of deaf persons?; secondly, could such an aid be constructed in a form suitable for mass production? Theoretical considerations and the results of practical tests on various deaf subjects indicated the probable lines upon which such an aid should be designed; models were constructed, and their value was confirmed by means of extensive clinical trials. In the course of this work it was necessary to carry out comparative trials of a wide range of commercial hearing-aids, both British and American. As a final step several models of hearing-aids were constructed at the G.P.O. Research Station in a form suitable for mass production.

The M.R.C. Report contains a remarkable amount of technical information on the construction, performance, and instrumental testing of hearing-aids, and provides a close study of the principles and practice of their clinical testing. The tests developed by the Committee and fully described in the Report represent a well-considered combination of otological and telephone engineering practice, and it is hoped that they will find wide acceptance by otologists and others who prescribe hearing-aids.

Inquiries by the staff of the Social Survey into the incidence of deafness have been of much help in assessing the magnitude of the problem of the supply of hearing-aids in this country. These inquiries, initiated by the Medical and Surgical Committee on Deafness of the M.R.C., are designed to reveal not only the incidence of deafness in the various age groups but also its correlation with occupation, economic status, and aural pathology. The methods of the survey have been based upon the work of Beasley and his collaborators of the United States Public Health Department, and it is of interest to recall that, according to one of Beasley's many outstanding findings, some 1.2% of the population of all ages suffer from degrees of deafness disabling them from ordinary conversation. The findings to date of the Social Survey show that the corresponding figure in this country is at least as great; this suggests that there are half a million or more persons in this country who may benefit from hearing-aids. It is, however, necessary to stress that many of the deaf included in this number belong to the higher age groups. In them deafness is often due to senile and other degeneration of the internal ear, and so can seldom be satisfactorily corrected by electrical hearing-aids. The preface to the Report gives a timely warning against any expectation on the part of the deaf and their advisers that the hearing-aids recommended by the Committee are likely to prove of universal application; commercial hearing-aids will no doubt be a necessary supplement to the official models.

The Ministry of Health (*Journal*, Nov. 29, p. 893) is acting on the Committee's recommendations, and has made arrangements through the Ministry of Supply for the

manufacture of large numbers of hearing-aids constructed in accordance with the Committee's specifications. With the coming into force of the National Health Service Act in July of next year these aids will be available at otological clinics throughout the country, and will be issued free on the recommendation of otologists to all deaf subjects shown to benefit from their use.

These measures for the relief of established deafness are of great practical importance, yet the early diagnosis and accurate measurement of deafness are no less vital both for prevention and for the control of treatment. The Committee's careful investigation of pure-tone audiometers, described in the second part of the Report, is therefore of particular significance. It is hoped that the proposal of the Ministry of Health to provide standardized and well-calibrated audiometers will have the effect of raising the standards of otological work throughout the country.

### WHY PEEL?

After declaring that "it is essential to eliminate to the maximum practicable extent the wastage that occurs in the peeling and preparation of potatoes in the kitchen," the Minister of Education tells local education authorities in an Administrative Memorandum<sup>1</sup> how to peel potatoes. The Minister asks them to give strict instructions that potatoes should receive the briefest treatment in electric peeling machines "consistent with rendering them palatable," and that hand peeling and "cyeing" should be done with special care—indeed, the latter may be omitted if doing so does not cause potatoes to be wasted in the dining-room. The Memorandum adds that potatoes baked in their skins should be served as often as possible and experiments conducted with potatoes steamed in their skins.

The proportion of potato removed by peeling has been estimated as between 3 and 25%, an average being 14 to 16%,<sup>2</sup> and these peelings, of course, include part of the tuber's cortical layer. Moreover, potatoes boiled in their skins lose far less nutritive matter than peeled potatoes cooked in that way, and while there is a food shortage it is illogical to destroy a barrier that is "so resistant to high temperatures, and so absolutely impermeable."<sup>3</sup> Education authorities should try to persuade children to eat unpeeled potatoes.

We regret to announce the death on Dec. 1 of Sir John Fraser, Principal of Edinburgh University and Surgeon to the Edinburgh Royal Infirmary.

Mr. Aneurin Bevan, the Minister of Health, met the Negotiating Committee on Dec. 2 and 3.

Sir Arthur MacNalty, D.M., F.R.C.P., will deliver the FitzPatrick Lectures on "The History of State Medicine in England" before the Royal College of Physicians of London (Pall Mall East, S.W.) on Tuesday, Dec. 9, and Thursday, Dec. 11, at 5 p.m. In his first lecture he will discuss the medical department of the Local Government Board, and in his second the foundations of the National Health Service.

<sup>1</sup> Administrative Memorandum No. 253, Nov. 11, 1947.

<sup>2</sup> Bacharach, A. L., and Rendle, T. *The Nation's Food*, 1946, London.

<sup>3</sup> *Med. Res. Counc. Sp. Rep. Ser.*, No. 213, London: H.M.S.O., 1938.

<sup>1</sup> *Med. Res. Counc. Sp. Rep. Ser.*, No. 261, *Hearing Aids and Audiometers. Report of the Committee on Deafness Activities*. H.M.S.O., 1946.



*The photographs on this page show the different processes involved in the manufacture of streptomycin*

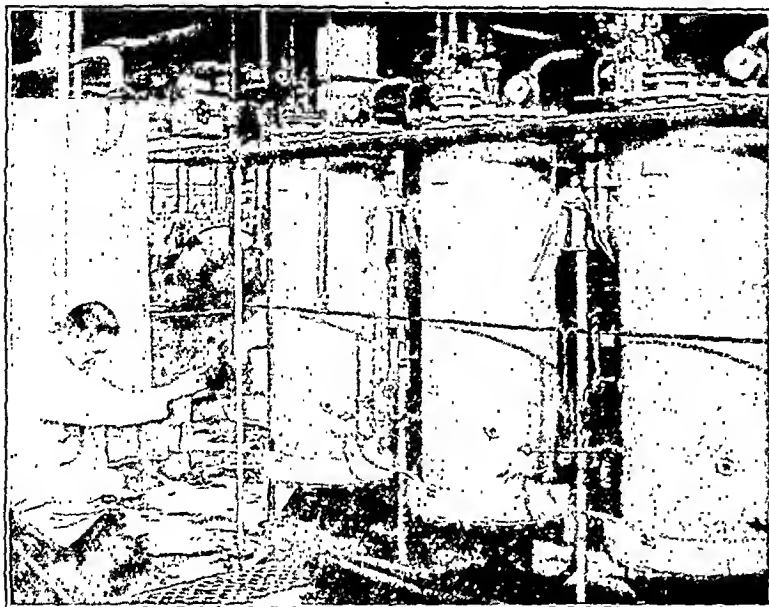


FIG. 1.—Introducing spores into a tank for preliminary fermentation.



FIG. 2.—Main fermentation tanks.



FIG. 3.—Charcoal with adsorbed streptomycin from the filter press being mixed with alcohol.

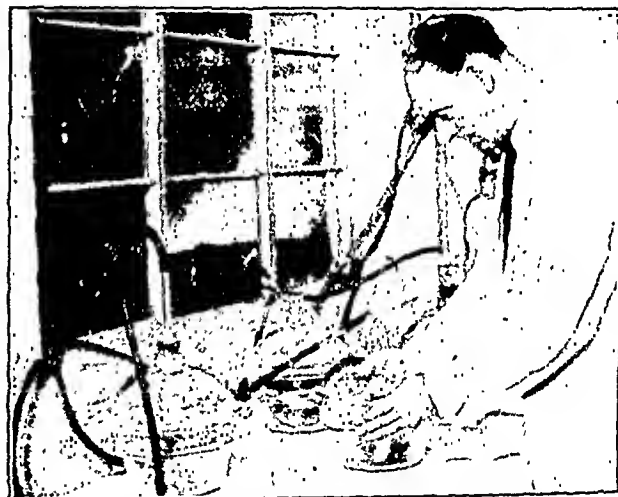


FIG. 4.—Drying off crude streptomycin under a vacuum after precipitation of the alcohol solution.



FIG. 5.—Purified solution of streptomycin being transferred to containers after filtration.



FIG. 6.—First stage of bio-assay.

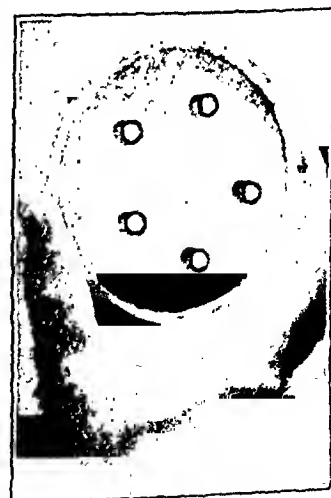


FIG. 7.—Finished test plate (Heatley cup method).

[Photographs by Topical Press]

## RESETTLEMENT FROM A BASE HOSPITAL

BY

MARGARET J. MAYFIELD

*Almoner, Harefield County Hospital, 1940-6*

Sir Reginald Watson-Jones has described the Disabled Persons Act as "one of the great social reforms in the history of this country." The two novel features of the Act are the importance attached to the welfare of the individual disabled person and the co-operation demanded from those concerned with his employment.

The circumstances which led to the passing of the Act are worth recalling. The national situation of 1940-1, with its unprecedented demands upon man-power, drew attention to the possibilities of employing the disabled. To further this end the

Other patients were discharged still unfit and, as there is no out-patient department, were referred to other hospitals. The numbers are small, and form only 1.5% of the 7,920 admissions for that period; but it cannot be stressed too strongly that the few who do require assistance frequently require a great deal, and over a long period, before their resettlement can be said to be satisfactorily completed.

Space does not permit the reproduction of a detailed chart giving the history of each individual patient, but it is possible to draw certain conclusions from the following abbreviated analysis. The patients have been classified according to diagnosis, though this presented some difficulty as many were suffering from more than one complaint. Where this has been the case they have been classified under the most disabling condition.

The findings of the follow-up are divided into two sections (see Table). The first deals with the jobs held at the end of one year's follow-up and the methods by which those jobs were

Disease	No. of Patients	Methods by which Employment Obtained				Physical Condition					
		Government Training	Patients	Ministry of Labour	Other Agencies	Well and Working	Well, Not Working	Unfit, Never Worked	Relapsed	Died	Lost Trace of
<b>Pulmonary Group:</b>											
New growths (adenoma, carcinoma; pneumoec-tomy)	2	0	1	0	0	1	0	0	0	1	0
Lung abscess	3	0	3	0	0	2	0	1	1	0	0
Bronchiectasis (surgical treatment, 11)	15	0	5	0	0	10	0	1	3	0	1
Bronchitis	3	0	1	0	0	2	0	0	0	0	0
Empyema	3	0	0	0	0	2	0	0	0	1	0
Empyema	1	0	0	0	0	1	0	0	0	0	0
Chronic suppurative pneumonitis	1	0	1	0	0	1	0	0	0	0	0
P.T. (1 complicated by bronchiectasis, 1 by spon-dy-litis)	4	0	1	0	3	1	0	0	3	0	0
Chest injuries—G.S.W. with multiple injuries	19	1	10	4	1	14	0	3	2	0	0
Asthma	2	0	0	1	0	0	1	0	0	0	1
Cystic lung	1	0	0	0	0	0	0	0	0	0	1
Emphysema complicated by heart failure	2	0	0	0	1	1	0	0	0	1	0
<b>Cardiac Conditions:</b>											
Constrictive pericarditis—T.B. (partial pericard-ectomy)	1	0	1	0	0	1	0	0	0	0	0
Mitral stenosis	2	0	0	0	0	0	0	0	0	2	0
"	1	0	0	0	0	0	0	0	0	1	0
"	2	0	2	0	0	0	0	0	2	0	0
<b>Burns</b>											
Severed tendons: (1) tendo Achillis, (2) flexor tendons of left hand	2	0	0	1	0	2	1	0	0	0	0
G.S.W. thigh with gas gangrene	1	0	1	0	0	1	0	0	0	0	0
Fractures: 1 head injury, 9 limbs (9 G.S.W.)	10	1	5	3	1	9	0	0	0	0	1
Spinal concussion—paraplegia (G.S.W.)	1	0	1	0	0	1	0	0	0	0	0
Dropped foot—nerve injury	1	0	0	1	0	1	0	0	0	0	0
<b>Miscellaneous Conditions:</b>											
Osteomyelitis	2	0	1	1	0	2	0	0	0	0	0
Excision of prepatellar bursa	1	0	0	0	0	0	0	0	0	0	1
Cholecystectomy, post-op. atelectasis, and pleural effusion	1	0	0	0	0	0	0	0	0	0	1
Anaemia	2	1	1	0	0	1	0	0	1	0	0
Diabetes mellitus—1 complicated by bronchiectasis (lobectomy)	2	0	0	1	1	1	0	0	1	0	0
Epilepsy	2	0	2	0	0	1	0	0	1	0	0
Functional illness—1 functional weakness of left arm, 2 migraine	3	0	3	0	0	2	0	0	1	0	0
Hernia	4	0	2	1	1	4	0	0	0	0	0
Peptic ulcer—1 complicated by hypertension	17	0	14	1	1	13	0	0	3	0	1
Rheumatoid arthritis—1 comp. by P.T. and P.U.	5	1	1	1	2	3	0	0	2	0	0
Osteoarthritis	1	0	1	0	0	1	0	0	0	0	0
Nephritis	2	0	1	1	0	2	0	0	0	0	0
Salpingectomy	1	0	0	1	0	1	0	0	0	0	0
<b>Total</b>	<b>121</b>	<b>4</b>	<b>67</b>	<b>23</b>	<b>11</b>	<b>82</b>	<b>2</b>	<b>4</b>	<b>20</b>	<b>6</b>	<b>7</b>

Interim Scheme of 1946 was established, with its provision for special officers of the Ministry of Labour to guide the disabled into employment. During the war years these officials had a relatively simple task, as the demands of industry, especially the lighter varieties, readily absorbed an immense number of disabled persons. With the coming of peace, however, labour conditions are changing, and a much higher degree of skill will be required. To demonstrate this thesis a follow-up of disabled patients was undertaken.

## Follow-up of Disabled Persons

The patients that have been selected for this follow-up constitute the first 121 cases referred to the Ministry of Labour on Form R.D.1 by medical officers, and these have been followed up for one year. The actual period of the survey dates from Jan. 1, 1942, to June 30, 1946. It must be noted that these 121 patients are not the only ones who required assistance with employment. For many, slightly adjusted hours, a change of work, or special dietary considerations were all that was necessary, and this could be achieved by a direct approach to employers.

obtained. The second deals with the physical condition at the end of the follow-up. Record was also kept of the number of relapses during the follow-up period, as this is of great significance to employer, patient, and doctor alike.

## Placing the Disabled in Industry

It will be seen from the table that out of the total number of 121 cases, all of whom were referred to the Ministry of Labour, only 23 (approximately 19%) at the end of the follow-up period were in jobs arranged through the Ministry. By far the greatest number, 67 (approximately 55%), had placed themselves, while for 11 (9%) the arrangements had been made by other agencies. From their letters the majority appear to have reported to their exchanges, but on not being offered suitable work made their own arrangements—a comparatively simple matter owing to the greater opportunities for absorption into industry during the war years. Out of the 82 who were well and working at the end of the follow-up, only 19 were in jobs arranged by the Ministry of Labour, 56 had placed themselves, other agencies had placed 5, and 2 were still training.

A brief study of the relapse rates is also revealing. Out of the total number of relapsed cases (30) during the follow-up period 8, including 3 of the trainees, occurred among those placed by the Ministry of Labour, and 16 among those who had had made their own arrangements; 5 of those placed by other agencies relapsed, and the remaining case, suffering from peptic ulcer, relapsed soon after discharge from hospital, and attributed this to the worry and uncertainty of finding suitable work.

Further investigation into the progress of patients who undertook Government trainings tells the same story. In addition to the 4 who were training at the end of the follow-up period 7 others had training arrangements made for them, making a total of 11 for the survey. Only 4 (chest injuries 2, bronchiectasis 2) completed their training, and these were placed satisfactorily by the Ministry of Labour. The remaining 3 abandoned their training and made their own arrangements. Of those who had received Government training 4 relapsed during the follow-up period. Of this number a girl who had had a lobectomy for bronchiectasis had to give up her clerical training as she had a recurrence of sputum, thus making it difficult for her to work in an office in close proximity to others; another, an ex-Service man suffering from rheumatoid arthritis who had undertaken a training in tailoring, had relapsed by the end of the year, as also had another suffering from pernicious anaemia, with subacute degeneration of the spinal cord, who had been recommended for welding. The other who relapsed suffered from head injuries received at El Alamein; he attempted courses in carpentry and typewriter mechanic's work, both unsuccessfully, and finally made his own arrangements to train with a local boot- and shoe-repairing firm, the Ministry of Labour making an allowance.

#### Difficulties Met With

It must be stated in fairness to all concerned that, owing to various causes, the absorption of disabled persons into industry is no easy task. To cite one difficulty which arises in the Home Counties: the congestion of factories and offices in the central London area necessitates many persons living a long distance from their work, thus adding considerably to the fatigue factor. In some trades it is the organization itself which makes it impossible for the conditions of work to be adjusted to the needs of disabled persons. It is significant that among the 17 patients treated for peptic ulcers 16 were manual workers—e.g., lorry-drivers, builders' labourers, etc.—so that it was impossible for them to have special dietary consideration, and long-distance travelling prevented their returning home for a properly cooked midday meal. Seven out of the total number of relapses were gastric patients. It has been argued that these patients should change their jobs; but many, particularly among the older men, find it hard to make the necessary mental effort, or feel they cannot face the economic uncertainties of an unfamiliar job. These difficulties cannot be solved by the Ministry of Labour alone, but much more could be done by them with properly trained personnel, less cumbersome machinery, and a more thorough follow-up. A much higher degree of co-operation between hospitals, the Ministry of Labour, and industry is also required. The subsequent history of Mr. S. (aged 50) illustrates these points.

This man suffered from pernicious anaemia with subacute degeneration of the spinal cord, and could walk only with the aid of sticks. The Ministry of Labour undertook to find training for him successively in welding, in boot- and shoe-repairing, and in clerical work, all of which for various reasons were found to be impracticable, resulting in months of delay, prolonged stay in hospital, and bitter disappointment to the patient. It was finally suggested by the hospital authorities that the best form of resettlement might be a rug-making business at home—work he had been trained to do in the Occupational Therapy Department. The Ministry of Labour agreed to this, but it was left to the hospital social service department to make the arrangements with the Board of Trade and the retailers for the supply of wool, to raise the capital, and find the market for the rugs.

This instance betrays a deplorable lack of understanding of the needs of a disabled person and a superficial handling of the whole case. Far too often it happens that the importance of the social background is ignored and that the patient is regarded more as a means of production than as a human being.

Another difficulty that arises from this lack of understanding is with those who for economic reasons are forced to take an unsuitable job rather than face an indefinite period off work. The official mind does not always appreciate the difficulty of managing on the somewhat meagre unemployment benefit.

Some might say that the disability of Mr. S. and of several others mentioned in this survey was severe, and that possibly those who were not able to work or who died within the year should not have been referred to the Ministry of Labour; but it can be argued, on the other hand, that work is of high psychological value to many persons who, if told they could never work again, would deteriorate mentally. The task of providing work for this category of severely disabled persons has now been taken over by the Disabled Persons Corporation, provided for under the 1944 Act. They have power to create sheltered workshops and to subsidize existing ones; but, although this would appear on the surface to be the ideal solution for many cases, a word must be said concerning residential workshops. While appreciating that much good work is done in them, and that they fulfil a need for a certain type of patient, particularly the young chronic tuberculous subject who can never adjust himself to normal surroundings, it cannot be said that they provide the best solution for disabled persons in general. The great majority do not wish to uproot themselves and leave their homes and friends, and a happier answer to the problem would be more facilities for work in sheltered workshops locally or in their own homes. Ideally, these workshops should provide for part-time work and a graduated return to employment as well as the right type of work under good conditions. From the industrial aspect it would not be an economic proposition to employ many such patients and pay a living wage, but one hopes to see an extension of the principle of the supplementation of wages, at present payable only to certain types of the tuberculous.

The second weakness observed in this survey—namely, the cumbersome machinery of the Ministry of Labour—is clearly shown in the attempts to arrange trainings. Eight weeks elapsed between the recommending of the boot- and shoe-repairing training for Mr. S. by the D.R.O. and the date when he was informed that it was impracticable. It took all this time to ascertain that there were no facilities for training either in a centre or with a local employer, and no adequate supplies of leather to make it an economic proposition. Mr. D., suffering from spondylitis and tuberculosis, had a similar experience. He waited five weeks before being told there was no clerical training available.

It is appreciated that the pooling of information regarding local labour conditions presents difficulties, particularly when the situation is complicated further by an uncertain prognosis and the patient's capacity for employment cannot be accurately assessed; but much more could be done, and must be done, if the value of the hospital interviews is not to be lost. This is rendered more urgent by the coming days of regionalization.

The need for a more thorough follow-up has already been illustrated by the foregoing examples. Without someone behind to advise and assist, Mr. S. with his lack of education would never have struggled through the ramifications of the Board of Trade to final independence. It could be argued that had he applied to the Ministry of Labour he would have received the necessary assistance; but anyone acquainted with the psychology of sick persons knows that many, for reasons of pride or from timidity of nature, do not take the initiative in asking for assistance. It is realized that the Ministry of Labour has not the same facilities for follow-up as a department of health; but if the responsibility of employing disabled persons is to be theirs they must devise some method of maintaining contact with the patient, especially in chronic conditions prone to relapse. For other reasons, too, such as research, a comprehensive follow-up would be valuable.

No survey of resettlement would be complete without mention of the difficulties caused by compensation and pensions. Without doubt these can be a stumbling-block in a patient's rehabilitation, as he fears that by taking up employment his compensation will be less, and there is the additional risk that after a prolonged period of enforced idleness he will become unemployable. Evidence indicates, however, that this is less of a burden than it was, as out of the 121 cases in this survey only

one who suffered from asthma and remained well but was not working throughout the year can be said to come within this category.

### A Brighter Future

Those of us who are concerned with the employment of disabled persons know the magnitude of the task, but events during the past few decades, culminating in the passing of the Disabled Persons (Employment) Act, suggest an infinitely brighter future. Improvements in employment conditions in general can only be achieved slowly, but already a large number of firms show a benevolent interest in their employees, which leads one to hope that in time there will be a more generally enlightened attitude towards the needs of the disabled. A solution to all the difficulties is provided by the Disabled Persons (Employment) Act, and the key to its successful implementation lies in the recognition of the importance of the individual. As no two persons are endowed with the same qualities of character or talents, so any scheme which attempts to rehabilitate *en masse* is doomed to failure. The patient himself must make the final decision, but much of the responsibility lies with those who advise him, and there must be closer co-operation between medicine and industry. The passing of the Disabled Persons (Employment) Act, a direct consequence of the war, will manifest once again the truth of Shakespeare's words that

"There is some soul of goodness in things evil,  
Would men observingly distil it out."

## HOSPITAL RECORDS\*

The course-conference for hospital records officers held at Oxford in September provided, so far as is known, the first opportunity for persons engaged or interested in hospital medical record-keeping in Great Britain to meet and exchange information and opinions on matters relating to hospital medical records.

Although originally planned for "hospital records officers or their equivalents" (i.e., lay persons who, though not designated records officers, actually carried out duties connected with the production and care of medical records), the course-conference members included two hospital medical superintendents, a surgeon, three bio-statisticians, several hospital administrators and assistant administrators, and others not solely (or even directly) engaged in the work of a hospital records department. A few of those attending were not in hospital service at all, but were concerned either with medical records in the wider sense or with records in some medical organization other than a hospital. Among those wholly or partially employed on hospital medical records there was revealed a wide range of duties and functions, some controlling records from registration to final disposal, others being in charge of one aspect only of record-keeping. The various interpretations placed on the title "records officer" were of interest in themselves.

The total number of registrants was 100, and 12 applications had to be declined owing to shortage of accommodation. Seventy hospitals were invited by letter in May, 1947, to send representatives. Of these, 63 availed themselves of the invitation. The remainder of the hospitals represented applied for places on their own initiative. This was naturally most encouraging to the organizers.

Papers were given by some 30 persons, and seven commercial firms provided material for demonstrations. The paper contributed by Miss Elsie Royle, of the Christie Hospital, Manchester, was outstanding. Dealing with the duties and responsibilities of records officers, Miss Royle's paper called for a high standard of work from her colleagues. "The qualifications of a records officer," Miss Royle said, "include all the virtues of tact and diplomacy, initiative and energy, good humour and patience, a progressive outlook, and the ability to organize and to teach. To these personal attributes a knowledge of medical terminology, anatomy and physiology, and an appreciation of statistical theory should be added, and last, and probably most important, experience in hospital and medical ethics." Miss Royle's main theme was that the

medical profession needs trained help in the analysis and presentation of the results of its hospital work, and that if hospitals are to have good medical records and to use them intelligently someone must organize their preparation and analysis. This organization is a task for which clinicians have insufficient time. Hospitals should therefore entrust it to a trained person, and all the work connected with records should be concentrated in the hands of this specialized officer.

The same note was struck by Mr. H. Cotton, of the Nuffield Bureau of Health and Sickness Records, Oxford, who described the purposes and uses of medical records in hospitals. In the course of his opening paper Mr. Cotton observed:

"The main need to-day is for a broadly uniform system of medical record-keeping in British hospitals. If record-keeping is indeed a scientific task, the laws of the science should be discovered and generally applied. A uniform system would not mean regimentation. It would mean that certain well-defined principles would be followed by all hospitals, with adjustments best suited to individual requirements.

"It follows that if medical record-keeping is to have a broad plan, and if the best techniques are to be adopted by all concerned, there is a need for persons versed in the plan and skilled in the techniques. This means that the production and care of medical records should not be allotted haphazard to persons with no special aptitude, training, or experience. Trained medical records officers are essential members of modern hospital staffs."

Prof. J. A. Ryle addressed the course-conference, and, using examples from his own career as a physician, indicated how the absence of records, or the inability to use them, could be a very real handicap to a clinician, whether a junior or senior member of the hospital staff, a consultant, or one holding a public appointment. He emphasized the advantage of teamwork, and stressed that to-day the almoner and the records officer were just as much a part of the medical man's team as the pathologist, the physiotherapist, and others. In stressing the importance of follow-up (which should not be limited to a few special diseases) he pointed out how utterly dependent on accurate and readily accessible records was a successful follow-up scheme.

Dr. P. L. McKinlay, medical statistician to the Department of Health for Scotland, contributed a paper of special interest, dealing with records as potential data for statistics. Striking a note of caution, Dr. McKinlay pointed out that hospital records will provide information only on intercurrent morbidity, and we must not overestimate their capacity even in this respect. For instance, one result of certain modern drug therapy is that many diseases formerly treated in hospital are now being treated at home. Also, hospitals select their cases to some extent. The sickness of the community as a whole, therefore, is not reflected in hospital figures.

Other factors which have to be studied in assessing public health are predisposing factors, prognosis, and criteria of response to therapy. Hospital records can contribute some information regarding the first and second questions. Prognosis is more easily determined (from the community point of view) on data contributed by general practitioners throughout the area.

The hospital administrator's view of the records problem was put by Mr. Stephen C. Merivale, house governor of the Bristol Royal Hospital, who said that the position of the records officer was clearly that of a departmental head, responsible to a Records Committee, comprised almost wholly of medical staff, for all matters affecting records generally; and to the house governor for administrative matters affecting the hospital as a whole. The records officer should be responsible for the appointments system, the registration of all patients, the journeys of notes throughout the hospital, the allocation of typists and stenographers engaged on typing clinical notes and letters to outside practitioners, and the more generally recognized duties of filing, indexing, and analysing medical records. Where there is a medical library it should be under the records officer. If the best use was to be made of a hospital's beds a central waiting list should be compiled by the records officer, who, on the direction of the various clinicians, would initiate the admission of patients to hospital.

Other papers were given by Prof. Sir Hugh Cairns (Oxford), Mr. B. Pennington (L.C.C. Health Department, statistician), Mr. Edwin F. Patterson (King's College Library, Newcastle-upon-Tyne), and Dr. A. H. T. Robb-Smith (Oxford).

\*An account of a Course-Conference for Hospital Records Officers, held at Oxford in September, 1947, under the auspices of the Nuffield Bureau of Health and Sickness Records.

The subjects dealt with in a syllabus covering eight days included medical nomenclatures and classifications, unit records, diagnostic indices, appointments systems for patients, medical terminology, microfilming, medical and surgical dictation, and others of a more detailed interest. The course-conference was not invited to adopt any formal resolutions, and did not do so. Nevertheless, it is possible to summarize very briefly what appeared to be the views of those attending on certain points of principle. The following expressions of opinion appeared to command general assent:

1. In all hospitals, adequate documentation of medical service should be the rule.
2. In the larger hospitals at least, responsibility for the production and care of medical records should be assigned to a person (not necessarily medically qualified) skilled in this work. [N.B.—"Production" as here employed means the preparation (in part) and assembly of medical records, but not the entry of any clinical or technical data.]
3. The person to whom this work is assigned should be designated "Medical Records Officer" and should have the status of a departmental head.
4. The medical records officer should be qualified by training and practical experience for the work undertaken; the subjects studied should include anatomy, physiology, medical terminology, organization techniques, filing and indexing methods, photographic and microfilming methods, coding and classification, interdepartmental relations, interview technique, simple statistical methods, and, in some cases, punched-card methods.
5. There is a need for training facilities. One way of meeting this need initially would be by the establishment of training schools for medical records officers in one London hospital and one provincial hospital; the hospitals chosen should first be equipped with records departments of the most efficient and up-to-date kind.
6. A basically uniform system of medical record-keeping should be devised not to prescribe "pro-formas" for hospital doctors but to standardize methods of registration and techniques for the preparation, storage, and indexing of medical records.

The Nuffield Provincial Hospitals Trust sponsored the course-conference.

(A Digest of the Proceedings of the Course-Conference has been prepared, and copies may be obtained, price 2s. 6d. each, from Mr H. Cotton, 10, Parks Road, Oxford.)

### SPECIAL COMMITTEE ON NUTRITION

The Special Committee on Nutrition set up recently by the British Medical Association held its first meeting at B.M.A. House, Tavistock Square, London, on Dec. 1. The following are the members of the Committee:

Lord Horder, adviser to the Ministry of Food; president of the Food Education Society.

Dr. G. F. Buchan, until recently medical officer of health, Willesden; lecturer in public health, Guy's Hospital and St. Mary's Hospital Medical Schools.

Miss Harriette Chick, C.B.E., D.Sc., a member of the staff of the Nutrition Section of the Lister Institute of Preventive Medicine.

Prof. S. J. Cowell, professor of dietetics, University of London; a member of the B.M.A. Committee on Nutrition, 1933.

Prof. G. P. Crowden, O.B.E., D.Sc., professor of applied physiology, University of London; secretary, Nutrition Committee Medical Research Council, 1928-34; adviser to the B.M.A. Committee on Nutrition, 1933.

Sir Jack Drummond, F.R.S., D.Sc., scientific adviser to the Ministry of Food, 1939-46; director of research to Boots Pure Drug Co. Ltd. since 1946; adviser on Nutrition Control Commission for Germany and Austria (British elements), 1945-6.

Dr. R. G. Gordon, a member of Council, B.M.A.; chairman of the Science Committee, B.M.A.

Dr. Jean Mackintosh, senior assistant medical officer of health for maternity and child welfare, Birmingham; member of the Nutrition Society.

Prof. V. H. Mottram, formerly professor of physiology, University of London; a member of the B.M.A. Committee on Nutrition, 1933.

Dr. R. Murray Scott, general practitioner, Leeds.

Dr. R. E. Smith, medical officer, Rugby School.

Dr. H. M. Sinclair, director of Oxford Nutrition Survey.  
Dr. Donald Stewart, member of the Industrial Health Research Board, Medical Research Council.

Dr. J. G. Thwaites, general practitioner, Brighton; member of Council, B.M.A.

*Ex-officio* members of the Committee are:

Sir Hugh Lett, President, B.M.A.

Dr. J. B. Miller, Chairman of the Representative Body B.M.A.

Dr. H. Guy Dain, Chairman of Council, B.M.A.

Dr. J. W. Bone, Treasurer, B.M.A.

The Committee has power to co-opt additional members whose names will be published later.

The Ministry of Health has nominated Dr. H. E. Magee Deputy Senior Medical Officer in the Foods Division of the Ministry, to attend the Committee as observer.

The terms of reference of the Committee are: "To consider and report on the problems of nutrition in this country, including present nutritional standards."

On Dec. 1 Lord Horder was elected Chairman of the Committee and Dr. R. G. Gordon Vice-Chairman, and in Lord Horder's absence Dr. Gordon presided at this preliminary meeting. It was reported that four of those invited had found it impossible to accept membership, and the Committee discussed other possible nominations and also the desirability of obtaining by co-option the representation of certain special points of view. It was decided to endeavour to enlist as members of the Committee a statistician and a representative housewife.

Sir Jack Drummond suggested the appointment of three subcommittees. The first of these would be charged with the ascertainment of nutritional requirements, examining critically the existing knowledge and information concerning basic nutritional requirements of various sections of the population. The second would undertake a survey of family consumption, and Sir Jack hoped that with the co-operation of the Ministry of Food some access might be given to the immense amount of data accumulated by that Ministry during the war but never classified or published. The third would be an expert clinical subcommittee whose task would be to examine data concerning the state of health of the people in the war and post-war periods, studying not only clearly attested documents, such as the Medical Research Council's reports, but also in a critical way the mass of less clearly substantiated statements about the effect of war and post-war conditions of diet upon health. The Committee agreed to the setting up of these three subcommittees, and added a fourth, which would concern itself with practical dietetics, and would also consider questions of morale and psychology in relation to diet.

Five members of the Committee were appointed to each of these subcommittees, and the need for getting out a report with reasonable speed was stressed. It was considered that the first and second subcommittees, dealing with nutritional requirements and family consumption respectively, might find it desirable, in part, to work together.

The Committee as a whole will not meet again until reports from the subcommittees are available. Various documents were laid before the Committee, including the report of the former Special Committee of the Association on Nutrition, published in 1933. Two members of the present Committee—Dr. G. F. Buchan and Prof. V. H. Mottram—were also members of the earlier Committee, and another member of the present Committee—Prof. G. P. Crowden—assisted in its deliberations.

"Is chastity outmoded?" is a question asked in the November number of *Marriage Guidance*, the bulletin of the National Marriage Guidance Council, 78, Duke Street, London, W.1. The conclusion is that it is not supported by quotations from various authorities. The late Prof. Ernest Groves said, "Pre-marriage experience is not an advantage but frequently instead the chief cause of marital maladjustment." The opinion of Prof. Hornell Hart is also quoted: "The fear of some young people lest inexperience in sexual intercourse may leave them unprepared for marriage is groundless. . . . Pre-marital sex relations are likely to damage subsequent affection and to obscure the psychological and social aspects of the search for well-matched mates."



## Reports of Societies

### RADIATION IN THE TREATMENT OF MALIGNANT TUMOURS SWEDISH EXPERIENCE

At a meeting of the Section of Radiology of the Royal Society of Medicine on Nov. 21, with Dr. J. S. FULTON in the chair, Dr. ELIS BERVEN, of Stockholm, gave an account of the methods and results of radiation treatment of malignant tumours in Radiumhemmet.

Dr. Berven said that one of the principles followed was that radiation through the tissues surrounding the tumour must not be of such intensity as to damage the resistance of the body, and another was that treatment should be given in the shortest possible time. He described the x-ray and other apparatus employed, and said that 3,225 mg. of radium was distributed in 97 tubes and 14 applicators. Only gamma rays were used, and no radium emanation or radon was employed. Malignant melanoma, which was radio-resistant, was treated by excision under general anaesthesia, followed by prophylactic x-ray or radium treatment in the region. In carcinoma of the lip radium applicators had been used at first, and then implantation of radium needles, but now most cases were treated by x rays and 69% of patients were symptom-free after five years. In cases of carcinoma of the mouth radium applicators and implanted radium needles had given way to a combined method, beginning with telerradium through different ports of entry so as to give a cross-fire effect, supplemented later by x-ray treatment. Usually a small tumour remnant was left, and this was electrocoagulated under general anaesthesia. Cases of cancer of the oral cavity treated in this way in the period 1931-41 numbered 688, of which 196, or 28.5%, were symptom-free at the end of five years. He next spoke of the Plummer-Vinson syndrome. The atrophic state of the mucous membrane of the mouth seemed to predispose these patients to tumours of a malignant type. X-ray treatment was applied in four fields, two on each side, each field being given a total of from 2,000 to 3,000 r in daily doses of 400 r, and later telerradium was applied. For tumours of the oesophagus only palliative treatment could be undertaken.

In carcinoma of the antrum x-ray treatment was first given, covering two anterior and two lateral fields, with a total dose to each field of about 3,000 r. When the reaction had passed off, coagulation was performed not only in the antrum but in the ethmoidal region, and four radium tubes were applied to the coagulated area. Cancer of the maxilla was treated in the same way, and about 39% of cases remained symptom-free after five years. In cases of cancer of the nasopharynx the proportion of patients remaining symptom-free after five years was only 22.5%, but in sarcoma of the same region it was 44%. For infiltrating intrinsic cancer of the larynx laryngectomy was employed with post-operative radiation. The number of cases so treated in 1940-4 was 31, and freedom from symptoms for three years was claimed in 61.3% of the cases. In carcinoma of the lung or bronchus the treatment given had been only palliative.

Since 1921 cases of carcinoma of the breast had been treated by pre-operative irradiation of two fields (unless the breast was small, when four fields were employed, two on the breast and two in the axilla), and as soon as possible after operation a first course of radiation was given, two months later a second course, and after a similar interval a third. Post-operative treatment was applied over one large anterior field and one posterior field. During the period 1921-35 607 cases of cancer of the breast had received this sequence of treatment, and the proportion symptom-free after five years was 41.2%, and the proportion of survivors 44.3%. During the period 1936-41, when the technique was improved and x-ray castration adopted in all cases, 517 women had been treated, and 44.1% were free from symptoms at the end of five years and the survival rate at the end of five years was 52.6%. In cases of cancer of the breast with periglandular involvement treated by pre- and post-operative radiation, 32% were symptom-free after five years. During the period 1935-41 40 cases of carcinoma of the bladder were treated, and 12, or 30%, were free from signs and symp-

toms after five years. From 1929-40 167 cases of carcinoma of the prostate were treated; 107 of these were inoperable, and among these the survival rate after three years was 16%, and after five years 5%. In the operable cases the survival rate after three years was 38% and after five years 26%.

For cancer of the cervix the method followed since 1932 had been Heyman's, or the Stockholm technique. Radiation treatment had been given in two sessions; the total intrauterine radium application was 2,000 to 2,600 mg./hr., and the application in the vagina was about 4,000 mg./hr. In cases of carcinoma of the body of the uterus the method of packing the uterine cavity with small radium containers had been followed. Radium was applied in two sessions at an interval of two weeks. During the years 1934-41 459 cases had been treated in this manner and the number symptom-free after five years was 284, or 61.9%.

Dr. N. S. FINZI said that his impression was that better results in cases of cancer of the rectum were being obtained now with the million-volt apparatus than had been the case with the earlier relatively small power installations. The same was true of cancer of the antrum.

Prof. B. W. WINDEYER, expressing thanks to the lecturer, spoke of the help which the Stockholm institute extended to visiting radiologists from this country. Dr. BERVEN said that in Stockholm the closest co-operation existed between the radiologists and their surgical and specialist colleagues. They all met together on two days a week and usually had some twenty or thirty patients to discuss.

### BRITISH ORTHOPAEDIC ASSOCIATION ANNUAL MEETING

The annual meeting of the British Orthopaedic Association was held at Manchester on Oct. 24 and 25 under the presidency of Mr. GEORGE PERKINS.

#### Recurrent Dislocation of the Shoulder

Mr. H. OSMOND CLARKE described in detail a capsulorrhaphy for recurrent dislocation of the shoulder, which he called the "Putti-Platt" operation. This consisted in a wide approach to the front of the joint with division of the coracoid, subscapularis tendon, and capsule. The distal cut edge of the subscapularis tendon was sewn to the neighbourhood of the anterior lip of the glenoid, and the proximal portion of the tendon was made to overlap the suture line. The coracoid was repaired and the wound closed.

Mr. J. C. ADAMS had investigated the results, after two years or more, of 114 out of 159 operations for recurrent dislocation of the shoulder undertaken in Royal Air Force hospitals from 1940-5. After 59 Nicola operations there had been 21 recurrences and 2 after 37 Putti-Platt operations. The intervals before recurrence varied from four months to five years, averaging 22 months. Among 79 shoulders fully explored, the glenoid labrum was found detached in 69 and soundly attached in 10. Adequate radiography of 68 patients revealed a postero-medial defect in the humeral head in 56; an antero-posterior view with limb rotated inwards through 60-70 degrees was advised. The range of movement was almost full after Nicola's operation; lateral rotation was frequently diminished after Bankart's operation, and rather more so after the capsulorrhaphy. The relatively free range after Nicola's operation was perhaps a factor in the recurrent cases, which did not always show atrophy of the reattached tendon. The good results of the other operations were attributed to the fibrous tissue formed in the front of the capsule which limited lateral rotation.

Mr. A. L. EVER-BROOK gave a detailed analysis of 20 consecutive cases operated upon by the antero-medial approach. The lesions found were: anterior detachment of the glenoid labrum (Bankart's lesion) alone in 6 cases; a postero-medial defect in the humeral head alone in 3 cases; a combination of these two defects in 10 cases; and detachment of the subscapularis from the lesser tuberosity in one case. The bony defect was best revealed pre-operatively by radiography from above with the film in the axilla and the arm laterally rotated through 70 degrees. Radiography often disclosed also a bony subglenoid outgrowth in cases of Bankart's lesion. In cases

showing this lesion at operation, a modified Bankart's operation was performed. In cases not showing this but with a defect in the humeral head, multiple osteotomy of the coracoid had been performed (2 cases) and, more recently, an iliac graft had been applied to the front of the scapular neck. After operation the arm was bandaged to the side for four to six weeks. Work was resumed after a further six weeks. No recurrence had been found in 12 cases followed up for periods of six months to four years.

Mr. A. B. PAIN had examined the records of 43 operations for recurrent dislocation of the shoulder in 33 patients operated on in the Leeds area during the preceding fifteen years. One patient had bilateral operations, 7 others had two operations, and 3 had as many as three operations each; 6 of the patients were epileptic. Among 28 patients traced, seven different types of operation had been performed as follows (recurrences in parentheses): Clairmont 1 (1); Henderson 13 (9); subscapularis tenotomy 3 (1); Nicola 12 (4); Bankart's operation 2 (1); capsular plication 1 (0); and bone block 4 (0). Recurrence might happen at any time up to seven years after operation, but in 12 out of 18 instances it happened within a year and within three weeks in 6 of these cases.

### Other Papers

Prof. JACQUES LEVEUF, in a paper on the treatment of acute osteomyelitis, expressed the view that in haematogenous osteomyelitis the first bony lodgment of the staphylococcus was not usually in the metaphysis but in the neighbourhood of the entry of the perforating artery, where a cortical abscess formed, with usually a very small lamellar sequestrum. Spread was mainly towards the surface, but also along the artery and its branches, producing further cortical lesions and occasionally medullary ones. Prof. Leveuf, who has practised plaster-of-Paris immobilization in this disease for twenty years, condemns bone operations in the acute stage and especially metaphyseal drainage. The soft-tissue abscess should be drained between the fifteenth and twentieth days; formerly the wound was left widely open, but now, with the aid of penicillin, it was closed forthwith. He produced histological and radiological evidence in support of his pathological contention, which led to a lively discussion.

Prof. S. L. BAKER, in a paper on the histology of callus, stated that the first sign of bone appeared within the first week in an area of gelatinous oedema in the mass of young connective tissue which invaded the haematoma about a fracture. This bone was of a type called woven bone because of the irregular arrangement of the fibres which, with a connecting substance, formed the osteoid matrix, as distinct from lamellar bone in which the fibres had a parallel arrangement. Whereas woven bone could be laid down rapidly in connective tissue, lamellar bone formed slowly and could be laid down only on a surface. Woven bone formed about blood vessels and so the orientation of its trabeculae was determined by the vascular arrangement, whereas that of the trabeculae of lamellar bone was determined by the stresses to which it was submitted. Woven bone was usually replaced slowly by lamellar bone. The formation of cartilage in callus appeared to depend largely on movement. Callus was no respecter of the periosteum, often passing well outside it. In certain rare instances, especially in *fragilis ossium*, there was a prodigious formation of callus which might be taken for sarcoma.

Mr. BOLAND BARNES read a paper on paraplegia in cervical column injuries, based on 22 cases. Mr. D. LL. GRIFFITHS discussed the management of acute ischaemia in an injured limb. Mr. JOHN CHARNLEY gave a short discourse, illustrated by ingenious models, on some of the basic mechanical principles used in the reduction and splinting of fractures. Mr. C. H. CULLEN read a paper on causalgia, based on 24 cases seen personally during the war.

Mr. I. J. FAIRBANK, discussing fracture-subluxation of the shoulder, said that among 115 cases of fracture about the shoulder he had found 12 with radiologically demonstrable downward subluxation of the humeral head—in 11 of them as a complication of fracture of the neck of the bone. Clinically, a groove could be felt between the acromion and the humeral head which could usually be abolished by lifting the humerus actively or passively or by recumbency. In the

normal subject little downward subluxation occurred except during anaesthesia, and muscle tone appears to be the main factor preventing it. At follow-up, a year after injury, the subluxation had sometimes disappeared, but it occasionally persisted for three years or more. Of these patients 9 had been treated for their fractures with collar-and-cuff slings and 3 with abduction frames. It was suggested that, in the treatment of fracture of the humeral neck, a triangular sling was preferable to a collar-and-cuff, and that if abduction was necessary a plaster-of-Paris spica should be used.

In considering the treatment of the unreduced pathological dislocation of the hip from septic arthritis in infancy, Mr. A. F. BRYSON excluded patients aged more than twelve months at the time of the acute illness. In most it occurred in the first nine months. His 16 cases were all unilateral, and 15 were operated upon. One underwent an unsuccessful Colonna's arthroplasty. Of 3 treated by osteotomy, one secured stability, but the other two continued to show progressive shortening, flexion, and adduction. Arthrodesis was much the best procedure; in 11 patients so treated bony fusion occurred within a few months in 7 of them and after subsequent osteotomy in another. Operation should be delayed till the age of 12 or 13 years because of the great amount of activity possible till then and because earlier bony fusion was not only difficult to obtain but did not fully prevent subsequent flexion and abduction deformity.

Miss E. L. WILLIS summarized the end-results in fractures of the femoral neck in 192 cases treated in the University Department of Orthopaedics at the Manchester Royal Infirmary, with a death rate of 8% within three months of injury. Fifty out of 113 patients with subcapital and transeervical fracture were sent two or more years after injury: 22 had good results and 15 poor; 13 showed avascular necrosis of the femoral head. Of 74 fractures treated by Smith-Petersen nailing, 41 showed radiological union. Of 79 basal and pertrochanteric fractures, 51 were treated by well-leg traction, with union in 43. There were 23 good clinical results among 28 patients examined more than a year after injury.

Clinical cases were shown at the Manchester Royal Infirmary by Prof. HARRY PLATT, Mr. HENRY POSTON, Mr. D. LL. GRIFFITHS, Mr. JOHN CHARNLEY, Miss E. L. WILLIS, and Mr. T. J. FAIRBANK; and also at the Salford Royal Hospital by Mr. W. SAYLE CREEF, Mr. S. M. MILNER, Mr. J. L. MANGAN, and Mr. CLAUDE BRUN.

## THE PROBLEM OF DELINQUENCY

### COMMUNITY CONTROL OF THE INDIVIDUAL

The annual general meeting of the Institute for the Scientific Treatment of Delinquency, the first such meeting since 1940, was held at the Institute's new premises, 8, Bourdon Street, W.1, an eleven-roomed building with a lecture hall. Lord HORDER, vice-president of the Institute, presided.

Mr. WALTER ELLIOT, M.P., described delinquency as a deviation from the average—not from the normal, because it was not known what the normal was or ought to be. He felt that scientific investigators must often have qualms about the way in which the community was extending its sway over the individual and requiring conformity to a pattern. The House of Commons was continually manufacturing new offences. Scarcely a day passed without some fresh opportunity for delinquency being discovered. Examples were to be found in the National Assistance Bill. It was recommended to the House by Mr. Aneurin Bevan, and would shortly be the law of the land, that certain persons might, on the certificate of the medical officer of health, be removed from their homes to a hospital or some other place of detention, and any person who disobeyed or obstructed the execution of such an order would be guilty of an offence and liable to a fine not exceeding £10. Thus, without any scientific investigation, a new set of delinquencies would be instituted. Most of the prophets, nearly all the noble army of martyrs, and certainly every one of the hermits would have been subject to a fine not exceeding £10. Further, anybody living under conditions of vagrancy—he had in mind St. Francis of Assisi—might be liable to very drastic penalties.

The Institute, Mr. Elliot took it, was interested in the effect of community action upon individuals. One great mass experiment of this kind was wartime evacuation, and here a curious thing happened. He had some facts relative to the condition of 200 children who were transferred from a crowded industrial city of Lancashire to a country camp where they lived for two or three years in ideal surroundings and had every advantage in the way of diet and medical supervision that could be desired. Yet their increase in growth did not even equal that of a comparable group of youngsters who remained in the industrial environment. He could think of no better explanation than that the camp children had been separated from home and family life.

Another curious fact was the sudden cessation at the outbreak of war of the customary biennial explosion of measles. For years there had been between 1,800 and 1,900 deaths from measles every second year, the intervening year showing only about one-tenth the number, but this rhythm was decisively broken in 1939-40, apparently as a result of the closing of the schools, and now that the schools were again fully at work the rhythm was re-establishing itself. Another example of wartime waywardness was the suicide rate. Before the war the number of suicides was astronomically large. The number of men committing suicide in 1938 and in 1939 was about 2,500, but during the years 1942 to 1945 it was always below 2,500; in 1946 it rose to 2,500, and this year was again rising. It might be said that the conditions of war offered men an alternative to suicide, but the same trend was found among women. Women suicides numbered about 1,700 in 1938 and 1939, but from 1941 to 1944 they were round about 1,200, and they rose to 1,400 in 1945, to 1,600 in 1946, and this year the figure was still increasing. It seemed as though when settled conditions prevailed people became bored and were more likely to turn their thoughts to suicide. Apparently "bottle, murder, and sudden death" represented the desires of the human race, and a fundamental problem was what equivalent was to be offered for these conditions.

Mr. Elliot went on to say that the difficulty of our society was the pressure of enormous State mechanisms continually expanding and aiming to produce more and more settled and uniform conditions, while settled conditions were the things against which human nature rebelled. What was the remedy? Some of the figures he had quoted showed that at any rate the institution of the family was a very important one. One of the wisest epigrams ever coined in relation to the treatment of delinquency was Shaw's remark that "one should never strike a child except in anger." But it was very difficult for the State official to turn anger on and off, whereas the child's mother, or still more his father, could administer correction in such a way as not to harm the child and yet to vindicate the law of the normal—or rather that of the average—in the family.

He thought that a great humility was required in the approach to such problems, which were largely psychological. In his view the human race was being over-governed. How the evils of this were to be avoided he did not know, but it was to investigators such as those associated with the Institute that Parliament might look for guidance.

#### Future Prospects

Dr. DENIS CARROLL, director of the Psychopathic Clinic, followed with a brief statement on future prospects. There was a popular notion, he said, that the National Health Service Act and the Criminal Justice Bill would solve all their problems. Yet the situation was difficult. Under the Criminal Justice Bill many of the arrangements with magistrates which they in the Institute had brought about would receive legal sanction. But it was not known at present whether the clinic would or would not be transferred to the National Health Service. It was possible that the clinic would pass under the management of the appropriate regional hospital board and management committee, and likely, though not a foregone conclusion, that it would have representation on the managing authority. But at present they were in a position of uncertainty, and it could not be said whether approaching developments would make the work of the clinic easier or more difficult.

The meeting passed a resolution urging an approach by the Council to the Home Secretary and the Minister of Education for help for the Institute, and also to the county councils of

London and adjoining counties and certain boroughs with a view to obtaining an annual capital grant. The accounts, which were passed by the meeting, showed an excess of expenditure over income for the year of £1,188.

#### MEDICAL CARE OF THE AGED

At a meeting of the Liverpool Medical Institution on Nov. 13, with the president, Dr. H. WALLACE-JONES, in the chair, Dr. ROBERT KISUR opened a discussion on "Old People and their Medical Care."

Dr. Kemp spoke of the medical welfare of elderly patients in the Belmont Road Hospital, Liverpool, and in the Kirkdale Homes. The hospital cared for about a thousand sick old people and the homes for about the same number who were ambulant. Another thousand were looked after, according to the recent Merseyside Survey, in smaller religious or voluntary homes. Though this represented only about 3% of the old people in the district the majority of them could have been looked after at home but for the fact that they were single, widowed, or living apart from their families. Austerity was forcing many old people into institutions where hitherto they had often been medically neglected. The aim of a good medical service was to prevent people becoming bedfast and to get them back on their feet after an illness. The "bottle-neck" in bettering medical care was the numbers, training, and morale of those nursing the aged. They must be shown that their work could be worth while and well rewarded. Two "psychological brakes" were the apathy and hopelessness of the elderly themselves and the inertia of those who had previously been looking after them.

Dr. H. FERN stressed the magnitude of the task of caring medically for the aged, and enumerated the physiological changes that accompany senescence. He then discussed diagnostic pitfalls in the illnesses of old age. Students and young doctors needed better training in the technique of looking after old people. There was no need for the creation of a new specialty so far as old people were concerned. A hospital for old people only might be a gloomy place because of the high mortality among in-patients.

Dr. BASH MURRAY presented a retrospect of the history of medicine on this subject from the Egyptian era to medieval times before describing some of his own cases. One case was that of an epileptic, aged 74, who in an attack stashed his heart, which was sutured. After recovery he was operated on by Dr. Alexander, about 1905, and clearance of an old depressed fracture of the skull led to cessation of the epileptic attacks. The patient was alive at the age of 84 years.

#### Discussion

In the discussion which followed, Dr. ROBERT EVANS said that many old people admitted to hospital were suffering from two or more diseases, one of which was chronic, possibly of great medical interest but not causing symptoms, and a second acute but medically trivial disease like an enteritis or bronchitis. The cure of the second condition often enabled the patient to carry on his normal life despite the chronic disease. Deficiency diseases, including avitaminoses, were commonly part of a general malnutrition, often because of lack of either natural or artificial teeth, and this required the provision, in institutions for old people, of a diet which should be satisfactory nutritionally but require no chewing. Mr. COSBIE ROSS emphasized the great danger of immobilization in old age, and described the measures necessary to combat, especially, post-operative pulmonary embolism. These measures included an anaesthetic which would allow early recovery of consciousness; early post-operative exercises; raising the foot of the bed for forty-eight hours; and encouraging the patient to get out of bed soon after operation. For example, it was quite possible for a patient to sit out of bed four days after a retropubic prostatectomy. Contrary to the usual teaching, he had found local analgesia suitable for aged patients, especially in cases of strangulated hernia.

Dr. ROBERT W. KENNON said that the treatment of old people should be according to their physical age rather than their age in years.

## Correspondence

### Food Cuts and Calories

SIR.—On Oct. 23, 1947, Sir Stafford Cripps made the statement that, in view of the cuts in foods which he announced, the calorie value of our diet would fall to "just below 2,700 per day." Prior to that time it was claimed that our intake was 2,870 calories per day. Following the introduction of potato rationing, the Minister of Food stated that this step would reduce our calorie intake by about 70 per day. From these statements we might deduce that we now obtain somewhat above 2,600 calories per day. In view of these statements it was felt that a critical examination of the nutrient value of our diet should yield informative data concerning our actual intakes. This has been done and the figures are presented in the accompanying tables.

TABLE I.—*Rationed Foods*

	Amount per Week oz.	Calories	Protein g.	Fat g.	Calcium mg.	Iron mg.
Meat .. ..	14	1,000	56	84	42	14.0
Bacon .. ..	1	110	3	12	3	0.3
Cheese .. ..	2	234	14.2	19.6	460	0.4
Milk .. ..	40	680	36	40	1,360	0.0
Eggs .. ..	1	36	3	2.8	13	0.6
Butter .. ..	6	1,290	0	144	10	0.0
Margarine ..	1	253	0	28.1	0	0
Cooking fat ..	8	864	0	0	0	0
Sugar .. ..	4	284	0.4	0	0	0
Jam .. ..	63	4,473	151.2	18.9	1,008	31.5
Bread .. ..	48	768	19.2	0	96	4.8
Potatoes .. ..						
Total per week ..		9,992	283.0	349.4	2,992	51.6
Total per day ..		1,427	40.4	49.9	427	7.4

TABLE II.—*Selection of Points Goods per Month*

Points	Amount	Calories	Protein g.	Fat g.	Calcium mg.	Iron mg.
6 Biscuits ..	8 oz. plain	1,936	43.2	61.6	288	7.2
6 Cheese ..	8 oz. sweet	896	56.8	70.4	1,224	1.0
4 Canned fish (her- rings) ..	8 oz.	440	48.0	27.2	224	3.2
4 Dried fruit (apri- cots) ..	8 oz.	400	11.2	0.0	208	9.6
2 Macaroni ..	16 oz.	1,536	48	9.6	102	6.4
2 Cereals ..	8 oz.	776	28	5.6	56	9.6
4 Dried potatoes ..	16 oz.	1,650	45.4	0.0	288	8.0
Total month ..		7,634	290.6	174.4	2,390	45.0
Total day .. ..		254	9.7	5.8	79	1.5

TABLE III.—*Personal Points per Week*

	Amount	Calories	Protein g.	Fat g.	Calcium mg.	Iron mg.
Chow mein (plain) ..	4 oz.	592	5.2	36.8	28	3.6
Pork .. ..		84.5	0.75	5.25	4	0.5

TABLE IV.—*Non-rationed Foods: Nutrients Available per Head per Day*

	Calories	Protein g.	Fat g.	Calcium mg.	Iron mg.
Vegetables ..	33	2.8	0.6	9	0.6
Tomatoes and citrus fruit	7	0.3	0	6	0.1
Other fruit ..	40	0.4	0	11	0.4
Leafy green veg ..	21	1.7	0	44	0.8
Other veg. (etc. potatoes)	9	0.4	0	19	0.2
Poultry, game and fish	40	6.2	1.6	20	0.5
Total per day ..	150	11.8	2.2	109	2.6

TABLE V.—*Totals of Nutrients Available per Head per Day*

	Calories	Protein g.	Fat g.	Calcium mg.	Iron mg.
Rations ..	1,427	40.4	49.9	427	7.4
Points goods ..	254	9.7	5.8	79	1.5
Personal points ..	84	0.7	5.2	4	0.5
Unrationed foods ..	150	11.8	2.2	109	2.6
Total ..	1,915	62.6*	63.1	619	12.0

\* First-class protein, 26.5 g.

These figures are calculated from the foods actually available by using the tables of "Nutritive Values of Wartime Foods" (Med. Res. Cncl. War Memorandum No. 14, H.M.S.O., 1945). The figures for bread presuppose that the full ration is taken in this form, but the figures are not significantly affected by taking a mixture of bread, flour, and flour products to the same B.U. value. The points goods have been selected to give as high a calorie and protein content as possible. Many actual selections fall short of these figures. The data for unrationed foods available are taken from the "Third Report on Food Consumption Levels" of the Special Joint Committee of the Combined Food Board, 1946.

It will be seen that these data give a daily calorie intake of 1,915. This value falls far short of the 3,000 calories which is recommended as the intake per day for a moderately active man and even short of the 2,500 calories for a moderately active woman. It would be interesting to know how the Ministry of Food arrive at the figure they quote. One can only assume that they calculate their data from the total amount of food available for civilian consumption without taking into consideration wastage (a) involved in storage, transport, and the breaking down of large bulk to small; (b) caused by storage in shops and during serving; (c) involved in preparation and cooking and on the plate. Much of this waste is inevitable, and to disregard it is to present a completely distorted picture.

From where are we to obtain, therefore, the differences between these calculated figures and the actual requirements? For many people canteens are not available, and a restaurant meal will not supply more than 300-400 calories and 5 g. of protein. In addition a large number of people are not able to obtain or afford even one restaurant meal per day. It would be interesting to know what answers the Ministry of Food can offer to these points.—I am, etc.,

Biochemistry Dept.,  
St. Thomas's Hospital Medical School, S.E.1.

G. T. MILLS.

### Diet and the Nation's Health

SIR.—It is with surprise that I read press reports of a discussion which took place at a recent meeting of the Hunterian Society and of the motion carried that "Our Present Diet is Undermining the Health of the Nation." In my opinion the reasons given by the speakers for the motion were not based on scientific and practical experiences. May I quote some of my own observations as an obstetrician. A comparison carried out at the Maternity Hospital of the University of Berlin showed that the average weight of 3,000 babies born in 1911-12-13 was 6 g. less than that of the equal number of babies born in 1919-20-21—i.e., during a period of actual famine bordering on starvation in Germany. The maternal morbidity and mortality rates were appreciably lower during the latter period; in fact, for several years we were unable to show our students a single case of eclampsia, and this in two hospitals with 3,000 to 4,000 maternity cases per annum.

What became of the babies born during the hunger years? Well, 20 to 21 years later they formed the backbone of Hitler's crack divisions which overran half of Europe and North Africa—and even then after several years of sharp food-rationing dominated by the slogan "Guns before Butter." In Russia following the 1917 revolution there was widespread starvation, but the babies born during that period became the defenders of Moscow and Stalingrad and the conquerors of Berlin.

I myself had to feed on a diet far inferior to that of the poorest Englishman of to-day, consisting almost entirely of black bread made up by potato peels, sawdust and turnips, artificial honey made from turnips and vegetables—again mostly turnips—no sugar or sweets, no milk, hardly any fats or proteins. But even so in 1921 I was in the winning boat against such countries as Sweden and Switzerland; my children born in 1922 and 1923 twenty years later passed their medical examinations for the R.A.F. and the W.A.A.F. as A1. And remember, thirty years or so ago we did not possess our present knowledge of the importance of vitamins and protective foods.

May I be permitted to add that I consider the arguments for the motion as unfounded and even frivolous. The motion carried by the Hunterian Society may well help to undermine the morale of the nation if unscrupulously exploited.—I am, etc.,

London, W.1.

STEPHEN K. WESTMAN.

## Duodenal Ulcer and Priority Foods

SIR, I was interested in Dr. A. H. Morley's letter on duodenal ulcer and priority foods (Nov. 8, p. 748) and would say a word on the other side of the picture. It is agreed, of course, that many duodenal ulcers are cured, temporarily or otherwise, or lie dormant for long periods, but surely it is also agreed that the only rational way to treat an ulcer subject is to keep him well, and that a bland diet, especially with regard to the protein intake, is a very important factor, if not an essential one, to that end. He is advised, and rightly, I believe, to avoid tough meat, stew, cheese, orange, salt and spicy foods, yet the bulk of his rationed food will come fairly under these categories. He does better on white fish, but that is sometimes short, often of poor quality, and can be extremely monotonous. I am informed that an extended course of this can destroy the appetite and undermine the character, that an addict is liable periodically to break out into homicide, divorce, or a delirium of liver and onion, corned beef, tuppens, or other flavoursome but decidedly connoisseurs.

No doubt there are some who may not require these priority foods, but I am of opinion that any general curtailment of these would result in an increase, and probably a large one, in the incidence of ulcer breakdown. It is well to remember that such a breakdown may be regarded in these days as a small national disaster. Ambulatory treatment is seldom satisfactory, and the subject, to have any real prospect of cure, must lie up for weeks or months in the care of others at home or in our hard-pressed hospitals.

I feel exception should be taken to Dr. Morley's statement that duodenal ulcer "has, indeed, become a somewhat popular malady—and no wonder!" If this means anything, it implies an unfortunate innuendo. Surely the patient does not elect to have an ulcer—the diagnosis is with the physician. Any claim by an unknown patient can be readily checked as a rule. I have not found that ulcer patients consider themselves fortunate. Dr. Morley's estimation that this priority milk would float a battleship may be accurate, but surely this alternative need not be considered at the present time. Our old friend Chad has just peeped over my pile of milk certificates with a startled comment on our naval establishment.—I am, etc.,

S. STUART

J. CRAWFORD

SIR,—It must surely cause some astonishment that there are medical men who hold the view expressed by Dr. R. Stuart (Nov. 22, p. 842) that "the symptoms of chronic duodenal ulcer are chronic, recurring at regular intervals every day and every night throughout many years." Can he have in mind some atypical condition such as an ulcer extending to and constricting the pylorus? It is, after all, the alternating bouts and the much longer intervals of freedom from symptoms which constitute so invaluable a diagnostic feature of the disease. In this connexion I would quote Sir Robert Hutchison, when he says in his *Lectures on Dyspepsia* (1927, London): "The History is in many cases perfectly clear and sufficient alone to base a diagnosis upon. It is as follows: The patient will tell you that, often for years back, he has been subject to attacks of indigestion which have been intermittent, that is they have cleared up and he has been well between them." And again, to quote Sir James Walton in his *Surgical Dyspepsias* (1930, London): "When once the disease is well established one of its most characteristic features is the periodicity of the symptoms. This is more marked than is the case with gastric ulcers, and indeed than in any other disease. There will be attacks of acute symptoms persisting for some three or four weeks, which are followed by periods of complete freedom. These periods will nearly always last for some months and may persist for nearly a year."

In regard to the other point in Dr. Stuart's letter, although it may be conceded at once that regulation of the patient's habits—frequent small regular meals, avoidance of irritants and tobacco, worry and fatigue, and so forth—is of great importance in prolonging the periods of freedom from symptoms, a rigid regime of diet is considered by many authorities to be unnecessary. Dr. A. H. Douthwaite (July 12, p. 43) expressed this view.

This brings me to my original contention, to which I adhere, that to lavish 10 pints (5.7 l.) of milk a week (five times the

allowance for the ordinary consumer at present) and priority in eggs on the chronic duodenal ulcers is indeed squandering an expressive word, for which I thank Dr. Stuart. It fits admirably.—I am, etc.,

London, N.W.7.

A. H. MORLEY.

## Vitamin-D Requirements in Pregnancy

SIR, Dr. I. J. Harris is to be congratulated on his admirable survey (Nov. 1, p. 681) of the present state of our knowledge as to vitamins. I venture, however, to question the accuracy of one of his statements: "For nursing and expectant mothers 1,000-2,000 i.u. (vitamin D) daily may be prescribed. . . ." I made a search of the literature on this subject about a year ago; I found only vague and contradictory statements. The following two quotations from recent authoritative textbooks are typical: McCune<sup>1</sup> states that during pregnancy "an amount of vitamin D equal to that contained in 5 teaspoonfuls of cod-liver oil—that is, 1,700 i.u.—may be required in addition to a high calcium intake to prevent a negative balance and guarantee calcium retention." Shohl<sup>2</sup> writes: "400 units of vitamin D and 1 quart of milk daily should be included in the diet of pregnant women." No experimental evidence is brought forward in support of either of these statements.

I have recently completed a four-year survey of normal pregnancy in the out-patient department of the City of London Maternity Hospital. Some of the biochemical findings have been published.<sup>3</sup> They cover 226 48-hour calcium and phosphorus balances at various stages of pregnancy. They would seem to show that doses of vitamin D smaller than 10,000 i.u. per day have no influence whatever on calcium and phosphorus metabolism and that doses considerably larger than this (up to 36,000 units per day) exert a definite influence only if the calcium intake is above 1.5 g. per day in the early months and later 2 g.

This subject is a difficult and complex one. My findings, to be conclusive, must be confirmed on a larger number of cases. But this is not a matter of purely academic interest. It concerns us all—vitality. Until further experimental evidence, adequate and incontrovertible, is made available, I submit that we should play for safety. In a climate like that of England every pregnant woman should be given a supplement of vitamin D in doses of not less than 10,000 i.u. per day in the first 7 months, and 20,000 i.u. during the 8th and 9th months.—I am, etc.,

Como, Italy

E. OBERMER.

## REFERENCES

- <sup>1</sup> McCune, D. J., in *Dietotherapy* (Editor, Wohl, G. W.), Philadelphia, 1945, p. 317.
- <sup>2</sup> Shohl, A. T., *Mineral Metabolism*, New York, 1939, p. 344.
- <sup>3</sup> Obermer, E., *J. Obstet. Gynec. Brit. Emp.*, 1946, 53, 269, 362; *ibid.*, 1947, 54, 432; *ibid.*, 1947, 54, in press.

## H.T.S.T. Pasteurization

SIR,—As far as we are aware no report has been made of the efficiency of the H.T.S.T. method of pasteurizing milk on a commercial scale. The results of tests carried out by Dr. Porteous of St. Mary's Hospital on samples taken from three of our plants using this process therefore may be of interest outside our own organization.

One hundred and twenty-nine samples of the raw milk used gave a positive guinea-pig test for tubercle bacilli. The 129 samples of commercially pasteurized milk corresponding to the above raw were all negative in the test. All these pasteurized milk samples also passed the official phosphatase test.

The samples covered a period of two years from January, 1945, to January, 1947.—I am, etc.,

E. B. ANDERSON,  
Chief Chemist,  
United Dairies, Ltd.

\* This matter is discussed in a leading article at p. 914.—  
Ed., B.M.J.

## Thiouracil

SIR,—It is with great interest that I have read the review by Dr. H. Cookson and Dr. F. H. Staines (Nov. 15, p. 759) on their experience with thiouracil. With increasing experience in thiouracil therapy it is evident that the risk of immediate toxic effects is diminishing. I note, however, that the length of treatment is given as "a year or two and may be even more." That this chronic therapy with a drug which poisons the thyroid is not altogether without risk of far more serious consequences is shown by the work of Purves and Griesbach,<sup>1</sup> who produced



thyroid adenocarcinoma in almost 50% of rats to whom they administered thiourea for more than two years.

The histological picture of the human thyroid after thiouracil therapy shows marked cellular activity, and before its general use is recommended further research should be carried out on the possibility of delayed after-effects. The experienced surgeon who resects a toxic goitre knows that 99% of his patients should survive the operation, that about 90% will lead approximately normal lives without special supervision, and that, in the event of an error in diagnosis, malignancy will be revealed and can be treated without further delay. The thiouracil drugs are most valuable in preparing a patient for operative treatment, but caution is advised before suggesting that they should replace it.—I am, etc.,

London, N.2.

HENRI ROUALLE.

#### REFERENCE

1 Purves, H. D., and Griesbach, W. E., *Brit. J. exp. Path.*, 1947, 23, 46.

### Measles Prophylactic

SIR,—Following your leading article (Nov. 8, p. 737) on the use of gamma globulin as a measles prophylactic it would seem worth while to stress once again the value of a dose of adult whole blood intramuscularly if given at any time up to the sixth or seventh day of incubation. Gamma globulin is expensive to produce and uses the time of highly skilled technicians. Blood, 4 to 10 ml. according to the child's age, taken from the mother and injected immediately, is cheap and speedy therapy. The marked difference in the severity of symptoms in the unprotected case and the partially protected contact is so constant that the method can be advocated as a routine measure when the first of a family of children is found to have measles or other contacts are known.—I am, etc.,

Stanmore, Middlesex.

HARWOOD STEVENSON.

### Dicoumarol

SIR,—I read with interest your annotation (Oct. 25, p. 662) on dicoumarol and subsequent letters. I feel that Dr. Frank Marsh (Nov. 8, p. 748) is on the right lines when he suggests a large dose for the first two days, then an interval, and subsequent smaller doses.

My experience with Quick's method of prothrombin estimation has been singularly unfortunate. The results I obtained were far too varied to permit of any serious consideration. We used the clotting time and attempted to double the original figure. This was done throughout by Lee and White's method. In a number of cases alarming features resulted before the clotting time had doubled. Obviously the drug has a cumulative effect, and the clotting time does not begin to rise appreciably until the patient has been on it for some time, and then it rises with marked rapidity.

I would suggest that the drug be given in maximal doses—i.e., 300 mg. the first day, 200 mg. the second day, then 150 mg. daily until the clotting time begins to rise, and at that stage withheld. When the clotting time has returned to its original value dicoumarol should be given again. We used fresh-blood transfusion to lower the clotting time and found that it works fairly rapidly. There is at least a 48-hours latent period before intravenous vitamin K begins to show its effect.—I am, etc.,

Birmingham

M. J. PIVAWER.

### Yeast Extracts and Fat Absorption in Sprue

SIR—For a detailed discussion of the points raised by Dr. K. D. Keele (Nov. 15, p. 794) we would refer those interested to our paper in the current issue of the *Quart. J. Med.* (1947, 16, 99). In that paper the evidence for the effectiveness of yeast extract is given, and due acknowledgment for statistical help is made to Mr. Dilwali (not Mr. Dilwater). As Dr. Keele rightly points out, we were not in clinical charge of the patients in Portsmouth and so we have relied mainly on biochemical evidence for the effect of yeast extract; nor were we in a position to "offer the issue" at that time by the use of yeast extract alone. However, we have since treated patients with sprue in this country and have been able to maintain them in clinical remission by yeast extract without any liver therapy.—We are, etc.,

D. A. K. BLACK.

L. P. R. FOURMAN.

### Status Epilepticus after E.C.T.

SIR,—Dr. A. Folkson's memorandum on a case of status epilepticus precipitated by E.C.T. (Aug. 30, p. 335) prompts me to record a similar case.

In September, 1944, an African woman of the Yao tribe (who live on the borders of Tanganyika and Portuguese East Africa) was admitted to this hospital. She was about 45 years of age. The certificate stated that she wandered aimlessly among her neighbours, that she slept in the bush, and that she thought people were going to kill her. After admission she was either indifferent and preoccupied or nonsensically loquacious. She had corneal opacities and septic teeth. The spleen was enlarged, but there were no malarial parasites in the blood. There were no neurological signs or history of epilepsy. The blood Kahn was negative and the C.S.F. W.R. was negative, with no increase of cells or protein. Attention to her general health produced a partial improvement. On Feb. 20, 1945, she was tried with E.C.T. at 10 a.m. (105 volts, 0.4 sec., 160 milliamp.-sec.). There was a delay of 3 or 4 sec. The next day at 3 p.m. she suddenly passed into typical status epilepticus. At 3.45 p.m. she was given 1/2 oz. (14 ml.) paraldehyde in olive oil per rectum. The fits began to lessen in a few minutes and had ceased after 1/4 hour. There has been no recurrence to date.

—I am, etc.,

Dodoma, E. Africa.

E. J. FOLEY.

### Routine Serological Tests for Syphilis

SIR,—At a recent conference of doctors in America surprise was expressed that in this country serological tests for syphilis were not routinely carried out by law on such occasions as marriage, at life insurance examination, or on entry into the Services as is current practice in the States. It was furthermore stated that representatives of this country had indicated that such a proposal would lead to public outcry and would never be permitted, and in any case such a course was unnecessary, because the incidence of venereal disease is so much lower in this country than in the States.

Surely in these enlightened days such a position is indefensible? If we have no serological tests, what reason have we for saying that our incidence is low? Clinical manifestations of the disease are no guide, because they may be dormant for many years and thus be undetected. Is it national prudery, smug hypocrisy, or a fear of exposition which leads us to adopt this rather dubious delicacy on such a matter? I am not a syphilologist, but doubtless there are many with greater knowledge in the matter who can give the answer to this apparent diagnostic obscurantism, and whose views I should like to hear.—I am, etc.,

Bristol,

K. G. BERGIN.

### Penile Carcinoma

SIR,—The incidence of cancer of the cervix in Jewish women is relatively low, and this has frequently been ascribed to the observance of laws which combine common-sense hygiene with religion. Mr. W. Sampson Handley (Nov. 22, p. 841) brings forward evidence which suggests that it is the routine circumcision in the male which is the operative factor. If the "transference to the vagina of the mixed bacterial flora that flourish beneath the prepuce" ultimately, by means of chronic infection, leads to cancer of the cervix, then there must be many more cases in which, even without cancerous changes, it results in discomfort and chronic invalidism. Having built up a strong case and drawn the correct inference, your correspondent advises routine preputiotomy in male infants because "it is unlikely that the routine circumcision of male infants would commend itself to English opinion."

What are the objections to routine circumcision and how does preputiotomy meet them? Does the main obstacle to the former lie in the lack of knowledge of a simple operation or in the psychological objection to imitating the Jews? It seems to me that your correspondent's compromise is a bad one. It is true that circumcision, as generally taught, involves general anaesthesia, pressure forceps, scissors, and sutures, while slitting up the prepuce "in the first few days of life can be done without an anaesthetic." Although reference is made to "an experiment conducted on a national scale for two thousand years" (the estimate is a conservative one), there is no mention of the technique which has made it possible. In fact few, if any,

surgical textbooks mention it, and one can only wonder at the apathy of our surgical colleagues. Imagine the consternation that would be caused at the Final Fellowship examination by the question, "Describe the technique of circumcision as practised by the Jews."

"Ritual" circumcision takes about two seconds, and apart from a shield and scalpel does not involve the use of scissors, forceps of any kind, sutures, or general anaesthesia. Nobody can deny that the results are excellent in every way. Preputiectomy would take almost twice as long, on the average, and the introduction of scissors points they would frequently have to be clipped once is not without potential danger to the meatus. The final result can only be described as aesthetically and cosmetically deplorable. Were it practised on a national scale there would soon be a revolution of feeling on the part of public opinion and the incidence of cancer of the penis and cervix would rise to even greater heights. Your correspondent asks us to face the facts but has only produced half-hearted proposals to meet them.—I am, etc.

LESLIE WILKINSON

DANIEL PRINCE

### Chemical Carcinogenesis

SIR.—As you point out in your leading article (Oct. 25, p. 19), chemical causes of cancer are so numerous that specific attention is not confined to any one of them. It is perhaps worth noting that they all cause damage to a group of cells, with stagnation of circulation, which must be maintained for months. Locally devitalised cells, with local stagnation, are quite characteristic of cancer. As the aetiology and the disease seem to arise from the same conditions, the origin must be intracellular, and there is little doubt that local stagnation is a dominant cause.—I am, etc.

MURRAY

RICHARD KEEFE

### Tapered Sutures for Vascular Surgery

SIR.—A successful issue after such operations as those for coarctation of the aorta, congenital pulmonary stenosis, etc., depends chiefly on the establishment of a water-tight, or rather blood-tight, anastomosis of the blood vessels concerned. Accurate apposition with no tension is essential if leakage is to be prevented, and this can generally be attained; but there is another snag—leakage from the needle holes—and I know of several disasters from this "complication." In these cases an atraumatic (eyeless) needle with non-capillary suture material was used with the obvious result that the suture did not completely dam the holes made by the needle of larger calibre. I put forward the suggestion, which may have been made before, that the suture material should not only be absorptive but that it should be tapered. Only the first few inches need be tapered, and experiment will easily prove the exact gradation of tapering necessary to adequately dam the holes made in the vessel wall by the needle. Most good fishing lines (made of silk) are tapered: there should be no difficulty in procuring tapered suture material.—I am, etc.

Dunder

F. R. BROWN

### Synchronous Combined Total Gastrectomy

SIR.—I have read the article by Messrs. J. Basil Hume and Guy Blackburn (Nov. 22, p. 817) with great interest and feel that they deserve congratulations on their ingenuity in approaching this problem. While it is an asset of the method that the question of operability can be decided on abdominal exploration, there are a number of points I would venture to criticize. I cannot agree that the division of the thoracic arch in the combined abdominal and thoracic incision "is undesirable for the patient's convalescence." When, in the abdomino-thoracic approach, the costal arch and diaphragm are divided, the ribs can be retracted with minimal pressure and therefore minimal trauma and shock; again, the arch can be firmly reconstituted at the close of operation by a single suture through the cartilages. The resection of a rib appears to me a more serious problem for the patient.

Are they not too generous in their time allowance? A single surgeon, using the abdomino-thoracic method, can easily do an uncomplicated case inside two and a half hours. I certainly do

not consider that "excision of the cardia and 2-3 cm. of the oesophagus is essential if ablation of a growth is to be radical." Some 80% of gastric carcinomas begin in the prepyloric region and only in the late stages involve the glands on the left of the cardia, while the glands on the right are removed in the standard partial gastrectomy for carcinoma. It is the spread to the coeliac axis and porta-hepatic glands that decides the issue as regards plandular involvement in late cases. For this reason alone total gastrectomy is unlikely to give late results better than partial gastrectomy in the case of carcinoma arising in the common site. Its best role is for linitis plastica, growths of the fundus and cardia, and as a palliative for certain late carcinomas. Finally, is the Roux or any type of entero-anastomosis really necessary in total gastrectomy? I have not found it so in a small number of total and a fairly large number of high partial gastrectomies.—I am, etc.

DATA

T. O'NEILL

### Anticoagulants in Coronary Thrombosis

SIR.—Prof. A. A. Fitzgerald Peel mentions my name in his letter in the *Journal* of Nov. 15 (p. 794). He does not seem to have used heparin in the cases he cites—the drug that produced such a remarkable recovery in Prof. Lambert Rogers's case of pulmonary thrombosis. Whether heparin offers any advantage over dicoumarol I do not know. It will be observed that Prof. Peel's first two cases had each more than one lung infarct before treatment was started. Two cases with hypertensive heart failure and lung infarct were given dicoumarol and developed further lung infarcts. His fifth case with hypertension and angina of effort, after treatment with thiocyanate and the blood pressure dropping from 220/110 to 180/94, developed a severe attack of coronary thrombosis.

I respectfully submit that Prof. Peel's cases are rather complicated to dogmatize about the action of heparin or any other anticoagulant in coronary thrombosis in its initial stage. Prof. Peel has, however, established in his letter "that the blood coagulability is not the only factor which influences the extension of a coronary thrombosis." In my judgment the two essential factors in producing coronary thrombosis are degenerated arteries in the heart and low blood pressure, which will favour the formation of a thrombus.

Coronary thrombosis usually occurs when the patient is quiet and often in bed, when the circulation is quiet and perhaps slow. In my letter of Nov. 1, I pointed out that it was the underlying cause—arteriosclerosis—that required treatment. A suitable regimen would be one in which flesh foods are reduced to a minimum, with plenty of fruits, vegetables, etc. From years of observation I have found the prolonged use of iodide of potash is the only drug I know that will arrest atheroma of the arteries and largely restore them. But the drug has to be given at least three months before decided changes can be observed from the improvement of the patient. Dr. Lander Brunton expressed a similar opinion on this action of iodide of potash in his book on the action of drugs.—I am, etc.

Glasgow

J. T. MACLACHLAN

### The Extent of Neurosis

SIR.—One cannot but express sympathetic agreement with Dr. Willoughby Clark's plea (Nov. 8, p. 746) that more time should be devoted to those suffering from functional illness. Nevertheless, his suggestion that two afternoons per week could be set aside for such patients—each presumably to be subjected to an hour's psychiatric probing—is for the average busy practitioner a sheer impossibility. This would entail the sacrificing of one's hard-earned half-day (often no half-day at all) and Sunday afternoon to this, albeit worthy, purpose. Admittedly the neurotic forms a certain proportion of the normal surgery "clientele," though I disagree with Dr. Clark's estimate that from one-third to two-thirds are in this category. It is considerably lower than that—I would place it at perhaps 15% to 20%. Many of these people have very mild functional derangements, which the much maligned pill and bottle of medicine go far to eradicate, combined as they are with the sympathetic advice of an experienced practitioner, who can find out quite a lot about his patients' problems in considerably less time than

the regular weekly hour advocated by your correspondent. Incidentally I have yet to meet a psychiatrist who did not prescribe phenobarbitone in some form for his cases.

Needless to say the more severe forms of functional disability should be referred to an expert, though in many industrial areas psychiatrists are in very short supply. One can only hope that more psychiatric clinics will be set up in the near future. All this and more will no doubt be provided in Mr. Bevan's nationalized Utopia, which we are assured is just around the corner. Meanwhile the general practitioner will continue to give of his best to the neurotic patient. But ten hours a week! No, Sir! It just cannot be done.—I am, etc.,

Blackburn.

T. J. BURKE.

SIR,—Was there so little neurosis in the Victorian era? I remember it was an axiom in Edwardian times that nervous disorders were rare among the working classes, and it was not till good King George's days that this idea began to be undermined. The 1914-18 war damaged it badly. Since then social workers have told me nervous disorders were frequent in all three eras, especially among women of the depressed classes.

Why did we meet them so seldom in hospital? First, I think, because the sufferers had no suitable vocabulary. Pain, sickness, wasting, even our old friend "a nasty 'ackin' cough," were recognized respectable symptoms. Forty or fifty years ago, what sort of shrift would depression, fatigue, and anxiety have received at "out-patients"; and, to arrive at our second reason, what sort of treatment?

It seems strange so little is known of the distribution and occurrence of the nervous disorders. In his book *The Spirit of Discipline*, Dr. Francis Paget has an interesting passage on accidie: "Homeless and solitary hermits are especially assailed by it, and monks find it most troublesome about twelve o'clock, so that some . . . have held it to be 'the sickness that destroyeth at noon-day.'" Dostoevsky notes the frequency of nervous disorders among Russian peasant women. Oliver Wendell Holmes notes its frequency in New England, and quotes the seventeenth-century divine, Cotton Mather, on this subject: "New England, a country where Splenetic Maladies are prevailing and pernicious, perhaps above any other." In the seventeenth century at home has anyone noticed what a superb clinical picture Bunyan gives us of Mr. Fearing in the *Pilgrim's Progress*? Few men knew social life and conditions in the eighteenth century as John Wesley knew them, and he lived from 1703 to 1791. In one of his letters he refers to "Melancholia" as being so prevalent that it is known as the "Englishman's Disease."

Accidie, splenetic maladies, melancholia may have no determinate meaning. Neither has neurosis. Those who believe "nerves" to be a modern invention should look up Proverbs xviii, 14: "The spirit of a man will sustain his infirmity; but a broken spirit who can bear?"—I am, etc.,

Glasgow

IRENE N. CLOUGH.

### An Endotracheal Flange

SIR,—May I compliment Dr. John Gordon (Nov. 15, p. 785) on his design of a metal flange for use in endotracheal catheters under a face-piece? Those anaesthetists who are unable to obtain such a flange or a catheter with rubber flange incorporated, and do not wish to tear the end of the catheter with a safety-pin, may welcome the following suggestion. Pierce the catheter with the point of a red-hot safety-pin. The resultant holes will be permanent and will last the life of the catheter without splitting.—I am, etc.,

London, W 4

DONALD BLATCHLEY.

### Cats and Poliomyelitis

SIR, Dr F. L. King-Lewis's letter (Nov. 15, p. 795) tempts me to say that I had one case of poliomyelitis in a farmer who lived in an isolated farmhouse. In this farm there had been from time to time an epidemic in which the cats became paralysed and died immediately. This also may be coincidence.—I am, etc.,

Leitchfield, Herefs.

NORMAN MACFADYEN.

### Child-bearing and Tuberculosis

SIR,—I would like to join other contributors to your correspondence columns in congratulating Drs. C. J. Stewart and F. A. H. Simmonds on their paper (Nov. 8, p. 726) on the above subject. This carefully compiled review gives statistical confirmation to the results already published by myself in 1943 and 1946 and obtained in the special maternity unit for tuberculous women at Black Notley. When the unit was first opened in 1937 I approached the subject with scepticism, but over ten years' experience of treating a total of 260 patients, 75 of whom had active pulmonary tuberculosis on admission, has convinced me that it is difficult to justify termination of pregnancy on medical grounds alone.

Dr. P. Heffernan (Nov. 22, p. 837) refers to a temporary improvement which may occur in active cases during pregnancy, followed "in only too many cases" by an "acute flare-up" at the end of the puerperium. It does seem possible that physiological changes in metabolism during pregnancy may have some degree of beneficial effect, but much further research on this aspect is required, and until such an effect can be proved more than a clinical impression, or an arm-chair hypothesis, it should not enter into the practical management of tuberculous women. I must, however, again dispute the contention of Dr. Heffernan (and others) that pulmonary tuberculosis is particularly liable to "reactivate" or "flare-up" shortly after delivery. At any rate under the conditions available at Black Notley fewer cases break down after delivery than would be expected to occur within the same time in the natural course of the disease irrespective of pregnancy.

Apart from such inexorable progression of the disease, the real cause of those breakdowns that occur are due to such factors as the strain of caring for the infant, overwork, financial strain, etc. In other words, the cause of breakdown is social rather than medical, and if abortion is being considered for a phthisical woman we should recognize that the indications are indeed social and not the threat of harm resulting from pregnancy and labour *per se*. This of course raises important medico-legal questions, and Drs. Stewart and Simmonds's conclusion that its necessity must be established in each patient should be always in the forefront of our minds. Incidentally, the legend of a sudden fall of diaphragmatic level with delivery—and the alleged effects therefrom—still seems to worry many workers. Like Charles II, it is "an unconscionable time a-dying." Space will not permit me to enter into a dissertation on this particular aspect, but there is no doubt that the effect of diaphragmatic level has been very greatly exaggerated.—I am, etc.,

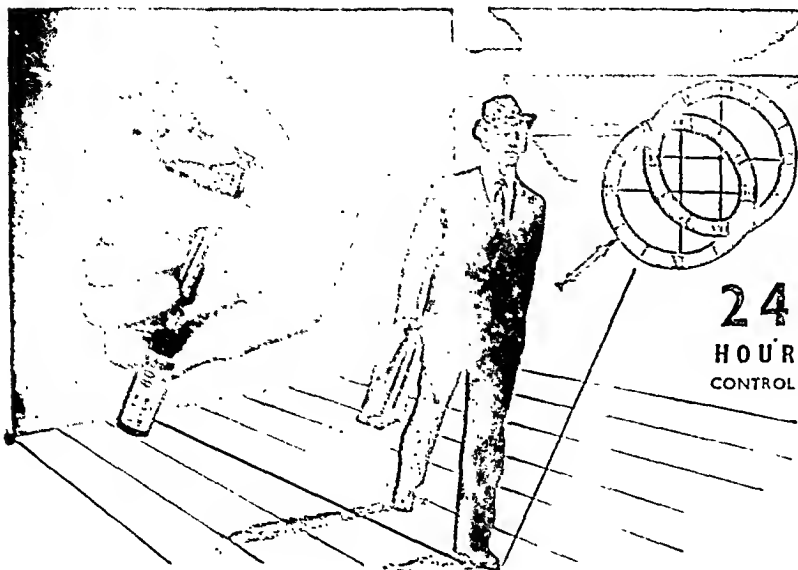
Black Notley, Essex.

RAYMOND C. COHEN.

SIR,—The article on the above subject by Drs. C. J. Stewart and F. A. H. Simmonds (Nov. 8, p. 726) has prompted me to write expressing my alarm at the ever increasing number of articles which have appeared recently on this subject, all endeavouring to prove that pregnancy has no effect on tuberculosis. It is not my intention to challenge their views and findings except to mention that tuberculosis runs such a variable course that it is almost impossible to provide reliable controls. The articles are misleading in that the natural inference drawn from them by anyone not in close contact with the domiciliary control of tuberculosis is that there is no justification for terminating pregnancy in a case of tuberculosis, whether active or not.

The present-day appalling overcrowding as a factor in the spread of tuberculosis is well known. The fate of young children in tuberculous households was investigated by the Lanes County Council in 1929, and this proved that the death rate in children under 5 from non-pulmonary tuberculosis (two-thirds of the deaths being from tuberculous meningitis) was approximately fourteen times greater in a household where there was open tuberculosis than in a normal one. Under present-day living conditions this would no doubt be appreciably higher.

The development or otherwise of lung changes is only one of many factors that have to be taken into account. There are others that from a practical point of view are of far greater importance. Correlated with these is the appalling failure of



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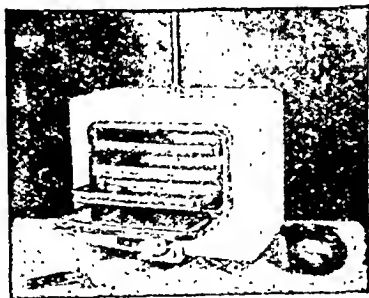
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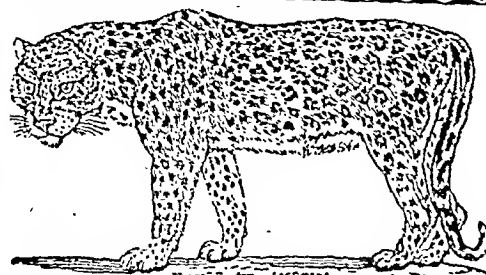
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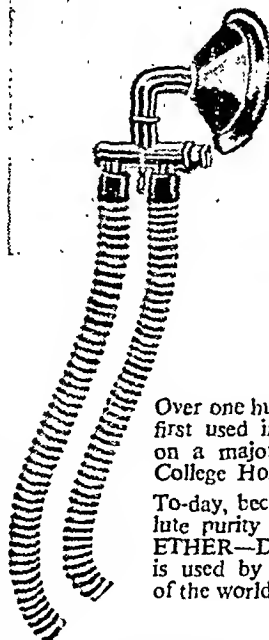
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so many patients to take even elementary precautions against the spreading of infection. The other extreme is the mother who is over-anxious about infecting her child, and one has known this constant worry to have caused deterioration of the mother's general health, followed by a flare-up of the old disease.

I have at present a patient who was confined shortly before her admission to sanatorium. Neighbours agreed to take the baby on the understanding that as soon as the mother completed treatment the baby was to be returned to her. On discharge the mother was still an open case. The fact that she now realizes that there is little hope of her becoming fit enough to take the child back (he is unwanted by his foster parents) is, in my opinion, largely responsible for her present rapid deterioration.

Prolonged ante- and post-partum institutional treatment is advocated, but how can this be carried out with the extreme staff and bed shortages now prevailing? Lack of domestic help, added financial strain, and sleepless nights all help to undermine the patient's already devitalized system. These factors, together with many others, need careful consideration before finally condemning abortion in tuberculosis cases. The pathological lung changes are of less interest to me than these other possible catastrophes. As an employee of a service whose motto is, "The Prevention, Treatment, and Abolition of Tuberculosis," I deplore this drive for babies without full regard to the consequences.—I am, etc.,

I. J. J. Jones, Carmarthen, Glamorgan.

J. T. JONES

### Foetal Cries

SIR.—In the provinces and other places where induction of premature labour is accorded a place in obstetric practice there must have been many thousands of inductions performed with the Drew-Smythe catheter since its description in the *Journal* in 1931. Yet apparently no case of a foetus crying following introduction of air into the uterus by this means has been recorded until 1947, when three cases occur within ten weeks.

The third case was in the Birmingham Maternity Hospital on Nov. 5, when one of the residents was attempting to induce premature labour at the 37th week for disproportion in a primiparida. The cervix was dilated digitally, and the Drew-Smythe catheter passed behind the presenting part to puncture the membranes rather lower than intended, about 2 in. (5 cm.) from the internal os. Only 5 oz. (140 ml.) of liquor escaped, and the uterus was compressed in an effort to drain some more. On releasing the uterus some air was sucked back along the catheter, and the foetus started to cry. The noise was easily heard by the patient, the doctor, the theatre sister, and the pupil midwife, all at the bedside, and it was audible from the far side of the labour theatre. I was called in to witness the phenomenon, and the child obligingly performed for about five minutes at irregular intervals, each period of crying representing some five expiratory efforts; the noise, as I heard it, was a combination of the gurgling of bubbles of gas in water and true vocal-cord vibrations. It could be heard from any part of the room and was particularly loud through the foetal stethoscope. Foetal movements were active throughout.

Three days later a repeat puncture was carried out, but no further foetal cry was heard, nor did the patient go into labour. Eventually labour was initiated by injections of "pitocin," and a live infant weighing 5 lb 3 oz. (3.1 kg.) was extracted by forceps on Nov. 16, eleven days after the first puncture.

In the cases described by Dr. E. Culphey (Sept. 27, p. 508) and Dr. Jean Burton-Brown (Oct. 25, p. 672) the induction was performed on multigravid patients a week before term, but this case clearly shows that a premature infant of less than 5-lb. (2.25-kg.) weight can be stimulated to respire in utero. It also demonstrates that the phenomenon is entirely without harmful effect to the baby. This might be anticipated, since it is obvious that the foetal air passages must normally be full of liquor, though the lung alveoli are collapsed; and it is well known to pathologists that a newborn infant can cry lustily at birth and still show complete pulmonary atelectasis at necropsy 24 hours later.

It follows that foetal respiratory movements must accompany the other foetal movements in pregnancy, especially when stimulated mechanically. These movements cause a flow of liquor amni to and fro across the larynx without either distending lung alveoli or producing cord vibrations. This fluid

is automatically expressed by the forces of normal labour, and the fact that some of it may have been replaced by air is of no significance to the infant's ultimate respiration. The high foetal mortality of previous reported cases has undoubtedly been due to interference.—I am, etc.,

Birmingham

W. G. MILLS.

### Vaginal Temperature

SIR.—Following Dr. M. Moore White's advice (Nov. 22, p. 841) I have read the article by H. W. Hales (*Medical Press and Circular*, 1946, 215, 310), which proved to be interesting, by no means beyond criticism, and entirely irrelevant to the subject matter of my letter (Oct. 25, p. 672), the burden of which was that basal temperatures taken orally give as much information in the study of cases of infertility as do those taken rectally or vaginally. It is quite beside the point that Hales has drawn attention to certain cases of chronic disease in which the rectal temperatures showed an elevation above the normal while the oral temperatures remained at or below the traditionally accepted normal level; and it is pertinent to remark that he does not mention the far more numerous cases of chronic disease in which this differential temperature effect is not manifested. If Dr. Moore White relies upon rectal temperatures in order to detect tuberculous endometritis it would seem probable that she is likely to miss cases; they certainly occur wherein neither oral nor rectal temperatures show any departure from the normal ovular pattern. A more reliable method, I submit, is the taking of routine endometrial biopsies.

Theoretical accuracy is not the sole criterion for choosing a particular clinical method; the patient's willing and continued co-operation is also worthy of consideration, and there is not the smallest doubt that few patients show any enthusiasm for taking rectal (or vaginal) temperatures for weeks on end, whereas most infertility patients will take oral temperatures with but little protest for as long as they are asked; and the important point is that oral temperatures are quite adequate for the detection of ovulation in a usefully large majority of patients.

The fact that Dr. Moore White's letter is immediately preceded by Mr. W. R. Forrester-Wood's report of a second patient having passed a thermometer into her bladder while endeavouring to take her vaginal temperature effectively answers Dr. Moore White's accusation that my condemnation of the method, because one woman had met with the mishap, was unreasonable. It also renders more than probable the previous occurrence of similar but unreported instances.—I am, etc.,

London, N.W.6.

G. I. M. SWYER.

### Student Health

SIR.—Attention to Mr. S. M. Drancz's letter on student health (Nov. 22, p. 843) is not without profit. I would suggest that in it are demonstrable some of the causes of our present position and direction. Inquiry will prove the adequacy and excellence of the medical services available to Edinburgh medical students and that the medical school has made provision for the services of an expert to study and report on student health. The proposal is made through the B.M.S.A. and support is sought of the N.S.U. and the Scottish Union of Students. These are all organizations which have grown up outside the Edinburgh Medical School. If there is necessity for local reform, demand properly should be made by that locality. Organization will grow to support policy. An Edinburgh student has no other responsibility than to his own medical school.

The proposal is that of the introduction of a compulsion; from which I would deduce that, first, the superfluity of the proposal locally punctuates the central origin of this policy. This is in accordance with Sir Ernest Graham-Little's observations about the colour of the B.M.S.A. We might do well to inquire into the real origins of that organization. Secondly, the chief effect in Edinburgh, therefore, would be the introduction of a compulsion. These observations are applicable to and germane to any centrally proposed measure. I must add that this is analysis of policy, not of one or more individuals.—I am, etc.,

Edin.

GEORGE H. BLAIR.

## Dimensions of Personality

SIR.—The review (Oct. 25, p. 657) by Dr. Eliot Slater of *Dimensions of Personality* by H. J. Eysenck, Ph.D., is surely calculated to send psychiatrists to a more than careful study of the book, especially as Dr. Slater ends with the striking, if also encouraging, assertion that "one consequence of this work will be that our text-books of psychiatry will have to be largely rewritten." It may be remarked at the same time that Prof. Aubrey Lewis, who contributes the foreword to the book, is much more cautious in his comments, and the author himself is far too modest to make any such claim. Dr. Eysenck, in fact, is disarmingly candid in the admissions he makes of the inconclusiveness of many of his experiments. The book deals with investigations and factor analyses based upon an "item-sheet" prepared for each patient admitted to Mill Hill Emergency Hospital. Two main factors emerged. The first of these the author calls, "neuroticism"; the second comprises two groups, the "hysteria-dysthymia" bipolarity.

Statistical method must of course have grist to work upon, and strictly speaking it doesn't matter to the statistician whether his data are true or false; he still can produce his tables of correlations. In the book in question Dr. Eysenck seems to have gone out of his way to suggest that his data may not be reliable. He refers, for example, to the "known inaccuracies of routine diagnosis and assessment" in criticizing some of Dr. Slater's own work on p. 56 and returns to the same theme on p. 190 and elsewhere. In this connexion one of Dr. Eysenck's experiments on the relationship between hysteria and suggestibility deserves special notice. A number of hysterics were selected and tested by experiment, and it was discovered that they are no more suggestible than other types of neurotics. It would seem to be of significance, although Dr. Eysenck does not mention it, to know whether, when the hysterics were diagnosed in the first place, the question of the existence or otherwise of suggestibility was considered as a diagnostic feature.

Dr. Eysenck frankly refers to the difference of opinion on the subject of factorial analysis, pointing out that some psychologists consider the factors to be statistical artifacts. He remarks also on the somewhat discouraging fact that already 350 factors have been discovered by statistical methods. In his work on suggestibility, which Dr. Slater especially picks out as convincing, Dr. Eysenck draws attention, in his usual impartial way, to two objections which might justly be raised against his experiments on the relationship of hysteria and suggestibility (p. 190). He describes two additional experiments which were devised "to obviate these two objections." In the end he is compelled, rather naively, to admit that these also "show comparatively little reliability" (p. 192).

Other criticisms could be made, but one which I think will appeal to those who can detach themselves from the statistical habit of mind is implicit in the description of Prof. Guilford's investigation by questionnaire responses of large numbers of students. His analysis failed entirely to disclose any general factor of "neuroticism" such as Dr. Eysenck has discovered (p. 38). But, by reanalysing the figures and using statistical procedures different from those of Prof. Guilford, Dr. Eysenck found that a general factor did appear which "in many ways resembles our general neuroticism factor" (p. 39). To the statistician this no doubt is a perfectly ordinary transaction. To others it may almost look like prestidigitation by the abacist, or the gentle art of having it both ways.

We have it on the authority of Jeans that God is a mathematician with, as Bertrand Russell has expressed it, a passion for doing sums. Psychologists will no doubt be stirred at the thought that by the aid of a new mathematical technique they are being brought, if only slightly, closer to the Creator. I cannot help thinking, however, that the exuberance of Dr. Slater's local or personal loyalty may have led him considerably to anticipate this devout consummation. The new advances described in Dr. Eysenck's book, if they are substantiated, it seems to me, are largely academic at present and have little practical application to psychiatry. The book is written mainly in the hypothetical and conditional key which seems to me to be right and proper in view of the stage of investigation that has been attained.—I am, etc.,

London W 1

FREDERICK DILLON.

## Hospital Treatment of School-children in Shropshire

SIR.—May I express the hope that Dr. H. W. Bambridge (Nov. 15, p. 795) will prepare his case very carefully before making a major issue of the arrangements for the hospital care of school-children in Shropshire? A county medical officer who wishes to bring more and more of our affairs under his control, either because he is genuinely concerned about some of our less successful results or because he believes that by so doing he is consolidating his position as a potential "führer" under the National Health Service, can be very convincing when dealing with a committee of laymen.

It is unfortunate but true that a great many photographs exist to show the appalling results of inept treatment of fractures in the bones of growing children. It is also true that statistics can be produced as to the need for a second tonsillectomy in children who have already been operated upon by general practitioners. (Which of us has not at one time or another heard a colleague say, "We don't do any surgery in the practice, just T.s and A.s and things like that"?) The occasional operator gets very useful results in routine surgery, but there can be few such who have not sometimes bitterly regretted that they had embarked on a seemingly simple task and found themselves most dangerously out of their depth. Errors of omission or commission can very easily be adduced in favour of any scheme to place the hospital treatment of school-children under the direct supervision of men or women of consultant status.

Let me stress that Dr. Bambridge can resent no more bitterly than I finding himself in a position in which he is allowed no latitude or discretion at all. It is infuriating to be told that any child who requires any sort of hospital treatment (which may merely be because an overworked mother cannot possibly nurse him at home) must be sent twenty-five miles to a hospital in a neighbouring county or forty-two miles if he is to remain in his own county, whether I can see any necessity for the move or not. I do feel, however, that there is a case, however specious some among us may consider it, to be answered and that our own cause can only suffer if we underestimate its plausibility in the eyes of the average layman.—I am, etc.,

Launceston, Cornwall.

DONALD M. O'CONNOR.

## Planning and World Population

SIR.—With reference to the leading article (Aug. 9, p. 214) and the letter by Dr. G. Macdonald (Sept. 27, p. 506) on the same subject—viz., "Planning and World Population"—I should like, with your permission, to air a few views on the subject. In the first place let me say that I agree with both of you to a certain extent. Your leading article led me, when I read it, to exercise one of my hobbies, mathematics, by calculating how soon, with an average rate of reproduction such as my own personal family shows, the human race would become extinct. I worked it out at a period of about 775 years. Having made that calculation, I wondered how much the population of the world would increase to in the same time if every married pair produced one more instead of one less than they started from. I found that such average families of three would amount in 775 years to eight and three-quarter billion for the population of the earth—that is, English billions—whereas the present world population is approximately 2,000 million. Obviously there must be at work still forces of no mean order for the limitation of population, so that your fear of overpopulation at a very early date seems somewhat exaggerated.

You rightly rule out war and pestilence as agents for limiting population now, for it is the function of U.N.O. and medical men to counteract their pernicious influences respectively, however much we may doubt their effectiveness in that objective within any reasonably short time. Famine and limitation of birth rate remain. One of these must prevail, if the other fails to act.

I cannot follow your logic when you say that even with radical reorganization of land use and agrarian methods "an ignorant man with a hoe, his wife, and his children are a totally inadequate foundation for an enlightened state of society, a high standard of living, and elaborate social services. Much less is such a family a secure foundation for the production of food which can pay for the import of food from the few agricultural countries still possessed of an exportable surplus." Surely if the reorganization that you postulate were effected the primitive

conditions you depict in the words in inverted commas would disappear? Your argument is not sound.

Macdonald is right in thinking that your pessimistic attitude may do real harm. He quotes others to show that maximum production is still far from being attained from land in Africa, although he seems to feel sure that India, Java, Mauritius, and Jamaica can no longer be expected to improve their output. Baker and White say the population of South-east Central Africa is far below optimum. He rightly says that the population problem is one of balance. He says further that "the economy of grossly undeveloped countries can be improved more readily and more to the general advantage of the world by an increase in the supporting capacity of the land than by a restriction of population, though ultimately that must come." It must come when famine naturally follows unrestricted population increase, but it may come before that if the spirit of man is so broken by exploitation either by his fellow men or by an outraged Nature exploited by himself.

Another Baker tells how certain African tribes<sup>1</sup> deliberately set themselves to commit race suicide when their own foolish exploitation of their forest lands had made desert of fertile land. Their action was the wisest they knew to remedy their desperate plight. Life was not worth living, so they altruistically refused to pass it on to their offspring. Europeans are not so wise. They only *speak* of such action<sup>2</sup>; they *do* nothing about it. They do worse: they destroy what is of real value to keep up the price of the real in terms of the fictitious value—the mere token gold, and its even more fictitious substitute, paper money. They lend the fictitious money to those in need of real (food, clothing, etc.) produced by themselves. Their piling loan on debt and debt on loan to maintain the "gold standard" is no less absurd and complicated than the Ptolemaic astronomers' "piling cycle on epicycle, orb on orb" to maintain the geocentric theory of astronomy. The "balance" referred to by Macdonald is as great a simplification of present-day finance as was the Copernican astronomy a simplification of the Ptolemaic. One has only to equate the surplus products of each country to its needs from other countries to work out from these equations a unit of value that is indissolubly linked with the life of man on earth and so incapable of falling, in less than a generation, to less than half its previous value, as our old pound sterling has done. Even the smallest unit-value quantity of any of the necessities of life would be of more use to a millionaire in a desert than a bag of gold.—I am, etc.,

Durban, Natal.

C. LUNDIE.

#### REFERENCES

- <sup>1</sup> Baker, R. St. Barbe, *I Planted Trees*, p. 115.  
<sup>2</sup> Dunne, J. W., *The Serial Universe*, p. 37, London, 1942.

#### Tuxford's Index

SIR.—In the paper "Calculation of Tuxford's Index by Graphical Methods" by Mr. H. Campbell (Nov. 22, p. 821) the formula used was that given by Tuxford in 1939, based on measurements made in 1909–10. Tuxford, however, revised this in 1942, basing the revision on the measurements taken in London in 1938. Tuxford (1939) in describing the index said that "the formulae being based on weight/height ratio have the defects of that ratio" and gives a number of illustrations of these defects—namely, for boys of different physique who would all be regarded as of normal development because of their equal weight/height ratios, for children stunted in early life by disease, and for obese children.

Mr. Campbell's statement that "the validity of the assumption [that the index does provide some basis for a comparison between different groups of children and between different stages of development among the same children] was tested extensively against clinical examination by Huws Jones (1938)" is open to question. Huws Jones took one single set of measurements of a number of children and compared the indices derived from these with the clinical assessments of the same children. He did not take measurements over a period of time as a measure of the different stages of development among the same children. While it is true that he found that of the formulae considered the Tuxford index gave the closest agreement with the clinical assessment, in the second part of this paper Huws Jones showed the unreliability of the clinical method. Moreover, Prof.

Bradford Hill made the cogent criticism that the clinician might, in his judgment of the nutritional grade, have been influenced by the physical measurements themselves. In any case Tuxford gives strong reasons against the "static" use of the index, seeming to prefer changes in it as measures of changes in nutritional state. Whether or not the formula is valid for that purpose has, as far as I know, not yet been proved.

Tuxford's index consists of two parts: (1) the anthropometric ratio weight/height, and (2) a refinement for age. The index does not therefore differ basically from weight/height—a formula which has been severely criticized as a measure of health or nutrition.—I am, etc.,

London, S.W.1.

E. R. BRANSBY.

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- Jones, R. Huws (1938). *J. roy. stat. Soc.*, **101**, 1.  
Tuxford, A. W. (1939). *J. Hyg.*, **39**, 203.  
— (1942). *Ibid.*, **42**, 549.

#### Aneurin Deficiency

SIR.—I was delighted to read (Nov. 15, p. 763) that Dr. W. Russell Brain (formerly my respected teacher) uses an argument in relation to aneurin deficiency which I have used for 15 years in relation to bad teeth. Medical men often jib at recommending extraction of very bad teeth, because *some* have had extractions and not benefited. Does not this show that the extractions were delayed too long, allowing joints to be irreparably damaged, perhaps bone marrow badly injured with toxins, etc.? Surely it is better to extract early and benefit the patient than to allow auto-intoxication for the rest of natural life.—I am, etc.,

London, N.1

K. MALIK.

#### The Lazy Eye

SIR.—Among five hundred lads between the ages of 16 and 18 examined in the last two years, twenty-two (4.4%) had a visual acuity of 6/18 or less in one eye. This figure is considerably lower than that quoted by Dr. G. C. Dansey-Browning in his letter (Nov. 15, p. 796); nevertheless, it is still a significant proportion, especially when it is realized that such a disability may be the cause of a youth's not being able to embark upon the career on which he has set his heart. I would therefore like to add weight to the plea for the recognition of this problem. If the majority of these visual defects are preventable without too much difficulty, there is every reason for suitable treatment being undertaken. From personal experience I can vouch for the fact that much heartburning and disappointment in later years would thereby be avoided.—I am, etc.,

London, E.1.

ALAN WATSON.

#### Snoring

SIR.—You report Mr. V. E. Negus as stating (Nov. 22, p. 835) in the course of the discussion on Mr. I. G. Robin's interesting and instructive paper on above subject that the horse, cow, and cat would be incapable of snoring. There are certainly many exceptions to this rule in the case of cats; but it must be confessed that snoring will only take place when the particular animal relaxes into a sleep which is, for it, unnaturally deep; and this in its turn will never occur except when the cat is in a sanctuary which it believes to be absolutely inviolable.—I am, etc.,

London, W.5.

FRANK CROSBIE.

#### Health Regulations for Air Travel

SIR.—I found Dr. R. H. Barrett's article (Nov. 8, p. 741) most interesting and helpful. Hardly a day passes without an inquiry on behalf of someone going abroad as to the necessary protective inoculations. In most cases it seems that the person going abroad receives from the shipping or airways company a communication giving a definite date of departure together with advice as to the inoculation procedure which must be completed before leaving this country. The person concerned then usually consults his own doctor, who in many cases turns for advice and help to the health department.

In order to assist these cases a weekly clinic has been started, and, provided there is prior knowledge of who to expect, the

necessary inoculations against typhoid, tetanus, typhus, and cholera can be undertaken. This service has been much appreciated, but in many cases the time available before embarkation is too short to allow even the necessary injections to be given and certainly is insufficient for full immunity to develop. This is such a frequent occurrence and is so irritating to all concerned that I am writing to inquire whether anything can be done by the medical staff of the shipping and airways companies to ensure that a person proceeding abroad has full information as to the protective inoculations required sufficiently early for these to be carried out in a satisfactory and effective manner.—I am, etc.,

Leeds.

J. F. WARIN.

### Research on Ageing

SIR.—In a previous communication to the *Journal* (Nov. 23, 1946, p. 796) Dr. J. H. Hannan emphasized the importance of extending the work of medical research from the hospital and laboratory so as to include the wider investigation of disease under field conditions. In this connexion the research work at present being carried out in relation to the process of ageing at once came to mind. There is a section of the population which could make a useful contribution to accurate and first-hand knowledge on this subject. I refer to members of the medical profession who belong to the 65-plus age group. Members of this group, many of whom are retired, are in a position to take a personal and practical interest in this branch of research work. They have the necessary knowledge and experience to assess the signs and symptoms of physiological ageing and to recognize those premature changes which are to be regarded as of pathological significance. The employment of members of the profession belonging to this group by a research unit for a field survey would yield reliable information on various problems relating to the process of ageing.—I am, etc.,

Helensburgh, Dumbarton.

H. HYSLOP THOMSON.

### Road Accidents

SIR.—With reference to letters in your recent issues and statements in the public press upon this subject, it may be of interest to stress the fact that road accidents now occupy an important place in our mortal statistics. In my opinion the theory that the majority of road accidents are due to ignorance of driving matters, car manipulation, and so forth does not go deep enough. I submit that in the majority of cases it is not ignorance of driving and mechanical matters that cause accidents, but psychological faults which cannot be detected by driving tests. I am not suggesting that driving tests should be abandoned, but there are certain people who are by nature particularly susceptible to accidents, and this personal psychological factor (possibly in part genetically determined) should be investigated to discover what particular factor is associated with accident proneness.

The constellation of causes is made up of several factors, and in all probability the psychological factor is the most important. Certain psychological tests yield significant correlation coefficients between the scores obtained and accidental rates. Jung was of the opinion that accidents of every sort, in greater number than the public ever suspect, were of psychological origin. The tests are not perfect (few tests are), but they would enable us to eliminate unsuitable people from those proposed as car drivers. Whether it is reasonably practicable to carry out such tests is another matter.

Halifax.

G. C. F. ROE.

SIR.—Mr. T. C. Foley's letter (Nov. 22, p. 843) outlining the views and policy of the Pedestrians' Association is an excellent example of what may happen when a body of men forgets the debt which it owes to common humanity and chooses one of its activities in which to bind itself together. In this case the party bond is not more significant than the particular mode of transport which the members favour, and yet this bond, as I pointed out in my article (Oct. 18, p. 623), is enough to influence judgment and policy beyond reasonable limits.

All parties can quote cases to prove their point, and the truth is not, as Mr. Foley suggests, that the law is not enforced

because magistrates are motorists, but because there is no strong public conviction that the restrictive laws affecting road users are either effective or enforceable. Magistrates, like most of us, are not only motorists but also pedestrians, cyclists, "trainists," "bussists," and "taxists" at varying periods of the day, and their emotions and judgment vary accordingly.

Mr. Foley's policies of low speed and strict law enforcement and of segregation of traffic attempt to solve the problems merely by restrictive legislation, a course which will commend itself to few unless it is accompanied by a vigorous campaign to learn more about the human causes of accidents as well as the mechanical, so that we may know what laws to pass and how to segregate traffic in a way which the community will support with confidence. Meanwhile, it may even be possible by study to discover how to tame and domesticate this wild animal instead of going to all the trouble and expense of building a cage strong enough to confine him for ever. I would submit, Sir, that my plea for organized research into the psychological causes of accidents is not more remote from reality than the solution proposed by the Pedestrians' Association.—I am, etc.,

London, W.1.

KENNETH SODDY.

### A Suggested Memorial

SIR.—Many friends of the late Walter Rowley Bristow have expressed a wish to share in a memorial to him. It has been suggested that his life and work would be best commemorated by the foundation of an annual or biennial Memorial Lecture, to be delivered, if circumstances permit, alternately in Great Britain and in the United States, the two countries in which he was acclaimed as an outstanding leader in orthopaedic surgery, and where he was held in such warm regard. When a sufficient endowment fund has been accumulated it will be entrusted to the British Orthopaedic Association. Contributions to this fund are now invited, and can be sent to Mr. George Perkins, 149, Harley Street, London, W.1.—We are, etc.,

G. R. GURDLESTONE,  
CHARLES MAX PAGE,  
GEORGE PERKINS,  
HARRY PLATT.

### POINTS FROM LETTERS

#### Reduction of Certificates

Dr. L. S. WOLF (London, N.W.11) writes: I noticed in to-day's *Daily Telegraph* that the Minister of Health has appointed a committee to advise on the practicability of reducing certificates. This is long overdue. I suggest that the following reductions might be made: (1) Surgical belts; (2) the first date of absence from work (the first and last certificates could be combined in one); (3) Milk certificates could be in some cases made out for longer periods; (4) panel certificates for sick benefit could be made out for fortnightly periods as well as weekly; (5) can nothing be done to save doctors' being used so often to sign documents as witnesses of signatures—e.g., passports, lost coupons, pensions, etc.?

#### Mental Health and World Citizenship

Major JOHN STARTIN, R.A.M.C. (ret.) (Beaworth, Devon), writes: Quoting from Dr. J. R. Rees's letter in the *Journal* of Nov. 22 (p. 837): "It is, however, far from easy in these busy days to get men and women to settle down to serious discussion and to formulate their ideas on paper for the benefit of other people: but this is what we want." In his closing paragraph he says: "I hope that this letter may be taken as an invitation of a somewhat urgent kind to those who feel a concern about these matters to do something . . ." I would suggest that the laws of lunacy and the general treatment of patients should be one of the first matters under discussion by the Congress. This to my mind is a fundamental in the treatment of the mentally afflicted, and until these matters are straightened out no real progress can be made in alleviating the lot of suffering humanity who fall into this class.

The Institute of Almoners has recently issued a statement on the functions and organization of an almoner's department. The duties of the almoner are described in detail in connexion with medical social work; other work within the hospital or clinic concerned with teaching and research; and work in co-operation with other social services and health organizations. Staffing and accommodation are discussed and for the benefit of employing bodies emphasis is laid on the need for the creation of an effective department as distinct from the mere appointing of "an" almoner.

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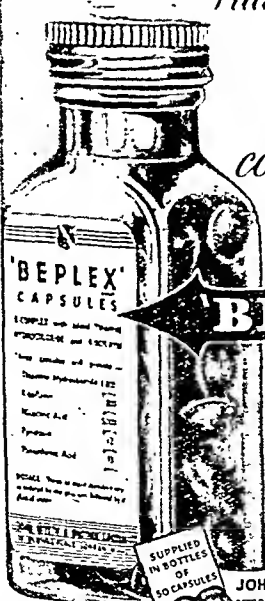
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**References:** Lancet, 1944, 247, pp. 175 and 176. British Medical Journal: 1945, I, p. 59. Pharmaceutical Journal: 1945, 155, p. 245.

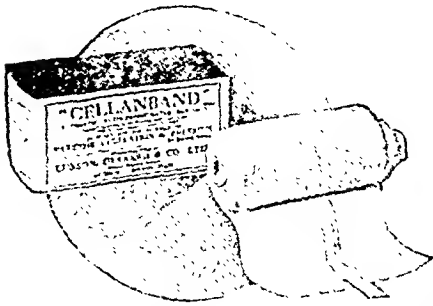
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## Obituary

W. KING HUNTER, LL.D., D.Sc., M.D., F.R.F.P.S.G.

we announce with regret the death, on Nov. 7 at the age of 80, Prof. Walter King Hunter, one of the most distinguished physicians of his generation in Scotland, and for over twenty years Muirhead Professor of Medicine at Glasgow. The active years of his life were spent in the service of Glasgow Royal Infirmary, where he was in turn student, house-physician, and member of the visiting staff. He was in charge of wards here from 1911 until his retirement in 1934. From 1903 until his appointment at the age of 44 to the newly instituted Muirhead Chair of medicine in 1911 he was lecturer in the practice of medicine at Queen Margaret College.

Hunter's early education was at the Glasgow Academy. He then entered the University, and graduated B.Sc. in 1888 and I.B., C.M. in 1890. Seven years later he proceeded M.D., and in 1901 he obtained the D.Sc. The University conferred on him the honorary degree of LL.D. when he retired from his professorship, and he was a fellow of the Royal Faculty of Physicians and Surgeons, and held various offices in the Faculty, including examinations in medicine for the licence and for the fellowship. Hunter had been on the staff of the Glasgow Royal Infirmary for Sick Children in his younger days, and he served a later years on the hospital board of governors.

During the 1914-18 war Hunter was a medical specialist, with the rank of major, on the staff of No. 4 Scottish General Hospital. For some years before his retirement he was consulting physician to the Glasgow Royal Mental Hospital, and he was one of the founder members of the Association of Physicians of Great Britain and Ireland. He also took an active part in the work of the local medical societies, holding various offices, including that of president of the Glasgow Royal Medico-Chirurgical Society. In earlier years Hunter spent some time on the Continent, visiting various clinics and studying particularly neurology in the Paris hospitals. This laid the foundation for a lifelong study of neurological problems, with which he combined a keen interest in haematology. His work in these two subjects alone formed the basis for a number of publications, including a small monograph on the anaemias.

Hunter was not an easy man to know. His rather formal speech and mannerisms tended to give a false impression of the man as he really was. Perhaps his most characteristic trait was a horror of overstatement and of flamboyance in speech, behaviour, and dress. What is now called "shooting a line" was abhorrent to him. To the man who was interested in learning clinical medicine his teaching was an inspiration and his equanimity an example. "Uncle Walter," as he was called by generations of students, will long be remembered with the late W. R. Jack, John M. Cowan, John McKenzie Anderson, and others, happily still with us, who carried on the clinical tradition of the Auld Hoose. One of the secrets of Hunter's happiness was the variety of his interests. He was deeply read in general as well as in medical literature. His appreciation of music, poetry, and painting was founded on a real knowledge of these arts, and he was devoted to quiet rural pursuits. All these were elements in the background of a busy life spent in the service of the community. When he was presented for the honorary degree of LL.D. he was described as "a great teacher and clinician, an original and advanced thinker, who had left his mark for all time on the Glasgow School of Medicine."—J. N. C.

P. L. GIUSEPPI, M.D., F.R.C.S.

Paul Leon Giuseppe died at his home in Felixstowe on Nov. 10 at the age of 66. Dr. Giuseppe, the son of a planter, was born in Trinidad, in the West Indies, where he received his early education. In 1900, on winning a Trinidad Major Island Scholarship, he came to this country to study medicine at St. Bartholomew's Hospital. There he won several awards, including the Jeaffreson Exhibition in 1900, the Junior Scholarship in 1901, and the Senior Scholarship in 1903. Dr. Giuseppe took his M.R.C.S. and L.R.C.P. in 1905, and in the following

year graduated M.B., B.S., with honours in medicine, hygiene, and midwifery and gynaecology. He took the F.R.C.S. in 1907, and proceeded M.D. two years later. He also studied in Paris at the Pasteur Institute. Later he was a house-surgeon at the Royal Free Hospital and senior resident medical officer at Queen Charlotte's Maternity Hospital and at the Royal Waterloo Hospital. In 1910 Dr. Giuseppe went into partnership with the late Dr. Havell at Felixstowe, where he practised until his death. There he was senior surgeon to the Cottage Hospital, and also public vaccinator. During the 1914-18 war he was surgeon in charge of the Cliff Hospital in Felixstowe, and was responsible for naval and military units in the area. In the recent war he was surgeon to the E.M.S. Hospital as well as to various units of the Services. He acted as divisional surgeon to the St. Felix division of the St. John Ambulance Brigade, and served with the rank of major in the Home Guard.

Dr. Giuseppe served on the Council of the British Medical Association for several years, and was secretary of the Suffolk Branch for 28 years, a period of service interrupted only by his presidency of the Branch in 1933-4. To his local activities Dr. Giuseppe brought the same enthusiasm that he gave to his profession. He was a member of the urban district council from 1914 to 1947, a period that included three terms as chairman. Many local sporting, social, and cultural associations found in him a chairman or president who was no figurehead but took an active part in the running of each.

It was, however, in his hobby of collecting alpine plants that Dr. Giuseppe achieved fame beyond the limits of this country. His success in cultivating these plants brought letters from all over the world. He was not content merely to cultivate, but spent his holidays collecting specimens from the mountains of Persia, Russia, Spain, Portugal, the Balkans, and Crete. He discovered many new plants, and one was named after him by Kew Gardens. He was well known in the mountainous districts of these countries, and often after a hard day's climbing he would hold an informal surgery in the villages, many of which seldom saw a doctor. His enthusiasm was partly responsible for the formation of the Alpine Garden Society, of which he was honorary treasurer from its inception until his election as president in 1945. In the last weeks of his life he received from the Royal Horticultural Society their highest award, the Victorian Medal of Honour. Among other associations to which Dr. Giuseppe belonged were the Royal Geographical Society, of which he was a fellow, the Royal Central Asian Society, and the Alpine Club.

Whatever the activity Dr. Giuseppe was engaged in, his energy seemed endless and his thoroughness and enthusiasm were remarkable. In his own mind he carefully turned over the pros and cons of any suggestion and, having made up his mind to the correct course of action, he would support it fearlessly and in forthright fashion. He was outspoken in his criticism of ideas and points of view of which he did not approve, and inevitably this led to some opposition which in no way deterred him from the course of action which he judged to be correct. Looking back over the years it is surprising how seldom one can find errors of judgment even though his point of view was not always accepted. In his professional work this same forthrightness and self-confidence stood him in good stead with his patients, who had complete trust in him and who treated him not only as a doctor but with affection as a guide and friend.

Dr. Giuseppe married in 1910 Andrée Centeno, who died in 1942. He was married again in 1944 to Constance Browning, who survives him, as do his three sons by his first marriage.

SIR WILLIAM H. COLLINS

Sir William Henry Collins, who died at Wexham Park, Buckinghamshire, at the age of 74 on Nov. 30, will be remembered as a benefactor of the Middlesex Hospital, the King Edward VII Hospital at Windsor, and, more especially, of the Royal College of Surgeons of England.

William Henry Collins joined the Cerebos Salt Company in his youth and became managing director in 1916. He was also associated with other large companies. He was keenly interested in the welfare of the sick and a great admirer of the medical profession. He once said that he owed the profession "a debt I can never fully repay." His first considerable benefaction was a gift to the Middlesex Hospital of £25,000

in 1933. This was used to provide what has since been known as the Collins X-ray Department. He was a member of the board of management of the Middlesex Hospital, and later a vice-president.

He became chairman of the Kind Edward VII Hospital at Windsor in 1938, a position which he relinquished only in January of this year. He was an active and energetic chairman, taking the greatest interest in the development of the hospital. At different times he defrayed the cost of new boilers for the hospital, gave the sum of £25,000 towards the rebuilding of the out-patients department, and made other substantial gifts. Even after he had ceased to preside over it he remained a member of the hospital board, and he was also one of the trustees of the hospital.

His first great benefaction to the Royal College of Surgeons was a gift of £100,000 in October, 1943. This was used for the endowment of the department of pathology and to institute a chair of human and comparative pathology. In a letter which he wrote to Sir Alfred Webb-Johnson at that time Mr. Collins, as he then was, said: "It is essential that the Departments should have an assured income from endowments. . . . I trust that my gifts will enable the Council to proceed with confidence with their responsible task, and to engage the services of men of outstanding ability to assist them in their labours." Shortly afterwards the appointment of Prof. R. A. Willis was announced. In 1944 Sir William was awarded the Honorary Medal of the College. In March of the following year he gave a further £100,000 to endow the department of anatomy and to found a chair to which Prof. F. Wood Jones, F.R.S., was elected in June of that year. Sir William, who was knighted in 1944, was admitted an Honorary Fellow of the College on Jan. 10, 1946, at the same time as Sir Henry Dale.

His last gift was a third sum of £100,000 to provide increased endowments for the scientific departments generally. It will be recalled that this gift was conditional on an offer being made to the Royal College of Physicians of a site to the east of the Royal College of Surgeons in Lincoln's Inn Fields.

Colonel CYRIL HENRY HOWKINS died on Oct. 31 at the age of 71, after three months' illness, during which his courage maintained his good spirits and his mental alertness was unimpaired. He was a student of Birmingham University, and he took the L.D.S. in 1899. Then immediately after qualifying M.R.C.S., L.R.C.P. in 1901 he served as a medical officer in the South African War and gained the Queen's Medal, with four clasps. Subsequently serving as a volunteer, he played an active part in the Territorial Army in Birmingham, and particularly in raising the 1st South Midland Field Ambulance, which he commanded from 1910 to 1917, serving with it in the Battle of the Somme; for this he received the D.S.O. He was then promoted to be A.D.M.S. of the 61st Division in France, being one of the first Territorial officers to gain such an appointment. He was four times mentioned in dispatches and was decorated with the C.B.E. Later he received the Territorial Decoration and became a deputy lieutenant of the County of Warwickshire. From 1901 until his final illness he practised with signal success as a dental surgeon. In 1905 he joined the honorary staff of the Birmingham Dental Hospital, and from 1925 to 1945 he acted as its dean and gained the full confidence of the committees and of the students, in itself no easy task. For twenty years he was honorary dental surgeon to the Birmingham Children's Hospital, and for ten years examiner in dental surgery to the Royal College of Surgeons. At different times he was an examiner for the University of Sheffield; president of the Central Counties Branch of the British Dental Association and of the Section of Odontology of the Royal Society of Medicine; president of the Birmingham Medical Institute; chairman of the Association of Dental Hospitals of Great Britain and Northern Ireland, and of the Warwickshire Dental War Committee; joint honorary secretary of the Dental Education Advisory Council; and from 1939 to 1945 he was acting professor of dental surgery at the University of Birmingham. In all these offices his energy, shrewdness, and tact made him an outstanding success and he became one of the best-loved and most respected figures in his profession. In 1928 he was invited by the Dental Board of the United Kingdom to give a series of lectures on the anatomy of local analgesia. He also did valuable work in Birmingham in devising applicators for intracranial radium in the treatment of carcinoma. He was keenly interested in Freemasonry and became Master of the Grosvenor Lodge. He was made Past Provincial Junior-Grand Warden

of Warwickshire in 1928. He was also a founder of the Lodge and the University of Birmingham Lodge. He is by his widow, two sons, one of whom served as a major R.A.M.C., and a married daughter who is medically qualified.—W.B.

JOHN NATHANIEL BEADLES died on Nov. 1 at the age of 71 after a short illness. He qualified L.M.S.S.A. from theminster Hospital in 1910, and went on to graduate M.B. in the same year. After filling various house appointments his own and other hospitals he went into private and later served in the R.A.M.C. in the 1914-18 war; joined the L.C.C. as a part-time school doctor in 1918, was appointed a full-time A.M.O. in 1935. Dr. Beadles of a long line of doctors from the time of Elisha Beadles was in practice as an apothecary in Pontypool and published a book on medicine in 1689. He wrote articles on various subjects, mainly relating to infectious diseases, and had outside interests, being a keen chess player and a life member of the St. John Ambulance Association. His wide experience in his profession stood him in good stead in his public work, and he devoted much time to the problem of men with subnormal children. His modest and unassuming manner endeared him to his colleagues and to all who came into contact with him. He will be much missed by a large circle of friends and acquaintances and by the parents and children whom he took a great interest. He leaves a widow and daughter.

Dr. ELIZABETH COWPER EAVES died in Sheffield on Nov. 1 after a short illness. She was appointed demonstrator in physiology at the University of Sheffield in 1909, when she held a London B.Sc., and she continued to work in this department until the time of her death, serving under four professors, specializing in neuro-histology, devising in particular special methods of staining the tissues of the nervous system. Colour vision was also a subject in which she was interested, and she had just completed a paper presenting the results of detailed observations over a period of years. She graduated M.B., B.S. in 1922, obtained her D.P.M. in 1924, and took the London M.D. in 1925. Dr. Eaves was president of the local association of the Medical Women's Federation for many years, and spared no effort to obtain equality for women students, especially in the question of resident student posts. She also conducted a follow-up study of all the women students from Sheffield who had qualified in the last thirty years. The Medical Women's International Association was one of her special interests, and she acted as international corresponding secretary for many years before 1939. Throughout the recent war Dr. Eaves spent her vacations doing locum tenens appointments, mainly in hospitals for nervous diseases. She was a very gifted pianist and was devoted to her family and her work.

Dr. ROBERT CARMICHAEL WOOD, a well-known general practitioner in Edinburgh, died from acute poliomyelitis at the age of 39 in the City Hospital on Nov. 23. A student of Edinburgh University, he graduated M.B., Ch.B. in 1932, took the M.R.C.P.Ed. in 1936, and only last year became a Fellow of the Edinburgh Royal College. A younger son of the late Dr. W. W. Wood, who practised in the Comely Bank district of the city, he had been connected for a number of years with the Sick Children's Hospital, Edinburgh. In the recent war he served with the 8th Battalion the Royal Scots until 1941, when he was transferred to the 57th General Hospital in Cyprus. Later he was with the 92nd General Hospital in Naples.

R. W. D. T. and G. A. G. P. write: The sudden and unexpected death of Bobbie Wood from poliomyelitis will cast a deep shadow over the minds of the many friends he possessed. Those who knew him, whether in Edinburgh before and after the war or in the R.A.M.C. during his six years' service in Britain, the Middle East, and Italy, will always remember him for his absolute honesty, loyalty, and cheerfulness, and as the finest type of doctor—thorough, kindly, and wise, with the welfare of the patient his first consideration always. On his return from war service he rapidly built up an extensive practice, and was appointed an assistant physician to Leith Hospital. He will be sorely missed by his many patients as well as his many friends in all walks of life. To his young widow and to her two small children goes the sympathy of all who knew him.

A Memorial Service for the late Mr. W. Rowley Bristow was held in the St. Thomas's Hospital Chapel on Nov. 21. The Bishop of Rochester officiated, assisted by the Reverend H. Hedley.

## Medical Notes in Parliament

### NATIONAL ASSISTANCE BILL

On Nov. 24 the Minister of Health moved the Second Reading of the National Assistance Bill, the terms of which were discussed in a leading article in our issue of Nov. 8 (p. 736).

Mr. BEVAN said that under the Bill the welfare authorities would have a special responsibility for those who were suffering from pulmonary tuberculosis. The Government proposed to continue the scheme adopted during the war to encourage early cases to give up their jobs and to undergo treatment. They proposed to end the provision that the allowances made to such persons ceased when it was found that the condition was incurable. Pulmonary tuberculosis, like other forms of illness, would be the responsibility of the National Assistance Board on the one side and the Regional Hospital Boards on the other, the former making the financial provision and the latter providing the treatment. The Government proposed to place upon the Assistance Board the duty of providing maintenance for the blind and upon local authorities a duty to make special schemes for their training and welfare. A larger measure of responsibility would be accepted for old persons. Welfare authorities would be given powers to establish special homes. Other categories of persons requiring assistance included the deaf. When the National Health Service came into operation the Government hoped there would be a large number of hearing-aids ready for free distribution to the deaf. Other persons handicapped congenitally or through accident would be attended to and would be taught occupations. This would be the responsibility of the welfare authority, dovetailing into the Ministry of Labour.

Mr. WALTER ELLIOT approved the Bill. He was glad the Minister was extending the tuberculosis schemes introduced by the Coalition Government. That would place on the Government a still greater responsibility for finding nursing staffs. He drew attention to Clause 45, under which any person who was aged or infirm could be removed from his house on the certificate of one medical officer of health, supported by the Court, and placed in a hospital or other place within or without the area of the appropriate authority and detained therein. Under the existing law in most cases at least two certificates were necessary before the removal of a citizen from his house and his detention on an indeterminate order. One medical certificate was needed to remove a person from his home if he was deemed to be insane, but subsequently two certificates must be obtained. He thought that wider safeguards might be necessary.

Mr. EDWARD EVANS was sorry to see that the definition of blindness in the Act was taken from the Blind Persons Act, 1920. This was a bad definition because it imposed on a medical man the obligation not only to make a medical assessment of a person but to relate it to his capacity for work. It was not the function of a medical man to make an industrial appraisal.

Mr. SOMERVILLE HASTINGS said he was grateful that under the Bill the cost of hospital treatment could not be counted as means. It was true that State pensions would be adjusted, but aged persons would have some pocket money while they were in hospital. He remarked that in 1944, when he visited evacuated people in various parts of England, he found both old people and children were well treated in nearly every case, but whereas the children were happy nearly all the old people were miserable. He therefore felt that in the homes which the Bill would set up there must be as much freedom as possible and little restriction on visitors or on coming in or going out.

Dr. BARNETT STROSS said the provisions of the Bill in regard to pulmonary tuberculosis would make life much easier for country medical men.

Mr. JAMES GRIFFITHS replied for the Government and the Bill was read a second time without a division.

### Calories

On Nov. 17 Mr. E. P. SMITH said the British Medical Association's *Report on Nutrition* in 1933 demanded 3,400 calories as the minimum daily diet to maintain working efficiency. For persons doing heavy labour 3,500 to 4,000 calories was thought to be desirable. The report stated that a reduced food intake, in the neighbourhood of 2,000 calories, gave rise to disorders of digestion. Questions put recently to the Ministry of Food had disclosed that in rationed and in pointed foodstuffs the daily average intake was now 1,530 calories. He had further discovered that very few got the

other 1,340 calories from unrationed foodstuffs. The Ministry of Food made its calculations by dividing the amount of unrationed food consumed in the country by the number of the population. An old couple in a lonely village were consequently estimated to receive 2,870 calories daily, when in fact their daily intake was probably less than 2,000. A man in gaol in 1938 received from 2,994 calories to 4,200 calories daily and a woman from 2,542 to 2,901. In 1947 a man in gaol received from 2,923 to 2,955 calories daily; a woman received 2,541 to 2,605; a boy in a Borstal institution got from 2,987 to 3,051 calories; and a girl 2,521 to 2,585. In a *dietetic* sense it paid to be in gaol. The averages which the Ministry of Food paraded were useless because the bases on which they were calculated as regards unrationed food were completely unsound.

Dr. SEYMOUR SKILL said foods must be reduced to a common denominator to make an addition and therefore the calorie must be brought into the calculation. The Combined Food Board adopted the calorie during the war and not the Ministry of Food. All the Ministry did was to quote calorie values assessed as the Combined Food Board had assessed them. The consumption levels quoted by the Ministry of Food were the average consumption for the whole country, and the average calorie intake of 2,800 included an intake of 900 calories by an infant and of 4,500 by a heavy worker. The intake of an adult man might vary from 2,500 calories to 4,500 daily, and of an adult woman from 2,000 to 3,000 calories daily. The nursing mother got about 3,000 calories a day. The average for the agricultural worker was 2,600, but the extras which he got during seasonal activities raised it to well over 3,000, and unrationed food brought his intake up to over 4,000 calories. One hot meal a day equalled 900 calories and one snack equalled 500 calories. Members must make these additions when they calculated the average for a family where the wage earner took his meals outside.

### Medical Practitioners and Pharmacists Bill

The House of Lords passed the Medical Practitioners and Pharmacists Bill through the Report Stage on Nov. 25, and read it a third time on Nov. 27, in each case without debate. Its Second Reading in the House of Commons was set down for Dec. 5.

*Uganda Medical Services.*—Mr. CERRILL JONES stated on Nov. 26 that in the Uganda Development Plan £1,500,000 was earmarked for medical and health services. It was essential to the training of African medical officers and to the efficiency of the dispensary system that a fully equipped central hospital should be established. Accordingly a grant of £477,500 had been approved from Uganda's territorial Colonial Development and Welfare allocation for the building of a new central teaching hospital at Mulago, Kampala. £100,000 was also provided for new hospital buildings, dispensaries, and health centres. There must be a teaching hospital in East Africa if African doctors were to be trained. At the same time, the ten-year programme placed great emphasis on preventive medicines and on dispensaries.

## The Services

The Queen of the Netherlands has bestowed the decoration of Commander of the Order of Orange-Nassau upon Surgeon Captain J. C. Souter, R.N., in recognition of services rendered to the Royal Netherlands Navy during the war.

The King of Norway has bestowed the decoration of Commander with Star of the Order of St. Olav upon Surgeon Vice-Admiral Sir Sheldon Francis Dudley, K.C.B., O.B.E., F.R.S., for service to the Norwegian Navy Medical Service during the war, and the Queen of the Netherlands has bestowed upon him the decoration of *Grand Officer* of the Order of Orange-Nassau, in recognition of services rendered to the Royal Netherlands Navy during the war.

The following officers have been awarded the Efficiency Medal (Territorial): Major A. Wilcox, Captain (now Temporary Lieutenant-Colonel) J. F. Hedley, Captain (Honorary Major) S. G. Cowper, Captains (now Majors) W. B. Evans and E. H. Hanson, and Captain W. F. de Coverly Veale, R.A.M.C.

### NORTH PERSIAN FORCES MEMORIAL AWARD

Dr. John Norrie McArthur, F.R.C.P., has been awarded the North Persian Forces Memorial Silver Medal for 1946. The medal is awarded every year for the best paper on tropical medicine or tropical hygiene published in any journal during the 12 months ending Dec. 31 by any medical officer of under 12 years' service in the

Royal Navy, the Royal Army Medical Corps, the Royal Air Force, the Indian Medical Services, or the Colonial Medical Service. Dr. McArthur was awarded the medal for his paper on "Malaria Transmission in Borneo" which was published in the *Lancet*.

### DEATHS IN THE SERVICES

Sir THOMAS O'DONNELL, K.C.I.E., C.B., D.S.O., L.R.C.P.I., was born on Jan. 18, 1885. He was the third son of the late P. O'Donnell, High Constable of the Barony of Glenquin, of Killeedy, Ashford, County Limerick. He qualified L.R.C.S.I. in 1879 and L.R.C.P.I. and L.M. in 1880, and in the following year was serving with the Field Artillery in Egypt. Later he served with the Kimberley Light Horse under Sir C. Warren in the Bechuanaland Expedition of 1885-6. In the Zululand campaign he was with the Inniskilling Dragoons and later he was attached to the Rifle Brigade. In the South African war he was mentioned in dispatches twice and awarded the D.S.O. for his services with the 12th Royal Lancers.

Colonel S. Lyle Cummins, late A.M.S., writes: The death of Sir Thomas O'Donnell has come as a great shock to all who, like myself, were closely associated with him during the opening phases of the 1914-18 war. "O.D.," as he was called by all who knew him, came to France as D.D.M.S. of the 1st Corps and from that time until his departure as D.G. in India he was the heart and soul of the medical directions that emanated from G.H.Q. It is to him that thanks must be given for a thoroughly good medical service in the period before the arrival of Sir Arthur Sloggett as Director-General in 1915. His kindness to me and to the many officers who "drifted in" to G.H.Q. during that long and difficult period I shall never forget. His work later as D.G. in India is a matter for another pen than mine, but I fancy that, as medical officer to G.H.Q. at that time, I can speak with authority about the eminent services that he rendered and the goodness and kindness of the "unofficial" D.D.M.S. to all and sundry at G.H.Q.

## Universities and Colleges

### UNIVERSITY OF ABERDEEN

At a meeting of the Senatus of the University on Nov. 26 the Venn Prize in Pathology was awarded to J. A. Shanks (Aberdeen) and the Fulton Prize in Neurology to W. I. Cranston (Galashiels).

### ROYAL COLLEGE OF PHYSICIANS OF LONDON

The by-laws of the Royal College of Physicians of London have been amended in order that at least two general meetings of Members shall be held each year, and to allow for the appointment of a standing committee which shall concern itself with the interests of Members. These changes have been made with the intention of giving Members more voice in the affairs of the College. The first statutory meeting of Members was held at the College on Nov. 27, with Lord Moran, President, in the chair. One hundred and thirty-three Members attended, and the following were appointed to serve on the standing committee: Lord Moran, President (ex-officio), Dr. W. R. S. Doll, Chairman, Dr. M. J. McArdle, Secretary, Dr. H. S. Morley, Dr. E. Halliwell, Dr. J. Holmes, Dr. J. F. Bromley, Dr. P. L. Mollison, Dr. W. J. O'Donovan, Dr. J. H. Hunt, Dr. E. Bywaters, Dr. C. Wilson, Dr. G. E. F. Sutton, Dr. A. Leishman, Dr. E. Darnady, Dr. K. A. Latter, Dr. R. Johnstone, Dr. R. Cove-Smith, Dr. J. R. Forbes, Dr. Helen Dimsdale, Dr. W. E. Gibb, and Dr. J. F. Loutit and Dr. L. W. Batten (ex-officio). Dr. Loutit and Dr. Batten were elected representatives on the Council of the College.

### ROYAL COLLEGE OF SURGEONS OF ENGLAND

A course of 72 lectures in anatomy, applied physiology, and pathology will be given at the College (Lincoln's Inn Fields, London, W.C.) from April 5 to May 25, 1948. There will be two lectures daily (Monday, Tuesday, Wednesday, Thursday, and Friday) at 3.45 p.m. and 5 p.m. The fee for the whole course is £16 16s. Fellows and Members and Fellows and Licentiates in Dental Surgery of the College will be admitted on payment of a fee of £12 12s. The closing date for applications is Saturday, April 3, 1948.

A series of practical demonstrations in the above subjects will be held at the College from March 22 to June 11, 1948, from 10 a.m. to 1 p.m. and from 2 p.m. to 3.30 p.m. daily. The fee is £21, and the closing date for applications is Monday, Feb. 2, 1948. The demonstrations will be open only to those attending the above-mentioned lectures and will be limited to 40 students; preference will be given to those unable to obtain practical instruction elsewhere and to ex-Service men.

Applications, accompanied by a cheque for the appropriate fee, should be sent to the secretary, Postgraduate Education Committee, Royal College of Surgeons of England, Lincoln's Inn Fields, London, W.C.2

## Medical News

### Visitor from Australia

Dr. Arthur Metcalfe, the Australian Director-General of and Quarantine, will leave Australia on Dec. 14 for a three tour of Britain, Canada, and the U.S.A. to investigate all aspects of public health. He will pay particular attention to quarantine in relation to air travel. Dr. Metcalfe will travel under the Rockefeller Foundation Grant.

### London Association for Hospital Services

Dr. W. Russell Brain, F.R.C.P., has been elected chairman London Association for Hospital Services in succession to Bernard Docker, who will continue to serve as a member of Council.

### Award for Research

The gold medal in memory of Daniel Hanbury, awarded "high excellence" in original drug research, was presented Nov. 13 by Mrs. J. K. Irvine, president of the Pharmaceutical Society of Great Britain, to Dr. Hans Flück, Professor of Pharmacognosy in the Faculty of Pharmacy of the Swiss Federal Technical Institute, Zurich.

### Swedish Award

At its annual meeting recently the Swedish Medical Society awarded its Anders Retzius Medal to Jan Boeke, of the University of Utrecht, for his researches in anatomy.

### Sheriff for Breconshire

John Emrys Jenkins, B.M., B.Ch., of Chalfont, Llandrindod was has been nominated Sheriff in the King's Bench Division of High Court of Justice for Breconshire for 1947.

### Medical Laboratory Technicians: Deferred Call-up

A circular from the Ministry of Health states that "certificates of identification" will be issued by the Ministry to laboratory technicians in training born in 1929 or later. The holder of such certificate may apply for deferment of call-up under the National Service Acts until his training is completed—normally 3 years. This would give him the opportunity of obtaining a recognized qualification—e.g., the Intermediate Certificate of the Institute of Medical Laboratory Technology. The certificate will normally be given only to those trainee technicians who started training (a) before the age of 17, or (b) within 3 months of the end of whole time education. Deferment of call-up in other cases would have to be referred specially to the Ministry of Labour and National Service by the Ministry of Health.

### The Gordon Hospital

The Duchess of Kent formally reopened the Gordon Hospital on Dec. 2. Mr. John A. Dewar, the President of the Hospital, proposed the vote of thanks to Her Royal Highness, which was seconded by Mr. Lawrence Abel, surgeon to the hospital.

### Dr. Barnardo's Homes Christmas Appeal

There are 7,500 children in Dr. Barnardo's Homes. A Christmas gift of 10s. would pay for one child's food for a week. Gifts should be sent to Barnardo House, Stepney Causeway, London, E.C.2

### Wills

Prof. Bryan Austin McSwiney, F.R.S., dean of St. Thomas's Hospital Medical School since 1940, who died on March 8, left £12,913.

## COMING EVENTS

### Benjamin Ward Richardson Lecture

Mr. C. G. Allen will deliver the Benjamin Ward Richardson Lecture on "The Transport, Handling, and Laying of Animals Intended for Slaughter" before the Royal Sanitary Institute (64, Buckingham Palace Road, London, S.W.) on Wednesday, Dec. 10, at 2.30 p.m.

### Pharmaceutical Society of Great Britain

A lecture on "Modern Knowledge of Protein Structure and its Pharmaceutical Significance" will be delivered by Adrian Albert Ph.D., before the Pharmaceutical Society of Great Britain (17, Bloomsbury Square, London, W.C.) on Thursday, Dec. 11, at 7.30 p.m.



## Middlesex County Medical Society

A general meeting of the Middlesex County Medical Society will be held at Ashford County Hospital on Tuesday, Dec. 9, at 3 p.m., when there will be a demonstration of cases of peripheral vascular disease. Short papers by Dr. K. D. Keele, on "Diseases of the Abdominal Aorta and Its Branches," and by Dr. A. G. Signy and Major B. E. Tomlinson, on "The Chronic Appendix," will be read and discussed.

## Society of Chemical Industry

A meeting of the Nutrition Panel of the Food Group of the Society of Chemical Industry will be held at the Chemical Society's Rooms, Burlington House, Piccadilly, London, W., on Wednesday, Dec. 10, at 6 p.m., when four papers on "Organoleptic Tests in Food Industry" will be presented.

## Royal Sanitary Institute

A sessional meeting of the Royal Sanitary Institute will be held at St. Mary's Hall, Bayley Lane, Coventry, on Friday, Dec. 12, at 10 a.m., when Mr. W. Beaumont will read a paper on "Food Contamination and Potential Dangers to the Public Health."

## Meeting of Radiologists

A joint meeting of the British Institute of Radiology, the Faculty of Radiologists, and the Section of Radiology of the Royal Society of Medicine will be held at 1, Wimpole Street, London, W., on Friday, Dec. 12, at 8 p.m., and on Saturday, Dec. 13, at 10 a.m., when a symposium on "Carcinoma of the Breast" will be presented. Mrs. E. K. Dawson, Prof. R. W. Scarff, Mr. R. C. B. Ledlie, Sir Stanford Cade, Dr. R. McWhirter, and Dr. Clemmison (Copenhagen) will open the discussion.

## Middlesex Hospital Arts Society

The annual exhibition of the Middlesex Hospital Arts Society will be held in the board-room of the hospital from Monday, Dec. 15, to Thursday, Dec. 18, and will be open from 11 a.m. to 6 p.m. on Dec. 15, 16, and 18, and from 11 a.m. to 4 p.m. on Dec. 17. One of the main sections will include the work of members of the Royal Photographic Society in which there will be two special exhibits, namely, electron photomicrographs, by Prof. J. McIntosh and Dr. K. B. Merling, and plateletic research by x rays, by Mr. W. H. S. Cheavin, F.R.M.S., F.R.P.S.

## SOCIETIES AND LECTURES

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East, S.W.—Tuesday, Dec. 9, and Thursday, Dec. 11, 5 p.m. FitzPatrick Lectures by Sir Arthur MacNalty on the History of State Medicine in England: (1) The Medical Department of the Local Government Board, and (2) The Foundations of the National Health Services.

## ROYAL SOCIETY OF MEDICINE

*Section of Psychiatry.*—Tuesday, Dec. 9, 5 p.m. Discussion: Aggression in Relation to Emotional Development, Normal and Pathological. Openers: Miss Anna Freud and Drs. Clifford Scott, D. W. Winnicott, and John Bowlby.

*Section of Experimental Medicine.*—Tuesday, Dec. 9, 5.30 p.m. Discussion: Plasma Protein Fractions. Openers: Drs. R. A. Kekwick and N. H. Martin.

*Section of Physical Medicine.*—Wednesday, Dec. 10, 4 p.m. Clinical meeting at University College Hospital, Gower Street, London, W.C.

*Section of Comparative Medicine.*—Wednesday, Dec. 10, 5 p.m. Discussion: Nutrition and Resistance to Infection. Openers: Dr. P. H. Gell and Mr. H. B. Parry.

*Clinical Section.*—Friday, Dec. 12, 5 p.m. (Cases at 4 p.m.)

*Section of Ophthalmology.*—Friday, Dec. 12, 6 p.m. (Cases at 5 p.m.) Clinical meeting at the Moorfields, Central and Westminster Ophthalmic Hospital, Moorfields Branch, City Road, London, E.C.

*Section of Radiology.*—Friday, Dec. 12, 8 p.m. Combined meeting with the Faculty of Radiologists and the British Institute of Radiology. Symposium: Carcinoma of the Breast. Speakers: Mrs. E. K. Dawson, Prof. R. W. Scarff, Mr. R. B. C. Ledlie, and Sir Stanford Cade. Saturday, Dec. 13, 10 a.m. Symposium: Carcinoma of the Breast, continued. Speakers: Dr. R. McWhirter and Dr. Clemmison (Copenhagen).

BIOCHEMICAL SOCIETY.—At London School of Hygiene and Tropical Medicine, Keppel Street, W.C., Saturday, Dec. 13, 11 a.m. Symposium: Biochemical Reactions of Chemical Warfare Agents.

CHELSEA CLINICAL SOCIETY.—At South Kensington Hotel, 47, Queen's Gate Terrace, S.W., Tuesday, Dec. 9, 6.30 for 7 p.m. Discussion: Treatment of Disease in Wild Animals, to be opened by Mr. T. A. Cockburn, F.Z.S. Future meetings of the Society will be held half an hour later, namely at 7 for 7.30 p.m., to meet the wishes of the majority of members.

LEEDS AND WEST RIDING MEDICO-CHIRURGICAL SOCIETY.—At Leeds General Infirmary, Friday, Dec. 12, 8.30 p.m. Clinical meeting.

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, Cavendish Square, W.—Monday, Dec. 8, 8.30 p.m. Discussion: Teaching and Research in Social Medicine. To be introduced by Prof. J. A. Ryle.

ROYAL MEDICAL SOCIETY, 7, Melbourn Place, Edinburgh.—Friday, Dec. 12, 8 p.m. Address by Prof. R. W. H. Elliot: The Effects of War on Child Health.

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE.—At 26, Portland Place, London, W., Thursday, Dec. 11, 7.30 p.m. Dr. J. A. McLeitch: The Control of Sleeping Sickness in Nigeria. A discussion will follow.

## POSTGRADUATE DIARY

EDINBURGH UNIVERSITY.—Monday, May 3, 1948, 9 a.m., 121 General Forthright Refresher Course begins. Intended primarily for demobilized medical officers (Class II) and for insurance practitioners. Fee for graduates not claiming expenses from Governmental sources, 10 sh.

EDINBURGH POSTGRADUATE BOARD FOR MEDICINE.—At West Medical Lecture Theatre, Edinburgh Royal Infirmary, Tuesday, Dec. 9, 5 p.m. Dr. D. M. Heilmann: Problems in the Epidemiology of Poliomyelitis.

INSTITUTE OF DERMATOLOGY, 5, Lisle Street, Leicester Square, London, W.C.—Tuesday, Dec. 9, 5 p.m. Dr. I. Macleod: Pathological Demonstrations. Thursday, Dec. 11, 5 p.m. Dr. H. W. Barber: The Lichen Group of Eruptions.

LONDON CHURCH HOSPITAL, Victoria Park, E.—Friday, Dec. 12, 6 p.m. Mr. J. W. S. Lindahl: Sinus Infection in Chest Diseases.

A two-months postgraduate course in surgery will be held at the Royal College of Surgeons in Ireland starting on April 12, 1948. The number of students is limited to 30 and the fee is 20 guineas. Students may enrol now with the Registrar, Royal College of Surgeons, St. Stephen's Green, Dublin.

## APPOINTMENTS

Sir Frank Engledow, C.M.G., M.A., F.R.S., has been appointed chairman of the Food Investigation Board of the Department of Scientific and Industrial Research in succession to the late Sir Joseph Barcroft, C.B.E., F.R.S.

ABRAHAM, ALFRED M., F.R.C.S., Assistant Surgeon, Walton Hospital, Liverpool.

ADKINSON, P. H., M.R.C.S., L.R.C.P., Assistant Secretary, Medical Defence Union, 49, Bedford Square, London, W.C.1.

BALFORD, S. L., L.R.C.P.S.E.d., Medical Superintendent, Isle of Man Mental Hospital.

DERBY HOSPITALS JOINT CO-ORDINATING COMMITTEE.—R. J. McC. Jamieson, M.B., B.Ch., and J. G. Pritchard, M.B., Ch.B., have been appointed assistant surgeons by the committee to work with the gynaecological and obstetric units in Derby hospitals.

DONOVAN, PATRICK FERGUS, F.R.C.S.I., Associate Professor of Surgery, University of Ottawa.

LEATHAM, A. G., M.B., B.Chir., M.R.C.P., Sherbrook Research Fellow to Cardiac Department of the London Hospital.

LONDON COUNTY COUNCIL.—The following appointments have been made in the Council's mental health services at the hospitals indicated in parentheses: Assistant Medical Officers, G. J. T. Fryer, M.B., B.S. (St. Bernard's, Southall); H. Lantin, M.B., B.Ch. (Long Grove, Epsom); B. Nicholson, M.R.C.S., L.R.C.P. (Banstead); P. Sainsbury, M.B., B.Ch., D.P.M. (Hexley); J. E. G. Vincenti, M.R.C.S., L.R.C.P. (Dulwich). Second Assistant Medical Officers: E. W. Dunkley, M.B., B.S., D.P.M. (seconded to St. Pancras Hospital Mental Observation Unit); J. Johnston, L.R.C.P.A.S., D.P.M. (Claybury); P. R. A. May, M.B., B.Ch., D.P.M. (Cane Hill).

MADDOCKS, S. A., M.R.C.S., L.R.C.P., D.M.R.E., Radiologist, Hillingdon County Hospital.

## BIRTHS, MARRIAGES, AND DEATHS

## BIRTH

Leslie.—On Nov. 11, 1947, at Royal Infirmary, Bradford, to Frances Helen (née Robb), wife of Dr. William Leslie, a son.

## DEATHS

Clane.—On Nov. 15, 1947, in London, John Joseph Clane, L.R.C.P.A.S.I. Duff, —On Nov. 21, 1947, Henry Carson Duff, M.B., Ch.B.

Halt.—On Nov. 22, 1947, at C.M.S. Hospital, Ranaghat, Bengal, India, Mervyn Alexander Halt, B.M., B.Ch., aged 44.

Higgin.—On Nov. 29, 1947, at Devon Square, Newton Abbot, Robert Francis Higgin, M.D.

Hogg.—On Nov. 26, 1947, at Middlesex Hospital, London, W., Cecil Berestord Hogg, M.D., D.P.H., of 24, Warkton Lane, Barton Seagrave, aged 57.

Moxey.—On Nov. 29, 1947, at Bournemouth, Vincent Moxey, M.R.C.S. Riley.—On Nov. 28, 1947, at Ryde, Isle of Wight, Arthur Riley, M.B., Ch.B., aged 78.

Simpson.—On Nov. 26, 1947, at 54, Monkcastle Drive, Cambuslang, Scotland, Frank Tomlinson Simpson, M.C., E.D., K.I.H., M.B., Ch.B., Lieutenant Colonel.

Smith.—At Terpoint, Sandycove, Co. Dublin, Eire, Trevor Nathaniel Smith, F.R.C.S.I.

Weir.—On Nov. 25, 1947, James Samuel Richard Weir, L.R.C.P.A.S.E.d., at 10, Chatsworth Road, Wembley, Middlesex, aged 68.

## EPIDEMIOLOGICAL NOTES

## INFECTIOUS DISEASES AND VITAL STATISTICS

## Poliomyelitis

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Nov. 15.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included), (b) London (administrative county), (c) Scotland, (d) Eire, (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London), (b) London (administrative county), (c) The 16 principal towns in Scotland, (d) The 13 principal towns in Eire, (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1947					1946 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	40	2	26	1	—	30	4	22	—	1
Deaths .. ..	—	—	—	—	—	2	—	3	—	—
Diphtheria .. ..	195	27	60	25	5	330	27	97	29	13
Deaths .. ..	2	1	2	—	1	7	—	—	—	—
Dysentery .. ..	95	9	17	—	—	70	23	22	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Encephalitis lethargica, acute .. ..	2	—	—	—	—	3	—	—	1	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Erysipelas .. ..	—	—	48	16	4	—	—	47	5	4
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Infective enteritis or diarrhoea under 2 years .. ..	61	4	13	53	6	63	6	10	41	2
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Measles* .. ..	2,355	116	224	227	1	4,382	141	263	57	43
Deaths .. ..	2	—	—	—	1	1	—	1	—	—
Ophthalmia neonatorum .. ..	58	5	12	—	—	60	4	20	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Paratyphoid fever .. ..	8	—	—	—	—	26	1	—	1(B)	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal ..	582	41	8	1	13	625	49	10	3	6
Deaths (from influenza)† ..	13	2	—	—	—	16	3	2	1	—
Pneumonia, primary .. ..	—	—	321	21	—	—	—	308	31	—
Deaths .. ..	49	—	9	7	—	51	—	—	—	7
Polio-encephalitis, acute ..	15	2	—	—	—	2	—	—	—	—
Deaths .. ..	1	—	—	—	—	—	—	—	—	—
Poliomyelitis, acute .. ..	186	12	18	7	—	15	1	4	7	1
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Puerperal fever .. ..	—	—	13	—	—	—	5	25	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Pyrexia† .. ..	117	4	7	—	4	141	13	17	3	2
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Relapsing fever .. ..	—	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Scarlet fever .. ..	1,947	124	353	54	42	1,293	81	273	26	42
Deaths .. ..	3	1	—	—	—	1	—	—	—	—
Smallpox .. ..	—	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Typhoid fever .. ..	11	3	—	2	3	7	—	—	2	3
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Typhus fever .. ..	—	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Whooping-cough* .. ..	1,217	70	43	36	7	1,696	99	214	71	29
Deaths .. ..	3	—	—	—	1	9	1	—	—	—
Deaths (all year) .. ..	378	47	51	32	20	384	59	72	19	12
Infant mortality rate (per 1,000 live births) ..	—	—	—	—	—	—	—	—	—	—
Deaths (excluding still-births) .. ..	4,582	742	593	179	118	4,723	780	627	167	110
Birth rate (per 1,000 persons living) ..	—	—	12.3	11.3	—	—	—	13.8	—	—
Births .. ..	7,781	1,260	907	312	224	8,820	1,420	1,091	336	245
Annual rate per 1,000 persons living ..	—	—	18.3	19.7	—	—	—	21.9	—	—
Still-births .. ..	196	28	29	—	—	297	48	40	—	—
Rate per 1,000 total (including still-births) ..	—	—	31	—	—	—	—	35	—	—

\* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

The notifications for the week ended Nov. 22 suggest a more rapid decline than has been shown in recent weeks. Notifications of poliomyelitis were 142 (186) and of polio-encephalitis 3 (15). Figures in parentheses are those for the week ended Nov. 15. The marked decline in the notifications of polio-encephalitis is interesting, but fluctuations under this heading have been irregular and may be of no significance.

## Discussion of Table

In England and Wales an increased incidence was recorded for scarlet fever 217, measles 176, and whooping-cough 145. There was a decrease in the notifications of diphtheria 24, poliomyelitis 12, and dysentery 10.

A rise in the incidence of scarlet fever occurred throughout the country; the largest increase was Staffordshire 25, and the only exception to the general trend was a decrease of 37 in Durham. The largest variations in the local returns of diphtheria were decreases in Lancashire 18 and Warwickshire 9.

Only small variations occurred in the incidence of whooping-cough, except for a rise of 69 in Yorkshire West Riding. A small increase in the notifications of measles was recorded in most areas; the largest rises were London 44 and Shropshire 37, and the only large decrease was Lancashire 45.

No further cases of dysentery were notified from Berkshire. Wallingford R.D., where 368 cases occurred in the preceding three weeks. A fresh outbreak of dysentery involving 13 persons was reported from Staffordshire, Willenhall R.D.; the only other large return was Lancashire 12.

For the tenth consecutive week a fall has been recorded in the number of notifications of poliomyelitis. The largest returns during the week were Lancashire 24 (Manchester C.B. 11), Kent 15, London 12, Middlesex 12, and Cheshire 11.

In Scotland increases were recorded in the notifications of scarlet fever 57, measles 33, and acute primary pneumonia 16. The only decrease of any size was one of 21 in the notifications of acute poliomyelitis. In Glasgow the notifications of pneumonia fell by 10 while the cases of scarlet fever notified rose by 27.

In Eire the chief features of the returns were an increase of 72 in the notifications of measles and a decrease of 15 in the cases of diarrhoea and enteritis. The increased incidence of measles was due to an outbreak in Wicklow, Bray U.D., where 78 cases were notified.

In Northern Ireland a decrease of 21 in the notifications of scarlet fever was recorded.

## Week Ending November 22

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,812, whooping-cough 1,183, diphtheria 220, measles 2,233, acute pneumonia 503, cerebrospinal fever 30, acute poliomyelitis 142, dysentery 141, paratyphoid 4, and typhoid 3.

Mental-health care in Scotland is to be associated as closely as possible with the health services generally and not developed independently in isolation, according to a circular published on Nov. 25 by the Department of Health for Scotland. Mental hospitals and institutions for mental defectives will in future be provided as part of the hospital service generally by the Secretary of State working through Regional Hospital Boards and Boards of Management. Existing hospitals and institutions will be transferred to the new Service next July on the appointed day. Either wards in existing poorhouses used for mental patients will be converted into mental hospitals, or the patients at present in them will be transferred as soon as possible to other hospitals. Responsibility for looking after lunatics living in private houses under guardianship, or boarded out from mental hospitals, will also be transferred from local authorities to the hospital service. The principal duties which local authorities will carry out in future will be the appointment of authorized officers who will be responsible for taking the necessary action to have a lunatic placed in a hospital, or under guardianship, where there is no relative or friend willing and able to take the necessary steps. Local authorities are given the new duty of providing suitable training and occupation for children not in institutions who have been reported by the education authority as unsuitable for a special school, whether certified as mental defectives or not, and also for all certified mental defectives over 16 who are not in institutions. Authorities have to submit by Feb. 28 for the Secretary of State's approval their proposals for carrying out their mental-health functions in the new Service. The circular urges authorities to frame their proposals in consultation with the hospital organization, the Executive Council responsible for general practitioner services, and any voluntary organizations concerned.

## Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

### Prostigmin Test for Pregnancy

**Q.**—Would you describe the prostigmin test for pregnancy? What is its efficiency and what are its disadvantages?

**A.**—The test is used to distinguish between delayed onset of a menstrual period and early pregnancy. It entails the injection of 1 mg. prostigmin intramuscularly on three successive days. In the absence of pregnancy uterine bleeding occurs within 72 hours of the last injection, and sometimes so early that the second and third injections need not be given. No bleeding takes place if the patient is pregnant. The reliability of the test is difficult to assess, because it depends so much on a proper selection of cases. All women at the menopause, or with a history of previous menstrual irregularity, or with endocrine disease must be excluded, because a bleeding response is unlikely in such cases. With careful selection, and limitation of the test to healthy women of childbearing age with a normal menstrual history, it is 100% reliable when pregnancy is present and 90 to 95% accurate in the absence of pregnancy. The main disadvantages of the test are implicit in what is said above; a minor one is the occasional occurrence of transient giddiness and frequency of micturition following the injection of prostigmin.

### Uncontrolled Dicoumarol Therapy

**Q.**—Arising out of your annotation on dicoumarol (Oct. 25, p. 662), what advice could you give regarding the use of this drug by the G.P., since daily estimations of the prothrombin time are scarcely practicable in general practice?

**A.**—Dicoumarol should never be used unless daily estimations of the prothrombin time can be made, as it is impossible to predict the dose for any one patient. Failure to do this may result in fatal haemorrhage. Several instances are reported in the literature in which haemorrhage failing to respond to blood transfusion has followed uncontrolled dicoumarol therapy.

### Effect of Heat on Penicillin

**Q.**—What is the effect of heat on penicillin solution, and what is the rate of deterioration with increasing temperature? If it is highly thermostable, how, when it is injected, can it withstand the temperature of the body of a patient with a high fever?

**A.**—The rate of deterioration of penicillin in solution increases progressively from 0° to 100° C. and above. In the lower part of this range the process is so slow that the change would be unmeasurable over a period of less than several days: penicillin remains in the body only a few hours, and in any case the difference between normal body temperature—37.5° C.—and that attained in high fever—say 41° C.—is relatively small. The purer penicillin now produced is much more stable than the earlier product, and solutions can be heated to 60° C. without appreciable loss of activity; even boiling for short periods has little effect on it.

### Needles for Intramuscular Injection

**Q.**—What are the shortest needles for routine use in the intramuscular injection of fluids into the vastus externus and the deltoid?

**A.**—There are various factors which make a definite answer to this question somewhat difficult—for example, the variation in physical characteristics of different patients, and the quantity and consistency of the fluid to be injected. In general, it can be stated that short needles are more dangerous in that they are more likely to break; therefore if very short needles are used they should be of relatively wide bore. A good safe needle for ordinary purposes is one 1½ in. (3.75 cm.) long and 10 B.W. gauge.

### Hearing-aids in the Tropics

**Q.**—Can you tell me how to prevent damage to the crystal microphone amplifying valve in modern multi-valve hearing aids caused by the hot, humid climate of India? Is there any means of conditioning the entering air?

**A.**—The problem of the prevention of damage to hearing-aids by hot and humid climates is well recognized by most makers and is receiving their attention. The microphone crystals are frequently treated so as to be made moisture-proof. Unfortunately crystals so treated tend to become less efficient in high temperatures. Different crystals, such as potassium dihydrogen phosphate, are being tested in the hope of finding some which are more robust than those hitherto used. When a hearing aid fails owing to the effect of moisture it may be desiccated. This can be done by placing the entire instrument into an ordinary jar type of desiccator containing phosphorus pentoxide. This is probably a more satisfactory method than incorporating a pack of moisture-absorbing substance in the instrument.

### Medical Unfitness in a Witness

**Q.**—What is the accepted procedure for a doctor who is asked in a court of law to give the diagnosis in the case of a patient who should have attended as a witness? The patient I have in mind was suffering from asthma, and in my view was fit to travel but not to give evidence. The Court insisted on his appearance, and the consequent strain caused a relapse. Is it usual for the Court to overrule a medical opinion?

**A.**—A witness who is unable to attend court and give evidence should furnish a medical certificate of such unfitness, and if this is clear and unequivocal it will generally be accepted. In the case quoted the doctor might properly have certified that the witness was unfit to attend and give evidence; if called upon by the Court to state the diagnosis he is bound to do so. As it would be useless for the patient to attend unless he could give evidence, it was really irrelevant to say that he was fit only to attend. By admitting this the doctor left it open to the Court to infer (as it did) that the witness's disability was only of a minor degree, and that perhaps he was able to give evidence in spite of the doctor's opinion to the contrary. The Court is perfectly entitled to disregard evidence, medical or otherwise, which is not strong enough to carry conviction. If the patient had been certified as fit to give evidence at home this could have been arranged, such evidence being taken "on commission," thus saving the patient the fatigue of travelling to the court.

### Serum-bromide Estimation

**Q.**—What are regarded as the normal limits for a blood-bromide estimation? Apart from the oral administration of medicinal bromide, what conditions may cause a rise in the blood bromide?

**A.**—The method used in clinical laboratories for the estimation of serum bromide is not very accurate, and concentrations less than 25 mg. bromide per 100 ml. cannot be estimated. A normal serum bromide is therefore reported as "less than 25 mg. per 100 ml." The true serum bromide of healthy subjects is much less than this, and could be expressed in micrograms rather than milligrams per 100 ml. The writer has never heard of increases in serum bromide due to any cause other than the ingestion of sodium, potassium, or ammonium bromides; such ingestion might be medicinal or accidental.

### Repeated Hypnotism in a Child

**Q.**—The father of a boy of 2 hypnotizes the child almost daily in order to get him to sleep. The grandmother fears that harm to the child may result, and asks whether the practice could be stopped on the ground of cruelty. According to her the child is well behaved and sleeps well naturally. There seems to be no doubt about the hypnosis: the father is an electrician who has apparently acquired the knack. Can you tell me if harm to the child is likely to result?

**A.**—It is difficult to answer this question without knowing the nature of the alleged hypnosis. This may consist only in stroking movements, which the child finds pleasant and does not associate with their after-effects; on the other hand he

may be conscious of being dominated by his father against his will by an apparently magical method, and be seriously frightened by his own sense of helplessness against such omnipotence. At best, this practice is undesirable as establishing an unnatural relationship between father and son as well as a habit of artificially induced sleep, and it may well prejudice the child's emotional and social development. There seems to be no evidence of cruelty as such, but the situation is certainly fraught with danger to the child.

### Local Analgesia in Dentistry

**Q.**—What is the usual local analgesic used nowadays in dentistry? Recently, after local injections, patients have complained that the heart seemed to race and there was a feeling of imminent collapse. Why is this, and what can be done to prevent it?

**A.**—The most usual local analgesic for dental purposes is procaine. Adrenaline is incorporated in the solution in order to prolong the effect of the analgesic by localizing it. Large quantities of procaine can be injected without untoward effect. In dental surgery 1 to 2 ml. is the usual amount, so that the procaine itself is unlikely to be the cause of the condition described. The most common cause is the added adrenaline, which will of course give rise to such symptoms, particularly if some of the solution enters the blood stream through inadvertent puncture of a small vessel during the injection. Other substances are sometimes employed in place of the adrenaline as the vasoconstrictor, and it is claimed that unpleasant effects can thereby be avoided. Should the subject be particularly susceptible, procaine can of course be injected without a vasoconstrictor, though the analgesia is likely to be of shorter duration.

### NOTES AND COMMENTS

**Dupuytren's Contracture.**—Dr. KENNETH McFADYEAN (London, S.E.24) writes: Under "Any Questions?" (Nov. 8, p. 757) the treatment of Dupuytren's contracture is said to be either surgical or by administration of vitamin E. No mention is made of radium therapy in spite of the fact that during the last thirty years many cases have been treated at the Radium Institute, and doubtless elsewhere, with cure or improvement in many cases.

**Fissured Lip.**—Dr. L. S. WOODS (Albury, New South Wales) writes: In your reply (July 5, p. 41) no mention was made about dentures. An upper denture which allows the inner margin of the upper lip to overlap slightly on one or other side of the mouth may extend the moist surface of the lips in the corner of the mouth to the normally dry skin. This skin will become soft, and a crack or fissure may form. It is cured by adding to the upper denture, making it considerably thicker. This tightens up the slack, as it were, in the overhanging inner side of the upper lip, and the moist skin then remains dry.

**Removal of Superfluous Hair.**—Dr. CLARA M. WARREN (Kew Gardens) writes: In "Any Questions?" (Nov. 15, p. 805) there is a query about removal of superfluous hair. The answer is sharp and short, and in my opinion shows a complete disregard of all the factors which would induce a young woman to consult a doctor about hirsuties. It is unfeeling and unpractical. It is a mental tragedy for any woman to become conscious of excessive hair growth, particularly when it is on the face. Neuroses, feelings of inferiority and shame, and even threatened suicide are on record in cases of such handicapped women. The psychological shock if a woman is merely told to go away and use a razor can easily be imagined by an intelligent doctor. Advertisements and beauty culturists are probably responsible for the advice to use wax or depilatories. In elderly subjects these methods may be preferable, but in young people will finally lead to more extensive and thicker hirsuties. It is, of course, quite possible to pull out hairs, but as they grow again in from three to four weeks there will always be a consciousness that other people are looking at the regrowing bristles. Patients have been known to spend an hour a day for months pulling out hairs from the chin, and even then failing to keep the skin clear. It has generally been observed that shaving or pulling out hairs causes an increased stiffness and a stimulated growth, and after a few months the root of the hair becomes longer and the papilla situated deeper in the skin and more difficult to deal with when proper methods are used. In the majority of cases, the hirsute condition is familial and hereditary, and develops later than the spontaneous type, when the hairs first appear in the late teens and early twenties. Hirsuties as part of a generalized

excessive downiness is fairly common, but, although more difficult to treat, it can be helped. Exposure to ultra-violet light will make it worse. Endocrine factors play a very small part in common hirsuties. Apart from the recognized adrenal and pituitary conditions, dysfunction of the other endocrine glands is not marked. Clinicians have found that modern treatment with various endocrine substances has failed. Epilation by the use of x rays is avoided in this country, owing to the very real danger of atrophy and telangiectasia of the skin—a final result worse and more difficult to hit than the original condition.

Electrolysis is safe; and the direct current of 1-3 milliamperes required can be obtained from a battery, so that expensive apparatus is not necessary. A suitable handle and a very fine steel needle connected with the negative pole and a good light, are essential. The circuit should be completed through a moistened pad held by the patient and connected with the positive pole. No searing or marking should result from the method, and, although tedious in cases with many coarse hairs, it is satisfactory. From 40 to 60 hairs can be dealt with in a half-hour sitting. Bad cosmetic results occur with too strong a current, a stippling of the skin if the wrong pole is used for the needle.

For the type with coarse hair that has been frequently shaved plucked or otherwise stimulated a stronger current, such as produced by a diathermy apparatus, is most helpful. An ordinary portable medical diathermy can be used by a unipolar method, spark-gap being almost closed and the needle contained in a hole with a satisfactory make-and-break. Or an interruption can be obtained by means of a foot pedal. A make-and-break is essential as the flowing current will always be too much for the skin. A small amount allowed to pass in order to destroy the root of the hair takes only a fraction of a second, and starts at the point of the needle. Incidentally the needle must be kept quite clean, polished, or the current will coagulate the skin at the hair exit. From 100 to 120 hairs can be dealt with by diathermy in half an hour. No subsequent marking of the skin will result if carefully exercised and closely adjacent hairs are not treated at one sitting.

A certain amount of regrowth of hair apparently occurs in excessive cases of hirsuties during treatment, but this is not due to failure to kill the roots, but to a certain stimulating effect of the electric current on young hairs in the vicinity. These, however, can be treated at a subsequent sitting. Down or lanugo hairs do respond well to electrical treatment. The roots are short and to and the lanugo emerges through so fine an opening in the skin the passage of a needle will be difficult. This type is better in winter months, when there is no stimulating effect of sun and by treating any large coarse hairs among them considerable cosmetic improvement results. Ultra-short-wave diathermy apparatus can be used in a similar manner, and is preferred by operators. It is, on the whole, a more painful method than treatment with a medical diathermy apparatus, but it is less painful electrolysis on a mains set. The small milli-ampere required for electrolysis from a battery set makes this the least painful method.

**Mosquito Bites.**—Dr. LOUISE FRASER (Bournemouth) writes: recent issue under "Any Questions?" the treatment of mosquito bites was dealt with (Aug. 30, p. 357) and the statement made "once a mosquito bite has occurred there is little that can be done to alleviate the irritation," but some substances were recommended. These did not include the most efficacious remedy of i.e., a piece of soap, the commoner the better. This when rubbed on the bite acts almost like a charm. The irritation appears very quickly and the swelling subsides as one looks at it. The irritation usually returns in about twenty-four hours but virulently. Another application of the soap is as efficacious as the first. Having lived in a mosquito-infested country for many years and tried every advertised or recommended remedy with little success, the relief caused by this simple and handy remedy is one cause to dread the mosquito and its bite.

**Confidence Trick.**—Dr. A. O. F. ROSS (Liverpool) asks us to make it clear that he was not the Liverpool consultant referred to in case reported under this heading in our issue of Nov. 15 (p. 805).

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# SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY DECEMBER 6 1947

## GENERAL MEDICAL COUNCIL.

### PRESIDENT'S ADDRESS

At the 172nd Session of the General Medical Council, opened on Nov. 25, the President, Sir Herbert Lightfoot Eason, delivered the following address:

I am pleased to note, as a rare occurrence, that since our last session there has been no change in the membership of the Council. No member has retired and no member has died. Two of our colleagues, Prof. W. J. Dilling and Sir Henry Wade, are prevented by illness from being with us, but both are, I am glad to say, making a satisfactory recovery.

I have to announce with regret the deaths of three former members of the Council. Dr. Cecil Wall, who died on June 19, represented the Society of Apothecaries of London from 1932 to 1939. As I said on his retirement, his quiet wisdom, keen interest in medical education, and love of tradition were of great value to the Council. He was a devoted member of the Society which he represented, and his history of the Society was the work of one who knew every detail, both abstract and concrete, of the Corporation and its Hall.

By the death of Sir Norman Bennett the dental profession has lost one of its most distinguished members. It is a matter of regret that the Council had the benefit of his services for only a comparatively short period from 1920 to 1921. He was, as many of the older members of the Council may remember, intimately connected with the preparation and passage into law of the Dentists Bill, 1921. The Act having been passed, Sir Norman resigned from the Council in November, 1921.

Mr. Joseph Ainsworth Woods, another member of the dental profession distinguished as a teacher and practitioner in Liverpool and as leader in the councils of the British Dental Association, was our colleague for an even shorter time in 1938-9. But he was with us long enough to make us feel confident in designating him to take part in the visitation of dental examinations which was abandoned on the outbreak of war; and he was one of those members of the Society of Friends who leave behind them a strong impression of personal rectitude wherever they go.

The King's Birthday Honours List in June included two names which none of us will have been surprised, and all of us will have been much gratified, to see. Prof. J. A. Gunn, though not a member of the Council, has long been their associate in the discharge of the indispensable duty laid upon them by the Medical Act, 1858, of causing the *British Pharmacopoeia* "to be published under their direction." An original member of the British Pharmacopoeia Commission since 1928 and Chairman since November, 1939, he not only shared in the labours of preparing the *Pharmacopoeia* of 1932 and the *Addendum* of 1936, but has borne, not merely by virtue of his office but also by reason of his enthusiasm, the main responsibility for the six wartime *Addenda* and for the new *Pharmacopoeia* whose publication is eagerly awaited in this country, elsewhere in the Commonwealth, and in the United States of America. It is not for us to seek to ascertain "the true weights and measures," in the words of the section of the Act of 1858 about the *British Pharmacopoeia*, by which the value of such long, arduous, and public-spirited service is weighed and measured side by side with the lifetime which this new Commander of the Most Excellent Order of the British Empire has devoted to teaching and research in the University of Oxford. But we may be allowed to bear witness to our belief that the honour bestowed upon him would not have been excessive had he

never laboured in any field but that with which we are as a Council officially familiar.

Dr. Wilfred Fish, Chairman of the Dental Board of the United Kingdom, who was made a Commander of the Order on the same occasion, has been our colleague in dental business since 1942, and I desire here only to speak of him in that capacity, not because I forget his distinguished record in teaching, investigation, and practice. I think the Council will wish me to seize the opportunity of conveying to him, with their congratulations, their sense of the high value of two aspects of his work as their collaborator. All who took part in the preparation of the evidence of the Council and of the Dental Board for the Interdepartmental Committee on Dentistry were, I am confident, impressed by his fairness and his ability to give and take in the paving of the way for a transfer of the dental business of the Council to the Board without destroying the salutary interest of the Council in the dental curriculum. His contribution to discussions, which were strenuous indeed but never degenerated into bitterness, marked him out as the destined successor of Prof. Edward Sheridan, a man difficult to succeed; and since he became Chairman of the Board in 1944 we have learned to admire his mastery of such business as the Board has to bring before the Council, and his forcible presentation of its views. These grounds alone would be enough to make us rejoice that the King has been pleased to honour him.

I am sure that the Council will also wish to congratulate Mr. J. J. Robertson on his appointment as Joint Parliamentary Under-Secretary of State for Scotland, and will also note with the greatest satisfaction that his promotion will not entail his resignation from this Council as a Crown Nominee. In the short time that Mr. Robertson has been a member of the Council he has endeared himself to all his colleagues, and has made valuable contributions to our work through his acute understanding of our problems and of our relation with the medical profession and the public.

It gives me much pleasure to introduce to the Council Mr. Cyril Pearce Harvey, B.C.L., who is sitting at my right hand as legal assessor at this session. As I intimated in June, steps will be taken in due course to ascertain the views of the Council on the question of the appointment of a successor to Mr. Bartley.

Since the last session I have received from the Home Office a letter calling attention to the number of cases in which it has been necessary recently for chief constables to ask the British Broadcasting Corporation to broadcast messages about thefts of dangerous drugs or other poisons from motor-cars left unattended by doctors. It is suggested by the Home Office that much valuable police time would be saved, and public safety increased, if all doctors would remove dangerous drugs or other poisons from their cars when they are unattended or, alternatively, would lock their cars. I hope that by giving such publicity as we can to this suggestion we shall ensure that members of the profession will exercise every possible care in the custody of dangerous drugs or other poisons which they may have to carry in motor-cars.

By the courtesy of the secretary of the organized profession of medicine in France the Council has been provided with a copy of the new statutes and regulations governing the organization and discipline of the profession there, and of the revised Code of Ethics laid down for its members. A précis of a translation of these documents will be circulated to members of the Council later. It is of interest to note that although the obligations of French practitioners in matters of professional conduct are set out in greater detail in the Code of



Ethics, they differ very little from the principles indicated in the Warning Notice of the Council. I am sure that the Council would desire me to convey to the French authorities its thanks for the communication of this interesting information.

The visitation of dental examinations has been extended to the subjects of General Medicine and General Surgery; and the Council has been most fortunate in securing the services as Visitors of Emeritus Professor Nixon, whose recent work as Inspector of Qualifying Examinations in Medicine is fresh in their memory, and of Mr. William Anderson, who completed the inspections of qualifying examinations in surgery after Mr. Collinson's death.

The Council will, I am sure, hear with great regret that owing to pressure of other Parliamentary business there is no certain prospect of a draft Bill Amending the Medical Acts being considered by Parliament during its present session. There is indeed no immediate hope of such legislation unless it proves to be within the scope of the phrase in the Gracious Speech from the Throne, "Other measures will be laid before you if time permits." This state of affairs is one which I know that the Council will view with grave concern. The short draft Bill submitted by the Council to the Government included not only important provisions based on recommendations of the Goodenough Committee, but also provisions giving practitioners a right of appeal to the Courts against penal erasure from the *Medical Register*; giving the Council statutory power, which they do not at present possess, to restore the names of practitioners to the *Register* after penal erasure; enabling the Council to take evidence on oath and to compel the attendances of witnesses by subpoena; and enlarging the direct representation of the profession on the Council. The enactment of such provisions as these would, I believe, commend itself alike to the profession and to the public.

The Medical Practitioners and Pharmacists Bill, whose primary purpose is to dispose finally of the problems raised by the temporary registration during the war of a large number of practitioners most of whom possess only qualifications granted in foreign countries, has been introduced in the House of Lords, was considered in Committee on Nov. 18, and is making further progress to-day. In addition to its main provision the Bill provides for the registration under certain conditions of practitioners who have served in His Majesty's Forces overseas, and of other qualified persons who have been permitted to enter, or to remain in, the United Kingdom in view of circumstances attributable to the war. The Special Committee of the Council on Legislation will be invited during the session to consider the terms of the Bill.

## WINTER SESSION

### Dental Cases

After consideration of the report and findings of the Dental Board the Council judged Albert Barrett, registered as of Yorkshire Street, Burnley, Dentists Act, 1921, to have been guilty of conduct infamous or disgraceful in a professional respect and directed the Registrar of the Dental Board to erase his name from the *Register*. The offence was that of carrying on and advertising a dental repair service for the purpose of obtaining patients. The Registrar was also directed to erase the name of Eric Hargreaves Swan, registered as of New Ferry, Birkenhead, Dentists Act, 1921, who had been proved to have been convicted at Birkenhead Quarter Sessions in January, 1947, of receiving certain goods knowing them to have been stolen and had been sentenced to five years' penal servitude, reduced by the Court of Criminal Appeal to four years'.

The name of Cyril Walter Bairstow was restored to the *Dentists' Register*.

## MEDICAL DISCIPLINARY INQUIRIES

### Cases Adjourned from Previous Sessions

The Council considered the case of Reuben Denny, registered as of Twyford Avenue, Acton, who had been found at a previous session to have been convicted in May, 1946, of driving a car while under the influence of drink. Dr. Denny attended and produced satisfactory testimonials, and the Council did not see fit to direct the Registrar to erase his name.

The next case was that of Bernard Maguire, registered as of Wilbraham Road, Chorlton, Manchester, who had previously been found to have been convicted in 1944 and in 1945 at the Manchester Police Court of being in charge of a motor-car while under the influence of drink. Dr. Maguire appeared and produced satisfactory evidence, and the Council did not see fit to direct the erasure of his name.

Dr. William Francis Hirsch Coulthard, registered as of Aspatia, Carlisle, against whom convictions in 1946 of being drunk and disorderly and of being drunk in charge of a motor-car had been proved, appeared and produced testimonials which were noted with satisfaction by the Council. Judgment in Dr. Coulthard's case had been postponed until November, 1948, but he had been required to make an interim appearance with testimonials at the present session.

Dr. William Allan, registered as of Sowerby Bridge, Yorkshire, who had been found to have been convicted in 1945 of obtaining £5 by means of false pretences, and judgment in whose case had been postponed by the Council, attended and produced certain testimonials. In the meantime a further conviction had been recorded. This was at Kingston-upon-Hull in October, 1947, of being under the influence of drink to such an extent as to be incapable of having control of the car of which he was in charge. Dr. Allan stated that he had been in hospital under treatment and was now much improved in health. The offence which led to this recent conviction was due to taking some alcohol while suffering severely from asthma. The Council postponed judgment further until November, 1948, but required Dr. Allan to appear before them in May, 1948, with testimonials as to his conduct in the interval.

### Offences Relating to Drugs

The Council considered the case of Joseph Anatole France Tobin, registered as of Windsor Road, Forest Gate, who was summoned on three convictions. In 1945 he had been convicted at Wealdstone of unlawfully failing to enter in a register particulars of quantities of dangerous drugs obtained by him. In November, 1944, he had been convicted at Welwyn of being in possession of certain drugs—"opoidine," "omnophon," and "alophon"—without being duly authorized (his authorization having been in the meantime withdrawn by the Home Office) and had been fined £2 in respect of each of seven offences. In September, 1946, he had been convicted at Whitehaven of having unlawfully given prescriptions for dangerous drugs and had been fined £5 in respect of each of seven offences. In all these cases he had pleaded guilty. The case before the Council had been postponed in June last owing to the state of Dr. Tobin's health.

Dr. Tobin now appeared, accompanied by his father, Dr. O. Watts Tobin.

Mr. Winterbotham, the Council's solicitor, said with regard to the first of these misdemeanours that it came to the notice of the police in 1942 that large purchases of morphine and other drugs were being made by the practitioner, who was accordingly interviewed and asked to produce his drugs register. He said that he could not find it and that in any case it was not a proper register. The Home Secretary, following this conviction, withdrew his authorization under the Dangerous Drugs Act. With regard to the second group of offences, Dr. Tobin had obtained certain drugs unlawfully in the course of his employment at Welwyn Garden City. Altogether 98 gr. (6.4 g.) of dangerous drugs had been wrongfully obtained. Dr. Tobin had admitted using for himself the drugs reported missing. With regard to the third group of offences no evidence was offered that in any of these cases he had obtained the drugs for himself or that they were not properly used. What had happened was that he went to Whitehaven as assistant to another doctor, who had suddenly to go into hospital, and Dr. Tobin whose authority to prescribe dangerous drugs had not been refused signed prescriptions for this doctor's patients.

Dr. Tobin, in a statement, said that he admitted the charges. On his wedding day in 1939 he had a serious motor-car accident involving a compound comminuted fracture of the humerus and a crushed and lacerated arm which remained infected for a very long time and necessitated a series of operations. He was in hospital for nine months, and was always in severe pain for which morphine was more or less continuously prescribed. After his return to work an intractable and painful sinus from the elbow-joint developed. For a long time, and smaller sinuses and sequestra developed. These were painful and he could carry on work only with occasional administrations of morphine. He became addicted to the use

through the necessity of having to work when he was not physically fit to do so. At the end of 1941 he joined the R.A.M.C. and served for 15 months. In 1943 he endeavoured to rid himself of the addiction and entered an institution for that purpose. Unfortunately, economic circumstances compelled him to return to work too soon. Twelve months ago he decided at all costs to get cured and went in for prolonged treatment, including seven months as a voluntary patient at Crichton Royal, and the authorities there now pronounced him fit. He felt now that he had completely overcome his weakness and he was anxious to rehabilitate himself. Dr. Tobin pointed out that the date of his last conviction was 15 months ago, and, without wishing to minimize the gravity of the offence, all the wrong that had been done had been directed against himself; he had not harmed anyone else. None of the patients for whom the drugs in the last series of offences were prescribed was an addict; they all received the drugs for proper reasons. He understood that the Home Office was prepared to renew authorization if he showed a clear record.

A letter was read from Dr. P. K. McCowan, the physician-superintendent of Crichton Royal, stating that Dr. Tobin had been treated for addiction to morphine and peralidine. He had co-operated in every way, and his response to treatment had been very satisfactory. He was now unaddicted to narcotic drugs and had increased psychiatric stability and greater sense of responsibility.

After the Council had deliberated in camera the President announced that the convictions had been proved, but the Council did not see fit to direct the Registrar to erase Dr. Tobin's name from the Register.

#### Misleading Certification

The Council considered the case of William Gray Hughes, registered as of Penrhyn Bay, Llandudno, who was summoned on the charge that in February and March of this year he gave five certificates stating that a Mr. Llewelyn Roberts was suffering from gastric (or duodenal) ulcer, with haemorrhage, that he was totally unfit for work, and that it was desirable that his son's Army leave should be extended in order that he might help to carry on his father's business. These certificates were given for the information of military officers to enable them to form a judgment whether compassionate leave of absence should be given to Rowlands junior, and were misleading in that they implied that throughout the period of six weeks the doctor was in regular personal attendance upon Mr. Rowlands and saw him on divers occasions, whereas in fact he did not personally attend or see him on more than one occasion (this was subsequently amended to two occasions) during the period. There were other charges as to certain implications in the certificates which the Council subsequently found not proved.

Dr. Gray Hughes attended and was accompanied by Mr. A. Lloyd-Jones, counsel, instructed by Jacques and Co., agents for D. Thomas, Williamson and Co., solicitors.

Mr. Gerald Howard, in outlining the case for the Council, said that at Deganwy, some five miles from where Dr. Hughes lived at Llandudno, there was a family named Rowlands. The father was assisted by his three sons in a log-selling business. One of the sons was on military service, but he was able in February and March of this year to remain at home on extended leave as a result of these certificates concerning his father's health. Dr. Hughes first came in contact with the Rowlands family when he was working as locum-tenent for Dr. E. R. L. Davies, who carried on his practice at Deganwy. In October, 1945, he was urgently sent for to see Mr. Rowlands, whom he found bleeding severely from the stomach. With care and treatment he slowly improved; the doctor warned him not to work any more but to leave the job to his sons, as any strain might induce another possibly fatal haemorrhage. In January, 1946, Dr. Davies came back to his practice after war service, and the next material date was Feb. 1, 1947, when Dr. Hughes certified that Rowlands was under his professional care suffering from haemorrhage from a large gastric ulcer, and asking the military authorities, for whom the certificate was intended, whether his son could be granted extended leave. It was fair to say that on this occasion Dr. Hughes did see Rowlands.

According to the evidence of a police constable who lived near the Rowlands, the father was out and about during the months of February and March, the period covered by these certificates, and to Mrs. Rowlands, she went to Dr. Hughes on each occasion and was not fit to carry on his employment. In a letter to the Council Dr. Hughes said, "Needless to say I feel very hurt and grieved that my efforts to get a simple-minded private out of trouble for over-staying his leave should have brought me before the notice of the G.M.C. . . . I entirely agree that I have been too lenient and sympathetic in this particular case, but, believe me, I felt sorry

for this lad, who in my opinion should never have been in the Army."

Mrs. Annie Rowlands gave confirmatory evidence as to obtaining the certificates from Dr. Hughes, and a police constable, Mr. Hobart Thomas, spoke of having seen Mr. Rowlands at work during the period covered by the certificates which stated that he was completely unfit for work, and was relying on the help of his son to carry on his business. He agreed, however, that Rowlands did suffer from stomach trouble.

Dr. Hughes, in evidence, said that he qualified in 1919, but had not practised on his own account since 1926. During the last twenty years he had helped other doctors and had served as a medical examiner; he was also interested in farming. He acted as locum-tenent for Dr. Davies, of Deganwy, from 1943 until 1946. Since February, 1946, he had not visited any patients, but he had attended patients who came to see him. He did not hold himself out to be a general practitioner for all purposes on his 15 days. He attended Rowlands in 1945 when he had severe gastric trouble. He urged him to go to hospital and he complied, but he refused and continued under his treatment for four or five weeks. At the beginning of February, 1947, Rowlands came to his house complaining of a recurrence of the trouble, and he gave him advice and treatment, and in a certificate stated that he was totally unfit for work. He saw him again on March 2, having in the meanwhile given two further certificates. On March 2 he certified, "By then (about a week) I hope to have got him all right again."

The first certificate was issued on March 1 and stated that Rowlands had not responded to treatment and rest as well as he thought he would have done. He gave this certificate to Mrs. Rowlands on her information that he had been visiting a great deal and that she and her sons had been up with him almost all night. He told the mother on that occasion that this must be the last certificate of the kind he could give, that it was a serious matter for a young soldier to overstay his leave, and that both she and he (the doctor) might find themselves in peril. He explained that he said this in order to impress Mrs. Rowlands, who did not seem to grasp the situation. He also explained that he wrote the letter already quoted because he was worried about the charge which brought him to the Council and failed entirely to see where he had gone wrong.

In cross-examination by Mr. Gerald Howard, he said that Dr. Davies had never been there people's doctor, but they came to him in the first instance because he was looking after Dr. Davies's practice. The treatment he prescribed was rest and diet, but he agreed that he did not take any trouble to find out whether his suggestions were being followed.

"Did you not think it your duty to see how this patient was going on before you gave another certificate?" "No, I knew that the condition would take an appreciable time to settle down."

"You say in one certificate that he is 'under my professional care.' Is that true?" "In a sense, yes."

"In what sense?" "In the sense that he had been to see me and I had given him instructions what to do."

"Why did you not go to see him?" "I felt that I knew enough about the case."

"Although, if your evidence is correct, he might have died?" "I knew that if he had another haemorrhage they would send for a nearer doctor instead of for me, five miles away."

"Why did you give the certificates?" "Because they came to see me."

"Do doctors give certificates because people come to see them?" "They cannot refuse if the people require them."

By Mr. Flood, a member of the Council: "How did you know this man had an actual haemorrhage?" "I saw it in 1945."

"I am speaking of 1947, when you certify that he is 'suffering from gastric haemorrhage from a large gastric ulcer.'" "Oh, from their description entirely."

"You considered his condition grave?" "Yes."

"Do you seriously tell us that you did not feel you had any duty to go and see him?" "I wanted him to go somewhere else."

"But you knew that he was not under any other doctor?" "Yes."

"And yet you did not go and see him?" "I wanted to wash my hands of this case altogether, and I also knew that if he had haemorrhage anything like he had in 1945 they would send for a nearer doctor."

"That is not the question. You were prepared to let things go on, because you wanted him to go to somebody else, although you knew that if he got another serious haemorrhage it might kill him?" "You can look at it that way."

"You left him there without medical attention?" "I would certainly have gone if they had sent for me."

"But he was left without attention?" "He was having rest and diet and a powder."

Mr. Lloyd-Jones pointed out that in only two of the five certificates it was stated that Dr. Hughes had seen and examined the patient; from the wording of the other certificates it could not be inferred that he had seen the patient at the time he issued them.

After deliberation *in camera* the Council found that the certificates had been issued, that they were given for subsequent use for an administrative purpose for the information of Army officers concerning compassionate leave of absence of a private, and that they were misleading in that they implied that Dr. Hughes was in regular personal attendance upon Mr. Rowlands in his professional capacity. The President continued:

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Representatives of the General Practice Committee have accordingly represented to the Minister of Fuel and Power that a doctor, when on reasonable call to his patients, should be permitted to use his car for any purpose. The Minister has recognized the special difficulties with which doctors are faced, though he has not been able to agree that doctors as a class should be subjected to no form of restriction in the use of petrol obtained on supplementary coupons. He has, however, agreed that if a doctor undertakes a social or recreational engagement and is at that time on call to his patients it would be reasonable for him to use his car in order that he might get to a case with the minimum of delay. In these circumstances, however, the doctor must be able to justify his action if challenged by the police. No doctor could justify the use of his car in circumstances where he had made alternative arrangements for his patients. Where a doctor using his car can show that he is on call to his patients and has taken steps to ensure that a message to which he can respond without delay can readily reach him it would, in the Ministry's view, be sufficient explanation that his car was being used in connexion with his professional duties.

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(1) He assumes that immediately "free" medical attention is available there will be an enormous increase in work. There is no evidence whatever for this assumption. Patients will presumably remain the same. Those whom you cannot stop working will continue to work until they are half dead before going to their doctor, just as they do at present. Those whom you cannot start working will, as now, be constantly on the doorstep. Panel patients are just as considerate and courteous (or, if you like, just as inconsiderate and discourteous) as private patients, no more and no less. I once read a letter in a medical journal of 1911 when the controversy over the about-to-be-introduced panel system was at its height. The author stated dogmatically, just like Sir Ernest Graham-Little, that there would be an enormous increase in work. He went on to

say that if a doctor had a thousand panel patients at least half of them would undoubtedly turn up at the surgery every day. Comment on this is unnecessary.

(2) Sir Ernest Graham-Little states that there are probably 50,000 doctors in active practice working at the present time, and that three times this number will be required under State medicine for eight-hour shifts. Does he not realize that in a town which normally keeps, say, twelve doctors busily at work during the day, the night work could easily be done by one person? Or does he really think that all G.P.s work as hard every night as they do during the day?—I am, etc.,

Morley, nr. Leeds.

W. STANLEY SYKES.

### Buying and Selling of Practices

SIR.—I have read with much interest the recent correspondence on the buying and selling of practices, a subject near to my heart and of paramount importance to every doctor in practice. I am in entire agreement with Drs. A. E. Moore (Oct. 25, p. 97) and J. H. Power (Nov. 22, p. 120), and I think Dr. S. H. Stewart (p. 120) has really missed the most important point—that the right to buy and sell, with consequent freedom to move to a different locality and the maintenance of our independence over this aspect of control, is the very essence of any freedom in the new Service. Only thus will any liberty remain to us.

Many young doctors feel a great attraction towards a scheme which will ostensibly hand out a ready-made practice on a silver platter, free of charge and liability. Will it in fact be so? If there is some financial easement, may it not be that their souls will be mortgaged instead of their pockets? Is "something for nothing" ever valued? Early struggles are well worth while if there is some goal to be reached, and the satisfaction in a good practice built up by hard work and possibly with some financial hardship in early days must be much greater than that ever to be attained as a ready-made unit in a Government-owned service.

Surely we, the first professional body to be attacked by dictatorship, will not surrender to such hysterical outbursts as "I will not permit, etc." For the sake of our country at the present time, as well as ourselves, we must resist this attempt to destroy individualism and the incentive to work.

I share Dr. C. H. Heaton's doubts (Nov. 15, p. 118) about the cohesion of the profession in any action taken under a plebiscite, and I think his suggestions of a legal agreement with a substantial sum as guarantee of good faith is a very excellent and necessary one.—I am, etc.,

Birmingham.

E. C. OSTLER.

### War Service and Hospital Appointments

SIR.—The warrior is not without honour—save in times of peace! In war, when the emotions are deeply stirred by danger and invasion threatens with its accompaniment of slaughter of the aged, slavery of workable adults, raping of women, and starvation of children, then are facile promises made. But, as "Ex-Service Doctor" (Nov. 8, p. 113) has discovered, when peace and logic return together and honour is too often put back in the cupboard, which is the better man for a hospital appointment—the foolish volunteer and unlucky conscript, or the man who stuck to his job like a leech? The man who had six glorious years of fun and world-wide travel at Government expense, little medical work, but plenty of leave and good food, or the man who carried on through thick and thin on the home "front" as registrar and junior consultant under the tutelage and appraising eye of his chief? Each did magnificent work in his own way, but in our brave new world, where lip service is paid to the dead and the best jobs are given to the best qualified, the answer is obvious.

There are hospitals still managed by men of honour, Englishmen whose word is their bond, but of these others mentioned by "Ex-Service Doctor" but rightly unnamed by him one feels the same cool cloud of disappointment as one felt on learning from the motor trade that doctors were no longer granted priority for cars because not few but many had used their wits, twisted their opportunity, and abused the privilege of priority for their own profit.

No, Sir; the one compensation for the years that the locusts have eaten in the lives of ex-Service men is the still small voice of conscience whispering wryly, "Well done, thou good and faithful servant." But it would appear that it profits a man more to-day if his conscience can mutter, "Smart work, thou sleek and clever savant." Having no axe to grind, as my hospital days are but memories, I write as a philosopher, a spectator of all time and all things. Maybe the profession does deserve the new State halter into which it is so busily, and secretly, having its neck thrust.—I am, etc.,

Dereham, Norfolk.

ERIC PUDDY.

### Monthly Panel Payments?

SIR.—For doctors depending mainly on their panel cheque to exist these days it will be a great boon to receive same every month instead of every three months as it stands at present. Few tradespeople would willingly wait for twelve weeks for their accounts, and I wish somebody would give a lead to approach the proper authorities with a view to altering our quarterly panel cheque to a monthly one.

Again, in view of the end of the basic ration of motor fuel, will it not be better for all doctors' cars to be marked back and front with a small yet visible red cross—say on the front window next to the registration-number disk and one on the back window? This will enable the police inspectors to recognize the vehicle, and perhaps save a lot of unnecessary questioning, etc., not to speak of the waste of time entailed.—I am, etc.,

Craghead, Co. Durham.

N. MUKERJI.

### MEDICAL WAR RELIEF FUND

#### SEVENTY-NINTH LIST

##### Individual Contributions

- £20.—Dr. D. T. Daintree, Bengal (7th donation).  
 £18 4s. 6d.—Dr. W. D. Steel, Worcester (3rd donation).  
 £5 5s.—Miss K. McArthur, Harrow (4th donation).  
 £5.—Mr. A. H. Asher, Inverness.  
 £2 2s.—Dr. H. H. Bloom, Boston, Lincs; Dr. A. G. McArthur, Kensington (5th donation); Dr. A. MacFaul, Leigh, Lincs (3rd donation).  
 £100.—Hon. Medical Staff, Birmingham Children's Hospital; Medical Staff, Harrow Hospital—per Dr. H. E. Thorn (amount already sent £310).  
 £85 11s.—Practitioners in Burton-on-Trent B.M.A. Division—per Dr. E. G. Frewer: Dr. G. Abbey £5 5s. (2nd donation); Mr. R. Bewick £5 5s. (2nd donation); Drs. Brindley and Crossley £10; Dr. J. Camac £5; Dr. N. J. Cochran £5 (2nd donation); Dr. J. M. Cowie £2 (2nd donation); Dr. J. W. Crawshaw £5 5s. (2nd donation); Dr. E. M. R. Frnzer £3 3s.; Drs. Lowe and Frewer £10 10s.; Dr. A. Macpherson £3 3s.; Dr. S. W. May £5 5s.; Drs. Pickett and Paterson £10 10s. (2nd donation); Dr. N. Mercy Plowright £5; Dr. R. C. Scott £5 (2nd donation); Dr. F. C. V. Thompson £5 5s. (2nd donation).  
 £53 15s. 1d.—Practitioners in Dumfries and Galloway B.M.A. Division—per Dr. J. G. McWhirter (amount already sent £100).  
 £50.—Practitioners in the Exeter B.M.A. Division—per Dr. M. Y. Paget (amount already sent £435 11s. 6d.).  
 £25.—Practitioners in the South Staffordshire B.M.A. Division—per Mr. Campbell Orr (amount already sent £74 6s.).  
 £15.—London Insurance Practitioners—per London Panel Committee (amount already sent £244 7s.): Dr. A. J. Clarke.  
 £11.—Practitioners in the Isle of Man B.M.A. Branch—per Dr. C. G. Pantin (amount already sent £256 9s. 6d.).  
 £2 2s.—Cardiganshire Medical Association—per Dr. D. L. Evans (amount already sent £116 19s.).

##### Local Medical and Panel Committees

- £606 2s.—Surrey (14th and 15th donations).  
 £113 14s. 4d.—Northumberland (4th donation).  
 £90 9s. 1d.—Ayr County (23rd donation).  
 £65 16s. 11d.—Dunbarton County (22nd donation).  
 £59 19s. 5d.—Breconshire.  
 £56 8s. 6d.—Newcastle-upon-Tyne (21st donation).  
 £30.—Oxfordshire (6th donation).  
 £5.—Norfolk (7th donation).

	£	s.	d.
Total of above contributions	1,524	13	10
Total received since issue of second appeal	24,577	8	2
Total since inauguration of Fund	83,230	17	7
Sums for books for prisoners of war	216	14	6

**Correction.**—In the Seventy-eighth List under the entry "£247.—Northamptonshire Medical Charity" the words "second donation" should have been entered after "Dr. S. E. Beilhell £2 2s." As already announced in the Supplement (Nov. 22, p. 121), the committee of the Fund considers it unnecessary for supporters to send further contributions.

Colonel V. N. Agate has retired.  
Lieutenant-Colonel D. Sanyal has retired.  
Lieutenant-Colonel C. F. J. Cropper, O.B.E., has retired on account of ill-health. (Substituted for the notification in the London Gazette dated June 20.)  
Majors A. M. Chaudhuri, O.B.E., H. J. Curran, J. H. Gorman, G. F. Condon, M. R. Sinfair, O.B.E., W. Happer, W. P. Ippin, O.B.E., W. McAdam, O.B.E., H. S. Smithwick, V. Srinivasan, H. T. McWilliams, B. J. Griffiths, M. H. Shah, N. S. Sandhu, I. Bakhsh, R. T. Hicks, O.B.E., A. M. Sheridan, K. Jilani, F. H. A. L. Davidson, D. H. Waldron, O.B.E., C. H. Dhala, S. Narain, F. M. Khan, D. Dutt, B. L. Taneja, W. J. Moody, H. D. R. Zscherpel.

M.B.E., Min Sein, A. E. Kingston, O.B.E., A. B. Guild, J. R. Dogra, R. C. Dracup, S. M. Kharegat, M. G. Saincher, and D. P. Nath to be Lieutenant-Colonels.

#### EMERGENCY COMMISSIONS

Captain G. T. Wallace has relinquished his commission, on being appointed to a Short Service Commission, British Service.

## Association Notices

### SCHOLARSHIPS IN AID OF SCIENTIFIC RESEARCH

The Council of the British Medical Association is prepared to receive applications for Research Scholarships as follows: An Ernest Hart Memorial Scholarship of the value of £200 per annum, a Walter Dixon Scholarship of the value of £200 per annum, and four Research Scholarships each of the value of £150 per annum. These scholarships are given to candidates whom the Science Committee of the Association recommends as qualified to undertake research in any subject (including State medicine) relating to the causation, prevention, or treatment of disease. Preference will be given, other things being equal, to members of the medical profession.

Each scholarship is tenable for one year starting on Oct. 1, 1948. The scholar may be reappointed for not more than two additional terms. A scholar is not necessarily required to devote the whole of his or her time to the work of research but may hold an appointment at a university, medical school, or hospital, provided the duties of such an appointment do not interfere with his or her work as a scholar.

In addition, applications are invited for the first award of the Insole Scholarship of the value of £250 for research into the causes and cure of venereal disease.

#### Conditions of Award: Applications

Applications for scholarships must be made not later than Friday, April 30, 1948, on the prescribed form, a copy of which will be supplied on application to the Secretary of the Association, B.M.A. House, Tavistock Square, London, W.C.1. Applicants will be required to furnish the names of three referees who are competent to speak of their capacity for the research contemplated.

### Sir Charles Hastings Clinical Prize

The Sir Charles Hastings Clinical Prize, which consists of a certificate and a money award of fifty guineas, is again open for competition. The following are the regulations governing the award:

(1) The prize is established by the Council of the British Medical Association for the promotion of systematic observation, research, and record in general practice; it includes a money award of the value of fifty guineas.

(2) Any member of the Association who is engaged in general practice is eligible to compete for the prize.

(3) The work submitted must include personal observations and experiences collected by the candidate in general practice, and a high order of excellence will be required. If no essay entered is of sufficient merit no award will be made. It is to be noted that candidates in their entries should confine their attention to their own observations in practice rather than to comments on previously published work on the subject, though reference to current literature should not therefore be omitted when it bears directly on their results, their interpretations, and their conclusions.

(4) Essays, or whatever form the candidate desires his work to take, must be sent to the British Medical Association House, Tavistock Square, London, W.C.1, not later than Dec. 31, 1947. The prize will be awarded at the Annual General Meeting of the Association to be held in 1948.

(5) No study or essay that has been published in the medical press or elsewhere will be considered eligible for the prize, and a contribution offered in one year cannot be accepted in any subsequent year unless it includes evidence of further work. A prize-winner in any year is not eligible for a second award of the prize.

(6) If any question arises in reference to the eligibility of the candidate or the admissibility of his or her essay, the decision of the Council on any such point shall be final.

(7) Each essay must be typewritten or printed, must be distinguished by a motto, and must be accompanied by a sealed envelope marked with the same motto and enclosing the candidate's name and address.

(8) The writer of the essay to whom the prize is awarded may, on the initiative of the Science Committee, be requested to prepare a paper on the subject for publication in the *British Medical Journal* or for presentation to the appropriate section of the Annual Meeting of the Association.

(9) Inquiries relative to the prize should be addressed to the Secretary.

### Nathaniel Bishop Harman Prize

The Council of the British Medical Association is prepared to consider a first award of the Nathaniel Bishop Harman Prize the year 1948. The value of the prize is approximately £100.

The purpose of the prize is the promotion of systematic observation and research among consultant members of the staffs of hospitals who are not attached to recognized medical schools. The work submitted must include personal observations and experiences collected by the candidate in the course of his practice. A high order of excellence will be required. No study essay that has previously been published in the medical press elsewhere will be considered eligible for the prize.

Any registered medical practitioner who is a consultant member of the staff of a hospital in Great Britain or N. Ireland and not attached to a recognized medical school is eligible to compete. If any question arises in reference to the eligibility of a candidate or the admissibility of his essay, the decision of the Council shall be final.

Should the Council of the Association decide that no essay submitted is of sufficient merit, the prize will not be awarded in 1948 but will be offered again the year next following the decision, and in this event the money value of the prize on that occasion in question shall be such proportion of the accumulated income as the Council shall determine.

Each essay must be typewritten or printed in the English language, must be distinguished by a motto, and must be accompanied by a sealed envelope marked with the same motto and enclosing the candidate's name and address.

The writer of the essay to whom the prize is awarded may be requested to prepare a paper on the subject for publication in the *British Medical Journal* or for presentation to the appropriate section of the Annual Meeting of the Association.

Essays must be forwarded to reach the Secretary, British Medical Association House, Tavistock Square, London, W.C.1, not later than Dec. 31, 1947. The prize will be awarded at the Annual Meeting of the Association to be held in 1948. Inquiries relative to the prize should be addressed to the Secretary.

CHARLES HILL,  
Secretary.

### Branch and Division Meetings to be Held

**COVENTRY DIVISION.**—At Coventry and Warwickshire Hospital Tuesday, Dec. 9, 8.30 p.m., B.M.A. Lecture by Dr. J. A. Gorsky: Medico-Legal Aspects of Some Murder Cases.

**HYDE DIVISION.**—At Hyde Municipal Offices, Wednesday, Dec. 10, 8.30 p.m. Dr. J. F. Ward: Abdominal Pain in Childhood.

**LEWISHAM DIVISION.**—At Lewisham Hospital, 390, High Street, London, S.E., Thursday, Dec. 11, 8.30 p.m. Dr. E. H. R. Smithard: Public Health and the G.P.

### Meetings of Branches and Divisions

#### STOCKTON-ON-TEES DIVISION

A scientific meeting of the Stockton Division of the B.M.A. was held on Nov. 3 at the Stockton and Thornaby Hospital. The lecturer, Sir Stanford Cade, was introduced by the chairman, Dr. W. M. Ritchie, and delivered an address on "Radiotherapy, Present and Future."

He began by giving some facts about the incidence of cancer and indicating the scope of surgery and radiotherapy respectively, stressing particularly the use of radium as opposed to x-ray therapy. He outlined the various methods of utilizing radium for therapeutic purposes in cancer and the effects of irradiation on plant, animal, and malignant tissues in controlling the rate of growth. He stressed the importance of dosage rate and the strikingly good results obtained in certain situations in the body by the use of radium in contrast to the futility of employing it in other situations. He briefly described possibilities for future therapy with radioactive isotopes and chemotherapy, and emphasized the probability that the latter provided a more fundamental method of attack on malignant disease than any other.

Mr. A. E. P. Parker proposed the vote of thanks.

### TRADE UNION MEMBERSHIP

The following is a list of local authorities which are understood to require employees to be members of a trade union or other organization:

**County Borough Councils.**—Barnsley, Gateshead.

**Metropolitan Borough Councils.**—Fulham, Hackney, Poplar.

**Non-County Borough Councils.**—Dartford, Leyton, Redbridge (limited to future appointments), Tottenham, Walsend.

**Urban District Councils.**—Denton, Droylsden, Houghton, Spring, Huyton-with-Roby, Portslade, Redditch (restricted to new appointments), Stanley (Co. Durham), Tyldesley.

**Scottish Burghs.**—Motherwell and Wishaw.

LONDON SATURDAY DECEMBER 13 1947

## PREVENTION OF RENAL DAMAGE BY USE OF MIXTURES OF SULPHONAMIDES\*

ANIMAL-EXPERIMENTAL AND CLINICAL STUDIES

BY

DAVID LEHR, M.D.†

Assistant Professor, Department of Medicine and Pharmacology, New York Medical College; Assistant Attending Physician, Flower and Fifth Avenue Hospitals, New York City

A new and simple approach to the prevention of concretum formation in the urinary tract caused by sulphonamides emerged from the observation that a saturated aqueous or urinary solution of one derivative of sulphanilamide could still be fully saturated with a second and third sulphonamide even if only of slightly different molecular structure, each of the compounds behaving as though it were present alone and exerting no influence on the solubility of the others. Consequently, in solutions containing several sulphonamides the maximum obtainable concentration appeared expressed by the additive solubilities of all individual drugs present (Lehr, 1945). This principle is illustrated in diagrammatic form in Fig. 1.

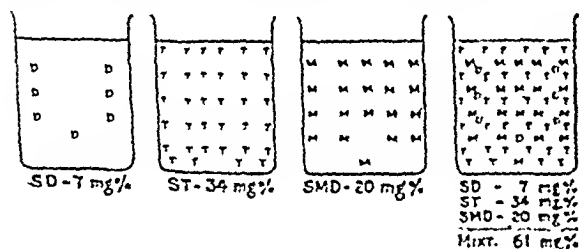


FIG. 1.—Diagram illustrating the individual and combined solubilities of sulphadiazine (SD), sulphathiazole (ST), and sulphamerazine (SMD) in water at room temperature (20° C.).

The figure elucidates the theoretical explanation of the phenomenon—namely, the specifically different molecular distribution in space of chemically different compounds. It also makes it clear that precipitation due to oversaturation will not occur more readily in the solution containing three sulphonamides, with a total concentration of 61 mg. per 100 ml., than in any one of the three individual solutions, with necessarily much lower maximum sulphonamide levels. Hence, at equal total sulphonamide concentrations the danger of precipitation will be significantly smaller in solutions of sulphonamide mixtures; it follows, in addition, that any increase in the number of components comprising a sulphonamide mixture will further diminish the chances of precipitation.

It was reasoned on the basis of this observation that the danger of the formation of sulphonamide crystals in the renal tubules could be considerably reduced by employing combinations of partial dosages of two or three

therapeutically equivalent sulphonamides rather than the full dosage of any one single compound. Actually the hazard of precipitation from such combinations should be only as great as if each sulphonamide had been administered alone and in the partial dosage contained in the mixture.

### Results of Animal Experimental Studies

Comparative studies of the toxicity and of the absorption and excretion of sulphonamide mixtures and their individual constituents were carried out on 750 albino rats from our own standard colony (Lehr, 1945, 1947). A condensation of the most important findings is presented in the accompanying tables and figures.

#### 1. Acute Toxicity

Table 1 illustrates the values for the acute toxicity. It demonstrates that combinations of sulphonamides are significantly less toxic than comparable or equal amounts of their individual constituents. Estimation on the basis of the toxicity

TABLE 1—Acute Toxicity of Sulphonamides given Single and in Various Combinations. (Single Intraperitoneal Injection of Sodium Salts in Albino Rats)

Drug	Dose (g./kg.)		No. of Animals	Deaths
	Partial	Total		
Sulphadiazine .. ..	1.5	1.5	60	80%
Sulphathiazole .. ..	1.1	1.1	24	65%
Sulphamerazine .. ..	1.3	1.3	31	65%
Sulphapyridine .. ..	1.1	1.1	34	65%
Sulphapyrazine .. ..	1.3	1.3	17	77%
Sulphadiazine .. ..	0.75	1.3	60	12%
Sulphathiazole .. ..	0.55			
Sulphadiazine .. ..	0.75	1.5	30	37%
Sulphamerazine .. ..	0.75			
Sulphadiazine .. ..	0.75	1.3	16	0
Sulphapyridine .. ..	0.55			
Sulphadiazine .. ..	0.54	1.5	40	0
Sulphathiazole .. ..	0.42			
Sulphamerazine .. ..	0.54			
Sulphadiazine .. ..	0.54	1.5	10	0
Sulphapyridine .. ..	0.42			
Sulphamerazine .. ..	0.54			
Sulphadiazine .. ..	0.54	1.5	10	0
Sulphapyrazine .. ..	0.42			
Sulphamerazine .. ..	0.54			

figures of the separate compounds would give, for example, an expected toxicity of about 77% for the sulphathiazole-sulphadiazine mixture, about 68% for the sulphamerazine-sulphadiazine combination, and about 74% for the mixture of sulphadiazine and sulphapyridine, whereas the actual values derived from experimental results were only 12%, 37%, and 0, respectively.

\*Read at the Seventeenth International Physiological Congress in Oxford, on July 23, 1947.

†This investigation has been aided by grants from the Josiah Macy Jr. Foundation, New York City, and the Schering Corporation, Bloomfield, N.J.



Mixtures of three sulphonamides proved completely non-toxic at the 1.5 g. per kg. total dose level. This remarkably low toxicity pointed to a further increase in the protection afforded to the kidney against blockage with sulphonamide crystals.

Evidence of the presence or absence of renal obstruction was obtained from post-mortem examinations of the kidneys. Various degrees of kidney block caused by deposits of sulphonamide crystals in the renal tubules were observed in all animals succumbing to treatment with any of the five sulphonamides given singly. The kidneys appeared greatly enlarged and oedematous, and contained crystalline plugs in the papillary ducts, which in severe cases fanned out into the cortex. These drug deposits were clearly visible to the naked eye and easily demonstrable under the microscope. Rats treated with mixtures of three sulphonamides showed complete absence of renal blockage, and hence had normal kidneys. The lack of renal obstruction could also be inferred from normal non-protein nitrogen levels in the blood and high urinary elimination figures of sulphonamide. Added proof was derived from accurate chemical determinations of the sulphonamide amounts in the kidneys at various intervals after intraperitoneal injection of single and mixed sulphonamides.

Fig. 2 summarizes one representative experiment with animal groups killed 24 hours after intraperitoneal injection of sulphadiazine, sulphathiazole, sulphamerazine, and their combination

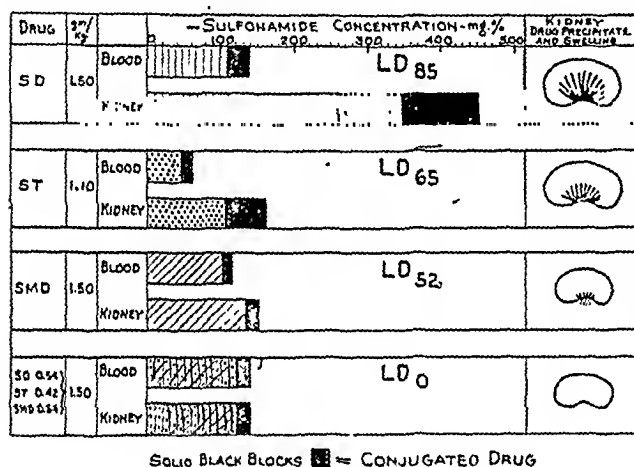


FIG. 2.—Findings in blood and kidneys of albino rats 24 hours after intraperitoneal injection of sulphadiazine (SD), sulphathiazole (ST), and sulphamerazine (SMD), given singly and in combination.

in the dosages used in the acute toxicity study. It indicates that rats injected with sulphadiazine showed the greatest discrepancy between blood and renal concentration of sulphonamide. The excessive concentration of sulphadiazine in the kidney is readily explainable on the basis of the massive crystalline deposition observed in this organ. The findings were similar although less marked in the sulphathiazole group. However, in this instance the large amount of conjugated sulphathiazole in the kidneys was of particular importance since the acetylated product has a solubility of only 7 mg. per 100 ml. at body temperature. Sulphamerazine caused the least intratubular precipitation, but showed the greatest tendency to the formation of gravel and concretions in the renal pelvis and ureters.

The mixture of all three sulphonamides did not produce any concretion formation in the urinary tract, and hence also did not reveal any difference between the concentration of sulphonamide in the blood and in the kidneys. It seems highly significant that the blood level of free sulphonamide resulting from the non-toxic dose of the mixture was actually higher than the levels obtained with comparable though fatal dosages of any one of the three mixture components under the conditions of renal impairment.

## 2. Subacute and Chronic Toxicity

The results of studies on the subacute toxicity are summarized in Table II. The daily dose of sulphonamides used was 0.9 g. per kg. In the mixture groups it consisted of equal amounts of the two or three compounds. The mortality figures shown

TABLE II.—Subacute Toxicity of Sulphonamides given Singly and in Various Combinations. (Intraperitoneal Injection of Sodium Salts for 5 Consecutive Days in Albino Rats)

Drug	Dose (g./kg.)		No. of Animals	Deaths
	Partial	Total		
Sulphadiazine .. ..	0.9	0.9	25	100%
Sulphathiazole .. ..	0.9	0.9	15	100%
Sulphamerazine .. ..	0.9	0.9	20	75%
Sulphapyridine .. ..	0.9	0.9	10	100%
Sulphapyridine .. ..	0.9	0.9	15	94%
Sulphadiazine .. ..	0.45	0.9	10	40%
Sulphathiazole .. ..	0.45	0.9	10	40%
Sulphadiazine .. ..	0.45	0.9	10	0
Sulphamerazine .. ..	0.45	0.9	10	0
Sulphathiazole .. ..	0.45	0.9	10	0
Sulphadiazine .. ..	0.3	0.9	10	0
Sulphamerazine .. ..	0.3	0.9	10	0
Sulphapyridine .. ..	0.3	0.9	10	0
Sulphadiazine .. ..	0.3	0.9	10	0
Sulphamerazine .. ..	0.3	0.9	10	0
Sulphapyridine .. ..	0.3	0.9	10	0

are those observed on the sixth day of the experiment. The strikingly low toxicity of combinations as compared with the high mortality from separate compounds is immediately apparent. It should be mentioned, for the sake of completeness, that studies were also carried out with various mixtures containing sulphacetamide (N-acetylsulphanilamide), a sulphonamide of relatively high solubility. They proved, as expected, that the toxicity of such combinations was particularly low.

The results of the acute and subacute studies were confirmed in part also in chronic feeding experiments with weanling albino rats, although in tests based on voluntary drug intake the results are of necessity less clear-cut. On the one hand the taste of the standard food seems to be spoiled by certain sulphonamides (sulphathiazole, sulphamerazine) and not by others (sulphadiazine), which results in great differences in the food intake. On the other hand, tolerable amounts ingested over a long period of time may be insufficient to produce fatal renal complications but high enough to result in serious reactions due to the tissue toxicity of the sulphonamides. Hence, for comparative investigations of the renal toxicity of sulphonamides and their mixtures the incorporation of the drugs into standard food for voluntary consumption is not a good procedure.

## 3. Absorption-Excretion

The comparative absorption from the peritoneal cavity is exemplified for three combinations with the dosages used in the evaluation of acute toxicity. Fig. 3 shows that the blood levels from the sulphathiazole-sulphadiazine mixture are at all times almost as high as from sulphadiazine alone, despite the low toxicity of this combination. The urine volumes in an unimpeded flow of urine in the rats treated with mixture; this group consequently also reveals by far highest values for urinary drug excretion.

In a similar manner Fig. 4 demonstrates that the levels and particularly the urine concentrations of the sulphamerazine-sulphadiazine combination are higher than expected on the basis of the values from the individual compounds; is evident, in addition, from the columns representing urinary elimination of the drugs (in this instance on a cumulative basis) that excretion of the mixture is far more complete than from either compound administered singly in the amounts.

Fig. 5 illustrates the absorption and excretion of the mixture of three compounds. If compared with the previous two figures it is apparent that this sulphonamide combination gives excellent blood and urine concentrations. The total urinary elimination of sulphonamides is not only higher than from any one of the three compounds administered singly, but also significantly more complete than from a mixture of two. The behaviour of sulphonamide mixtures was observed also at small dosages and from other routes of administration.

The fate of sulphonamides and their combinations after administration of sublethal amounts is depicted in a representative experiment with the sodium salts of sulphadiazine and

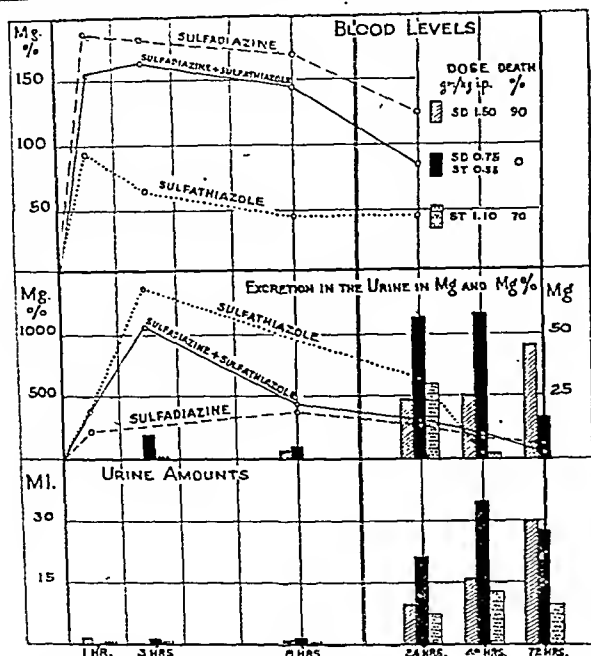


FIG. 3.—The absorption and excretion of sulphadiazine, sulphathiazole, and their combination in albino rats after intraperitoneal injection of single dosages. All figures represent the mean of the values of 10 animals.

sulphathiazole. Fig. 6 illustrates the absorption and excretion after intubation of 1 g. of the mixture per kg. of body weight as compared with the same weight amounts of the separate compounds. It is apparent from the graph that the mixture gives the highest blood levels, initially also the highest urine levels, and again by far the most complete urinary excretion, indicating that a combination of half dosages is more fully utilized than the same amount of either sulphadiazine or sulphathiazole.

The explanation for the more complete absorption and elimination of sulphonamide combinations emerged from tests

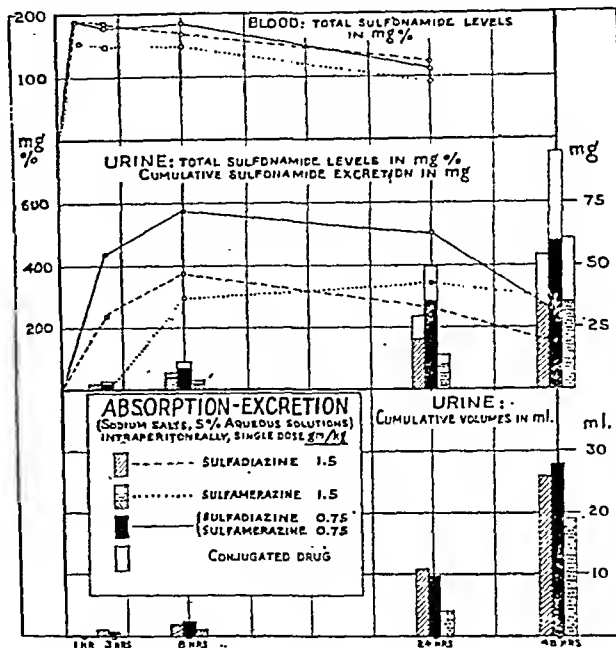


FIG. 4.—The absorption and excretion of sulphadiazine, sulphamerazine, and their combination in albino rats after intraperitoneal injection of single dosages. All figures represent the mean of the values of 10 animals.

with single drugs in the partial dosages contained in the mixture. These studies proved that smaller amounts are more completely absorbed from the gut, and consequently also more completely eliminated by the kidney. This behaviour remained apparently unchanged even if two sulphonamides were administered simultaneously. Hence, with regard to absorption and excretion, the body seems to handle a combination of sulphonamides as if each of its constituents were present alone and in the partial dosage contained in the mixture.

Table III illustrates this general principle in the renal excretion figures for the sulphathiazole-sulphadiazine mixture as

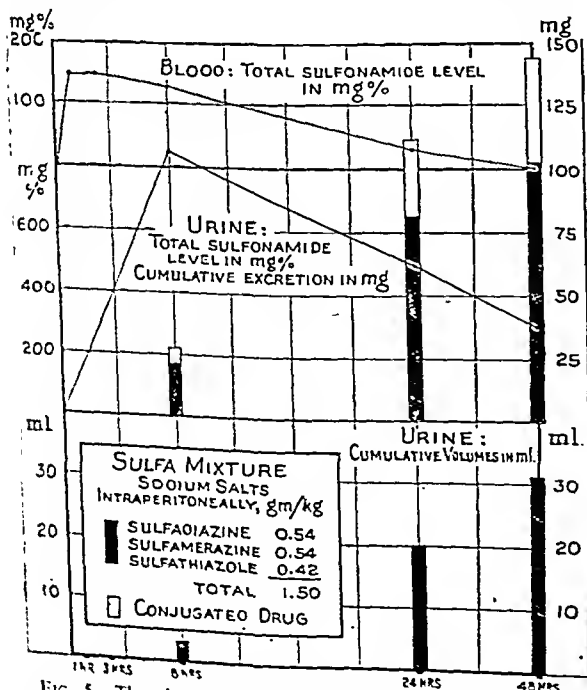


FIG. 5.—The absorption and excretion of a mixture containing partial dosages of sulphadiazine, sulphamerazine, and sulphathiazole after intraperitoneal injection of a single dose. All figures represent the mean of the values of 10 animals.

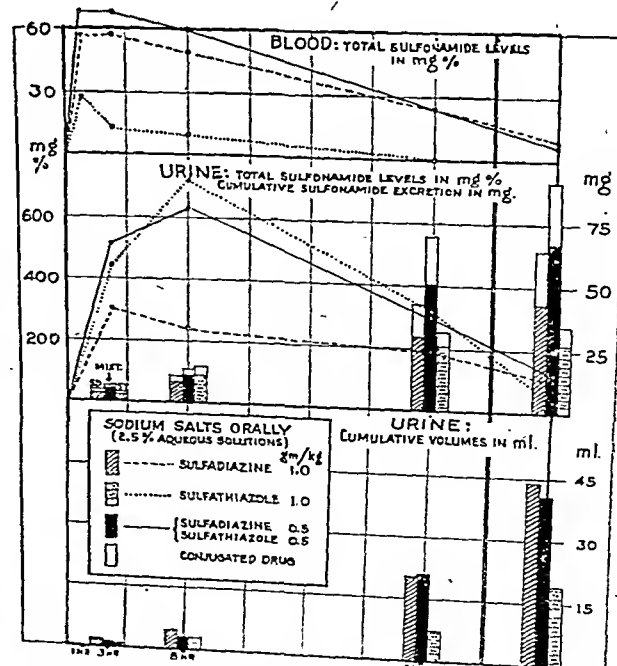


FIG. 6.—The absorption and excretion of sulphadiazine, sulphathiazole, and their combination after a single oral intubation. All figures represent the mean of the values of 10 animals.

contrasted with the values for the single compounds in equal and half dosages (Fig. 6). It is clearly apparent that the percentage of urinary excretion is strikingly higher from half

TABLE III.—*The Renal Elimination after 24 Hours of Sulphadiazine and Sulphathiazole, given Singly and in Combination. (Administration of Sodium Salts by Stomach Tube to Groups of 10 Albino Rats)*

Drug	Amount in g./kg. Body Weight		Amount of Dose Excreted
	Administered	Excreted	
Sulphadiazine .. ..	0.5	0.210	42%
	1.0	0.270	27%
Sulphathiazole .. ..	0.5	0.175	35%
	1.0	0.200	20%
Sulphadiazine .. ..	0.5	0.440	44%
Sulphathiazole .. ..	0.5		

dosages, whether given singly or in combinations. Incidentally, the observations in the laboratory animal that sulphonamide mixtures give good therapeutic blood and urine levels were fully confirmed in absorption-excretion studies in man.

### Results of In-vitro Antibacterial Activity of Sulphonamide Mixtures

The main result of *in-vitro* experiments on antibacterial activity of sulphonamide mixtures was the observation that the action of similarly effective sulphonamides in combinations corresponds largely to the total content of sulphonamide; in other words, in mixtures of different but similarly effective sulphonamides the bacteriostatic effect is generally additive. True potentiation of action was observed in some instances (Lehr, 1945).

It should be kept in mind, however, that these results were obtained with equal sulphonamide concentrations in the test-tube, whereas the administration of equal dosages of the different sulphonamides and their combinations would result in significant differences in the drug concentrations in blood and tissues. In accordance with the results of the absorption-excretion studies, mixtures give excellent tissue levels; hence they should prove *in vivo* at least of the same, if not of higher, antibacterial value if compared with equal dosages of any one of their individual components. This point of view was well supported by clinical results.

### Results of the Therapeutic Use of Sulphonamide Combinations

Up to the present a total of more than 700 unselected patients with systemic infections have been treated at the Flower and Fifth Avenue Hospitals and at the Metropolitan Hospital in New York City with a mixture containing equal amounts of sulphathiazole and sulphadiazine, or sulphadiazine and sulphamerazine, on a routine dosage schedule (Lehr, 1946; Lehr *et al.*, 1946). The oral route was used in the majority of cases. In children the sulphadiazine-sulphamerazine combination was also given by the intravenous route. These results will be published later. Adequate fluid intake was assured, but no alkalizing agents were employed.

The therapeutic response to both sulphonamide combinations was highly satisfactory in most instances. Defervescence and general clinical improvement seemed to occur with greater speed when compared with previous experience with any of the drugs administered separately. Hence the total amount of sulphonamide used was comparatively small. Therapeutically effective blood levels (5 to 20 mg. free sulphonamide per 100 ml.) were maintained with ease. Urinary concentrations of sulphonamide varied between 100 and 600 mg. per 100 ml. Conjugation figures were as a rule low, ranging between 3 and 20%

of the total level in the blood, and 10 and 40% of the total amount in the urine.

Crystalluria was infrequent, and never of the "massive" type observed so commonly during therapy with single compounds. Of more than 900 acid morning specimens of urine containing sulphonamide mixtures, which were examined under the microscope after sharp centrifugation only about 7% were found to hold moderate or small amounts of sulphonamide crystals, as contrasted with the incidence of crystalluria of 29% from sulphadiazine, 26% from sulphamerazine, and 70% from sulphathiazole alone (Flippin *et al.*, 1941; Flippin and Reinhold, 1946). None of the patients treated with mixtures developed any sign of serious renal irritation. Quite unexpectedly the incidence of allergic reactions also seemed to have decreased. Nausea and vomiting were rare. No other toxic reactions were encountered. At present we are engaged in clinical studies with various mixtures of three sulphonamides.

Confirmation of these investigations came recently from several sources. Whitehead (1946), at the University of Colorado, confirmed the animal experimental data. Flippin and Reinhold (1946), at the University of Pennsylvania, extended the clinical observations. They showed in a well-controlled study that "the use of sulphadiazine and sulphamerazine in mixtures containing equal parts of each drug led to a considerably decreased incidence of crystalluria compared with that observed when either compound was administered singly." They concluded that for the prevention of crystalluria the use of the mixture was as effective as the administration of sodium bicarbonate at the rate of 12 g. a day with either sulphadiazine or sulphamerazine. Finally, Hagerman and his co-workers (Frisk *et al.*, 1946, 1947), in Sweden, using a combination of sulphathiazole, sulphadiazine, and sulphamerazine, arrived independently at confirmatory animal-experimental and clinical results.

### Summary

A new and simple approach to the prevention of renal complications from sulphonamide therapy is presented. It consists in the use of a mixture of several sulphonamides in partial dosages instead of single compounds. In solution each sulphonamide component of the mixture behaves as if present alone, exerting no influence on the solubility of the others. Consequently the danger of drug precipitation in the kidney was significantly decreased with sulphonamide mixtures, as shown in animal experimental and clinical studies. Actually it was only as great as if each compound had been given alone and in the partial dosage contained in the combination. On the other hand the chemotherapeutic effect of these mixtures was roughly proportional to their total sulphonamide content.

The results of these studies indicate that combinations of two or more sulphonamides should be used in preference to single compounds for all indications, since they combine a high therapeutic efficacy with a remarkably low renal toxicity.

The principle of dissolving several structurally similar and therapeutically equivalent drugs in the same medium to the full extent of the separate saturation levels for each compound might prove of value in any instance where sparingly soluble drugs have to be incorporated into small volumes of solvent.

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## SULPHAMERAZINE TREATMENT OF PNEUMONIA IN ADULTS

BY

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Pneumonia lost many of its terrors with the discovery and development of the sulphonamides, and the results of treatment of this disease are progressively improving. There is, however, a tendency to regard the sulphonamide drugs as superseded by penicillin not only in the severely ill but even in mild conditions where the former have proved adequate. Needles are never pleasant to the patient or convenient to the attendant. We hope to show that sulphonamide treatment for primary pneumonia in adults is satisfactory in the vast majority of cases, and should be given before confirmation of a clinical diagnosis, in the form of bacteriological and radiological reports, is available. Further, we feel that all but the most severe cases in aged or debilitated patients are reduced by this treatment to a two-day fever which can be adequately treated at home. Hospital care, with facilities for fuller investigation and treatment, is needed only for patients who fail to respond rapidly to sulphonamides or who are critically ill or whose condition is otherwise complicated.

Pneumonia commonly occurs without the classical physical signs. We maintain that, in the absence of an influenza epidemic, patients complaining of respiratory symptoms are suffering from some measure of lung consolidation if they have a temperature higher than 100° F. (37.8° C.) for more than one day. We have encountered many such patients in whom skiagrams have shown segmental or central consolidation, and we consider that in these cases should be given the benefit of a full course of a suitable sulphonamide without delay.

It is very desirable to obtain at the outset, and before treatment is started, a specimen of sputum for complete bacteriological investigation. This will give a reliable indication of the causal organism in 70% of cases. Radiological confirmation that resolution is complete, particularly in every patient over 40, is essential. Patients with carcinoma of the bronchus not infrequently present with pneumonia, but complete clearing rarely occurs.

### Sulphamerazine

We do not attempt to prove that any sulphonamide is more successful than penicillin in the treatment of pneumonia (although we have reached this conclusion from a small series of cases that are not statistically significant). Sulphonamide therapy is certainly less troublesome, and with the newer preparations there is no need for frequent dosage, with consequent loss of sleep. Toxic effects are minimal. In this hospital patients may be admitted to any medical ward under the care of any of the physicians, so that treatment is that considered best by the physician concerned and is in no way standardized. By common consent, however, the treatment now used almost invariably is that with sulphamerazine.

Workers in America have compared the pharmacological properties of sulphamerazine with those of other sulphonamides (Hageman *et al.*, 1943; Schmidt *et al.*, 1944b), while its toxic effects have been compared with those of sulphadiazine by Dowling *et al.* (1944) and with those of sulphamerazine by Schmidt, Hughes, *et al.* (1944a). Reviews and clinical evaluations of the use of sulphamerazine in pneu-

monia have been published by Genecin and Nelson (1945), Heffner (1945), and Volini *et al.* (1945).

Sulphamerazine, a methyl homologue of sulphadiazine, is absorbed more rapidly and excreted more slowly than sulphadiazine. At equal blood levels it is no more toxic than sulphadiazine and is far less so than many of the older preparations. As a result, a single dose of sulphamerazine will produce a higher blood level of the drug, and more quickly, than the same dose of sulphadiazine, and this blood level will be longer maintained (Flippin, Reinold, and Geftter, 1943; *Medical Uses of Sulphonamides*, H.M.S.O., 1945; *Lancet*, 1943). Being more soluble than sulphadiazine it presents less risk of urinary obstruction with crystals (Anderson, Oliver, and Keefer, 1944). The rapid absorption renders parenteral administration almost unnecessary, since an oral dose will produce therapeutic blood levels in two hours, while within four hours the blood levels remain the same as those obtained by equal intravenous dosage (Murphy, Clark, and Flippin, 1943). Thus in comparison with older sulphonamides smaller doses of sulphamerazine less frequently given will produce and maintain an adequate blood level (12-15 mg. per 100 ml. of blood). The course we have found satisfactory consists of an initial "loading" dose of 3 g., followed in eight hours by 2 g. and then 1 g. eight-hourly. The doses can be arranged so that patient and attendant can have an uninterrupted night. With this regime a blood level of 15 mg. is reached within four hours (Welch, Mattis, Latven, Benson, and Shiels, 1943). We have found that this level is well maintained throughout treatment. Adequate urinary output must be maintained by giving six pints (3.4 litres) of fluid daily, but alkali is not required, since it decreases tubular reabsorption of the drug and therefore increases its loss by excretion.

In our experience the above dosage is always well tolerated and rapid subjective improvement occurs. The temperature falls to normal in 24 to 36 hours in most cases and never rises more than 1° F. above normal afterwards. Treatment is continued, according to the severity of the case, for 48 to 72 hours after the temperature has reached normal, so that a moderately severe case will need about five days' treatment (18 g. in all). We found no evidence that such a dosage produced a reduction in granulocytes in the blood that could be attributed to the drug. This agrees with the findings of others, using somewhat larger doses (Flippin, Geftter, Domm, and Clark, 1943). Most patients are fit to get up after a week and leave hospital between the tenth and the fourteenth day from admission. Breathing exercises from the day after the temperature has fallen accelerate the disappearance of added sounds in the lungs. Fig. 1 graphically represents the progress of a typical case.

In addition to specific drug therapy we find that adequate sleep on the first night of treatment is best obtained with an injection of 1/4 gr. (16 mg.) of morphine, which also suppresses the painful cough; in older subjects pethidine, 100 mg. by injection, is adequate and in many ways preferable. A linctus for the first two or three days may be helpful to control the cough; a really effective preparation, such as linctus heroin, should be used. Alternatively, 1/12 gr. (5.4 mg.) or 1/6 gr. (11 mg.) of "dicodid," by mouth, is satisfactory. Pleural pain rarely persists long after the start of sulphamerazine, and is well relieved by spraying the chest wall with ethyl chloride; the relief lasts about three hours, and the spray may then be repeated if necessary. We have never resorted to strapping the chest.

Although the illness is shorter and less severe as a result of treatment, full convalescence is essential, since pneumonia affects predominantly those subject to the stresses

of overwork and the risks of overcrowding, and rarely strikes the healthy adult. The patient should be advised to see that his future life is modified so as to avoid a recurrence of those circumstances that rendered him an easier victim to pneumonia. This may mean that a housewife must be advised not to add to her burden by long hours in a factory and the enthusiastic gardener warned against over-indulgence in his hobby.

We have found that a small spike of temperature, up to but rarely exceeding 99.4° F. (37.4° C.), occurs in many cases. This spike was seen in 60% of our successfully treated cases, being found more often where a four-hourly temperature chart was maintained than where the temperature was taken twice daily. The spike occurred most frequently about thirty-six hours after the temperature had settled, and some cases showed two or more such spikes. In no instance was this phenomenon correlated with any

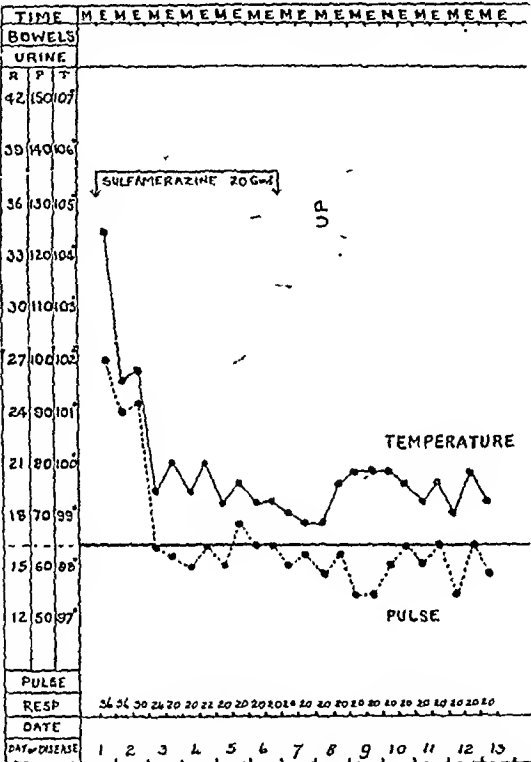


FIG. 1.—Chart of a typical case of severe lobar pneumonia treated with sulphamerazine.

failure of treatment or the development of any complication. It is met with as often in patients under penicillin as under sulphonamide therapy, and we have come to the conclusion that it need cause no misgiving.

**Present Series**

For this investigation the last 189 proved cases of pneumonia were studied—that is, those occurring since sulphamerazine became easily available. Criteria of diagnosis are clinical signs, supported by radiological evidence of well-defined consolidation, together with (in most cases) the presence of leucocytosis and the isolation of a causal micro-organism. Cases in which the pneumonia occurred as a terminal event in another mortal illness are excluded. In the series there were 101 males and 88 females. The average age for males was 43.0 years and for females 40.5 years, the extremes of age being 13 and 76 years.

Of these 189, 113 were treated with sulphamerazine from the start without a single death; 36 were treated with sulphamezathine (sulphadimethylpyrimidine), with three deaths; and 22 with penicillin, with one death. Combined

treatment was given to 12 patients, one of whom died. remaining cases were so mild that no specific therapy deemed necessary. The details of those dying in the series are:

- Treated with Sulphamezathine Alone (36 cases, 3 deaths)**
1. Man aged 52.—Chronic bronchitis for seven years. His indefinite. Died within two hours of admission. Diagnosis at necropsy: left lower-lobe pneumonia.
  2. Man aged 65.—An alcoholic polycythaemic patient. Indefinite chest illness for one month. Severe symptoms for three days. Died within 24 hours of admission. Diagnosis at necropsy: right mid-lobe pneumonia.
  3. Woman aged 66.—A known case of aortic stenosis. Complicating right lower-lobe pneumonia. Collapsed three days before admission after nursing dying husband. Severely ill. No response to treatment. Diagnosis confirmed at necropsy.

- Treated with Penicillin Alone (22 cases, 1 death)**
4. Man aged 59.—Admitted with acute pulmonary oedema. Died within 12 hours of admission. Diagnosis at necropsy: rheumatic aortic stenosis, acute pulmonary oedema, left-sid pneumonia.

- Treated with Combined Therapy (12 cases, 1 death)**
5. Girl aged 15.—Died 12 hours after admission. Left lower-lobe pneumonia complicating rheumatic mitral stenosis and aortic regurgitation, associated with acute pulmonary oedema. Confirmed at post-mortem examination.

It will be seen that no therapy could offer much, if a chance of recovery.

**The Sulphamerazine Group**

The sulphamerazine cases are considered in further detail. Three of the 113 were given sulphamerazine together with penicillin from the outset; one was critically ill, another less severely ill but rather old (66), and the third a case of moderate severity in a soldier, who would probably have responded well to either treatment alone. Among the remaining 110 patients the condition was classified as mild, moderate, or severe, according to the clinical impression. The age distribution, in decades, of these 110 patients recorded in the following table.

Age Period	No. of Cases	Age Period	No. of Cases
13-20 ..	11	51-60 ..	17
21-30 ..	22	61-70 ..	11
31-40 ..	25	Over 70 ..	3
41-50 ..	21		

**Bacteriology**

The sputa of 87 cases, in all groups of severity, were examined on admission, and 60 of these yielded on culture a causal micro-organism. The examination thus gave a positive finding in 70%. The pneumococcus was cultured in 53 cases, a haemolytic streptococcus in 10 cases (several times we encountered both organisms); Friedländer bacillus in 1 case, and *Staph. aureus* in 3 cases. Of the 27 cases which grew no pathogenic organisms the majority responded to treatment as if they had been pneumococcal in aetiology. Most cultures grew non-pathogenic organisms in addition, most frequently *Neisseria catarrhalis* and *Str. viridans*—the latter rarely in free or pure growth. This finding emphasizes the fact that to be of most value the examination must be carried out on a specimen of re sputum from the lung, and not saliva. In young and non-smoking subjects a specimen may be unobtainable.

**Results**

There were 17 mild cases in the series—9 men (average age 38) and 8 women (average age 37); thus these patients were, on the whole, young. Treatment of all but one was totally successful, fever disappearing in an average of 11 days and the patients leaving hospital in 11 days. The average dosage of sulphamerazine was 16.5 g. and the success rate 94%.



The moderately ill patients numbered 59 (31 men and 28 women), the average ages being 40 and 43 respectively. In 50 cases the results were totally successful, the temperature reaching normal in two days and discharge occurring in 15 days on the average. The dosage of drug used was 19 g. and the success rate 85%.

Of the 34 patients classified as severe cases the average age was 42 for both sexes, there being 21 men and 13 women. Sulphamerazine produced a successful response in 27, with the pyrexia settling in 2.2 days and discharge being given in 16 days after an average dosage of 19 g. The success rate here is 79%.

Thus, of 110 patients treated with sulphamerazine when a clinical diagnosis was made 93 gave a response regarded therapeutically as successful—an overall success rate of 84.5%. All cases were followed up in the out-patient department after convalescence if clearing was not demonstrated radiologically before discharge.

Among the successful cases there were 10 which developed small amounts of sterile pleural effusion, and 3 which had relapses of fever responding to a further course of sulphamerazine. Other minor complications were one temporary lobar collapse, one femoral thrombosis, and one abortion. In no case was convalescence seriously delayed.

#### Cases Given Additional Treatment

In 17 cases the response was deemed inadequate and further treatment was given. Fluid developed in 5 cases in amounts sufficient to justify aspiration. The fluid remained sterile throughout and no empyema occurred in the series. Parenteral penicillin was given to each.

Two cases developed lobar collapse, for which penicillin was administered to prevent a new infection becoming established in the collapse area. One severely ill woman developed a confusional psychosis after 7 g. of the drug, which was stopped and penicillin substituted. Her confusion cleared rapidly and she left hospital on the fifteenth day, her progress delayed neither by her psychosis nor by a small sterile effusion which developed. One moderately ill man with a pneumococcal infection developed a drug fever. After a tendency to early settling his temperature rose again and remained high throughout a course of 20 g. of sulphamerazine, falling critically thereafter, having almost reached normal before a three-day course of penicillin was started—probably unnecessarily.

Six patients seemed refractory to sulphonamides. Three yielded a growth of pneumococci on sputum culture, though the growth was not free, and—unfortunately in the light of events—the drug resistance of these strains was not tested *in vitro*. One case was mild and the temperature subsided by very slow lysis over four weeks, apparently unaffected by sulphamerazine (18 g.) or penicillin (three-hourly for 14 days). The other two (one moderate, one severe) responded promptly to penicillin after sulphamerazine had failed. Two other cases produced no pathogenic organisms from the sputum, and both were severely ill. One responded slowly and became afebrile on the eighth day of treatment, which consisted of sulphamerazine 20 g., producing a short-lived response, together with penicillin from the third to the tenth day. The other gradually improved over nine weeks regardless of treatment, his progress being punctuated by thrombophlebitis at three weeks and a lung abscess in the affected lobe at six weeks. These complications cleared completely by four months from the onset of his illness. The sixth case had 40 g. of sulphapyridine during 28 days before admission, and 18 g. of sulphamerazine resulted in no improvement, but the condition yielded dramatically to penicillin.

#### Staphylococcal Pneumonia

The remaining two cases were due to *Staph. aureus*. Certain strains of staphylococci are moderately sensitive to sulphamerazine. There were three cases of staphylococcal pneumonia in this series; one case, that of a man of 70, was among those successfully treated. His fever had already subsided when the laboratory reported a pure growth of *Staph. aureus* from his sputum; no relapse occurred after treatment. In the other two progress was not so smooth. The first became afebrile in 36 hours, so treatment was not changed on the bacteriological findings; a relapse followed the end of treatment, and this was promptly and finally dealt with by penicillin (60,000 units three-hourly for seven days). The second case seems typical of this condition, and is described in more detail; the temperature, pulse, and respirations are reproduced in Fig. 2.

A man, aged 34, who had been overworking, was seized at 3.30 p.m. on June 3, 1946, with severe left chest pain, breathing becoming difficult. He sweated profusely, vomited twice, and

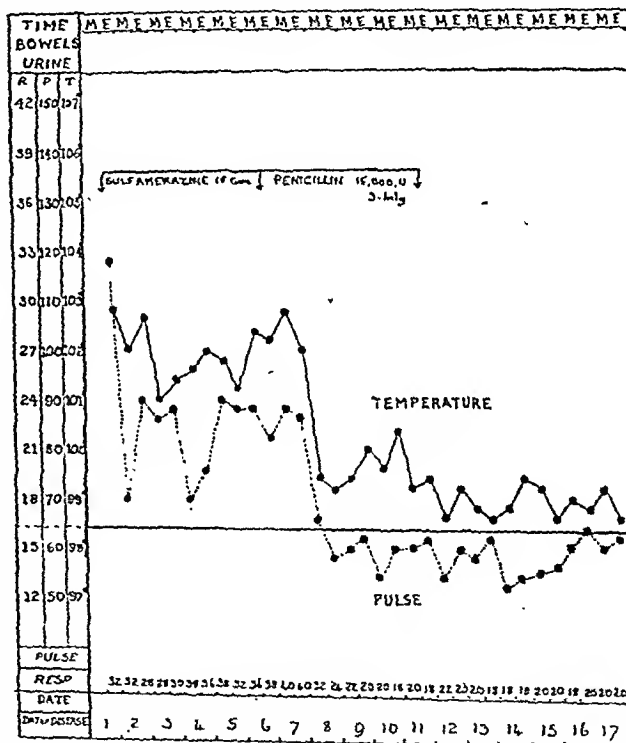


FIG. 2.—Chart of a typical case of staphylococcal pneumonia treated with sulphamerazine and penicillin.

felt weak. He had a cough with scanty sputum. Examination showed signs of left basal consolidation when he was admitted the following afternoon. Sulphamerazine was administered in the usual dosage, and produced a reduction in pyrexia to 100° F. (37.8° C.) from the original 103.6° F. (39.8° C.). On the 7th the pneumonic process had extended to the left upper zone, and herpes labialis was present. When on June 9 the bacteriologist reported that staphylococci were present in the sputum penicillin was started. In 30 hours the temperature had dropped to normal, and progress thereafter was uneventful. (The picture in this case was confused by an early finding of pneumococci in the sputum; had this not occurred the case would have been recognized as staphylococcal-resistant to sulphonamide sooner than on the fifth day of treatment.)

#### Toxic Effects

One patient showed on the third day a transient rubelliform rash which faded in spite of further administration of sulphamerazine. In this case, unlike those described

by Hall and Spink (1943), there was no relapse of temperature with the eruption.

Two women became confused during treatment. One has already been mentioned; she had had only 7 g. and her treatment was changed to penicillin. The other developed a psychotic state only after an adequate course of treatment had been given; the confusion cleared in four days and the pneumonia resolved rapidly. Drug psychosis has been reported by Flippin, Gefter, Domm, and Clark (1943), but both these cases had small doses of sulphonamide, and their condition may have been due to pneumonia rather than its treatment.

Drug fever occurs with all sulphonamides. Gefter *et al.* (1943) reported it in severe cases, most of which had over 40 g. of sulphamerazine. Two cases occurred in this series, the pneumonia responding according to expectation but fever persisting unexplained until a critical fall after stopping the drug incriminated the sulphonamide.

We have encountered no serious toxic manifestations in the use of this sulphonamide, and feel that they should be excessively rare provided that administration is not too prolonged.

### Summary

A series of cases of primary pneumonia in adults is presented. No deaths occurred among 113 cases treated with sulphamerazine. Five deaths (7% mortality) occurred among 76 treated with other agents, including combined therapies. The total mortality was 3%.

It is claimed that sulphamerazine, which can be given in relatively small doses at eight-hourly intervals, is a satisfactory therapeutic agent for this disease. The results are such that pneumonia can be treated at home and be reduced to a "two-day fever." Should no response follow within 48 hours the case should be reviewed at once and the facilities provided by the hospital for further investigation and treatment be employed.

The need for radiological demonstration of complete resolution is emphasized, as is the need for adequate convalescence.

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Dr. Samuel Standard, the Associate Professor of Clinical Surgery at New York University, "has found that powder-puffs are a menace to health," reports B.U.P. "Anyone who has seen a powder-puff pulled out of a lady's handbag containing loose change, tobacco dust, and handkerchiefs, clean or otherwise, must have looked in awe as the perspired face and forehead were punished by swift, firm, hasty strokes smeared on fiercely by a deft, practised hand. Twenty-four hours later the owner of the face is surprised to find a crop of pimples spread over the cheek and forehead. In despair, she covers these again and again by the same method, and her wonder grows that her pimples multiply."

## ORAL PENICILLIN IN TREATMENT OF PNEUMONIA IN THE ADULT

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A comparative study (Anderson and Ferguson, 1945) of the efficacy of the sulphonamides and penicillin in the treatment of pneumonia showed that there was little to choose between the two methods. Although certain advantages could be claimed for penicillin on account of its lack of toxicity, its use had one great drawback, especially for the general practitioner—the need for repeated intramuscular injections. Early studies with regard to the route of administration of penicillin had suggested that the material was likely to have little effect when given by mouth because of its inactivation by the acid of the gastric juice (Abraham *et al.*, 1941) or because of penicillinase production by coliform organisms (Chain and Florey, 1944). This led different workers to try to combine penicillin with suitable antacids and buffers designed to counteract the stomach acids (e.g., Little and Lumb, 1945). Bunn and his co-workers (1945) used penicillin orally in the treatment of 45 cases of pneumonia and had only one fatality. The material was given in a gelatin capsule in about half of the cases the capsule contained an oil suspension and in the remainder the ordinary powdered sodium salt was enclosed. However, Finland, Meads, and Ory (1945) came to the conclusion that elaborate buffering devices were unnecessary and that administration with saline or even water was equally valuable in procuring effective therapeutic blood levels. These authors obtained satisfactory results with oral penicillin in the treatment of seven cases of adult pneumonia. Bushby and Harkness (1946), who reviewed the conflicting reports on different methods of administration, used penicillin orally for the treatment of gonorrhoea and were satisfied with the results which indeed were as good as those obtained with intramuscular penicillin. (It is important to realize that these results were obtained in adults, for Buchanan (1946) has since shown that oral penicillin can be used with excellent effect in infants whose normal achlorhydria was assumed to prevent inactivation of the antibiotic.)

In view of the great variations in the sensitivity of different organisms to the action of penicillin and because of the differences in severity between cases of the same infection, it was felt that there was a need to investigate the efficacy of penicillin administered orally to an unselected series of patients with pneumonia. In this infection, unlike gonorrhoea, the treatment must be capable of dealing with the bacteria not only in the tissues but also in the blood stream; it seemed possible that penicillin given by mouth might be unable to attain concentrations in the blood high enough to quell a bacteraemia.

### Material and Methods

The patients comprised in the study were all adult males admitted to the wards of Knightswood Hospital during the winter of 1946-7 in whom the diagnosis of pneumonia was confirmed. They were divided into two groups, one group being given penicillin orally and the other penicillin intramuscularly as a control. There was no conscious selection of patients for either method; on admission they were allocated alternately to the two groups.

**Intramuscular Penicillin.**—The patients in this group were given an initial dose of 50,000 units, after which successive doses of 20,000 units were administered at four-hourly

intervals for a period of five days. Occasional severe cases received higher dosage in the early stages of treatment. The mean total dose of penicillin was 800,000 units.

**Oral Penicillin.**—Tablets of calcium penicillin with 0.5 g. of sodium citrate were used. They were made up to contain 20,000 and 25,000 units of penicillin, so that it was possible to vary the scheme of dosage. At first 40,000 units were given three-hourly, but it was soon apparent that this dose was too low, and thereafter for a considerable part of the trial the standard dose was 60,000 units three-hourly, at least during the early stage of treatment. Administration was continued for a period of five days. Towards the end of the trial further variations were made in the dosage, the principal one being that the three-hourly dose was reduced to 25,000 units after treatment had continued for 48 hours. The mean total dose given orally was 1,650,000 units. In order to avoid too much disturbance of the patient a double dose was given at midnight and the next dose at 6 a.m. Two measures were adopted in an endeavour to enhance absorption and to maintain effective blood levels: in the first place, the tablets were always administered along with a small amount (1–2 oz.: 28–56 ml.) of milk; and, secondly, the daily fluid intake was reduced to 2 pints (1.136 litres). Rather to our surprise this latter restriction was tolerated by the patients, and with adequate nursing supervision no difficulty was experienced in keeping the tongue moist and clean.

The bacteriological and clinical control was similar to that used in previous trials (Anderson and Ferguson, 1945). Pneumococcus typing from sputum was, however, somewhat restricted by the lack of adequate supplies of typing serum; the available supplies were kept for the examination of special cultures.

### Results

The two groups of cases showed a fairly similar composition. The age distribution, duration of illness, and the presence of bacteraemia are shown in Table I. It will

TABLE I.—Composition of the Two Treatment Groups

	Intramuscular Penicillin	Oral Penicillin
<b>Age distribution:</b>		
0–20 years .. .. .	0	3
21–40 " .. .. .	14	13
41–60 " .. .. .	22	18
61+ " .. .. .	9	11
<b>All ages .. .. .</b>	<b>45</b>	<b>45</b>
<b>Bacteraemia:</b>		
Pneumococcus Type I .. .. .	2	2
" " II .. .. .	5	7
" " V .. .. .	0	2
Others .. .. .	2	2
Staphylococcus .. .. .	0	1
<b>Total .. .. .</b>	<b>9</b>	<b>14</b>
<b>Duration of illness on admission:</b>		
0–2 days .. .. .	18	23
2–4 " .. .. .	13	13
5+ " .. .. .	14	9
<b>Mean duration (days) .. .. .</b>	<b>3.5</b>	<b>3.2</b>

be seen that in respect of the factors considered to have the greatest effect upon the prognosis there was little difference between the two groups. In so far as previous sulphonamide treatment was concerned routine estimations of the blood level on admission were not made during this trial. Of those who were given intramuscular penicillin 23 had received some sulphonamide before admission, but only seven had received more than 4 g. In the oral group the equivalent figures were 24 and 10, of whom two had received a single injection of penicillin intramuscularly.

The effect of treatment in the two groups has been compared in respect of the duration of fever, the occurrence of complications, and the number and causes of deaths. The average duration of fever in uncomplicated cases was: "intramuscular" group, 1.9 days; "oral" group, 1.4 days. A composite temperature chart (Fig. 1) shows little difference between the effect of the two methods of treatment.

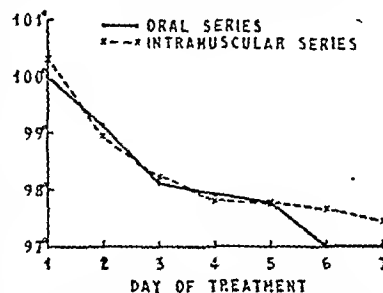


FIG. 1.—Duration of pyrexia in uncomplicated cases of pneumonia treated with penicillin.

Complications developed in 12 of the patients given intramuscular penicillin and in 16 of those given oral treatment. The individual complications are listed in Table II. It shows that there is no appreciable difference between the two groups.

TABLE II.—Complications in the Two Treatment Groups

Complication	Intramuscular Penicillin	Oral Penicillin
Lung abscess .. .. .	2	0
Empyema .. .. .	1	1
Sterile effusion .. .. .	2	1
Delayed resolution .. .. .	7	13
Lobar collapse .. .. .	0	1

The patients who died are recorded in Table III, which includes relevant details regarding their clinical condition. Study of the table throws light on the present status of pneumonia therapy, for it is apparent that in many of the patients the presence of some accompanying disease or degeneration was a contributory factor which weighed too heavily against effective treatment. Thus in four of the patients other conditions were present which were of themselves sufficient to have produced a fatal issue. The mortality rate for the series is 7.8%, and when it is recalled that 20 of the patients were over the age of 60 years such a low rate may be regarded with satisfaction.

TABLE III.—Deaths

Case	Age	Method of Treatment	Duration of Illness Before Admission	Extent of Consolidation	Blood Culture	Complicating Factors	Cause of Death
D. B.	41	Oral	5 days	L1 + 2	Positive (I); 624 col./ml.	Chronic bronchitis; pulmonary tuberculosis	Pneumonia
J. C.	55	"	6 "	R2 + 3	Positive (II); neg.	Severe anaemia; pulmonary tuberculosis (calcified)	"
J. G.	38	"	2 "	L2 R3	Positive (II); uncountable	Chronic bronchitis. Died within 11 hours of admission	Early abscess formation at necropsy
M. W.	64	"	"	R1 + 2 + 3	Positive (V); neg.	Auricular fibrillation	No necropsy. Cardiac failure
D. M.	61	Intramuscular	5 "	L1 + 2	Positive (XV); 20 col./ml.	Cirrhosis of liver	Pneumonia, resolved at necropsy
J. M.*	68	"	4 "	L1 + 2	Sterile	Gross spinal deformity	Lung abscesses at necropsy
J. S.	55	"	3 "	R1 + 2 L1	Positive (II); 11 col./ml.	"	Pneumococcal meningitis

L1 and L2 = Left upper and left lower lobe. The figure in parentheses under "Blood Culture" refers to the type of pneumococcus.  
\* Received sulphonamide treatment before admission.

Clinical details are given of two typical cases, one in the younger age group and the other, a particularly severe case, in the older age group.

### Case 1

Treatment: penicillin orally—60,000 units three-hourly for 54 hours, then 40,000 units for 75 hours: total 2,120,000 units (Fig. 2).

A man aged 27 was admitted on Dec. 11, 1946; temperature 102° F. (38.9° C.), pulse 120, and respirations 40. On Dec. 8 he had had a sudden attack of shivering, followed by severe

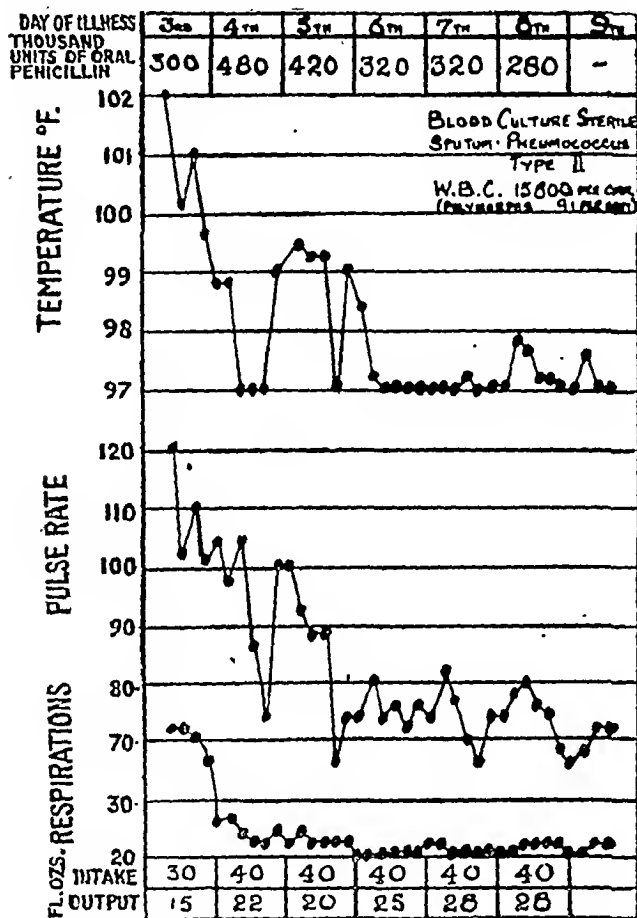


FIG. 2.—Chart of Case 1. Total penicillin, 2,120,000 units.

pain in the right chest anteriorly. Headache, troublesome cough, and rusty sputum were also noted. He had had several previous attacks of bronchitis. Sulphonamide had not been given before admission.

On admission the patient was acutely ill; his tongue was very dirty. Examination of the chest revealed a pneumonia involving the greater part of the right lung; this was later confirmed radiographically. Rales were numerous in both lungs, and there was a suggestion of spread of consolidation into the left lower lobe. The blood culture was sterile; sputum, pneumococcus Type II; W.B.C., 15,800 per c.mm. (polymorphs, 91%). Next day the temperature, pulse, and respirations fell and the patient's appearance improved, although there was no improvement in the chest signs. On the 15th, signs of consolidation were most pronounced in the middle third of the right lung. The general condition was much better. On the 23rd the chest was clear clinically and radiographically. The patient was discharged on Dec. 26.

### Case 2

Treatment: penicillin orally—60,000 units three-hourly for 54 hours, then 40,000 units three-hourly for 57 hours: total, 1,840,000 units (Fig. 3).

The patient, a man aged 54, was admitted on Feb. 11, 1947, his sixth day of illness, having collapsed while at work. He

complained of shivering, pain in the chest, cough, and sputum. He had had no previous illnesses, and no treatment had been given before admission. His temperature was 100° F. (37.8° C.), pulse 96, and respirations 28.

Physical examination showed a poorly nourished man who was acutely ill, cyanosed, and dyspnoeic. The tongue was red and coated. There were signs of consolidation in both lower lobes. A blood culture performed on admission proved to be positive, and Type V pneumococci were so numerous on 1 pour-plate as to be uncountable. The W.B.C. numbered 6,400 per c.mm. (polymorphs, 93%). Next day the physical signs in both lungs were unchanged, and the cyanosis and dyspnoea were not improved. Auricular fibrillation was now present. Recovery was slow and uneventful, except for an elevation

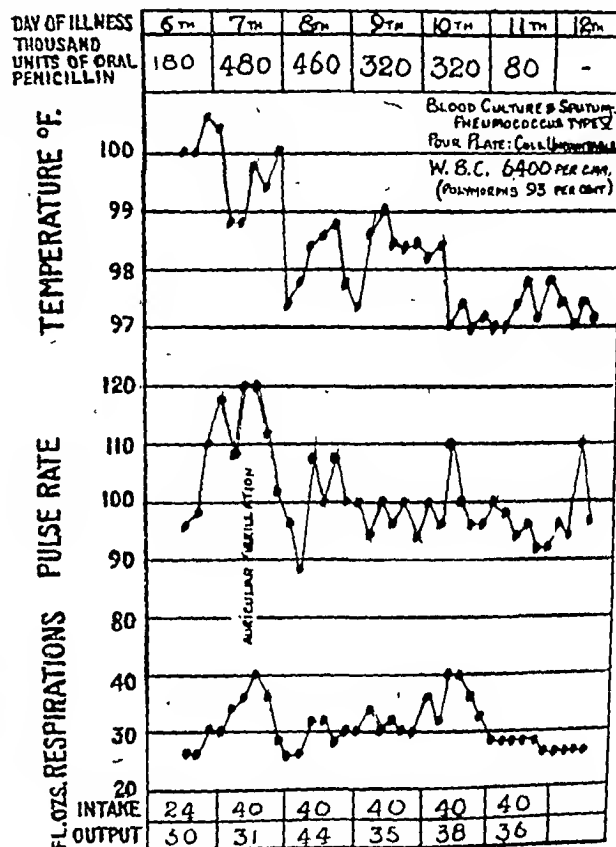


FIG. 3.—Chart of Case 2. Total penicillin, 1,840,000 units.

temperature to 100.8° F. (38.2° C.) on March 1. At this time there was excessive prominence of old varicosities on the right leg, with surrounding redness. This subsided after 48 hours' rest in bed. When discharged after 36 days in hospital the chest had cleared except for a little basal rale.

### Discussion

From the results recorded it is clear that the oral administration of penicillin is a satisfactory method of treatment for pneumonia. Our experience would suggest that treatment should start with a daily oral dosage equal to four times that required by the intramuscular route. After obvious clinical improvement (usually within 48-72 hours) this dose may be reduced by half. It is interesting that such a schedule is much smaller than that used by Bunn *et al.* (1945) and by Finland *et al.* (1945). When attention is directed solely to those patients who had bacteraemia at the beginning of treatment it may be noted that in nine of them the colony counts were between 4 and 624 organisms per ml. and that in two others the organisms were too numerous to count. The satisfactory recovery of seven of these cases (including one of the latter) is good evidence of the efficacy of the oral method of

presentation. With regard to the technique of administration it would seem desirable at present to give the antibiotic as we gave it—namely, in milk and with a maximum fluid intake of 2 pints a day.

The necessity for a larger dose of penicillin makes it apparent that destruction of the antibiotic must take place at some part of its course through the body. Even with this increased dosage high inhibition levels in the blood serum were not obtained and indeed inhibition was rarely found in dilutions of serum above 1 in 2. Whether the state of the stomach juices during an acute infection such as pneumonia is an important factor in diminishing the amount of destruction may be worth further examination. One of us (J. B. L., unpublished) has shown that there is a decided diminution in the hydrochloric acid content of the gastric juice in pneumonia, and that this hypochlorhydric or achlorhydric state does not disappear immediately upon clinical recovery. The significance of such a finding is not at once apparent, but it may be a contributory factor in preventing an excessive destruction of penicillin. It would seem of some importance to make test-meal studies in other acute infections to see if this loss of hydrochloric acid is a common feature.

It should perhaps be emphasized that the indications for penicillin therapy are not changed by the present report. The sulphonamides constitute an adequate method of treatment for the majority of cases, more especially in the younger age groups; but for those patients who require penicillin there may be some advantage in the use of the oral route. In the first place, the difficulties associated with continued injections are overcome and treatment of pneumonia with penicillin in the home becomes practicable. Secondly, it seems possible that therapy might be cheapened by the use of substandard penicillin, which would not require the careful sterilization and packing necessary when used by injection.

The tablets were supplied by Burroughs Wellcome, to whom we are indebted for the opportunity of conducting the trial. We wish to thank Dr. F. Prescott and Dr. G. Brownlee for their advice and help.

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*Man Against Pain: The Epic of Anaesthesia* (By Howard Riley apcr. Victor Gollancz, Ltd. 1947. 10s. 6d.) can hardly be regarded as a serious contribution to the literature of the history of anaesthesia, for it is written for the lay public in a journalistic style. For example, in analgesia "the patient is woozy but not unconscious," and "avertin is administered per rectum in the form of a nice little pink enema." On the title page is the quotation: "If America had contributed nothing more to the stock of human apyness than anaesthetics, the world would owe her an everlasting debt of gratitude." The author develops this theme to such an extent that the British reader becomes rather irritated by his depreciation of much outstanding European work. For instance, the introduction of ether anaesthesia, together with an account of the controversy about Morton, Long, Wells, and Jackson, occupies 88 pages, while he dismisses Simpson's discovery of the anaesthetic properties of chloroform in just over one page. He ignores the pioneer work of British anaesthetists done during and after the 1914-18 war in evolving the inhalation technique of endotracheal anaesthesia and blind nasal intubation, yet fully describes the relatively trivial modification of using a cuffed tube instead of a sure pack in a chapter entitled "The Dunked Dog."

## ORAL PENICILLIN IN YOUNG CHILDREN

BY

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AND

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We report here a clinical trial in which we treated 25 children, originally diagnosed as suffering from pneumonia, with oral penicillin. It is hoped that our modest contribution will induce others to try out on a bigger scale the oral administration of penicillin in sick children. No references to systematic experiments in the treatment of pneumonia in young children with oral penicillin could be found in the literature, and therefore the instructions given, especially those regarding the dosage, had to be modified after experience had been gained from the first few cases.

The original instructions given were as follows: (a) Pharyngeal swabs to be taken before treatment, and the isolated organisms to be tested for penicillin sensitivity. (b) The chest to be x-rayed as soon as possible after admission and again at the completion of treatment. (c) A record of the fluid intake to be kept; no extra fluids to be given unless specially ordered. (d) Oral penicillin to be given 4-hourly (later modified to 3-hourly) except for the last night dose, which may be doubled if a prolonged uninterrupted sleep is desirable. Dosage: Infants up to 6 months, 10,000 units (later increased to 20,000 units); between 6 months and 1 year, 20,000 units (later increased to 30,000 units); over 1 year and under 2, 30,000 units (later increased to 40,000 units). The treatment was continued for five days or less according to progress made by the child. Each tablet contained calcium penicillin 20,000 i.u. and sodium citrate 0.5 g. One or more tablets were crushed in water or milk and given preferably before feeds.

The dosage was originally calculated according to body weight in the proportion of 50,000 units per 24 hours for a 14-lb. (6.3-kg.) baby—say 8,000 units 4-hourly day and night. This dosage was based on that of 500,000 units per 24 hours for a 10-stone (63-kg.) adult, an amount of oral penicillin apparently effective against pneumonia in the adult (Prescott, 1947, personal communication). Buchanan (1946) considered 4,000 units per lb. (0.45 kg.) of expected body weight per 24 hours effective in young children. In the more severe cases, especially the later ones, and in view of the results of serum-penicillin estimations, these doses and sometimes larger ones were given at 3-hourly instead of 4-hourly intervals. At most oral penicillin was given for five days, and in several cases where clinical improvement was rapid the treatment was discontinued earlier than the fifth day.

#### Clinical Results

Of the 25 children treated 2 were under 6 months old, 9 between 6 months and 1 year, and 14 between 1 and 2 years old. The revised clinical diagnosis in 18 cases was bronchopneumonia, in 5 lobar pneumonia, and in 1 bronchitis. The remaining child developed measles the day after admission; treatment was stopped and she was removed to a fever hospital. The five cases of lobar pneumonia and 11 cases of bronchopneumonia were considered seriously ill on admission. In 15 cases the diagnosis was confirmed by radiography. Most of the children had a history of one to three days' illness before admission, but 2 had been ill for as long as seven days. In most of the cases pneumococci and streptococci (principally



*Str. viridans*) were isolated from the upper respiratory tract; all these organisms proved to be penicillin-sensitive.

Four children failed to complete the course of treatment because they were sent on the third or fourth day to fever hospitals: one with acute meningitis and three with gastro-enteritis. All showed marked improvement of general and chest condition. They comprised the two children under 6 months and two in the group of those aged 1-2 years.

Four other children, who were gravely ill and failed to show any clinical improvement on oral penicillin after three or four days, were given sulphamezathine and recovered (see Table I). In two of these cases there is no record of what organisms were grown from the pharyngeal swabs; in one the predominant organisms were reported to be penicillin-sensitive, in the other penicillin-resistant.

TABLE I.—*Diagnosis and Treatment*

No. of Cases	Diagnosis	Oral Penicillin	Sulphonamides	Penicillin Course Not Completed
18	Bronchopneumonia	11	4	3
5	Lobar pneumonia	4		1
1	Bronchitis	1		

The 25th child developed measles the day after admission and is not included in the table.

The other children all had normal temperatures within 2-4 days and recovered uneventfully except for one infant, who has bronchiectasis and is still in hospital after three months. The average stay in hospital, apart from that spent by this child, those transferred to fever hospitals, and one taken home against advice on the tenth day, was 19 days, the shortest being seven days and the longest 35.

#### Serum-penicillin Levels

Estimations of serum-penicillin levels after oral administration of single doses of penicillin were made by the method described by Fleming and Smith (1947), who used a mixture of glucose, phenol red, and serum water as the culture medium and a streptococcus as test organism.

TABLE II.—*Serum-penicillin Levels*

Case No.	Age in Months	Dose in Units	Serum-penicillin Level (i.u./c.mm.) at Hours after Administration						
			½ hr.	1 hr.	1½ hr.	2 hr.	2½ hr.	3 hr.	4 hr.
1	7 months	20,000	0.25			0.06			
2	3 "	10,000	0.03	0.25		0.03			
3	23 "	30,000		0.25		0.03			
4	14 weeks	10,000							
5	12 months	20,000							
6	12 "	20,000	0.125		0.03				
7	22 "	20,000	0.06		0.03				
8	16 "	30,000	0.06		0.06		0.03		
9	15 "	30,000	0.03		0.06		0.125		
10	24 "	30,000	0.06		0.06		0.125		
11	11 "	20,000		0.125		0.03			
12	22 "	30,000		0.06		0.03		0.03	
13	20 "	30,000		0.06		0.03		0.03	
14	18 "	30,000				0.125			
15	7 "	30,000		1.0		0.5		0.25	
16	14 "	30,000		0.5		0.125		0.125	
17	23 "	40,000		1.0		0.25		0.125	
18	18 "	40,000		0.5		0.25			
19	9 "	20,000				0.03		0.125	
20	11 "	20,000		0.03		0.06			
21	8 "	20,000	0.125		0.06		0.06		

The mark — indicates no inhibition with standard streptococci.  
The blood samples from Case 4 were stored for three days before testing and no penicillin could be detected. The blood samples from Case 5 were kept by mistake in the incubator for 24 hours and no penicillin could be detected.

#### Toxic Manifestations

Ellinger and Shattock (1946) reported a case of nicotinamide deficiency following administration of oral penicillin. They inferred that the nicotinamide deficiency was due to the effect of penicillin on the intestinal flora. Bushby and Harkness (1946), in a series of 85 adults, reported one case only of urticaria with oedema of hands, feet, and neck after oral penicillin.

Only one of our children developed, 10 days after completion of treatment, a blotchy urticarial rash. The temperature was slightly raised and diarrhoea was present. In another child, three days after treatment, a transient simple diarrhoea was noted. No pathogenic organisms were isolated from the stools of either case. Three other infants, transferred to fever hospitals, were diagnosed as having "gastro-enteritis"; their condition was excellent and the intestinal symptoms appeared on the third or fourth day during the course of oral penicillin. We think it possible that the diarrhoea in these cases was due to a direct toxic action of calcium penicillin on the digestive tract.

#### Comment

Oral penicillin appears to be effective against most varieties of acute pneumonia in childhood. Serum-penicillin estimations suggest that it should be. Some types of severe bronchopneumonia do not respond favourably, and for these parenteral penicillin and/or sulphonamides are the most efficacious. As György *et al.* (1946) rightly insist, for very sick children intramuscular penicillin is advisable, at least during the early acute phase of the disease. However, where circumstances are such that special nursing and frequent injections are impracticable, oral penicillin given in adequate doses at least 3-hourly will be of great benefit. If only for that alone the administration of oral penicillin is an important advance in chemotherapy.

#### Summary

Twenty-five young children were treated with oral penicillin. Of these 18 had bronchopneumonia, 5 lobar pneumonia, and 1 bronchitis; the remaining child was removed to a fever hospital with measles.

Of those with bronchopneumonia 11 made a satisfactory recovery on oral penicillin alone, 3 greatly improved but did not complete the course, and 4 failed to respond and were treated successfully with sulphonamides. Of those with lobar pneumonia 4 recovered on oral penicillin and 1, much improved, did not complete the treatment. One child with acute bronchitis recovered quickly in three days on oral penicillin.

In 21 children, all under the age of 2, serum-penicillin levels were estimated after a single oral dose varying from 10,000 to 40,000 i.u.; no penicillin was detected after three hours. The preparation used was calcium penicillin with sodium citrate.

Our thanks are due to Dr. E. A. Straker for performing the serum-penicillin estimations. We are indebted to Messrs. Burrol Wellcome and Co. for supplying the tablets of oral penicillin.

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The Minister for Health has appointed a committee to examine the present system of medical education in Eire, and to recommend any necessary changes in the curriculum and in the arrangements for postgraduate education. The committee consists of: R. Farnan (chairman), Professors J. M. O'Connor, J. W. Bigger, W. O'Donovan, and S. Shea; F. Gill, president, Royal College of Surgeons in Ireland; B. Solomons, president, Royal College of Physicians of Ireland; J. C. Flood, Apothecaries' Hall of Ireland; A. A. McConnell, President, Royal Academy of Medicine in Ireland; A. Ryan, president, Medical Association of Eire; R. Atkins, Stoney, president, Medical Registration Council of Ireland; J. Saunders, Medical Superintendent Officer of Health, Cork; O'Hanrahan, County Surgeon, Roscommon; H. J. Moloney, S.C. P. C. Cahill, M. Rynne, Legal Adviser, Department of External Affairs; T. O. Raifeartaigh, Chief Inspector of Secondary Schools; Department of Education; J. A. Deeny, Chief Medical Adviser, Department of Health; and J. Kearney, Inspector of Mental Hospitals, Department of Health. Dr. J. A. O'Sullivan, Medical Inspector, Department of Health, has been appointed secretary to the committee.

## "LYMPHATIC REACTIONS" AMONG RELATIVES OF LEUKAEMIC PATIENTS

BY

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In our first report (1934) we called attention to the extremely rare manifestation of the genotypical factors predisposing to leukaemia. This, taken together with a peculiar lymphatic reaction in a brother of a leukaemic patient, suggested the possibility of atypical cases, or "formes frustes," among the relatives of leukaemic patients. In fact, while leukaemia is not always manifest as such in bearers of the leukaemia genotypical factors, it might occasionally appear in some peculiar form of the disease. Some such cases of lymphatic reaction in members of a leukaemic family are described below.

### Case Records

**Case 1.**—In this family in 1898 a 7-year-old girl died from leukaemia, although of what type could not be determined at this late date. The subject investigated is her brother, a 25-year-old engineer. On March 22, 1931, he felt generally unwell and weak and had a slight fever. A few days later he had a sore throat, and tonsillitis was diagnosed. This disappeared after a few days, but the pyrexia remained until April 6, rising in the evenings to 38–39° C. (100.4–102.2° F.) and falling in the mornings to 37.5° C. (99.6° F.). The patient continued to complain of general malaise and weakness. A blood analysis done on April 3 showed: Haemoglobin, 82%; erythrocytes, 4,980,000; leucocytes, 18,100 (rod-nuclears ("Stab"), 2%, polynuclears, 2%; eosinophils, 1%; lymphoidocytes, 92%; lymphocytes, 3%).

With a diagnosis of "lymphatic leukaemia" the patient was directed on April 17 to the Central Institute of Haematology and Blood Transfusion for treatment. A blood analysis made on April 19 at the Institute showed no leucocytosis, though it did reveal a considerable lymphocytosis and an increase in young forms: Haemoglobin, 70%; erythrocytes, 4,095,000; leucocytes, 7,500 (rod-nuclears, 7%; polynuclears, 10%; lymphocytes, 80%; monocytes, 3%). No abnormalities could be found except slightly enlarged submaxillary lymphatic glands and liver. On April 22 the patient left the Institute with a diagnosis of "lymphatic reaction following tonsillitis." Towards the end of 1932 the patient's blood was again examined because he complained of general weakness and some malaise; the analysis showed "absolute lymphocytosis." Our examination of the patient in 1933 showed no abnormality.

The patient's grandmother died of a liver complaint. His father and mother—first cousins—are living and show no blood anomalies. The same is true of the patient's brothers and sister.

The subject was under our constant observation. In May, 1937, he again had tonsillitis. Not being informed of this in time, we were able to take blood for analysis only on the third day after his recovery. The analysis showed the following: Leucocytes, 17,400 (rod-nuclears, 5%; polynuclears, 57%; eosinophils, 15%; lymphocytes, 34%; monocytes, 3%; Türk cells, 1%). The leucocyte count was thus increased, but there was only slight lymphocytosis.

This is a case, therefore, of a man who is a member of a leukaemic family and who shows a peculiar lymphatic reaction expressing itself as an absolute lymphocytosis and leucocytosis during an infection of the throat a month after the symptoms of tonsillitis have disappeared, and even independently of any infection.

**Case 2.**—This case concerns a pair of identical girl twins. Twin A, 11 years old, entered the clinic on Sept. 29, 1936, with a diagnosis of acute rheumatic polyarthritis and diseased mitral valve.

The patient had pneumonia when 2 months old, German measles at 18 months, chicken-pox at 5 years, and at 6 years tonsillitis (possibly diphtheria) complicated by paralysis of the limbs and pains in the joints, the condition lasting about three months. Up to 6 years of age she often had attacks of false croup and "chills." When 8 years old she had paratyphoid fever, and at 12 measles. From early childhood up to 8 years of age she suffered from broncho-adenitis.

The following information was obtained from the patient herself and her mother, and was confirmed by reference to case records and the statements of her physician. On March 28, 1935, the patient suddenly became feverish, her temperature rising to 39.8° C. (103.6° F.). The temperature then rose at noon, in the evening, and sometimes in the morning. The liver and spleen were enlarged to almost double normal size. The cervical, axillary, and inguinal lymphatic glands were greatly enlarged. Blood examined for malaria parasites was negative. Blood analysis (April 7): Haemoglobin, 70%; erythrocytes, 4,100,000; leucocytes, 24,000 (rod-nuclears, 3%; polynuclears, 2%; lymphocytes, 93%; monocytes, 1%; Türk cells, 1%); polychromasia was seen. The analysis thus revealed that the patient had considerable leucocytosis and marked lymphocytosis. A later analysis confirmed these findings.

After a week's time the patient's temperature fell to 37.3° C. (99.2° F.), but on April 10 symptoms of tonsillitis appeared—complaint of sore throat, small patches of membrane, reddened pharynx—and bacteriological examination revealed the presence of streptococci. Two or three days later the temperature returned to normal. Liver, spleen, and glands decreased in size. Blood analysis made on April 18 showed decreased leucocytosis but still considerable lymphocytosis: Haemoglobin, 72%; erythrocytes, 3,980,000; leucocytes, 7,000 (polynuclears, 28%; eosinophils, 1%; lymphocytes, 65%; monocytes, 6%).

In view of the still abnormal blood picture the patient was directed to the children's clinic of the First Moscow Medical Institute to have the diagnosis checked. According to the case-history records all lymphatic glands were enlarged, the spleen was palpable at the costal margin, and the liver was enlarged 2.5 cm. Though numerous blood analyses were made, the number of leucocytes were never found to be above 6,000–7,000. Lymphocytes remained constantly at 70–80%. In July, 1935, the patient left the clinic with the diagnosis of "lymphatic reaction following tonsillitis." Shortly afterwards petechiae appeared on the patient's body and disappeared after a few days. There was no rise of temperature and no enlargement of the glands. The patient was under observation for a year by the Central Institute of Haematology and Blood Transfusion. Data from the subject's blood analyses after she left the clinic of the First Moscow Medical Institute, obtained between June 26, 1935, and April 13, 1936, are presented in Table I.

TABLE I

Date of Analysis	Hb %	Erythrocytes	Leucocytes	Rod-nuclears	Polynuclears	Eosinophils	Basophils	Lymphocytes	Monocytes
April 26, 1935 ..	64	3,880,000	4,800	3	40	5	—	46	2
July 13, 1935 ..	70	4,320,000	6,000	—	43	2	—	52	3
Sept. 8, 1935 ..	70	3,650,000	7,800	—	52	4	—	38	6
Sept. 23, 1935 ..	63	4,010,000	7,400	0.5	31.5	2	—	60.5	5.5
Oct. 24, 1935 ..	63	4,010,000	6,700	—	—	—	—	60	—
Nov. 29, 1935 ..	64	4,200,000	4,600	0.5	56.5	3	—	36	4
Dec. 25, 1935 ..	58	3,600,000	6,800	0.5	27	1.5	0.5	68	2.5
April 13, 1936 ..	50	4,420,000	4,400	0.5	19	5	—	70.5	5

As the table shows, while the leucocyte count is normal or only slightly increased, there is a definite tendency towards increase in the lymphocyte count, and this, despite the long period of time elapsed (over a year) since the increase started.

From July 4 to 8, 1936, the patient was ill with colitis (? dysentery). The temperature rose to 39.6° C. (103.3° F.). After the colitis the patient complained of pain in both knee-joints; there was no swelling or redness, and the temperature remained normal. The pains went within four days. A month later symptoms of colitis recurred. Temperature rose to

37.8° C. (100° F.). After a week the colitis and pyrexia disappeared. On the morning of Sept. 11 the patient vomited, became somnolent, but was not feverish. A blood analysis made at this time showed: Haemoglobin, 60%; erythrocytes, 3,800,000; leucocytes, 10,000 (rod-nuclears, 3%; polynuclears, 55%; eosinophils, 2%; lymphocytes, 30%; monocytes, 10%); sedimentation rate, 30 mm. per hour.

On Sept. 12 the right knee-joint became swollen and painful, the temperature remaining normal. The next day the same condition occurred in the left knee-joint. Several days later both ankles became slightly swollen, and the temperature rose in the evenings to 38.2° C. (100.8° F.). During one of the attacks of pain in the joints the patient's body began to jerk all over; the convulsive movements ceased when bromides were given. In this condition the patient entered the clinic. Clinical examination confirmed findings typical for rheumatic polyarthritides and endomyocarditis. The glands were slightly enlarged in the cervical and axillary regions; liver and spleen were normal. In view of the somewhat peculiar reaction of the patient's blood-forming organs to infection, noted in the history, we record in Table II the data from blood analyses made during her stay in the clinic.

TABLE II

Date of Analysis	Hb %	Erythrocytes	Leucocytes	Rod-nuclears	Polynuclears	Eosinophils	Lymphocytes	Monocytes
Sept. 29, 1936 ..	71	4,230,000	8,400	1	39	7	25	8
Oct. 10, 1936 ..	58	3,780,000	5,300	3	28	2	64	2
Oct. 14, 1936 ..	—	—	10,000	2	43	—	53	2
Oct. 22, 1936 ..	60	3,760,000	6,700	—	41	3	51	2
Nov. 3, 1936 ..	69	4,120,000	6,100	2	56	3	33	6

The recurrence of lymphocytosis (Oct. 10, 14, and 22) is noteworthy in a case of acute polyarthritides, where one ordinarily expects a slightly increased number of neutrophils together with fewer lymphocytes and eosinophils. The subject's lymphatic system produced a different blood picture from that usually described in rheumatic infection. In this case the blood analyses in Table III, made after the patient's recovery and release from the hospital, show the recurrence of lymphocytosis.

TABLE III

Date of Analysis	Hb %	Erythrocytes	Leucocytes	Rod-nuclears	Polynuclears	Eosinophils	Lymphocytes	Monocytes
Nov. 13, 1936 ..	60	3,800,000	10,000	3	55	2	30	10
Nov. 25, 1936 ..	68	4,500,000	6,800	2	41	2	46	6
April 16, 1937 ..	67	4,200,000	6,000	2	45	2	47	4

The patient's lymphatic system reacted with considerable lymphocytosis to both tonsillitis and rheumatism. The occurrence of identical reactions to both these infections is all the more remarkable, because, while in some cases tonsillitis is accompanied by lymphocytosis (although not so marked, it is true, as in our patient), polyarthritides as was revealed here is usually accompanied by relative lymphocytopenia. The data given acquire special interest in view of the fact that, suspecting a connexion between "lymphatic reaction" and leukaemia in the family, as occurred in the first case discussed here, we investigated and found that this patient actually does come from a family affected with leukaemia. Her maternal grandfather, 70 years old, fell ill with leukaemia on June 3, 1935. His blood analysis, done on June 21, showed: Haemoglobin, 51%; erythrocytes, 3,990,000; leucocytes, 177,000 (polynuclears, 75%; lymphocytes, 90.5%; monocytes, 2%).

Clinical examination at this time disclosed considerable enlargement of all lymphatic glands, especially the submaxillary and right axillary. The liver was palpable at the costal margin and the spleen was enlarged. Keeping in mind the instability of the lymphatic system in the grand-daughter, we had the

grandfather taken to hospital on Oct. 19, 1936, and placed under our observation. His condition, with the enlarged lymphatic glands and spleen in conjunction with the blood picture, left no doubt about the nature of his disease—a type case of chronic lymphatic leukaemia. Further investigation disclosed that his elder brother had died in 1909 at the age of 48 of a similar disease.

As our assumption that some connexion exists between leukaemia and specific blood reactions in the members of same family was thus confirmed to a certain extent, naturally sought the reasons for such a connexion in the data available on the other twin, who had died four years previous of tuberculous meningitis.

Twin M had the same diseases in childhood as her sister. On March 5, 1931, M became ill with exudative pleuritis; on April 22 she entered the clinic at the Medico-Genet Institute with a diagnosis of "exudative pleurisy (tuberculo-broncho-adenitis)." A blood analysis made then showed a slight leucocytosis but marked relative lymphocytosis: Haemoglobin, 60%; erythrocytes, 4,450,000; young granulocytes, 0.5%; rod-nuclears, 4.5%; polynuclears, 36.5%; eosinophils, 0.5%; lymphocytes, 64.5%; monocytes, 2.5%; Türk cells, 1%. Although lymphocytosis does occur in pleuritis of tuberculous type, the proportion of lymphocytes (64.5% revealed by the analysis is certainly somewhat unusual.

The patient was kept under observation at a tuberculous dispensary for a month and a half after her discharge from clinic. She died of "tuberculous meningitis" late in July, 1931 at Botkin Hospital. At the necropsy tuberculous infiltration of the left subclavicular region and tuberculous leptomeningitis of the base of the brain were found. During this last illness a blood analysis was made, which, however, disclosed lymphocytosis.

Thus in the family investigated the first twin revealed a peculiar anomaly of the lymphatic system which showed in reaction to infection. There was considerable leucocytosis, the latter rising to 90% and higher. Although we cannot be equally positive in our statements about the second twin, there was undoubtedly a certain peculiarity in the lymphatic reaction to infection. In view of the great rarity of leukaemia itself and the equal or even still greater rarity of reactions such as those here described, the occurrence of both phenomena in members of one and the same family can hardly be regarded as a coincidence. Of particular significance is the second case, where previously made assumptions of leukaemia in the family and lymphocytosis in the second twin were confirmed on investigation. If, as in this case, we note a certain relationship between lymphatic leukaemia and lymphatic reactions in the relatives, the question now arises of the nature of these lymphatic reactions. Are they early or concealed forms? What is their pathogenesis, prognosis, etc.? The material presented in this paper is of course insufficient to warrant an answer to these questions. However, our study case does offer a few indications toward the solution.

*Case 3.*—This case is one of the familial cases described in our first communication. Patient R became ill with chronic lymphatic leukaemia, according to her statement, in October 1932. A blood analysis made in 1927 showed: Haemoglobin, 60%; erythrocytes, 3,350,000; slight lymphocytosis (?); eosinophils, 11%. Roundworms were found in the faeces. A blood analysis taken in 1928 gave the following data: Haemoglobin, 60%; erythrocytes, 5,140,000; leucocytes, 9,000 (eosinophils, 2%; lymphocytes, 55.5%). At that time the patient paid no attention to the lymphocytosis. Towards the end of 1932 she accidentally noticed a swelling of the lymphatic glands in the left axillary region and, later on, in other regions. A blood analysis then showed: Haemoglobin, 65%; erythrocytes, 3,580,000; leucocytes, 150,000 (lymphocytes, 96%).

This marked lymphocytosis dispelled all doubts about the presence of lymphatic leukaemia. Thus we see again a member of a leukaemic family who at one time showed a lymphatic reaction. This case is interesting not so much on account of the lymphatic reaction itself but because we now find the patient presenting a clear picture of chronic lymphatic leukaemia. So far this case is the only one we know of its kind, and no

conclusions can yet be drawn from it. Nevertheless, it does indicate certain possibilities for further investigation into the pathogenesis of leukaemia.

### Discussion

The first two cases present pictures of an atypical course of infection characterized by marked lymphatic reaction. Observations on leukaemoid and lymphatic reactions in infection are not new, and in fact have even served as arguments in favour of the infectious origin of leukaemia. However, what is new in our cases is the fact that all the patients come from families affected with leukaemia. While in the first case we accidentally discovered a leukaemic patient in the subject's family, and in the third case investigated the subject only in the stage of definitely developed lymphatic leukaemia, knowing beforehand that we were dealing with a familial case of leukaemia, the second case differs in that we based upon the existence of a lymphatic reaction in one of the twins the assumption that leukaemia existed in the family and then on investigation found this to be correct. Furthermore, our discovery of leukaemia in this last case led us to assume the presence of a lymphatic reaction in the second twin. To a certain extent this assumption was also confirmed.

It seems to us that chance does not explain the occurrence of a lymphatic reaction in all these cases. In our first communication we had already stated that in lymphatic leukaemia heredity apparently played some role. If we assume the possibility of a poor manifestation of the leukaemia genotype, most probably it would take precisely the form of lymphatic reaction. Naturally it does not follow from this that all individuals exhibiting a lymphatic reaction in some disease must belong to families affected with leukaemia, and on the other hand not all bearers of the leukaemia genes exhibit such a reaction. However, there can be no question but that cases where such a relationship is established cannot be ignored, for they contribute to the explanation of such reactions.

Special consideration must be given to the phenomenon met with in our second case, where the abnormal blood picture remained for a long time. The question may be put as follows: Are we really dealing here with a stable deviation in the blood composition occurring after streptococcal tonsillitis, or is this somewhat variable lymphocytosis simply the peculiar constant state of our subject's lymphatic system? This question can be answered correctly only by comparing the data from blood analyses made before and after the onset of the disease. We give below the data from two of twin A's blood analyses taken from the records of the Medico-Genetical Institute. The first of the two was made in March, 1931, when twin A entered the institute's clinic for the treatment of tuberculous intoxication and broncho-adenitis. The twins were at the time aged 8 years 10 months. Blood analysis: Haemoglobin, 64%; erythrocytes, 3,500,000; leucocytes, 8,200 (rod-nuclears, 1%; polynuclears, 17%; eosinophils, 3.5%; lymphocytes, 72%; monocytes, 4%). The second analysis, dated Dec. 7, 1932, gave the following data: Haemoglobin, 53%; erythrocytes, 4,160,000; leucocytes, 7,300 (rod-nuclears, 2%; polynuclears, 28%; eosinophils, 1%; lymphocytes, 59%; monocytes, 10%). The considerable lymphocytosis revealed in both analyses is unusual for tuberculous intoxication but can be fully explained in this case, as in her tonsillitis, by the instability of the subject's lymphatic system, which reacts with a lymphocytosis to any infection regardless of its origin. At the same time there is another possibility that should not be overlooked—namely, that the lymphocytosis is due to a combination

of two processes: (1) a peculiar condition or "set-up" of the lymphatic system in which a 40–60% leucocyte count is to be considered "normal," and (2) the influence of infection.

The material discussed above, pointing to the possibility that the leukaemia genotype may manifest itself in a peculiar manner—in the cases here described, in lymphatic reaction—takes on special significance in view of the data acquired in recent years by medical genetics in the field of early and latent forms of hereditary diseases. Most pathological genes in man are characterized by poor, sometimes surprisingly low, penetrance. Without going into the theoretical aspect of the problem of penetrance, we believe it useful to emphasize here certain points bearing on the facts discussed in this paper. In a number of researches into such diseases as hypertension (Ryvkin and others), ulcer and cancer of the stomach (Levin and Kuchur), pernicious anaemia (Presnyakov), diabetes insipidus (Pesikova), and other diseases where both the patients and their relatives were clinically examined, the existence of such latent manifestation was confirmed. The patient's relatives showed one or another symptom characteristic for the patient's disease. For example, one may mention the finding of achylia among the relatives of patients with cancer, some disturbance of blood flow and blood pressure among relatives of subjects of hypertension, the achlorhydria in relatives of people with pernicious anaemia, etc. Our material on the expression of the leukaemia gene in man does not present an isolated phenomenon in the hereditary pathology of man.

Mention should be made in this connexion of J. Bauer's opinion that lymphocytic, monocytic, and myeloid reactions are abortive forms of leukaemia. We consider this to be a very interesting but scarcely proved hypothesis. Our investigation throws some light on the nature of these reactions. In future the essential task in studying each individual case of lymphatic reaction will be to complement the usual clinical examination with a thorough family history and investigation of the patient's close relatives.

### Summary

This investigation is devoted to a study of concealed forms of leukaemia. The surprisingly rare manifestation of the leukaemia genotype, combined with the discovery of a peculiar lymphatic reaction in the brother of a leukaemic patient (Case 1), led us to search among the members of families affected with leukaemia for such relatives who might exhibit some symptoms of the disease.

We describe three cases of a peculiar lability on the part of the lymphatic system in several relatives of leukaemic patients. The peculiarity is expressed in a lymphatic reaction, associated in particular with infection.

Besides finding subjects with this lymphatic reaction among the relatives of leukaemic patients (Cases 1 and 3), we worked in the opposite direction and found people with a high leucocyte count in families from which leukaemic patients came (Case 2). Noting a peculiar lymphatic reaction in one twin, we assumed the presence of leukaemic patients in the family; this supposition was confirmed on investigation. A supposition that the second twin must have shown a lymphatic reaction while suffering from some infectious disease was to a certain extent also confirmed.

It would seem that the association between leukaemia and lymphatic reactions is not accidental and must be due to the influence of the leukaemia genotype.

Some indication of the prognosis in cases with these lymphatic reactions can be gained from the third case, where a leukaemic patient had shown a lymphatic reaction four years before falling ill.

This investigation is only a first step in the study of the expression of the leukaemia gene.

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## PRODUCTION OF Rh AGGLUTININS ANTI-C AND ANTI-E BY ARTIFICIAL IMMUNIZATION OF VOLUNTEER DONORS

BY

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The Rh agglutinins anti-C and anti-E used for Rh subgroup typing have until now been obtained from mothers and patients with agglutinins induced by Rh antagonism. It is possible to increase the titre of these antibodies by artificial immunization with the specific antigens C or E (R' or R'' cells). If these sera are obtained from Rh-negative persons they usually contain incomplete anti-D antibodies as well.

In order to obtain pure anti-C and anti-E agglutinins without incomplete anti-D the following experiments were performed in the Central Laboratory of the Blood Transfusion Service in Amsterdam.

Rh-negative male volunteer donors were injected with R'r (Cde/cde) and with R''r (cdE/cde) cells. This procedure is very simple.

F. K., a male volunteer donor aged 18, blood group O rr, was treated in the following way.

He received five injections of 2 ml. of R'r cells of group O, followed by seven injections of 0.25 ml. (injections twice a

TABLE I.—Donor F. K. (Blood Group O rr)

Date	No. of Inj.	Quantity of R <sup>+</sup> Cells given I.V. (ml.)	Rh Antibodies				
			Early-Immune		Hyperimmune		
			E	D	E	D	
11/11/46 ..	1	2.0					
25/11/46 ..	2	2.0					
28/11/46 ..	3	2.0					
2/12/46 ..	4	2.0					
8/12/46 ..	5	2.0					
9/12/46 ..	6	0.25					
12/12/46 ..	7	0.25					
17/12/46 ..	8	0.25					
20/12/46 ..	9	0.25					
24/12/46 ..	10	0.25					
30/12/46 ..	11	0.25					
6/1/47 ..	12	0.25					
13/2/47 ..	13	0.25					
17/2/47 ..	14	0.25					
20/2/47 ..	15	0.25					
3/3/47 ..	16	0.25					
7/3/47 ..	17	0.25					
8/3/47 ..			1:16*	—	1:16	—	Chill and rise of temp.
10/3/47 ..	18	0.10	1:64†	—	?	—	
17/4/47 ..	19	0.10					
24/4/47 ..	20	0.05					
28/4/47 ..	21	1.0	1:64†	—	?	—	
3/5/47 ..	22	1.0					
23/5/47 ..	23	0.5					
21/7/47 ..	24	0.5					
8/9/47 ..	25	1.0					
22/9/47 ..	26	0.5	1:32		1:64 1:128†		

\* Visible macroscopically. † Weakly positive macroscopically.

week). After a period of rest for nearly six weeks five further injections of 0.25 ml. of blood were given with approximately the same time intervals. During this period no Rh agglutinin were present in his serum. After the last injection of 0.25 of R'r blood (17th injection from the beginning) a chill with rise of temperature resulted. Rh agglutinins type anti-E with titre 1:16 could now be demonstrated (the titre in saline is the same as in albumin). After a new series of nine injections during 27 weeks the titre increased to 1:32 in saline and 1:128 in albumin (see Table I).

In this way it is proved that it is possible to produce pure anti-E antibody by repeated injections with R' cells. Besides the complete anti-E (early-immune) antibody it seems that incomplete (hyperimmune) antibodies type anti-E were also formed.

Encouraged by this success five other male volunteer donors were injected with R' cells, group O (donor Sch. R'R' and donor Dam. R'r). Practically the same procedure of immunization as in the first case was followed. Only one of these donors seemed to be sensitive enough to produce Rh antibodies.

G. de J., a male volunteer donor aged 33, blood group A (see Table II). After the 13th injection Rh agglutinins were

TABLE II.—Donor G. de J. (Blood Group O rr)

Date	No. of Inj.	Quantity of R' Cells given I.V. (ml.)	Rh Antibodies				Cell Suspension R'
			Early-immune		Hyperimmune		
			C	D	C	D	
11/3/47 ..	1	2.0					Sch.
14/3/47 ..	2	1.0					"
17/3/47 ..	3	1.0					"
20/3/47 ..	4	0.25					"
24/3/47 ..	5	0.25					"
27/3/47 ..	6	0.25					"
3/4/47 ..	7	0.25					"
8/4/47 ..	8	0.25					"
10/4/47 ..	9	0.25					"
19/5/47 ..	10	0.25					"
27/5/47 ..	11	0.25					"
2/6/47 ..	12	0.25					Dam.
5/6/47 ..	13	0.25					Sch.
			1:2				
9/6/47 ..	14	0.25					Dam.
12/6/47 ..	15	0.25					Sch.
16/6/47 ..	16	0.25					Dam.
19/6/47 ..	17	0.25					Sch.
			1:8*		—	1:8	
23/6/47 ..	18	0.25					Dam.
3/7/47 ..	19	0.25					Sch.
10/7/47 ..	20	0.25					
21/7/47 ..	21	0.25					Dam.
24/7/47 ..	22	0.25					Sch.
28/7/47 ..	23	0.25					Dam.
3/8/47 ..	24	0.25					Sch.
14/8/47 ..	25	0.25					Dam.
21/8/47 ..	26	0.25					"
25/8/47 ..	27	0.25					"
29/8/47 ..	28	0.25					"
			1:4		1:16		
4/9/47 ..	29	0.25					"
11/9/47 ..	30	0.25					"
19/9/47 ..	31	0.25					"
22/9/47 ..	32	0.25					"
			1:4		1:32	1:8	

\* Visible macroscopically.

present in his serum (titre 1:2). After the 17th injection with R' cells of group O the titre increased to 1:8 (visible macroscopically), 1:16 weakly positive, type anti-C, with incomplete antibodies type anti-D, titre 1:8 (albumin test) without incomplete (or hyperimmune) anti-C. After a new series of 11 injections the titre of anti-C in saline fell to 1:4, but increased in albumin to 1:16. After four more injections the titre in saline was unchanged, but in albumin it increased to 1:32.

Thus it appears to be necessary to stop the immunization at the right moment in order to prevent the production of the hyperimmune antibodies, which sometimes cause a decrease in titre of the early-immune antibodies.

In cases of erythroblastosis foetalis Diamond demonstrated that after repeated immunizations Rh agglutinins (early-immune antibodies) are replaced by (or changed into) Rh-hyperimmune antibodies. In these two cases of artificial immunization these findings could be confirmed



Four other donors treated in the same way have failed to produce Rh agglutinins.

So long as there are found anti-D antibodies of the incomplete type only artificial immunization of male volunteer donors is a useful method in preparing anti-C and anti-E agglutinins.

**Note on the blood of the two donors to G. de J.; by R. R. Race, M.R.C.S., L.R.C.P. (Medical Research Council, Blood Group Research Unit, Lister Institute, London)**

The finding of some anti-D as well as the hoped-for anti-C in the serum of volunteer G. de J. was of considerable theoretical interest, for it appeared that the antigen C might be capable of stimulating the antibody anti-D. It therefore became important to test the cells of the two R' donors as fully as possible in order to detect the antigen D<sup>a</sup> if it should be present. Agglutination tests gave the following results:

	Anti-						
	C	C'	c	D	E	e	
Donor Dam. . .	+	-	+	-	-	+	i.e., apparently Cde/cde (R'r) Cde/Cde (R'R')
Donor Sch. . .	+	-	-	-	-	+	

When these two bloods were further tested with many anti-D sera (using the saline, albumin, and antiglobulin techniques) some of the reactions were positive; that is to say, the samples should more properly be called CD<sup>a</sup>e/cde and CD<sup>a</sup>e/Cde. There are several grades of the D<sup>a</sup> antigen distinguishable by the different proportion of anti-D sera with which they react. The D<sup>a</sup> antigen in these two bloods was low on the scale.

In view of the close relationship between the antigen D and the antigen D<sup>a</sup>, it seems reasonable to attribute the anti-D antibody in the serum of the volunteer to the D<sup>a</sup> antigen present in the blood of both his donors.

## Medical Memoranda

### Two Cases of Fugue after Mepacrine Administration

Although it is by no means certain that the administration of mepacrine ("atebrin") was the cause of the fugues here described it is felt that these case notes should be placed on record because of the striking sequel in both cases to moderately heavy doses of the drug and because of the tragic circumstances which ensued in Case 1. Both cases occurred in the Anglo-Egyptian Sudan.

#### CASE REPORTS

**Case 1.**—The patient, a happily married British woman aged 32, with two children, had no family or personal history of mental disorder and no private worries. She was first seen on Oct. 16, 1945, by a Sudanese doctor in an out-station. She was suffering from fever (temperature 103° F.=39.4° C.) and severe headache. M.T. malaria was diagnosed by blood examination, and the following course of mepacrine was given: First day, 0.3 g. followed by 0.3 g. three hours later; second to fourth days (inclusive), 0.2 g. night and morning—total, 1.8 g. The condition responded quickly to treatment, and on Oct. 19 the patient felt fit and well. She asked permission to play tennis, but this was refused. That night, after dinner, she and her husband retired to bed at about 9.30 o'clock. They chatted for a while in bed and the patient appeared to be her normal cheerful self. The following morning the husband awoke to find that his wife had disappeared. Shortly afterwards some natives arrived with the news that her body had been found in the river. Post-mortem examination showed that death had been due to drowning, and there were no other abnormal findings.

**Case 2.**—A British man aged 47, with no family history of mental disorder, had suffered from claustrophobia after the 1914-18 war due to having been buried alive three times by shell bursts, but the condition had completely cleared up by 1924. I saw him on Nov. 3, 1945, when he was suffering from fever (temperature 101° F.=38.3° C.) and pains in the back and bones. M.T. malaria was diagnosed by blood examination and he was put on the following course of treatment: First day, 0.2 g. of mepacrine followed by 0.2 g. after four hours; second to fifth days (inclusive), 0.1 g. of mepacrine t.d.s.; sixth to tenth days (inclusive), 10 gr. (0.65 g.) of quinine bichlorohydrochloride t.d.s. On the evening of the sixth day of treatment the patient felt sick after taking quinine. On the seventh day, without medical advice, he decided to revert to mepacrine treatment and proceeded to take 0.1 g. t.d.s. On the evening of the ninth day—i.e., after he had taken a total of 2.4 g. of mepacrine he went to his bath at his usual hour of 6 p.m. While sitting in the bath he felt a "feeling of unreality coming over him." The next thing he knew was that he was sitting in his dining-room naked and wet. The interval of amnesia had lasted for about half an hour. Mepacrine was at once stopped and no further ill effects occurred.

I have to acknowledge with thanks the permission of the Director Sudan Medical Service, to publish these notes.

D. R. MACDONALD, M.B., Ch.B., M.R.C.P.,  
Sudan Medical Service.

### Unusual Case of Calcification of the Myocardium

Calcification of the heart to a great extent, without a previous history of pericarditis or other heart disease, is rare, and the facts revealed by the following case report are, I believe unusual.

#### CASE HISTORY

The patient was admitted to hospital when 35 years of age suffering from dementia and mental deficiency. It was stated by his relatives that he had not had any previous illnesses. His clinical record during the whole of his fifteen years in hospital showed that at all times he suffered from slight dyspnoea and cyanosis of both hands and feet, and occasionally he had swelling of the lower extremities. Attendants who were in close contact with the patient during the whole of his hospital life state that although he never actually worked he was quite capable of walking about and attending to his own needs. During the last four years he was confined to his bed, but got up every day for toilet purposes. One morning, fifteen years after admission, just after he had returned to bed he suddenly collapsed and died. He was then 49 years of age.

At necropsy the main pathological changes were found in his heart. This organ was enlarged (weight 360 g.) and felt extremely hard, in fact the usual post-mortem scissors would not cut into its substance, and bone forceps had to be used. The pericardium was fused completely over the whole surface of the left ventricle. The latter on being opened was found to contain ante-mortem clot (see illustration). In the lower two-thirds of the left ventricle there was no muscle tissue left at all; it was simply an ossified wall, which was obviously the result of a fusing of the pericardium and endocardium. This wall had a maximal thickness of 7 mm. The only area where muscular tissue was left was in the upper part of the left ventricle and a very small amount of its apex. The muscular wall of the right ventricle was somewhat hypertrophied and showed no signs of calcification. There was no gross pathological alteration in the valves, nor did the aorta or other arteries exhibit any atheroma or other changes.



SELWYN HEWITT, M.B., B.S., B.Hy., D.P.H.

## Reviews

### WOMANHOOD

*The Psychology of Women. A Psychoanalytic Interpretation. Volume 2. Motherhood. By Helene Deutsch, M.D. (Pp. 439. 25s.) London: Research Books Ltd. 1947.*

This volume is the second part of the author's psychological study of her own sex. She considers the adult woman and her reactions to all those events that lie in the province of the modern obstetrician and gynaecologist. Her study forms a branch of "psychosomatic" medicine, and though she presents it from the psycho-analytic viewpoint she does not mar it with the dogmatic assertions that sometimes emanate from that school. She acknowledges that many of the deviations from normal in the woman's sexual and maternal life are not readily explicable on purely physical grounds, and suggests that deep-seated mainly unconscious motives, acting through the autonomic nervous system and the endocrine glands, may be responsible for many of these anomalies. When well established they may be no more remediable by psychotherapy than by any other treatment. However, if the processes are understood, disorders may in some cases be prevented, and for that reason obstetricians will find the book worth reading.

The book begins with a study of the social position of women, with special reference to that of American women, whose importance and rarity in pioneering times led to their being highly valued. This natural esteem changed to a romantic and idealistic attitude towards them, which is only slowly fading. Women owe their complexity of character, and the many psychosomatic conditions to which they are subject, to the deep-seated conflicts between their erotic and maternal functions, neither of which can be entirely repressed, and between narcissistic tendencies to aggrandize themselves and altruistic impulses to sacrifice themselves for the sake of mate and child, especially child. Their masculine components likewise conflict with their feminine and may determine the course of their lives or influence it inconsistently. The oral component of their libido is directed externally in giving food and internally in the desire to make the child part of themselves. The author draws attention to the analogy in the unconscious mind between the sexual and digestive functions when discussing the reception of the sperm and the expulsion of the foetus and how these two components of the sexual are separated by the whole period of pregnancy. She gives many examples of the influence of these conflicts on sexual intercourse, conception, pregnancy, parturition, lactation, the mother-child relationship, and the climacteric. She suggests that many cases of sterility, abortion, premature and delayed birth, difficulties in nursing, psychotic hostilities to husband and child in the puerperium and later, and the impulsive and inconsistent behaviour of the change of life are psychically determined. Similar conflicts determine the difficulties in the relationships of unmarried and adoptive mothers, foster-mothers, and stepmothers, and she draws attention particularly to the effects of emotional immaturity, emphasizing the similarities of reaction to these conflicts during puberty and the climacteric. Finally, she discusses the reactions of grandmothers sympathetically. This book deserves the attention of all medical men, whether general practitioners, psychiatrists, or gynaecologists. Although long, it is easy to read, and the interest is sustained.

R. G. GORDON.

### ANTIBIOTIC THERAPY

*Penicillin Therapy, including Streptomycin, Tyrothricin and other Antibiotic Therapy. By John A. Kolmer, M.S., M.D., F.A.C.P. Second edition. (Pp. 339; illustrated. \$6.00.) New York and London: D. Appleton-Century Company. 1947.*

The appearance of a second edition of a work on this subject is a reminder that penicillin has been with us for some time, and Prof. Kolmer is to be congratulated on his powers of digesting what is now a vast literature. He gives as many as 1,437 items in the list of references, and though the reader

might have preferred them in alphabetical order he will be grateful for so comprehensive a guide to original sources. Prof. Kolmer has rearranged the book, now classifying disease regionally instead of aetiological. In the earlier chapters, in which he considers general principles and methods, he still emphasizes the need for thinking in terms of bacterial species and not merely of the position and nature of the lesion. There is the usual list of species classified in three orders of susceptibility, and containing several disputable items—for example, *Proteus* and *Salmonella typhi* might well be promoted both from the third ("slightly susceptible or insusceptible") to the second category ("moderately susceptible"), and *Actinomyces bovis* (hominis), *Erysipelothrix rhusiopathiae*, and *Streptococcus viridans* from the second to the first ("highly susceptible").

Has not the time come when the susceptibility of bacterial species to penicillin should be stated quantitatively instead of in these vague terms? Susceptibility to streptomycin is so stated in this book, although it is far more variable both intrinsically and according to the technique used for determining it. Reverting to the subject of *Salm. typhi*, we find that the author considers penicillin therapy to be ineffective or contraindicated in typhoid fever, and he appears to have overlooked the work of McSweeney and others on the treatment of this disease with penicillin and sulphathiazole given together in large doses. He commends penicillin esters in a passage that was evidently written before it was shown that human blood, unlike the mouse's, contains none of the esterase necessary for liberating penicillin from them. Practitioners in Britain who are exhorted by advertisements or compelled by circumstances to give large intramuscular doses only twice a day will find that Prof. Kolmer does not approve of this practice: the longest interval between doses considered advisable is four hours, except when oil suspensions are used.

This book is for the moment the most up to date and one of the most comprehensive guides to the use of antibiotics (the author also considers streptomycin, tyrothricin, and 14 others). It is a useful work of reference on obscure points and provides sound information on ordinary matters.

L. P. GARROD.

### MIDWIFERY IN GENERAL PRACTICE

*Postgraduate Obstetrics. By William F. Mengert, M.D. Drawings by Ruth Maxwell Sanders. (Pp. 398; 123 illustrations. 25s.) London: Hamish Hamilton Medical Books. 1947.*

This book is written primarily for the general practitioner who does a certain amount of midwifery—attending, the author reckons, about 1,800 maternity cases during his lifetime. Prof. Mengert sets out to consider only those conditions whose frequency is not less than 1 in 2,000 deliveries. Nevertheless, he cannot resist mentioning a few others which, although interesting, are so rare as to be outside the experience of most practitioners. He omits nearly all theory and maintains a practical outlook throughout; there is little room for discussion, and his advice is of necessity dogmatically presented, sometimes in the form of a synopsis. Much of it is excellent, though it does not always conform to views generally accepted in Britain. Some of the methods of treatment described—e.g., the use of intrauterine bags in the treatment of placenta praevia—will be regarded as outmoded, and the technical details of caesarean section, vaginal hysterectomy, post-partum sterilization, biological tests for pregnancy, endometrial biopsy, tubal patency tests, and caudal anaesthesia are hardly of immediate interest to anyone engaged solely in domiciliary midwifery as practised nowadays.

A book of this kind has great possibilities; it requires a careful choice of subjects and a suitable placing of emphasis, and it is doubtful whether any two authorities would agree on them. Prof. Mengert has perhaps attempted too much in a small compass, with the result that his account of many subjects is superficial and unsatisfying. If he had restricted his field more severely and devoted more space and attention to the details of those things that really matter, we could recommend the book more strongly. As it is, some sections are very good and contain many useful practical tips. The author's common sense pervades the book, and his style makes it easy and entertaining reading.

T. N. A. JEFFCOATE.

## PHYSIOTHERAPY

*Massage and Remedial Exercises in Medical and Surgical Conditions.* By Noël Tidy. Seventh edition. (Pp. 480; illustrated. 25s.) Bristol: John Wright and Son 1947.

This book, which has reached a seventh edition in fifteen years, obviously satisfies a need, and we can commend it as a clear and trustworthy guide to the treatment of almost any disease by physiotherapeutic methods. Indeed, it is almost a short systematic account of medicine and surgery, including some pathology and not a little physiology and anatomy. We must criticize such statements as "anterior poliomyelitis is due to a bacillus as yet not definitely identified," or "the bacteria are carried by the lymphatics," and, a few lines later, "the virus first attacks the blood vessels of the anterior horns" (our italics). Such discrepancies are vestiges of the past and should be eliminated from future editions.

We wonder, after reading this book, whether physiotherapeutic procedures are not being used in unsuitable cases. For instance, we see an account of the application of these methods to the treatment of blood diseases—e.g., pernicious anaemia—and haemorrhoids, and the question comes to mind whether the interests of a large profession have not caused disease to become the handmaiden of massage rather than made massage serve the cure of disease. It seems that this branch of treatment, of such great benefit in appropriate cases, is showing signs of becoming a complete system of treatment, like osteopathy, naturopathy, and others. The wide scope of this book is likely to mislead the student into believing that there is scarcely any disease which should not be treated by the methods advocated. It would be unfortunate if this idea spread, for physiotherapy should be used only in certain cases and remain subservient to other forms of treatment.

This criticism of the general trend, however, does not apply to the book under review, which in itself is excellent. The extent to which such methods of treatment should be used is beyond the control of the author of a textbook of this kind, who has to meet a demand. Not a little of the blame for these tendencies lies with our own profession.

N. C. LAKE.

## MANUAL FOR DIABETICS

*Leitfaden für Zuckerkrankhe.* By Dr. Georg R. Constam. (Pp. 127; illustrated. 12.50 Swiss francs.) Basle: Benno Schwabe and Co. 1947.

Close similarity combines with many subtle differences in the numerous books written by diabetic specialists for their patients: this is the most human ever written in the German language, optimistic and friendly. The author discusses all the usual details of diet, insulin injections, tests, and adjustments of treatment in a fairly simple fashion—clear enough, perhaps, to the universally intelligent Swiss but rather too detailed for our "hospital patient."

The food tables are probably the best available for the intelligent patient using a weighing machine. The author has designed them in the English tradition (Lawrence's schemes) and neglected the American Joslin methods, although he acknowledges the merits of both. The basis of his scheme is 10 g. of carbohydrate; in the tables he records the various weights of different foods containing this quantity, and ingeniously lists in another column the percentages of carbohydrate, protein, and fat contained in that weight of food. However, the figures often differ considerably from the values accepted in Britain for common carbohydrate foods (McCance and Widdowson), and he quotes no authority in support of this divergence. Though admirable for the highly intelligent patient, this book has too wide a scope and too much detail. The account of the treatment as well as the prevention of coma and gangrene is too full for the patient's understanding, yet not complete enough to help the medical man.

There are good illustrations of insulin bottles, syringes, the technique of injection, foot exercises, etc., and the production of the book is excellent. In this book there seem to be the seeds of two better ones—a shorter and simpler book for the patient, a longer and more detailed one for the medical practitioner treating diabetics.

R. D. LAWRENCE.

## BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

*The Electron Microscope.* By V. E. Cosslett, Ph.D., M.Sc., M.A., F.Inst.P. (Pp. 128. 7s. 6d.) London: Sigma Books. 1947.

A popular account, including illustrations, of electron photomicrographs.

*The Alchemist in Life, Literature and Art.* By J. Read, Ph.D., M.A., Sc.D., F.R.S. (Pp. 100. 10s. 6d.) London: Thomas Nelson and Sons. 1947.

A general account of alchemy by the Professor of Chemistry at St. Andrew's University.

*Traité de Dietétique du Nourrisson.* By M. Lust. (Pp. 539. 1,000 francs.) Paris: Masson et Cie. 1947.

A textbook of infant feeding.

*Riflessi Sociali della Tonsillectomia.* By Guido Calderoli. (Pp. 75. No price.) Bergamo: Carrara. 1947.

Certain aspects of the results of tonsillectomy.

*Illustrations of Regional Anatomy.* 7 Sections. By E. B. Jamieson, M.D. 7th ed. (£3 15s. for 7 sections; singly 12s. 6d.) Edinburgh: E. and S. Livingstone. 1947.

Coloured anatomical diagrams of the human body arranged in loose-leaf folders.

*Cancer of the Breast.* By D. C. L. Fitzwilliams, C.M.G., M.D., Ch.M., F.R.C.S., F.R.C.S.Ed. (Pp. 199. 25s.) London: William Heinemann. 1947.

A general account based on the author's experience.

*Dermatology for Nurses.* By G. H. Percival, M.D., Ph.D., F.R.C.S.Ed., D.P.H., and Elizabeth Toddie, S.R.N. (Pp. 116. 15s.) Edinburgh: E. and S. Livingstone, Ltd. 1947.

The nursing of patients with common skin diseases; illustrations, many in colour.

*Good Health with Diabetes.* By Ian Murray, M.D., F.R.F.P.S.G., F.R.C.P.Ed., and M. B. Muir, S.R.N. (Pp. 40. 2s.) Edinburgh: E. and S. Livingstone. 1947.

A manual of instructions for the diabetic patient.

*Nelson Loose-Leaf Surgery of the Nose and Throat.* Renewal pages. London: Thomas Nelson and Sons. 1947.

*Biological Antioxidants.* Transactions of the First Conference, Oct. 10-11, 1946, New York. Edited by G. C. Mackenzie. (Pp. 81. \$2.) New York: Josiah Macy, Jr., Foundation.

Includes a number of papers on vitamin E in chemistry and biology.

*Conference on Metabolic Aspects of Convalescence.* Transactions of the 13th Meeting, June 10-11, 1946. Edited by E. C. Reifstein, Jr., M.D. (Pp. 232. \$2.) New York: Josiah Macy, Jr., Foundation.

Includes papers on male sex hormones, the adrenal cortex, and parenteral administration of fats.

*Conference on Metabolic Aspects of Convalescence.* Transactions of the 14th Meeting, Nov. 12-13, 1946. Edited by E. C. Reifstein, Jr., M.D. (Pp. 190. \$2.25.) New York: Josiah Macy, Jr., Foundation.

Includes papers on bone metabolism.

*Traitément Chirurgical de la Tuberculose Pulmonaire.* By Henry Joly. (Pp. 282. 820 francs.) Paris: Vigot Frères. 1947.

A general account of surgical measures for pulmonary tuberculosis.

*Pictorial Handbook of Fracture Treatment.* By E. L. Compere, M.D., F.A.C.S., S. W. Banks, M.D., F.A.C.S., and C. L. Compere, M.D., F.A.C.S. 2nd ed. (Pp. 390. \$5.50 or £1 10s. 6d.) Chicago: The Year Book Publishers. London: H. K. Lewis. 1947.

A profusely illustrated manual on the treatment of fractures

*Inky Way Annual, 1947-8.* Edited by A. J. Heighway. (Pp. 204. 10s. 6d.) London: World's Press News Publishing Co., Ltd. 1947. Entertaining contributions from many well-known journalists and cartoonists.

## BRITISH MEDICAL JOURNAL

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## THE DISCUSSION WITH THE MINISTER

As has already been announced the Minister of Health met the Negotiating Committee on Dec. 2 and 3. During the course of one afternoon and one morning the Minister went over the points made in a long document presented by the Committee, and the outcome of these discussions will soon be laid before the profession in the form of a statement which is expected from the Minister of Health at any moment now. The British Medical Association is sending to every doctor in the country, whether a member of the B.M.A. or not, a copy of the Negotiating Committee's statement together with a copy of the Minister's reply. For the purpose of record these statements will also be published in the *Journal* as well as the statement made by high legal authorities on the interpretation of Sections 35 and 36 of the Act. The Council of the B.M.A. is holding a meeting on Dec. 17 to discuss the present situation and to decide on future action.

## THE TREATMENT OF PNEUMONIA

Twenty years ago no one would have ventured to predict that by the present time three separate forms of specific treatment for pneumonia would have been introduced, each of remarkable efficacy. The first of these, which held the field until towards the end of the last decade, was serum. Refined by Felton's method, latterly prepared in rabbits instead of horses, and ultimately made available for all the thirty then known types of pneumococcus, serum was shown to be capable of reducing the mortality of pneumonia by something like one-half. It may be noted in this connexion that during the war Erna Mörch,<sup>1</sup> working in Copenhagen, extended the list of known types of pneumococcus to over seventy, and the State Serum Institute catered for the serum treatment of infections by every one of these. But serum treatment calls for laboratory and other facilities which are available only in large centres, and its general application would have presented formidable difficulties. The second phase began with the introduction of sulphapyridine in 1938: this drug did all that serum had, and more, with the utmost facility, and rendered serum treatment almost obsolete within a year. The later sulphonamides have achieved equal or better results with much less liability to toxic effects, and if the last word had already been said at that stage there would have been little reason to complain. Yet a third remedy was still to appear, even more remarkable than the first two. Penicillin has two advantages over sulphonamides in the treatment of pneumonia, one of special and one of general application: it attacks pneumococci which are sulphonamide-resistant, and it is entirely free from any danger of serious toxic effects. On the other hand, when used in the conventional way it is much more troublesome to administer.

The present issue of the *Journal* contains four papers bearing on this subject. Two deal with the latest development of penicillin treatment, which is to obviate the difficulty and discomfort of injections by giving the drug by the mouth. Anderson and Landsman (p. 950), of Glasgow, the former with Ferguson<sup>2</sup> having previously found that there is little to choose between sulphonamides and intramuscular penicillin in the treatment of adult pneumonia, have compared intramuscular and oral penicillin in a further series of 90 cases, there being 45 in each group. A substantial proportion of the patients, actually greater in the oral group, had a bacteraemia, which is the clearest possible indication that the series was of at least average severity. The doses used were moderate, the mean total amount used for each patient being only 800,000 units by the intramuscular and 1,650,000 by the oral route. This is by no means extravagant, and the oral dose used is less than that advocated by American authors. Perhaps administration in tablet form in milk and the restriction of fluid intake helped to render this smaller dose effective. As the authors remark, the relative achlorhydria of acute febrile states may also make for better absorption. At all events the results appear to have been excellent: there were only seven deaths in the whole series, all in cases complicated by other grave disease or moribund on admission, and in the duration of fever and the frequency of complications there is little to choose between the two groups. Suchett-Kaye and Latter (p. 953) treated twenty-five cases of pneumonia in infants by giving penicillin in the same form orally at 3-hour intervals, the individual dose varying from 10,000 to 40,000 units according to age. They record observations on the serum-penicillin levels attained, which though variable—as almost everyone has found in studying the effects of oral administration—were usually satisfactory. The results were good, except in four cases which were then treated successfully with sulphamezathine. Infants have a particular claim to oral penicillin, since they need comparatively little of the drug and should be spared the pain and disturbance of injections if possible. As the authors say, the possibility of using penicillin in this way is particularly valuable in circumstances in which injection treatment is actually impracticable.

Joules and Weller, of the Central Middlesex County Hospital (p. 947), have relied on sulphamerazine, at least for the primary treatment of the average case. It is not possible to assess the severity of their cases, and, in view of the dictum in an opening paragraph that in the absence of an influenza epidemic respiratory infections producing fever above 100° F. (37.8° C.) for more than one day have some degree of lung consolidation, it seems possible that they have detected radiologically a number of mild cases which might weight this series in favour of the treatment used. The only deaths, which appear to have been inevitable, occurred in patients treated with sulphamezathine or penicillin. The sulphamerazine-treated patients numbered 113, of whom 3 were also given penicillin from the start, while 27 others were given it later for various indications, such as failure to respond to the initial treatment, intolerance

<sup>1</sup> *Serological Studies on the Pneumococci*. Copenhagen. 1943.  
*Lancet*, 1945, 2, 805.

of the drug, and the discovery that the infection was staphylococcal. Sulphamerazine has the advantage that adequate blood levels can be maintained by eight-hourly administration; the treatment is therefore simplicity itself, and involves the least possible disturbance to the patient. The possibilities of sulphonamide treatment are illustrated from an altogether different angle in the paper by Dr. David-Lehr (p. 943), of New York, which was communicated to the International Physiological Congress in Oxford last July. This paper describes an extensive pharmacological study of the behaviour of mixtures of sulphonamides, from which it is clear that such mixtures overcome one of the principal dangers in the use of these individual drugs; further experience may show that the method has other advantages. The essential fact reported is that ingredients in such mixtures retain their individual solubilities in urine. It is thus possible by administering two or three drugs instead of one, each in a proportionally smaller dose, to reduce very greatly the danger of undue precipitation in the urinary tract. Careful studies on large numbers of animals also showed that these mixtures have a much lower toxicity than an equal dose of a single compound. It also appears that the blood levels attained are higher, owing to the better absorption of a smaller dose of each compound. Finally, clinical results have confirmed therapeutic efficacy and the rarity of crystallization in the urine, and it has been observed that allergic reactions are less common and nausea and vomiting are rare. From every point of view studied this combination of two or three drugs instead of one appears to offer decided advantages.

Which of these methods should now be used for treating a patient with pneumonia? It is right that every promising method should be tried, and reassuring to know that penicillin even when given by the simple oral route is a satisfactory remedy. Nevertheless it would, we think, be unfortunate if this became a routine treatment. It is more expensive, and might prove in more extensive trials to be less regularly reliable than the Glasgow findings suggest, owing to irregularity of absorption, a feature emphasized by all workers who have estimated blood levels and urinary excretion after administration by this route. Moreover, penicillin is a drug to which pneumococci can acquire some degree of resistance, which is then permanent. Would it not be a better policy to retain penicillin as a second line of defence, rather than to bring it into general use when an older and well-tried remedy will still serve so admirably, especially in its most modern forms? As Joules and Weller point out, many cases of pneumonia can satisfactorily be treated at home: the normal course of an average case responding to sulphonamide treatment is that of a two-day fever. If no such response follows, and if the case has unfavourable features from the outset, then hospital treatment is called for and other forms of chemotherapy may be necessary. Ideally the ultimate guide to specific treatment should be a careful examination of the sputum, including mouse inoculation if necessary, and determinations of the sensitivity of the pneumococcus or other organism found to whatever chemotherapeutic agents it is proposed to use. The finding of a sulphonamide-resistant pneumococcus would then call unequivocally for

penicillin treatment, just as the finding of *H. influenzae* or *Bact. Friedländer* would contraindicate it. Penicillin has yet to find its true level. Its novelty and the romance associated with it create a popular demand which the profession should resist when necessary. A vogue for taking it by the mouth might prove an extravagance which we can ill afford.

## AGENE AND CANINE HYSTERIA

The discovery by Sir Edward Mellanby<sup>1</sup> that flour bleached with "agene" produced hysteria in dogs has attracted widespread attention since its publication in the *Journal* at the end of last year. Veterinarians and others concerned with the health of dogs have been most directly interested, but the more important issue is the possibility that agenzized flour may have some injurious effect on man. Since agene, a preparation of nitrogen trichloride, is regularly used in this country to improve the baking properties of flour, problems affecting both the public health and extensive interests in the milling industry may sooner or later have to be faced.

We published recently a further article by Mellanby<sup>2</sup> describing his attempts to find out why agene causes flour to become toxic and to identify the toxic factor. Agenized flour was washed free from starch with water, and the resulting gluten was found to produce hysteria in dogs. Gluten prepared from untreated flour did not cause hysteria. At first sight this would seem to prove that some product made from the protein fraction of the flour is the toxic agent. It is well known, however, that gluten so prepared contains most of the fat originally present in the flour, and that the fat of agenzized flour contains chlorine derived from the nitrogen trichloride. The gluten of agenzized flour was therefore extracted with a mixture of alcohol and ether. When given to dogs the defatted gluten still caused hysteria, while the fatty extract was harmless. An attempt was then made to identify the fraction of the protein made toxic by agene. For this purpose agenzized gluten was extracted with 65% alcohol, and so divided into a soluble "gliadin" fraction and an insoluble "glutelin" fraction. Both fractions caused hysteria, but gliadin appeared to be more toxic than glutelin.

Mellanby's observations have now been confirmed and extended by Dr. T. Moran,<sup>3</sup> director of the Research Association of British Flour Millers. From a consideration of the chemical behaviour of nitrogen trichloride, and from a study of its quantitative effects in changing the acidity of dough, he has concluded that though some of the chlorine liberated by this compound is used for oxidation a substantial proportion combines chemically with the constituents of the flour, either by addition or by substitution. Microbiological tests show that the process of agenzizing flour does not affect any of the better-known members of the vitamin B complex, and, in particular, that there is no loss of pyridoxin (vitamin B<sub>6</sub>). Lack of this vitamin had previously been suggested as a possible cause of hysteria<sup>4</sup> in dogs in view of the observation by Chick, El-Sadr, and

<sup>1</sup> *British Medical Journal*, 1946, 2, 885.

<sup>2</sup> *Ibid.*, 1947, 2, 288.

<sup>3</sup> *Lancet*, 1947, 2, 289.

<sup>4</sup> *British Medical Journal*, 1946, 2, 903.

<sup>5</sup> *Biochem. J.*, 1940, 34, 595.



Worden<sup>5</sup> that its deficiency causes epileptiform fits in rats. Even stronger evidence that a toxic agent rather than dietary deficiency causes canine hysteria was obtained by giving dogs very heavily agenzized flour: 80 mg. of agene was added to each 100 g. of flour, as compared with the 6.4 mg. usually added in routine milling. After a single meal containing flour so treated, dogs developed hysteria within twenty-four hours, obviously much too soon for the development of a deficiency syndrome. Cures were readily effected in a few days by giving untreated flour. Hysteria was provoked in five days by flour treated with 20 mg. of agene per 100 g., and in about the same time by flour which had been treated with 80 mg. of agene and then diluted with three times its weight of untreated flour. The toxic factor was found not to be extracted by water or by fat solvents, which is in agreement with Mellanby's work. Moreover it was again located in the gluten fraction, and on fractionation with 70% alcohol both the soluble and insoluble fractions were found to be injurious.

In his next experiments Moran attacked the problem from a new standpoint and demonstrated clearly that the development of toxicity after treatment with agene is not peculiar to proteins derived from wheat. When dogs were given agenzized casein they had hysteria within twenty-four to forty-eight hours. Similar results were obtained with agenzized zein, the protein of maize, while with agenzized gelatin slight hysteria occurred after ten days. The result with zein is interesting, because this protein is devoid of the amino-acids glycine, tryptophan, and lysine. If toxicity is caused by the action of agene on a specific intramolecular grouping in protein it is clear that these three amino-acids cannot be involved. Another significant point on which Mellanby and Moran agree is that even heavy treatment with free chlorine does not produce in flour whatever changes are responsible for canine hysteria.

In his earlier paper Mellanby<sup>1</sup> contended that agene makes flour injurious by the production of a toxic agent rather than by the destruction of some essential nutrient. These recent developments have fully confirmed this conclusion, though it remains to be decided whether agenzized flour is the only, or even the most important, cause of canine hysteria. The identification of the toxic agent in the near future should not unduly tax the skill of the organic chemist and should help us to answer the crucial question whether or not agenzized flour is harmful to man. In the meantime any feeling of security based on the previous conclusion that animals other than the dog are not susceptible to agene poisoning may be somewhat shaken by Mellanby's recent experience with ferrets. This animal, he has found, develops unmistakable symptoms of hysteria when fed upon agenzized but not when fed on untreated flour.

### ADDISON'S DISEASE IN PREGNANCY

Addison's disease associated with pregnancy is an interesting but rare combination. In 1922 Fitzpatrick<sup>1</sup> summarized eleven cases from the literature and described a personal case. In 1945 van Zwanenberg<sup>2</sup> reported two cases and referred to another fourteen collected from the literature. He concluded, as did Fitzpatrick, that the prognosis is

bad. Of the 13 cases for which details were known 7 ended fatally for the mother, and in 6 the baby was born dead. All the maternal deaths occurred during the puerperium, at which time most cases showed a tendency to an Addisonian crisis. Abortion or the induction of labour did not appear to help, but the two patients who received adrenal cortical extract immediately after labour did not suffer a puerperal crisis. Many of the cases referred to by Zwanenberg date back many years and probably did not receive what would now be regarded as adequate treatment for adrenal cortical failure. Indeed it seems likely that in this disease, as with so many others, the complication of pregnancy becomes increasingly less serious as more efficient methods of treatment are discovered, and in general, it is best to treat the disease and not to interfere with the pregnancy. This suggestion is borne out by recently published reports of three further cases. Murphy tells of a woman treated for Addison's disease by subcutaneous implants of desoxycorticosterone acetate with such good effect that she was well enough to marry and become pregnant. There was no evidence that pregnancy itself had a beneficial effect on the disease, nor was there any reason to believe that it had an adverse influence so that the maintenance dose of desoxycorticosterone had to be increased. Labour was induced because it had not begun three weeks after the calculated date; it then progressed easily and rapidly. The baby was stillborn as a result of multiple looping of the cord round the neck and axillae. In the case described by Samuels, Evans, and McKilvery<sup>3</sup> the condition was also brought under control by implants of desoxycorticosterone before conception took place. Desoxycorticosterone, 6 mg. daily, was given during most of the pregnancy, but the authors consider this was probably unnecessary. There was some evidence that pregnancy had a beneficial effect on the patient, but after delivery Addisonian symptoms recurred and necessitated careful treatment. Estimation of the 17-ketosteroid excretion showed a rise about the sixth month which was maintained until delivery, when the level dropped to what it had been before the pregnancy. It is suggested that this increase in output and the improved condition of the patient were due possibly to the action of the foetal adrenals. A compensatory action on the part of foetal ductless glands has often been postulated in the case of other endocrine disorders such as diabetes mellitus. So far as Addison's disease is concerned the evidence is as yet far from conclusive, and in only one of the patients referred to by Zwanenberg was the condition said to be improved by pregnancy. The occurrence of Addisonian crises soon after delivery is perhaps in favour of the idea, although the stress of labour might be an important factor. The normal adrenal cortex undergoes hypertrophy during pregnancy, so an alternative explanation of occasional observations suggesting that pregnancy has a beneficial effect on Addison's disease could be based on the supposition that remaining small areas of healthy gland undergo hypertrophy. If this were true, however, it might be expected that the good effects of pregnancy would persist for a longer time after delivery and that crises would not occur so early in the puerperium, particularly as in some animals adrenal hypertrophy is even more noticeable in the puerperium than in pregnancy.<sup>4, 6</sup>

S. L. Simpson,<sup>7</sup> who mentions two patients with Addison's disease who survived pregnancy, describes in detail a third case in which the patient had two pregnancies, each resulting in a live child. He emphasizes a feature noted by

<sup>1</sup> *Surg. Gynec. Obstet.*, 1922, 35, 72.

<sup>2</sup> *St. Bart's Hosp. J.*, 1945, 49, 31.

<sup>3</sup> *Proc. roy. Aust. Coll. Phys.*, 1946, 1, 69.

<sup>4</sup> *Endocrinology*, 1943, 32, 422.

<sup>5</sup> Vennings, Eleanor H., *Ibid.*, 1946, 39, 203.

<sup>6</sup> Vennings, Eleanor H., and Long, C. N. H., *Ibid.*, 1943, 32, 373.

<sup>7</sup> *Proc. roy. Soc. Med.*, 1946, 39, 511.

other writers—namely, that pregnancy may precipitate the onset of symptoms of Addison's disease, due presumably to the increased demands made on the adrenals. Moreover, in his case the patient failed to lactate on both occasions. This observation tallies with the results of animal experiments in which it has been shown that bilateral adrenalectomy inhibits lactation unless it is followed by the administration of adequate amounts of adrenal cortical extract. In Simpson's case the regular administration of desoxycorticosterone and sodium chloride during the second pregnancy and puerperium did not bring about lactation, so it would appear that some other cortical factor is necessary. It is noteworthy that in none of the reported cases, irrespective of their treatment, was the uterine action in labour disturbed.

### HORMONE TREATMENT OF CANCER OF THE BREAST

Since the original reports<sup>1,2</sup> in this country on the occasional clinical retrogression of carcinoma of the female breast after the administration of stilboestrol little has been added to our knowledge of the carcinostatic effect of the sex hormones. A recent paper from New York<sup>3</sup> reports the administration of ethinyl oestradiol, a synthetic oestrogen, to 17 patients suffering from mammary cancer. This account shows how inadequate are our yardsticks for estimating the retrogression of human tumours. There is no available method of measuring with reasonable accuracy the volume of even an accessible tumour, and clinical estimates of increase or decrease in size are notoriously fallacious. Only complete disappearance can be accepted as clear proof of a decrease in size.

Certain dramatic qualitative phenomena, however, are acceptable as evidence of retrogression, and these were sometimes seen in the series described by Herrmann and his co-workers. A decrease in size of pre-existent carcinomatous ulcers was observed in two cases and graphically recorded, and there was complete healing of an ulcer in a third case. A decrease in the size of pulmonary metastases was measured radiographically in two cases. A protuberance photographed in profile had flattened out after two months' treatment. In no case did the primary tumour or a metastasis completely disappear. Serial biopsies showed no alteration in the histological or cytological pattern of tumours that appeared to regress under treatment. The microscopical picture altered after treatment in only one tumour, and that increased in size during treatment. In one patient the breast tumour increased in size and fungated rapidly at the very time when a pulmonary metastasis from it appeared to be shrinking.

The authors consider that there was a favourable response in 7 of the 17 cases, and this response was obtained for the most part in women over 60 years of age. In young women oestrogen therapy actually appeared to hasten the growth of the tumour. Of the 17 patients 7 died of the disease, and one of coronary occlusion, within eighteen months of starting treatment. Of the 7 patients who died 5 were under 60 years of age; indeed no patient under 60 years of age survived for longer than eighteen months. This series is a small one, but patients selected for oestrogen therapy are necessarily those who are unsuitable for operation or for radiotherapy or whose disease is resistant to these other forms of treatment. In this sense it is gratifying that their numbers are relatively few and that substantial series are therefore slow to accumulate.

<sup>1</sup> Discussion, *Proc. Roy. Soc. Med.*, 1944, 37, 731.

<sup>2</sup> Haddow, A., Watkinson, J., and Paterson, E., *British Medical Journal*, 1944, 2, 593.

<sup>3</sup> Herrmann, J. B., Adair, F. E., and Woodard, H. Q., *Arch. Surg.*, 1947, 54, 1.

### DRUG ADDICTION

In a comprehensive review<sup>1</sup> of the many therapeutic difficulties presented by the drug addict we are early reminded that addiction is a manifestation of a morbid state and that the victim must be treated as a patient. It is a mistake to apply the term "drug addiction" to all cases in which drugs cause euphoria. The cocaine habit is often just an indulgence in vice rather than a state of true addiction; the taking of cannabis always falls into the former category. For a proper understanding of the state of addiction it is well to refer to Himmelsbach's definition of what he terms a "physical dependence." This is an acquired abnormal state wherein the regular administration of adequate amounts of a drug has, through previous prolonged use, become indispensable for physiological equilibrium. The demonstration of this state can be made only by withdrawal and the production of withdrawal symptoms. They are classified as (a) mild: yawning, lacrimation, sneezing, sweating; (b) moderate: tremor, gooseflesh, anorexia, mydriasis; (c) marked: pyrexia, rise of respiratory rate and systolic blood pressure, insomnia, restlessness; (d) severe: vomiting, diarrhoea, loss of weight.

Not every person who takes a habit-forming drug is a drug addict. Only 19% of patients admitted to the Narcotic Hospital in Lexington were found by Himmelsbach to be really dependent on drugs to an extent sufficient to render their cases suitable for study. It is suggested that many alleged addicts have merely a mild drug-habit with only slight physical dependence. This may be due in great part to the adulteration of supplies by "dope pedlars," and to the recurrent difficulty in obtaining opiates. The importance of the foregoing is that accurate appraisalment of the category to which the patient belongs must precede assessment of treatment. Thus a chronic morphine addict habituated to the drug given therapeutically can be much more readily detoxicated if the therapeutic indication has disappeared than can the morphine addict who is predisposed to addiction and whose unstable mind leads him to search for euphoria. The distinction is not always easy to make, because a potential addict may in fact become one owing to the development of a disease requiring morphine.

The need to consider prophylaxis is emphasized by the statement that no person is immune to opiate addiction; if morphine is given to 100 people regularly for a certain time it will produce abstinence symptoms in all of them. In many countries prophylaxis is already carried as far as can reasonably be expected: control of the sale of drugs and the limitation of their use to doctors, dentists, and veterinary surgeons are governed by stringent regulations. It is suggested that more could be done in the direction of educating doctors to use euphoric drugs only when the simple analgesics fail, and then to aim at an initial dose which while sufficient to relieve pain will not be large enough to cause euphoria. Morphine suppositories are said to have the same therapeutic effect as injections, and should be preferred. Against this it might well be argued that a patient will quickly link the suppositories with relief of pain; furtive self-administration would be simplified for the addict, and nursing attendants would be as likely to use them as an injection. The prescription of cocaine, except for direct application by a surgeon, is never justified. There is no risk in refusing cocaine to an addict, because, in contrast to the use of morphine, dangerous abstinence effects never occur, even in the severest cases.

In treating those addicted to opium and its derivatives it is generally agreed that rapid withdrawal is correct. Institutional treatment is essential. The doses of the drug should be so reduced as to avoid serious withdrawal

<sup>1</sup> *Bull. Hlth. Org. L. O. N.*, 1945-6, 12, No. 4.

symptoms. The aim should be to stop the drug in ten days. More prolonged withdrawal is no more bearable to the patient, while it certainly prolongs the discomfort, and this leads only too often to his discharging himself. This raises the question whether a law for compulsory treatment should not be enacted. Personal liberty for an addict whose mind is warped by craving is hardly in the public interest.

The report recognizes the existence of morphinists and opium eaters who appear to be in an "arrested development" stage of addiction. They remain addicted to small and constant doses of the drug, and are efficient and healthy. Stopping the drug makes them ill and incapable of work. Treatment of this group is unnecessary, and possibly dangerous in that it may lead to true and progressive addiction. The greater part of the report is devoted to a detailed consideration of the methods of cure, and pours a salutary cold douche on the many claims for dramatic cures without tears. This work is admirably compiled and worthy of detailed study by those who may be given the responsibility for the cure of a drug addict. It is the last number of the *Bulletin of the Health Organization of the League of Nations*. Its successor will be the *Bulletin of the World Health Organization*.

### THE TREATMENT OF MYASTHENIA GRAVIS

Although thymectomy has produced dramatic improvement in some cases of myasthenia gravis,<sup>1</sup> and the experimental use of diisopropyl fluorophosphonate has opened up a new field, there are still many patients who continue to get relief from "prostigmin." This substance and others which may enhance its effect form the basis of the medical treatment of the disease. It was in 1936 that Dale, Feldberg, and Vogt<sup>2</sup> showed how acetylcholine is released at voluntary nerve endings when a volley is discharged down the motor nerve. Previously Mary Walker<sup>3</sup> had used physostigmine with striking success in a case of myasthenia gravis, because the disease closely resembled curare poisoning, for which physostigmine was known to be an antidote. Since then its derivatives have been employed, the most successful being prostigmin or "neostigmin"<sup>4</sup> and also neostigmin methyl sulphate.<sup>5</sup> Ephedrine<sup>6</sup> may be given as well with advantage in some cases, and guanidine has also been found helpful.<sup>7</sup> Froke, Margoshes, and Harrell<sup>8</sup> tried guanidine in doses of 25 mg. per kilo of body weight in association with prostigmin and found that subjectively, and also on measurement of the myasthenic response with a recording ergograph, there was material improvement in the patient's muscular efficiency.

It is generally recognized that in myasthenia gravis there is a disorder of the acetylcholine mechanism at the myoneural junctions, but its exact nature is still unknown. Froke and his co-workers have analysed the possibilities. The first, that cholinesterase, which breaks down acetylcholine into choline and acetic acid, is present in excessive amounts, was discounted by the work of Cooke and Passmore.<sup>9</sup> The second, that acetylcholine is not liberated, is ruled out by the action of prostigmin, which merely prevents its destruction. The third is that acetylcholine is found in abnormally small amounts. This might be due to lack of precursor substances, lack of potentiators

substances, or excess of inhibitor substances. This possibility is supported by the observations of Torda and Wolff,<sup>1</sup> who found that the serum of myasthenic patients only produced one-third the amount of acetylcholine synthesized by normal serum in the presence of frog's brain *in vitro*. It is also supported by the direct observation of the effect of prostigmin and acetylcholine in varying amounts in myasthenic patients compared with normal subjects. The last possibility is that the myasthenic muscle fibres might be less sensitive to the action of acetylcholine than those of normal subjects, but there is no doubt that the muscle in myasthenia are unusually sensitive to acetylcholine injected directly into an artery. Minot<sup>7</sup> considered that such might be the reason for any potentiating action which guanidine might have on prostigmin, and it is possible that guanidine makes myasthenic muscle fibres contract more efficiently in the presence of prostigmin. If it does, it will enable a smaller effective dose of prostigmin to be given, as suggested by Froke, Margoshes, and Harrell but it must be remembered that its use in the muscular dystrophies, which was based on a similar theory, proved disappointing.

### AT THE BASE OF THE DUODENAL CAP

Duodenal ulcers occur so commonly that physicians may be forgiven if they get into the habit of attributing to ulceration all deformities of the duodenal cap seen on radiological examination. Other conditions which deform the duodenal cap, though they may be uncommon, should nevertheless be considered; their symptoms may be similar, but they often require different treatment; and the prognosis may be very much better. Hypertrophic pyloric stenosis occasionally occurs in an adult, either as a new condition or because it has persisted from infancy. Katz<sup>1</sup> has recently recorded two examples, of which one falls into the latter group. He agrees with other observers that the radiological appearances in this disorder—crescentic indentation of the base of the duodenal cap, narrowing of the pyloric canal, and hyperperistalsis—are not pathognomonic. Laparotomy should always be undertaken in these cases, for a similar picture may be seen in carcinoma of the stomach.

Prolapse of redundant gastric mucosa into the duodenum is another unfamiliar condition, though Scott,<sup>2</sup> in reporting 14 cases observed during 1,346 successive x-ray examinations of the upper gastro-intestinal tract, maintains that it is not rare. The symptoms may be indistinguishable from those of peptic ulceration, but Appleby<sup>3</sup> considers that there is usually intermittent cramping pain aggravated by food and relieved by vomiting. Though the precise diagnosis of a prolapse of the gastric mucosa into the duodenum can only be suspected from the history, both these authors consider that it can be established by radiology. However, there is some difference of opinion about this: whereas Scott considers that the characteristic picture is that of a central "mushroom" or lobulated "cauliflower-like" negative shadow, Appleby shows that the usual appearance is of a "jockey-cap" type of filling defect together with a normal mucosa. Again, while Scott reports successful results from a local resection of the extra mucosa, Appleby advocates gastrectomy. Whichever procedure is best it is certain that the prolapse may occasionally be so great as to constitute an intussusception of the gastric mucosa with symptoms of obstruction. Eckhoff<sup>4</sup> described such a case; it was successfully treated by local resection of the mucosa.

<sup>1</sup> Blalock, A., *J. thorac. Surg.*, 1944, 13, 316.

<sup>2</sup> *J. Physiol.*, 1936, 88, 353.

<sup>3</sup> *Lancet*, 1934, 1, 1200.

<sup>4</sup> Walker, M. B., *Proc. roy. Soc. Med.*, 1935, 28, 759.

<sup>5</sup> Viets, H. R., *Amer. J. med. Sci.*, 1944, 208, 701.

<sup>6</sup> Edgeworth, H., *J. Amer. med. Ass.*, 1940, 85, 1136.

<sup>7</sup> Minot, A. S., Dodd, K., and Riven, S. S., *Science*, 1938, 87, 348.

<sup>8</sup> *N. Carolina med. J.*, 1946, 7, 462.

<sup>9</sup> *Quart. J. Med.*, 1936, 8, 21.

<sup>10</sup> *Arch. Neurol. Psychiat.*, 1944, 62, 554.

<sup>1</sup> *Amer. J. digest. Dis.*, 1947, 14, 85.

<sup>2</sup> *Radiology*, 1946, 46, 547.

<sup>3</sup> *J. int. Coll. Surg.*, 1947, 10, 135.

<sup>4</sup> *Guy's Hosp. Rep.*, 1943, 82, 38.

## THE DANGERS OF GOING TO BED

BY

R. A. J. ASHER, M.D., M.R.C.P.

It is always assumed that the first thing in any illness is to put the patient to bed. Hospital accommodation is always numbered in beds. Illness is measured by the length of time in bed. Doctors are assessed by their bedside manner. Bed is not ordered like a pill or a purge, but is assumed as the basis for all treatment. Yet we should think twice before ordering our patients to bed and realize that beneath the comfort of the blanket there lurks a host of formidable dangers. In "Hymns Ancient and Modern," No. 23, Verse 3, we find:

"Teach me to live that I may dread  
The grave as little as my bed."

It is my intention to justify placing beds and graves in the same category and to increase the amount of dread with which beds are usually regarded. I shall describe some of the major hazards of the bed. There is hardly any part of the body which is immune from its dangers.

**Respiratory System.**—The maintenance of one position allows the collection of bronchial secretions, which, stagnating in the bases, encourage the development of hypostatic pneumonia. Further, the absence of exercise and the diminished respiratory excursion consequent on bed rest prevent the re-expansion of collapsed or diseased lung.

**Blood Vessels.**—Thrombosis and thrombo-embolism are some of the most disabling and lethal catastrophes that bed rest can bring to a patient. The absence of leg movements means that the venous blood lacks the helpful squeeze from the muscles which normally speeds its flow, and the flexion of the thighs (particularly when there is Fowler's position or a knee pillow) obstructs it the more. One theory of phlebothrombosis is that it starts with endothelial damage caused by the weight of the leg on the bed compressing emptied calf veins. Thus it may well be said that thrombophlebitis is the internal counterpart of the bed-sore. We may one day regard a thrombosis to be as much a sign of nursing mismanagement as we do the ordinary bed-sore to-day. It is significant that Hunter, Sneedon, and others, performing post-mortem examinations of the veins of the calf in middle-aged and elderly people who had been in bed a considerable time, found thrombosis of the calf veins in 53% of the cases.

**Skin.**—The frequency and dangers of bed-sores are too well known to need much comment. A large bed-sore in a heavy patient, especially an incontinent one, is a nightmare to the nursing staff, and the pressure points on the heels are often a source of great pain and misery to the patient even if the skin is still unbroken.

**Muscles and Joints.**—The contraction of some muscles and the stretching of others are complications of rest which may cause considerable crippling. Foot-drop is of course the commonest, and stiffness and flexion of the knee-joints probably the next. The weakness and wasting of the general skeletal musculature and the restriction of the excursion of the joints are often manifest in the hobbling, painful gait of the convalescent patient.

**Bones.**—When bones are not used the calcium drains from them, and this disuse osteoporosis can be a serious matter, especially in the elderly. Fractures for that reason may take longer to heal, and the absence of weight-bearing is another reason for delayed union. This is shown by George Perkins's recently published cases where the broken ends of bone, when splinted by a metal plate, did not heal until the plate accidentally broke and the resulting increase in weight-bearing led to rapid bony union. The advantages of the Smith-Petersen pin over older methods of managing intracapsular fractures of the femur are largely due to the shorter time in bed.

**Renal Tract.**—The drain of calcium from the bones that I have just mentioned causes an increased liability to urinary calculi, and both kidney and bladder stones are sometimes in part due to bed rest. Far commoner than this is retention of urine. A patient, particularly a male, with a perfectly normal

urinary tract can find difficulty in using a bottle—probably because of the horizontal position of the body coupled with the nervousness and embarrassment felt on attempting this unnatural, uncomfortable, and unfamiliar method of micturition. In older people this difficulty may lead to acute retention with overflow or to simple incontinence. Bed-sores may develop and keep the patient to bed, so initiating a vicious circle of bedridden incontinence. Prolonged incontinence leads to a deterioration of hygienic morale, and a patient may continue to be incontinent from sanitary sloth rather than urological disease. Getting a patient out of bed may turn him from an incontinent person to a clean one.

**Alimentary Tract.**—This too is not immune from the bad effects of rest in bed. After a few days minor dyspepsias and heartburn may be noticed; the appetite is often lost. Constipation occurs almost invariably, and even if not of grave significance is often a grievous worry to the patient. Its causes are, first, the absence of muscular movement; secondly, the change of environment (no one can say why this causes constipation, but it does); and, thirdly and most important, the difficulties of evacuating the bowel in a hospital bed-pan. On a bed-pan the patient is unable to use his abdominal muscles and his nearness to fellow-patients discomforts him. Precariously engaged in balancing himself, he sits there, poised unhappily above his own excrement in great dissatisfaction and distress. The constipation of bed rest is most harmful in the aged, where retained scybala may lead to a diarrhoea which marks the underlying obstruction. Retention with overflow is nearly as common at the back as in front. Quite-often complete intestinal obstruction can develop from retained faeces, and when enemata fail to shift the scybala digital removal has to be practised—a procedure as unpleasant for the evacuator as for the evacuee.

**Nervous System.**—It is well known that, particularly in the ataxic diseases such as disseminated sclerosis or tabes dorsalis, even a short spell in bed may produce a deterioration of mobility which takes weeks to overcome, and any length of time in bed may leave a patient bedridden many years before the natural course of the disease would have made him so.

**Mental Changes.**—Lastly, consider the mental changes, the demoralizing effects of staying in bed. At the start it may produce fussiness, pettiness, and irritability. The patient may acquire an exaggerated idea of the seriousness of his illness and think, "Surely I must be very ill if I am kept in bed?" At a later stage a dismal lethargy overcomes the victim. He loses the desire to get up and even resents any efforts to extract him from his supine stupor. The end result can be a comatose, vegetable existence in which, like a useless but carefully tended plant, the patient lies permanently in tranquil torpidity.

Even the insomnia and nocturnal restlessness so common in hospital patients may be related to the abuse of rest. Too much sleep during the day means too little sleep at night. You may notice that many patients who disturb the ward at night are flat on their backs snoring during the day. They lie in bed with nothing much to do, and we cannot blame them for taking frequent cat naps. I am sure that many hours of half-sleeping and dozing are less beneficial than a few hours of deep sleep, and I believe they encourage a certain confusion of mind.

So much for the commoner hazards of the bed. There are many I have omitted. I have not mentioned the loss of education in children who are long in bed, nor spoken of the dangerous dust that arises during bed-making, but even those evils I have outlined may help to show that rest in bed is anatomically, physiologically, and psychologically unsound. Look at a patient lying long in bed. What a pathetic picture he makes! The blood clotting in his veins, the lime draining from his bones, the scybala stacking up in his colon, the flesh rotting from his seat, the urine leaking from his distended bladder, and the spirit evaporating from his soul.

I have painted a gloomy and unfair picture: it is not as bad as all that. There is much comfort and healing in the bed, and rest is essential in the management of many illnesses. My object has been to disclose the evils of overdose, and I want now to indicate briefly how some of them may be avoided or overcome.

First, bed rest should be prescribed and not assumed—that is to say, a sister should not confine the patient to bed without the doctor's ordering it. Secondly, doctors should revise their attitude to rest where it is unsound. In a chronic ward of which I once had charge I found a lady who had been in bed for 17 years with a diagnosis of nervous debility and whitlow. She had survived this remarkable hibernation with little damage, and though she was very upset when I ordered her up she became a different person when she was fully ambulant. It may well be, too, that our attitude to rest in more acute cases could be modified. Rheumatic-fever cases are often kept flat on their backs for a considerable time, although there is no evidence that this modifies the incidence of heart complications and there is good evidence that the work of the heart is increased by the supine position. Patients with coronary thrombosis traditionally have six weeks in bed, but the evidence that this diminishes the incidence of complications is slender. Indeed, Sir James Mackenzie, who had frequent angina after cardiac infarction in 1908, never spent more than a few days in bed, but continued playing golf till his exercise tolerance at last became too small. He lived an active and useful life for 17 years after his first attack.

John Powers, of Cooperstown, New York, reported on 100 consecutive patients who were allowed to sit in a chair and walk on the first day after major operations. He compared them with an equal number who remained in bed for 10 to 15 days and found fewer complications in the first group. Further, the early ambulant cases were back at work within 4.8 weeks as compared with 8.7 weeks in the control group. All these facts encourage us to review the traditional amounts of bed rest that we order our patients.

The third way of avoiding the dangers of bed lies in altering the equipment and arrangement of a ward. There should be a day-room attached to every ward and lockers for patients to keep their ordinary clothes in. Too often a sister puts all her patients back to bed as a housewife puts all her plates back in the plate-rack—to make a generally tidy appearance. Too often patients stay in bed because, shuffling round in slippers and dressing-gown, they are cold and uncomfortable. They would welcome a warm day-room with chairs and books. Some heart cases ought to be allowed to spend most of the day in arm-chairs and to sleep the night in them if they feel much more comfortable that way. For those that have to be in bed a commode might be allowed as an alternative to a bed-pan in most cases. More liberal attention should be paid to breathing exercises, limb-moving, and occupational therapy to prevent complications and to distract the patient from going to sleep out of sheer boredom.

"Teach us to live that we may dread  
Unnecessary time in bed.  
Get people up and we may save  
Our patients from an early grave."

## THE ANATOMY OF SPEECH HUXLEY LECTURE

The Huxley Memorial Lecture was delivered before the Royal Anthropological Institute on Nov. 25 by Dr. W. L. H. Duckworth, of Jesus College, Cambridge. Dr. Duckworth's subject was "Some Complexities of Human Structure," and he took as his text the remark of Huxley in 1865 that anthropology was the science which unravelled such complexities. He confined his review to the organs of speech and the parts of the brain with which speech is associated.

### Lips and Tongue

Employment in the production of articulate speech was not the only function performed by the lips; they still played a part in gesture, of which use the South African bushman provided a good example. In spoken and gesture language alike the agents used were the facial muscles. Some eight or nine muscles converged on each side of the two angles of the mouth, where they merged in an area specially responsive to traction exercised by muscle fibres. One group of the muscles concerned was the so-called labial tractors, consisting of fibres entering the substance of the lip almost perpendicularly, from

above or below. Some of these fibres penetrated not only the peripheral fibres of the orbicularis oris but the marginal fibres as well; such penetration was said to provide a contrast between human lips and those of the chimpanzee, in which the marginal fibres were barely reached. The variety of movements around the aperture of the mouth was no less important than the variety of parts found in the mechanism. These movements were essentially skilled, and it was permissible to suppose that in future they would become very much more skilled than at present.

Comparison of the tongue in the various types of mankind rested mainly on observations of the sensory papillae distributed over its surface. The papillae combined in lines to reproduce the letters V or Y, but the angle at which the divergent arms of the letter were inclined to one another was subject to considerable variation and to interruption. The tongue, like the lips, could be protruded and withdrawn, and comparative anatomy suggested that these movements appeared early in the evolutionary history of the tongue or its representatives. The connexions both of the intrinsic and extrinsic muscles deserved further exploration. More than half a century ago Macalister declared that there was reason to believe that the musculature of the tongue varied in different races—a statement which did not seem to have been disproved.

### Lower Jaw, Soft Palate, and Larynx

The lower jaw had been very fully studied. In articulated speech the movements of the jaw evidently involved certain muscles whose study was inseparable from that of the bone itself. Some of these muscles made no direct connexion with the tongue, while others entered the substance of the tongue as its extrinsic muscles. The lecturer added that evaluation of the human lower jaw had not been rendered more simple by acquiescence in the view that the Pitted mandible belonged to an individual whose brain, as inferred from the skull, suggested, if it did not prove, endowment with human speech.

The soft palate combined with the hard palate and the tongue in contributing to the production of speech. Its tendency to assert its existence in snoring was almost pathological. Study of comparable sections from the soft palate of an Australian aboriginal and an African negro had not so far provided any suggestion of specific peculiarities.

The larynx appeared to be simply constructed, but its parts were numerous. The intersection and interlacement of the fibres of the thyro-arytenoid muscles were now known to be much more complex than was previously believed. The importance of the muscle was evident in view of its close relation to the vocal fold, for it was thus at the very source of sound production in the larynx.

Reviewing these various vocal organs as a whole, the lecturer said that it was worth while inquiring whether they displayed any similarity in their structural complexity. In the lips, the soft palate, and the vocal folds alike muscular fibres were conspicuous, and with a slight exception all were of the striate variety. In each instance they tended to surround a passage or cavity the width or dimensions of which they varied by their action or relaxation. The tongue was different in some respects, but it would not be impossible to present the tongue as an example of extraordinary specialization of the muscular tissue surrounding the cavity of the mouth, while as to the mandible this was an ossification in a great sheet of muscle stretching from one temporal region to the other. While a general agreement of scheme might thus appear, a marvellous amount of differentiation accompanied it.

### Speech Centres

Turning finally to the parts of the brain associated with speech, Dr. Duckworth spoke particularly of two areas in the left cerebral hemisphere (in right-handed persons), namely, on the frontal lobe, mainly in front of the central sulcus, and on the parietal lobe, comprising the supra-marginal, angular, and posterior parietal convolutions. Disintegration of the first of these areas affected speech strongly, if it did not always abolish it. There was failure to co-ordinate the contribution of the lips, tongue, and soft palate, and vocalization became a continuous cry or grunt, not controlled by the patient. Persons suffering from disease of the left posterior parietal



involution could speak, but were likely to talk nonsense and be unable to comprehend spoken or written language. The first area was concerned with the co-ordination of muscular actions; the second with comprehension of things seen or heard or the impressions of muscular sense. In both areas the human brain exhibited structural features indicating progress in advance of the highest apes, and, in regard to the second area, a much higher development than in other animals. The organs he had reviewed, said the lecturer in conclusion, were common to mankind and to a large number of animals. Detection of distinctive human characteristics was comparatively easy when the countenance or the brain were in question, but their parts called for the knowledge furnished by dissection and the study of microscopical preparations. With this assistance, systems such as the facial muscles, including those of the lips, had yielded evidence of the outstanding position of mankind. Further research should be encouraged. Despite the vast demands of phonetics, linguistics, and psychology, the anatomist should not be deterred from participation in the biological study of the organs of speech. This claim was made in view of a remarkable passage in which Huxley ninety years ago expressed approval of

those who have not made the mistake of attempting to approach biology, either by the high *a priori* road of mere philosophical speculation, or by the mere low *a posteriori* lane offered by the tube of a microscope, but have taken the trouble to become acquainted with well ascertained facts and with their history."

The wise anatomist would treat these words with due respect, but he might recall also Huxley's citation as the last words of his lectures on the morphology of the vertebrate skull in 1864: "*Nil actum reputans si quid supersesset agendum.*"

## THE MEDICAL WITNESS

### PRACTITIONERS AND THE COURTS

A large number of senior students and newly qualified practitioners assembled in the Great Hall of B.M.A. House on Dec. 2 for a lecture arranged by the Metropolitan Counties Branch, on "The Medical Witness." The lecture was given by Dr. Robert Forbes, secretary of the Medical Defence Union, and the chair was taken by Mr. A. M. A. Moore, later supported by Dr. E. A. Gregg, president of the Branch.

Dr. Forbes said that medical practitioners appeared in courts more frequently than other technical witnesses or members of other professions, and it was conceded by those capable of forming a judgment that in the main they conducted themselves with acceptance and with a consciousness of the important duty they were undertaking. Doctors appeared as ordinary or as expert witnesses. As ordinary witnesses the rules of evidence had to be modified in a certain respect to admit of their testimony, for they were expected to give not only, like other witnesses, their version of the facts but also the inferences to be drawn from them. The expert witness was in a different category. He was not compelled to appear for either side. On being asked to consider the matter, he would indicate what the facts submitted to him signified in his opinion and whether or not his evidence was likely to be of value to the plaintiff or defendant as the case might be. Most doctors considered themselves to be "expert" witnesses in any event, and that in one sense was true, though not according to the legal definition and acceptance of the term. They were, in the main, witnesses to facts, unless they happened to have had special experience or knowledge and to have had no preliminary connexion with the case at issue.

The necessity for keeping records of examination and treatment of patients was emphasized. Incidents regarded as insignificant at the time might come to have a great importance if litigation ensued. Such records were necessary for the protection of the practitioner should he be challenged in a civil or criminal case. Hospital records were often also called for in court, but were not really evidence unless the person who made them was available in court to speak to the notes.

#### Obedience to Subpoena

The practitioner appearing in a case would usually be asked first to make a report, which would form the proof of evidence. From that moment he should act with the utmost circumspec-

tion, making sure that no phrase in that report was such as he could not honestly support in oral evidence. Nothing was more unfortunate during a hearing than that a statement upon which counsel had opened his case should be found at a later stage to require modification. Exaggeration and theorizing—the two rocks upon which many practitioners foundered on their first appearance as medical witnesses—must be avoided. Facts must be defined with exactitude, and the case put no higher than could be substantiated under cross-examination. Partisanship, also, should be eschewed. It was common for a doctor to think that, once employed by a side, he must support their point of view; he should remember that he was there to assist the court to arrive at the facts and that he should leave it to the court to decide the issues. He should try to keep an open mind, always remembering that he might not be aware of all the facts, and that some of his inferences might have to be altered as the case proceeded.

If a subpoena were issued upon a practitioner, and conduct money tendered, and the case were a criminal one, the practitioner was obliged to attend. In a civil action, if a subpoena was served and conduct money not tendered, he was not obliged to attend, but he would be ill advised to refuse. He should indicate to the judge before he was sworn that he had not received conduct money or any fee; this matter should be settled at the outset to avoid subsequent recriminations. It was possible and desirable in a civil action to negotiate with the solicitor in the preliminary stage as to the fees to be paid for current and future services, and to get a letter from him indicating his acceptance of personal responsibility for the payment of the specified fees. At the present moment a B.M.A. Committee was proposing that in civil actions the fee paid to the medical witness for giving evidence on fact only should be 10 guineas for a full day and 7 guineas for a half-day, and for an expert witness that the fee for qualifying—that is, for examining or considering the case so as to give the necessary evidence—should be 10 guineas a day, plus 25 guineas a day for giving evidence.

The history of the tender of conduct money and the payment of a sum for board and lodging was interesting. In days gone by it was laid down that only a "gentleman" was entitled to payment under these heads, and thus it became necessary to define a "gentleman." First the legal authorities admitted that a physician or a surgeon fell within the category of a gentleman; a little later they included a solicitor, and later still a surveyor or architect, and they had not gone much further.

Failure to obey a subpoena might mean imprisonment for contempt of court, and in a civil case it might mean action by a litigant if he could show that he had suffered material damage by the witness's absence or that his case might have been won if the witness had been present. A subpoena should be treated with respect. Possibly on arrival at court the practitioner would find a preceding case still in progress, with many witnesses still to be called, but the heaviest case might collapse suddenly, and the practitioner should not go away without getting definite instructions as to when his case was likely to be heard.

#### In the Witness-box

Dr. Forbes gave some practical advice on demeanour in the witness-box. The witness should turn slightly towards the judge, and speak clearly and slowly, bearing in mind that the judge was taking notes. He should not resent the humour of some judges nor be intimidated by the formality and severity of others. He should speak so far as possible in non-technical language; after all, he was there virtually as an interpreter. He should not say that the victim was suffering from "confusion of the integuments under the left orbit, with extravasation of blood and ecchymoses in the surrounding cellular tissues, which were in a tumefied state," when in fact he meant that he had a black eye.

Cross-examining counsel in these days were not in the least of the bullying Buzfuz type; there were snave and friendly, possibly inviting the witness to say that he had been qualified for a long time and had had extensive experience, and generally leading him up the garden path. "Don't let cross-examining counsel make you out to be a bigger dog than you are." A proper humility in the witness would impress the judge. It was important not to lose one's temper under cross-

examination, also not to start to argue with counsel. One must beware of the double question and ask that it be divided. The hypothetical question might be encountered: "Now, doctor, if eighteen months ago when you were first called to see this patient you had the knowledge you now have, don't you think you would have done differently?" It was better to be frank and to refuse to theorize on a hypothetical situation. Another piece of advice was that if the witness got the better of counsel he should be careful not to preen himself upon it by nodding to the judge and adopting a "cocky" attitude.

The procedure of endeavouring to agree the evidence with the other side before the case was heard had a great deal to commend it. Sometimes such conferences resulted in settlement out of court. They helped in any event to diminish the likelihood of that unfortunate occurrence whereby one row of doctors said one thing, followed by another row who said exactly the opposite. That left a bad impression, though, of course, on occasion there might be technical issues that were open to doubt, and there were practitioners who must express opposing views about the same case.

### Privilege

Finally Dr. Forbes dealt with the debated question of privilege. Not uncommonly a doctor was asked to disclose that his patient had suffered, for example, from syphilis or gonorrhoea. This was not a thing he should voluntarily disclose either to the solicitors or to court, unless, of course, the patient was a consenting party. The privilege vested in the patient, and only the patient could release that privilege. It was open to the medical witness to explain to the judge, before or after he took the oath, that he had been subpoenaed and that he might be asked questions the answer to which would be a breach of professional confidence. He might appeal to the judge to decide whether the questions were admissible. But there was no privilege. A doctor must tell if ordered by the court so to do unless he was prepared to accept imprisonment for contempt of court. Solicitors and barristers enjoyed absolute privilege, but not doctors. The doctor must do what he was told by the judge, but he should do it only after he had made his protest and done all in his power to protect the confidence of his patient.

The speaker concluded by urging the members of his audience when newly qualified to join a reputable medical defence organization to secure assistance in these problems when necessary.

## Preparations and Appliances

### OXYGEN UNIT FOR NEWBORN INFANTS

Dr. P. C. D. MACCLANCY, assistant paediatrician, Rotunda Hospital, Dublin, writes: The oxygen unit here illustrated (Fig. 1) has been designed as a simple and portable means of providing efficient oxygen therapy for the newborn infant.

The plastic top, 8 by 12 by 10 in. (20 by 30 by 25 cm.), is made from three lengths of 1/4-in. (6-mm.) "perspex" clear sheet, the centre length being heat-moulded to shape. The sides are joined together by plastic screws and rendered gas-tight by a soluble chloroform weld. The curved opening on the distal side, 7 1/4 in. (17.5 cm.) wide by 5 1/4 in. (12.6 cm.) high, is surrounded by five grooved plastic blocks which hold the "collar" of the apron in place. The apron, 42 in. (1.07 m.) long by 24 in. (0.62 m.) wide, is made from plastic curtain material, which is sandwiched between two curved pieces of 1/4-in. perspex sheet 9 in. (22.5 cm.) wide by 6 1/4 in. (15.1 cm.) high. The curved pieces are joined together by plastic screws and the joints rendered gas-tight as above. A 20-c.ft. (0.56-m.) oxygen cylinder will be found the most convenient size to use, as at the rate necessary to maintain the desired concentration it will last some 8 to 10 hours; further, owing to its relatively small size and weight it is readily portable. The cylinder is fitted with a standard B.O.C. unit comprising pressure-reducing

valve, contents gauge, and dry bobbin flowmeter. The oxygen is passed from this to the plastic top via an ordinary Woulfe's bottle.

To provide a concentration of 45-50% oxygen it is necessary to flood the unit at 2 litres of oxygen for two minutes. This concentration can then be maintained by cutting the flow rate down to 1 litre a minute. The carbon dioxide is absorbed by soda lime, some 6 oz. (170 g.) being sufficient for the life of a 20-c.ft. cylinder. The soda lime is put in a wire-mesh container, which is accommodated in a convenient place distant

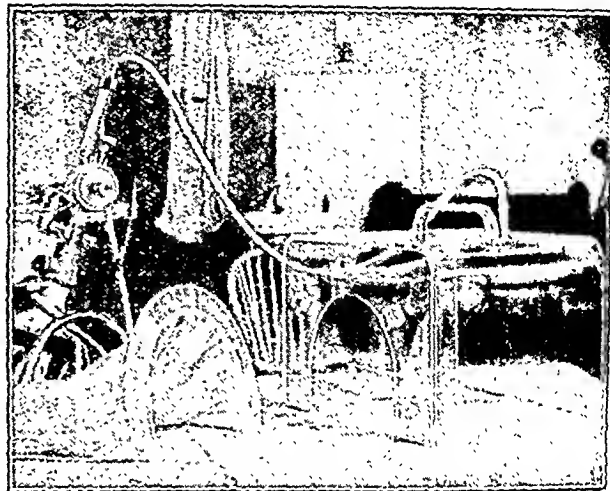


FIG. 1.—Components of the unit.

from the infant's head inside the plastic top. If it is desired, the plastic top can be used alone without the apron; however, if this is done it will be necessary to increase the flow rate to not less than 3 litres a minute to maintain 45-50% oxygen concentration. A rubber hot-water bottle will be found the most convenient means of maintaining the infant's body heat. Heating by electricity is not encouraged unless it can be provided from a closed and spark-proof element. In hospital we use it in the special premature cots so fitted, but here the unit

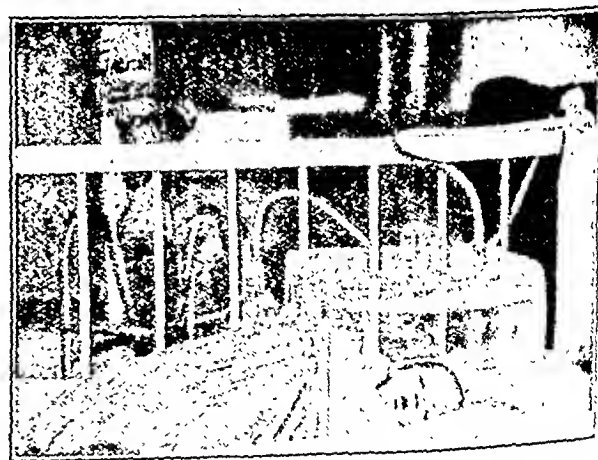


FIG. 2.—The unit in use.

is shown in an ordinary drop-side cot (Fig. 2), a type which is mostly employed in households to-day.

The unit described has given every satisfaction over an extensive trial period in the infants' department of the Rotunda Hospital, and it is intended to have some more constructed, when the plastic top will be "bubble-blown," and consequently devoid of any joinings which may not remain gas-tight in use. It was constructed to my design by Max Models Ltd., Dublin, in conjunction with Medical Gases Ltd., Dublin, who supplied the oxygen fittings.

My thanks are due to Dr. Ninian McI. Falkiner, Master, Rotunda Hospital, and to my senior colleague, Dr. W. R. F. Collis, for permission to publish this description.

## Correspondence

### Thiouracil in Toxic Goitre

SIR.—While congratulating Dr. Harold Cookson and Dr. F. H. Staines on their meticulous and unbiased record (Nov. 15, p. 759) of their four years' experience of the use of thiouracil in toxic goitre, we wonder whether they have really provided evidence for their claim that "there is no doubt that the antithyroid drugs now available have established themselves as a most valuable addition to the methods of treatment of toxic goitre, and in certain types as the method of choice." It would, indeed, appear to us that their experience constitutes the most devastating indictment of the use of these drugs in treatment that we have yet read. We do not for a moment question their findings, for they are in line with those of many other observers both in America and in Great Britain, but we do question their conclusions.

The facts appear to be as follows: (1) 95 patients were treated. (2) In 6 no control was obtained. (3) Remission of the disease lasting from 2 to 25 months was obtained in only 40 patients; 15 of these had relapsed. (4) 14 patients suffered from toxic effects of the drug with its abandonment on this account in 2 cases and with one death from agranulocytosis. (5) *No fewer than 10 patients died while under treatment.* Items (3) and (4) in this list contain sufficiently formidable implications of wasted time and effort on the part of both doctors and patients. But it is a mortality, while under treatment, of over 10% that constitutes the most damning evidence of all.

Although 8 of their patients had to be submitted to surgery without a fatality, the writers of the article do not permit themselves any general comparison between their results and those of surgery. They can scarcely be unaware, however, since it has been stated on many occasions, that subtotal thyroidectomy, given good surgery and good management both pre- and post-operative, can be performed on hundreds of consecutive patients with a mortality of less than 1%. These series include patients of all ages and with every degree of severity of the disease (none are rejected), and it is recognized with gratitude that thiouracil is of the greatest service in the preparation of severely toxic patients for surgery.

Dr. Cookson and Dr. Staines have treated 16 patients who had reached the stage of auricular fibrillation. In only half of these was a normal rhythm restored with thiouracil, and 4 died while under treatment. Surgery, on the other hand, claims many of its most brilliant results from among this very seriously ill group of patients, and with the occasional help of quinidine less than 20% fail to obtain a persistently normal rhythm.

In view of these well-established claims we do not understand how the writers of this article can conclude that thiouracil can be the best method of treatment in any type of the disease. It may be argued that the best surgery is not available for more than a fraction of the sufferers from thyrotoxicosis. If this be so, our answer is that opportunity is available for any surgeon to learn the technique and management of the operation. There is no excuse at this date for the plea of ignorance, and it would be bad surgery indeed that resulted in the loss of over 10% of its patients.—We are, etc.,

GEORGEY KEYNES.  
J. W. LINNELL.

London, W.1.

### Diet and the Nation's Health

SIR.—No cautious man would willingly descend into the dusty arena where the gladiators contend about the state of the nation's nutrition, and I formally disavow any expression of opinion on the subject here. I am moved to commentary, however, by the account in your pages (Nov. 29, p. 882) of a recent debate of the Hunterian Society. Sir Jack Drummond, it would seem, expressed the view that there is "no objective evidence showing with clarity and precision" that we are less well nourished than in 1938, and implied that he is not prepared to accept "merely subjective impressions" in a contrary sense.

His antithesis, suited perhaps to the occasion, is resounding rather than substantial, yet he may be right in the first part of his statement. But surely to assume that in so saying he has

disposed of the problem under discussion is to beg the question and to display a misunderstanding of the nature of the problems facing the clinician, the obligations laid upon him, and the means by which he has to deal with both. "Subjective" impressions, and with all respect to Sir Jack Drummond I confess that I know of no other kind, are surely the beginning, if not the end, of that observational approach from which all scientific inquiry must start—an approach, too, that must remain the clinician's principal one.

Every clinician yearns for nature to provide him with "objective data showing with clarity and precision" what is wrong with his patient, and desires whenever possible to measure, verify, and control his observations and to confirm his preliminary impressions. But he knows that too often this is not the order in which things happen in the practice of medicine, that he is constantly being forced to pay careful attention to his subjective impressions and to lay and initiate plans of action in the interests of his patients long before clarity and precision of data are vouchsafed him. If he is not willing to go to work in this way, then he is incompetent to discharge his obligations and were better employed conducting nutritional experiments on rats in a laboratory. There, at any rate, he could afford to wait for clarity and precision, to let time do his thinking for him, and to see his animals visibly pining before he was under the painful necessity of making up his mind. How wonderful it would be did such easy options govern the labours of the physician, who would then rarely be compelled to call upon intuition or to use judgment but could sit back waiting for complete data to drop into his lap.

I suggest, therefore, that where the health of human beings is in question scornfully to reject subjective impressions as part of the material of judgment, and to decline to celebrate in the absence of data of complete clarity and precision, would be as unscientific and negligent as to suppose that subjective impressions are of themselves wholly adequate as evidence and absolve us from the obligation of all further inquiry. In the present instance, perhaps, it is of little importance what the physician thinks or says, since he has no control over what the nation gets to eat; but that one who has been a scientific adviser to the Ministry of Food should take the narrow view of evidence reflected in Sir Jack Drummond's remarks is more serious. He may be right in thinking that the nation is not undernourished, but his criteria of assessment are inadequate to a situation which he appears not to understand.

The biochemist, indeed, has proved notably insensitive to intimations reaching him from medicine, and our bones might easily rattle under our hides before his convention of scientific purism permitted him to see that we were growing empty. If one were at all cynical, one might be tempted to hope that this nation may never be so very hungry that the biochemist comes to notice the fact.—I am, etc.,

London, W.1.

F. M. R. WALSHE.

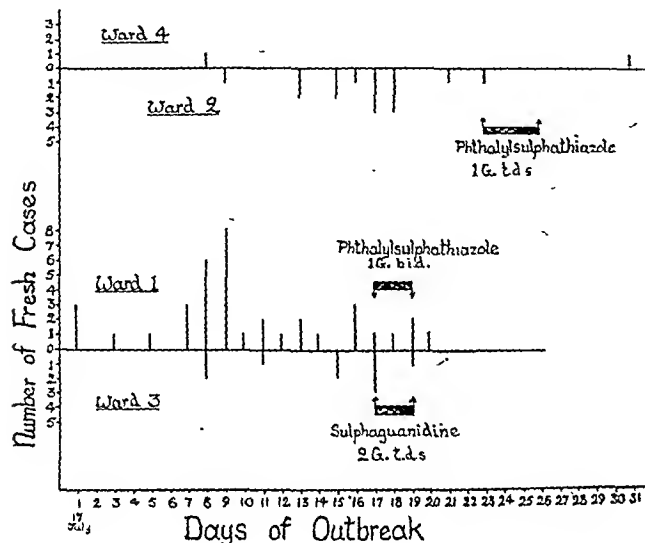
### Acute Non-specific Gastro-enteritis

SIR.—In view of the increasing attention directed to outbreaks of gastro-enteritis of unknown aetiology, a description of an outbreak in this mental hospital last summer may be of interest. The first case began on June 9, the outbreak proper on July 17, and thereafter fresh cases appeared for 30 days, involving 65 out of 309 patients.

The outbreak began in an infirmary ward, where, contrary to the experience of Cook and Marmion,<sup>1</sup> it involved 41% of the patients, principally the old and feeble and those debilitated by other diseases. Eight days later cases appeared in two other wards, the day after that in a fourth, the whole of the female block now being affected. Cases of gastro-enteritis were present in the district, but in the hospital were limited entirely to the female wards. Two female part-time nurses developed it; one had had no direct contact with the affected wards, the other had been nursing there. Some members of the male staff living at home contracted it, but did not infect any of their patients. As in other outbreaks, food as a source could be excluded, as both male and female patients ate from a common kitchen. There was no association with Sonne dysentery,<sup>2</sup> upper respiratory infections<sup>3</sup> or chilling.<sup>4</sup>

Clinically the onset was abrupt, with diarrhoea, vomiting, and gripping abdominal pain; it was apyrexial except in 3 cases, where the temperature rose 1°-2° F. (0.6°-1.1° C.) to subside in 24 hours.

The vomiting ceased within 24 or at the most 48 hours, while the diarrhoea, which was of frequent, offensive, watery stools without blood or mucus, lasted two to three days, exceptionally four or more. In a few the onset was severe with marked prostration. One-fifth of the cases had no vomiting. Each case had a minimum of 3 stool cultures, 201 specimens in all being examined. No organism of the enteric, dysentery, or salmonella groups was found except in one case. This patient's illness lasted longer than usual—namely, 7 days. On the first, fourth, and eighteenth days from the onset her stool was negative; on the twenty-fourth day *Salmonella typhimurium* was isolated. She was the only patient to have a further attack (not shown in these figures), which occurred two months after



the first, when her stools were again negative. Widal tests from this patient and 6 others on Sept. 17 were negative. The following organisms were also identified, the numbers in brackets referring to cases: Morgan's bacillus 1 (4), Morgan's bacillus 2 (1), paracolon-bacillus type (4), *B. faecalis alkaligenes* (1).

All cases were immediately isolated, discovery frequently depending entirely on the nurses' observation. In all but the infirmary ward strict isolation of individual patients could be enforced. Treatment was on the usual lines, with initial starvation and gradual return to normal of the diet by the fourth or fifth day. Attempts to increase the diet more quickly led to recurrence of the diarrhoea. Some cases were given phthalylsulphathiazole 3 g. daily without marked effect on symptoms or duration. However, sulphaguanidine and phthalylsulphathiazole were tried as prophylactics, as shown in the table and diagram. The results were encouraging.

Ward	Population	Type	No. of Cases	Duration	Prophylaxis	% Affected
1	90	Infirmary; aged and sick; overcrowded	37	July 17–Aug. 5	Phthalylsulphathiazole, 1 g. b.i.d. for 2 days	41
2	88	Refractory overcrowded	15	July 25–Aug. 8	Phthalylsulphathiazole, 1 g. t.d.s. for 3 days	17
3	98	Overcrowded; patients out to work	10	July 24–Aug. 4	Sulphaguanidine, 2 g. t.d.s. for 2 days	10.2
4	33	Parole; not overcrowded	2	July 24–Aug. 16	None	6

When sulphaguanidine was given to all patients in Ward 3 the incidence of fresh cases stopped abruptly; one case appeared on the second day of prophylaxis, but her symptoms were mild and lasted only 24 hours. In Ward 1 phthalylsulphathiazole could be given to only a proportion of patients owing to low stocks. Two cases occurred on the second day of treatment and one the day following, all in patients who had been given the drug. Probably the dosage was too small. Fresh cases continued to occur in Ward 2 until phthalylsulphathiazole in a somewhat higher dosage was given to all patients.

An interesting point is that in Ward 4, where no measures beyond isolation of the patients affected were taken, only two developed gastro-enteritis. Here there was no overcrowding and the patients were out most of the day. In Wards 1 and 2 there was close all-day contact between patients, and in Ward 3 close contact all night and part of the day.

The course of the outbreak suggests that the initial cases were caused by one or more carriers from outside and that infection

thereafter spread directly from case to case, probably air-borne. Social functions were in abeyance, and so there was no contact between male and female patients. The sulphonamides appear to have a definite prophylactic value, but further trial would be necessary before a positive statement could be made. Similar claims were made for mepacrine which have not been borne out.<sup>1</sup> Even allowing their value, the incidence was directly related to the degree of overcrowding. The exceptionally high incidence in the infirmary ward may be explained by the difficulty of completely isolating so many, of "spotting" ear cases among the totally demented by an already overworked nursing staff, and of controlling the excretions of the faecal incontinents.

The clinical course of the illness suggested a rapid invasion with most of the damage at the outset, which may explain why the sulphonamides were effective in prophylaxis but not in treatment.—I am, etc.,

Bracebridge Heath Hospital, nr. Lincoln.

WILLIAM FORSTER.

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- <sup>3</sup> MacGregor, I. (1946). *British Medical Journal*, 2, 225.
- <sup>4</sup> Kershaw, G. R. (1947). *Ibid.*, 1, 717.
- <sup>5</sup> Freedman, B. J. (1946). *Ibid.*, 2, 552.

#### "Q" Fever

SIR,—I was more than interested in the article on "Q" fever by Drs. J. E. Caughey and J. A. Dudgeon (Nov. 1, p. 694). We do I remember reading the article in question on "Primary Atypical Pneumonia" which has turned out to be an epidemic of "Q" fever. The lesson to be learned from this is of prime importance in my opinion. To my mind it is a great pity that the term primary atypical pneumonia was ever introduced because at the best it is vague, confusing, apt to be misleading, and falls readily from the lips of those who are satisfied with diagnosis which usually depends on so-called typical radiological appearances in the lungs or, in their absence, on so-called typical findings on auscultation of the chest together with the general symptoms of a febrile virus infection, a white count usually below 10,000 per c.mm., and the occasional presence of a rash, splenomegaly, lymphadenopathy, etc. The presence of cold agglutinins in the serum is said to place the diagnosis beyond all shadow of doubt, but greatest stress is usually laid on the radiological findings and the physical signs in the chest.

Physicians who have much experience of febrile diseases, especially prolonged febrile illness in tropical and subtropical countries, realize how often there are present abnormal signs on auscultation of the chest, but these as well as positive radiological findings in the lungs do not necessarily result in a diagnosis of pneumonia of some sort—e.g., primary atypical pneumonia, "pneumonia," or "pneumonitis." Such cases, with or without evidence of radiological findings in the lungs and with a white-blood count of less than 10,000–12,000 per c.mm., are invariably investigated along the lines of a case of P.U.O., which includes blood films and thick drops for malarial parasites, blood cultures, repeated total and differential white-blood counts, appropriate agglutination reactions when facilities are available, and the other relevant investigations. I wonder how many cases of enteric-group fever, other septicaemias, and typhus-group fever, etc., have been diagnosed as primary atypical pneumonia or just "pneumonia."

I never make a diagnosis of primary atypical pneumonia until the last resort, as I believe that such a diagnosis should not be made until all relevant investigations have been carried out and all other relevant causes have been excluded. In this way errors in diagnosis should be lessened. Too often are certain febrile diseases excluded on the degree of the severity of the signs and symptoms or on the absence of some so-called typical sign or symptom. The converse is also true. This attitude is indicative perhaps of book knowledge and is characteristic of self-confidence in the inexperienced. Not infrequently I have seen physicians on clinical grounds alone exclude, with what appeared to be confidence and to their own satisfaction, such diseases as enteric-group fever, typhus-group fever, leishmaniasis, hepatic amoebiasis, and even plague, while later laboratory evidence revealed the true nature of the diagnosis. Surely it is about time that it was universally appreciated that specialist investigations are not just carried out to confirm a clinical diagnosis. Happily that day is at least passing—although not quickly enough—because so often such specialist investigations are necessary to make the diagnosis. Unfortunately some young physicians go to the opposite extreme



Fig. 1

## CASE HISTORY

**T**HE patient was injured in July 1941, when his ship was bombed and machine gunned. Examination showed the lower lip divided and a loss of soft tissue of chin and of mandible from right molar region to left incisors. On the 29th August, 1941, two tube pedicles were raised on the neck. These were lengthened four weeks later. On the 22nd October, the scars were excised from the face and the two pedicles attached. November 11th, 1941.—The pedicles divided.



Fig. 2

# LOSS OF SOFT TISSUE OF CHIN AND OF MANDIBLE

Gypsona as an adjuvant in reparative surgery

February 24th, 1942.—A bone graft was inserted.  
June 26th, 1942.—An acromio thoracic tube pedicle was raised.  
July 22nd, 1942.—The pedicle lengthened.  
July 31st, 1942.—The pedicle attached one end.  
September 24th, 1942.—The pedicle attached the other end.  
February 19th, 1943.—A further bone graft was inserted with Gypsona P.O.P. headcap and plaster between each pair of pins.  
October 20th, 1943.—Chin dimple made.

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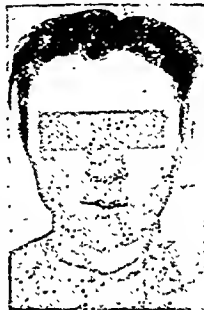


Fig. 3

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By

**ALFRED C. KINSEY**

Professor of Zoology, Indiana University

**WARDELL B. POMEROY and CLYDE E. MARTIN**

Research Associates, Indiana University

Based on Surveys made by Members of the Staff of Indiana University and supported by the National Research Committee for Research on Problems of Sex by means of funds contributed by the Medical Division of the Rockefeller Foundation.

With a preface by ALAN GREGG, M.D., Director, Division of Medical Sciences, Rockefeller Foundation.

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and carry out all sorts of specialist investigations before taking an adequate history or making a thorough clinical examination. No doubt the pendulum will settle. The ability to think of likely and not unlikely causes of an illness and their adequate exclusion is what is wanted and not just the ability to repeat verbatim textbook description of disease—a not uncommon failing.

What is pneumonia and what is primary atypical pneumonia? Surely there are different causes of pneumonia, some of which are known—e.g.: (1) Bacterial pneumonia, which may be due to pneumococci, staphylococci, streptococci, *B. tuberculosis*, *B. typhosus*, and *B. pestis*, etc. These are further differentiated by their sensitivity or otherwise to penicillin and/or sulphathiazole, etc. (2) Virus pneumonia due to known and unknown viruses—e.g., influenza pneumonia, psittacosis, so-called primary atypical pneumonia, etc. (3) Malarial pneumonia, pulmonary amoebiasis, pneumonia due to ascariasis and relapsing fever. (4) Pulmonary manifestations of yeasts and fungi. (5) So-called rheumatic pneumonia. (6) Lipoid pneumonia, and no doubt other causes of pulmonary pathology apt to be diagnosed as pneumonia or pneumonitis.

Each infecting agent may produce a typical or atypical picture, so why label one type of infection believed to be due to a virus as primary atypical pneumonia? Why not call it just a virus pneumonia, or, in the present state of our knowledge, why not just describe it as a case of P.U.O.? In cases so labelled exhaustive investigations are invariably carried out. Accordingly I would suggest that febrile illnesses of indeterminate origin should not be given what appears to be a definite diagnosis as "primary atypical pneumonia" would appear to be, otherwise encouragement would be given to the use of the term in cases of febrile illnesses with abnormal signs in the chest the origin of which is not known, vague, or uncertain. Well do I realize that many physicians to-day regard signs in the chest in a febrile illness of doubtful origin merely as a pulmonary manifestation of a generalized disease process and search assiduously for the cause. For them, as well as for those who leap to a diagnosis of "pneumonia" and to the rapid exhibition of penicillin and/or sulphathiazole, the paper of Caughey and Dudgeon should be invaluable.—I am, etc.,

B.A.O.R.

JOHN MACKAY-DICK.

### BAL and Malnutrition of the Nervous System

SIR.—Dr. W. Russell Brain in his most valuable contribution (Nov. 15, p. 763) referred to Peters's work on BAL. May I state this had also caught my interest. Among those who gave so much help in West Africa one must mention the name of A. Clark. The writer met him on his arrival there and owes much to his guidance. It marked also a friendship which lasted till his death in New Zealand early this year. At that time I had come to the conclusion that the food cause of nutritional reticulobulbar neuritis, with its associated conditions, was due to manioc ("gari").

In the therapeutic field naturally one was wholly dependent on knowledge gained from the biochemist. Neither nicotinic acid nor riboflavin had then been discovered. Clark was a biochemist, and his views greatly impressed me, for he advanced the theory that manioc, like sugar-cane in the West Indies (where H. H. Scott had described an identical syndrome, though of a more fulminating type), contained a cyanic glucoside, and this inhibited sulphur utilization by combining with it to form a thiocyanate and so prevent acute poisoning; but if the intake of protein itself was insufficient, then this condition was precipitated. I must add, however, for a number of reasons affecting one's later inquiries, I do not consider Clark's theory can be directly maintained.

I carried out a number of therapeutic trials with various sulphur derivatives, including intravenous sodium thiosulphate, but I found personally they all failed to influence the condition (see *W. Afr. med. J.*, 1937, 9, 35). But this is not a reason, for it was appreciated one was not really using an assimilable sulphur. Following extensive inquiries in other parts of the world, it had become clear that neither manioc nor sugar-cane could be wholly incriminated, as the syndrome could recur independently of either. Thus the Malayan dietary at Changi (where Landon and Pallister demonstrated this condition in 1935) showed the staple carbohydrate was rice. Again we know now, of course, part of the syndrome at least was due to an arboflavinosis, though how much the neural lesions are due to that is problematical. So far as a food cause could be identified we had not advanced very materially from the old "Deeks theory" of excess carbohydrate-diminished protein intake, though one feels it is reasonable to add it had become possible to show that only certain carbohydrate sources of a specified type appeared more

directly involved—cf. manioc, sugar-cane, and "English" rice. Also there was no doubt of the protective value of certain protein foods.

In the therapeutic field by 1938 (Moore, *J. trop. Med. Hyg.*, 1939, 42, 109) it had also become possible to show autoclaved "marmite" (excluding vitamin B<sub>12</sub>) cured the earlier case of nutritional reticulobulbar neuritis just as formerly it had been shown to respond to ordinary marmite. Nicotinic acid had no appreciable effect. But I have always felt Clark had touched on part of the truth, and it is possible that, under conditions of dietaries already referred to, sulphur metabolism may be disturbed. I am not qualified to express any views as a biochemist, and one's own investigations have always been centred on clinical, therapeutic, and dietary survey of these cases. It seems also to the writer it is more than coincidental that arsenic can bear some comparative clinical relationship with these deficiency syndromes. Therefore it might repay us to test Clark's work further, and this supposition, by the use of BAL, which has been only recently discovered. It might prove of interest also to try BAL on swayback. Clark was extremely familiar with this animal-deficiency disease in New Zealand and referred to it in his arguments. (Here again he maintained the cause was a cyanic glucoside in the white clover, and he viewed cobalt as protective.)

Clark's work is published mainly in the *Trans. roy. Soc. trop. Med. Hyg.*, 1932, 26, 301; *Certain Aspects of Poisoning by Food Plants in Nigeria, 1934-6*; *J. trop. Med. Hyg.*, 1936, 39, 269; and from 1936 onwards in a series of articles in the *J. trop. Med. Hyg.* Admittedly the suggestion for therapeutic trial with BAL is conjectural, but to the writer it does seem worth while to explore in active cases, so far as is possible, every avenue which may present itself, provided we do not risk delay in effective treatment.—I am, etc.,

Cheltenham.

D. FITZGERALD MOORE.

### Battle Neurosis Treated with Leucotomy

SIR.—The article by Drs. William Sargant and C. M. Stewart (Nov. 29, p. 866) raises some interesting and perhaps controversial issues. There is no mention or speculation in the report as to the factors underlying the emotional conflict which manifested itself in neurotic symptoms. This does not, of course, mean that the psychodynamic viewpoint was not considered, but may it not be the absence of any discussion on this basis that tends to cause uneasiness among psychiatrists at reports of the more radical physical treatment of the psychoneuroses? This is not to say that there is no justification of the treatment of any particular case by such methods, as electric convulsion therapy and leucotomy. Indeed, facilities for the treatment of chronic psychoneurosis are nowadays so limited that any method which produces results has to be considered. Nevertheless, as long as psychoneurosis is conceded to be the result of emotional conflict, are we not entitled to know or at least to inquire what are the pertinent factors in such cases?

In the case reported the pre-morbid personality gives indications of obsessional traits and might be designated an obsessional character. That the patient had a high morale is suggested by his leaving a safe civilian job for a highly combative one for which events proved he was ill-suited and which led to increasing tension and finally breakdown. One may speculate as to the subsequent history of this case had the war ended in November, 1944, at which time a slight wound had given him an honourable exit from battle. The real conflict which led to a persistence of his symptoms after that time may well have arisen from the feeling of failure in the high task which he had set himself. Intense guilt feelings may have been aroused from which the personality appears to have struggled wildly to escape by paranoid, hysterical, hypochondriacal, and depressive reactions.

"He always seemed unable to gain insight into his symptoms" might surely have been interpreted that the personality could not tolerate this insight, and in this lay no doubt the lack of success with abreactive and exploratory methods and the amelioration of the condition by sedation. Whether a more gradual and long-term psychotherapeutic approach such as psycho-analysis would have produced a better result is a matter for speculation. This might at least have succeeded in modifying the superego and enabled the personality of the whole to suffer less from feelings of guilt.

Might one not speculate as to whether prefrontal leucotomy does much the same thing as this but at some cost, not properly known at the present time, to the personality as a whole?

These, Sir, are briefly the findings in this case, and I consider it rare and interesting for the following reasons. (1) The heart condition seems to have been a toxic myocarditis causing ectopic ventricular beats. (2) The toxæmia was mild, causing no temperature or tachycardia. (3) In my library I cannot find any cardiograms like the tracings found in this case. (4) The clinically alarming condition of her heart and the rapidity with which it cleared up.—I am, etc.,

Roscommon, Eire.

JOHN J. WALLS.

### Obstetric Emergency Service.

SIR,—Mr. Frank Stabler's excellent paper on the Newcastle-upon-Tyne obstetric emergency service (Nov. 29, p. 878) gives me an opportunity to make a point of which I became convinced as an obstetric H.S. and the value of which I have since had a chance to confirm in general practice. This is, that the general practitioner's obstetric bag should include either saline or plasma and a giving set. If he is to be called by the midwife in emergency he should at least bring these simple requirements; in this way he may very well save some of those cases which the "flying squad" admittedly cannot reach in time. He can put up a drip before undertaking manual removal of the placenta—a precaution which I find gives considerably increased confidence. Should the flying squad be called they arrive to find the transfusion arrangements ready set up and can the more quickly continue with any obstetric manipulations that may be necessary.

I would suggest that the regional transfusion officers might organize the supply and turnover of saline and standard giving sets to practitioners. After all, since the war there must be very few practitioners under the age of 50 unfamiliar with simple transfusion apparatus. The supply of plasma might, however, be impracticable. Such apparatus will also come in useful in pit accidents, and its availability on the spot has saved the life of one of my fellow practitioner's patients in this area.—I am, etc.,

Morpett, Northumberland.

R. P. ROBERTSON.

SIR,—If penicillin resistance is to raise its hydra head, manual removal of placenta may well regain pride of place as the most dangerous operation in midwifery. One pictures the modern scene. By the time Mr. F. Stabler has scrubbed up and donned a pair of dry sterile gloves (another pair, of the right size, lying ready in case he tears the first), sister has "woaded" the patient from navel to knees, a sterile towel is on the abdomen, another occludes the rectum, the vagina has been swabbed with flavine, and another expert has anaesthetized the patient. It is probable that in these circumstances running in and out of the uterus as advised may not end in disaster.

But what of the occasional obstetrician in the back of beyond who knows that Mr. Stabler cannot reach him and the blanched woman under two hours? Hastily scrubbing up, he pours pure "dettol" on his hands and "washes" till tacky, anxiously eyeing the while inexpert chloroform dripping at one end and red blood at the other. Introducing a hand he separates the placenta all round and delivers it—*horribile dictu*—by pulling on the cord, and then feels round for debris. Obviously the uterus cannot invert with the hand in the fundus; the membranes are not more likely to be torn than by fingers scratching about inside; and only one introduction is required. One would of course not dare to say this had one not heard it advocated by a most distinguished London gynaecologist.—I am, etc.,

London, E.4.

FREDERIC SANDERS.

### "Unjustified" Use of d-Tubocurarine Chloride

SIR,—I hesitate, as an obstetrician, to enter into this correspondence between two such experts, but as I understand it the uses of curare in this respect are that (a) it greatly diminishes the tendency to spasm, making intubation, if necessary, easier; (b) it enables the entire anaesthetic to be conducted on an exceptionally light plane so that the infant, not being "anaesthetized," cries almost as soon as the head is born and the patient almost before leaving the theatre is becoming conscious; (c) it "potentiates" the action of the barbiturate, thereby lessening the required dose. These reasons Dr. T. Cecil Gray has already expounded. Dr. A. H. Galley (Nov. 22, p. 840) has

scarcely viewed the matter from the standpoint of the obstetrician when he states that "the only possible reason for administering curare preparations to caesarean sections must be for its effect in relaxing the tone of the abdominal musculature." In point of fact, while a fair degree of relaxation is obviously desirable in the initial stages of the operation, it is clearly not asked for with the same urgency as in general surgical procedures in the upper abdomen.

In so far as uterine tone is said to be enhanced by this type of anaesthesia, the problems in pure physics inherent in the contracting uterus simplex at the onset of labour are sufficiently complex as surely to make it unlikely that one may justifiably cite a simple relationship between "kemithal"—cyclopropane anaesthesia and the "eyeful of liquor" which incommoded the present P.R.C.O.G. The incident was disturbing but did not necessarily prove very much, and with optimum conditions such an incident could, I imagine, be repeated quite easily under local anaesthesia. The essential point which I would make is that as an obstetrician one bears a heavy responsibility, not for one life but for two. The mother is frequently ill prepared for a major surgical procedure in comparison with what her state of preparedness would have been for most procedures in general surgery, and the influence particularly of the older types of inhalation anaesthesia on the foetus is too well known to need emphasis. The technique that my colleague Dr. Gray described so well in the *Journal* of April 5 (p. 444), and with which I have now had a fair experience in collaboration with him and other expert anaesthetists, seems to me to offer the obstetrician a few more significant advantages than a little added relaxation of the abdominal musculature, which in any case can often be done without in the initial phase of the operation.—I am, etc.,

Liverpool.

H. VINCENT CORBETT.

### Diabetes Insipidus and Hyperostosis Frontalis

SIR,—I have read with great interest Prof. G. Marañón's article about diabetes insipidus and uterine atony (Nov. 15, p. 769), but I am surprised that he does not discuss the possible significance of the slight frontal hyperostosis disclosed by the radiograph. Could that hyperostosis not be the "non-malignant non-progressive lesion of small size" for which he looks? It is known that patients with hyperostosis frontalis interna have frequently cerebral symptoms and signs and particularly those pointing to the hypothalamic-pituitary region.—I am, etc.,

Harrow Weald, Middlesex.

A. LETCHFIRE.

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### Oxytocic Action of Ascorbic Acid

SIR,—Prof. Chassat Moir emphasized<sup>1,2</sup> the proper use of pituitary extract and ergometrine during and after labour. Dale's<sup>3</sup> discovery and Hofbauer's<sup>4</sup> practical application of the remarkable physiological action of posterior-pituitary extract on the gravid uterus, and Dudley and Moir's<sup>5</sup> isolation of ergometrine, are corner-stones in the advance of conservative midwifery.

The dangers of employing pituitary extract for induction and acceleration of labour have been stressed repeatedly. Chassat Moir's golden rules for the use of standardized pituitary preparations should be strictly observed by all who practise midwifery. With considerable interest I have therefore collected experience about the use of ascorbic acid as an oxytocic agent in labour, having had in mind the disadvantages of pituitary-extract preparations in the first and second stage of labour. My observations, which are based on several hundred deliveries, confirm the views of Kappeli,<sup>6</sup> of the gynaecological university clinic in Berne, that ascorbic acid has a distinct influence on uterine contractility.

I found that the time of employment is chiefly the dilatation period. Contractions must be established. It has, therefore, no effect on an inactive uterus. For induction of labour I found it unsuccessful. Ascorbic acid is used in the first stage, cervix 2-3 fingers wide, when uterine contractions are less than one in three minutes and weak. It is administered preferably by mouth, 100 mg. of ascorbic acid for three doses at half-hourly intervals. If there is no effect the drug can be given in three 6-hourly courses within 24 hours. A 1-min. (0.06-ml.) dose of

"pitocin" can be given after the third dose of ascorbic acid if desirable, often with a very notable oxytocic effect. Higher doses of ascorbic acid are useless. Intravenous use may lead to tonic contractions. Intramuscular administration is of no advantage.

Ascorbic acid proved especially useful in patients with uterine inertia, in which posterior-pituitary extracts were contraindicated. There were no ill effects in mother or baby. In malpresentation, trial labour, antepartum haemorrhage, and foetal distress, where the use of other oxytocics needs greatest supervision and caution in dosage, ascorbic acid is safe and deserves a trial before any other oxytocic agent. Toxaemias of pregnancy are a great field for the use of ascorbic acid as an oxytocic.

It is worth noting that, with the above qualifications, ascorbic acid seems to me an active oxytocic drug which is preferable to posterior-pituitary extract, especially for patients with hypotonia in the dilatation period. The object of this communication is to call for further experimental and practical investigations of a relatively simple and safe chemical substance which appears to regulate and stimulate contractions on the already active gravid uterus.—I am, etc.,

London, W.1.

W. SPITZER.

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### Dwarfism, Hormones, and Dieting

SIR.—Dwarfism associated with hypogonadism may be of endocrine origin and may respond to gonadotrophic hormone, testosterone, or anterior-pituitary growth hormone. Preparations of the latter at present available are, on the whole, disappointing, although in October I showed a patient of 15 years of age with infantilism at the Royal Society of Medicine (Endocrine Section) who had grown 3 in. (7.6 cm.) in a few weeks on large doses of growth hormone at a total cost of £60, or £240, the available preparations being of American origin. The local reactions to these large doses—e.g., 5 ml. b.d.—were severe and painful.

In October, 1946, at one of my hospital out-patient clinics I saw a boy of 15, height 4 ft. 6½ in. (138.4 cm.) with hypogonadism, whom I proceeded to treat with thyroid and pituitary growth hormone (by injection) until April, 1947, at the end of which period of six months he had grown 5/8 in. (1.6 cm.). I then lost sight of him for five months, and when he reappeared in September of this year he had grown a further 2½ in. (6.3 cm.) in a period of five months. I assumed at first that he had carried on with the treatment, but I was informed by his mother that he had had no treatment whatsoever but had gone to some relatives on a farm in Ireland and had enjoyed open air and some very good food. In the few months he has been home he has ceased to grow. It is difficult to believe that the growth was unrelated to the period of five months in Ireland.

I am reminded of the work of my old professor, the late Sir Frederick Gowland Hopkins, on the importance of animal proteins and some of the amino-acids essential for growth—e.g., tryptophan and lysine. I am also reminded of the experiments of Corry Mann many years ago (1926), who showed that if the population of a large poor-school were divided into two sections and one half received an extra pint (568 ml.) of milk daily the children in that section grew 1 in. (2.54 cm.) per annum more than those of the control section.—I am, etc.,

London, W.1.

S. L. SIMPSON.

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### Remuneration of Specialists

SIR.—A factor which should be considered in regard to the remuneration of a specialist is length of the necessary apprenticeship, though responsibility and annual turnover of patients may also be relevant. It is not reasonable for the man who has worked for a year or two at a special subject and obtained a diploma to expect the same returns as the man who has worked for a higher qualification and is prepared to spend possibly ten years earning little and acquiring the experience to establish himself.—I am, etc.,

London, W.1.

GEOFFREY HALLETT.

### Space for X-ray Departments

SIR.—The carefully thought-out plan for a hospital unit which accompanies the article by Mr. H. J. McCurich on "A Suggested Hospital Unit" (Nov. 22, p. 832) has reminded me once more of the oblivion into which the Recommendations of the British X-Ray and Radium Protection Committee have fallen. This otherwise admirable scheme allows approximately 14 ft. by 11 ft. (4.3 m. by 3.4 m.) for the x-ray room and 5 ft. by 5 ft. (1.5 m. by 1.5 m.) for the dark room and a similar size of store room. The Recommendations referred to above stipulate a minimum floor area of 250 square ft. (23.4 sq. m.) for x-ray rooms and 100 square ft. (9.2 sq. m.) for dark rooms. It is astonishing that only 154 and 25 square ft. (14.2 and 6.7 sq. m.) respectively should have been allowed.

The author expressly states that the plan does not claim to be perfect in detail and mentions the desirability of having the plaster room and x-ray room adjoining. But what interests me is that a plan should be prepared which so flagrantly violates recommendations that are supposed to be accepted by the responsible medical bodies of this country.

Recently another firm of hospital architects raised no objection to a proposal to put an x-ray department in a basement until I drew their attention to the existence of the Recommendations. It was then found that the proposal originated with the architects of the Ministry of Health. On pointing out that one of the Recommendations was that x-ray departments including dark rooms should not be situated below ground level, the proposal was dropped, but my attention was drawn to the fact that many other hospitals have x-ray departments in basements.

Among numerous others the Westminster Hospital, one of the most recently planned and built of large teaching hospitals, has its x-ray department below ground level, I am informed. If this is so, it merely emphasizes the extent to which the Recommendations have been forgotten. They are expressly stated to be minimum requirements and not optimum objectives, and I feel that they should be resurrected and enforced in the way that building by-laws are.—I am, etc.,

Richmond, Surrey.

DOUGLAS GORDON.

### Blepharospasm

SIR.—Among the various tics which we are called upon to treat probably none is more frequent or intractable than the twitching eyelid. Some time ago I was consulted by a patient who was greatly distressed by this condition, which had persisted for nearly a month. He had only decided to get medical advice when on the previous day the ear on the affected side began to ache. When I examined the ear it was full of hard wax, the removal of which was followed by an almost immediate and dramatic cessation of the tic, which has not recurred. Since then I have treated another patient for the same trouble in similar fashion, with almost immediate relief of the condition. In this case, however, there was no accompanying earache, deafness, or tinnitus to guide one.

I am writing this because in such literature as I have by me on the subject the causes of tics are variously listed as errors of refraction, conjunctivitis, carious or unerupted teeth, phimosis, worms, adenoids, and constipation. I find no mention of cerumen auris as an exciting cause, a condition which one may easily fail to consider.—I am, etc.,

West Malvern, Worcs.

W. G. SHAKESPEARE.

### Health Centres

SIR.—I read with great interest Dr. S. F. Logan Dahne's letter (Nov. 8, p. 744) on the subject of health centres. It seems to me that such a development does give promise of an improvement in the medical services of this country, and it fits in admirably with an idea I have had in mind for some time as to the organization of the hospital service.

For this purpose I should like to see the country divided into areas, each with its base hospital staffed by whole-time consultants and specialists. These would preferably not be on a whole-time salaried basis. The base hospital would be surrounded by satellite (local) hospitals, staffed by such of the local G.P.s as had the desire, ability, and experience to take

up a part-time specialty. A close liaison is a simple matter between the G.P. and the part-time specialist, who both live in the same neighbourhood, and there should also be regular visits by the "part-timer" to the base hospital. These visits would enable him to keep in touch with the appropriate consultant and also to follow up cases which he and/or the G.P. had passed on there. I venture to think that the doctor who sends a case into hospital would then learn much more from doing so than he does at present, when all he gets is apt to be a curt note to say that his patient had a swollen head, has been decapitated, and please send him to out-patients in four weeks.

Part-time specialism does not seem to be in favour in high circles, but I believe it is the best, if not the only, way of maintaining and improving the knowledge, skill, and clinical sense of a large part of the profession, and it should be remembered that however skilled the specialist service may be the patient will not derive full benefit from it unless the G.P. is sufficiently knowledgeable to ensure that he reaches the right specialist at the right moment.

Such a scheme would be far more difficult to initiate than the mere "administrative snuffer" which the present Act inflicts upon us all, but taken in conjunction with Dr. Dahne's proposals it appears to me to offer a much greater prospect of improving the knowledge and skill of the individual doctor, without which surely no improvement in the Health Service of the nation is possible.—I am, etc.,

London, N.W.8.

J. H. RANDALE.

### Contact Lenses

SIR,—Mr. A. G. Cross (Nov. 22, p. 843) has stated in effect that only 64% of patients wearing contact lenses do so without discomfort. We think that this must refer to pre-fenestration days. Since the adoption of this technique the percentage has risen considerably, and one of us, who could wear closed contact lenses for only an hour or so, can wear a perforated pair for ten hours or longer. This, we believe, is the usual experience. The rationale of fenestration was explained by Dr. J. Dallos in the *British Journal of Ophthalmology*, 1946, 30, 607.—We are, etc.,

London, W.1.

F. A. WILLIAMSON-NOBLE.  
A. RUGG-GUNN.

### POINTS FROM LETTERS

#### Unclean Hairdressers

AURELIA writes: Can nothing be done about the low standard of cleanliness in our post-war hairdressing establishments? I do not know what is done in the barbers' shops, but every time I have my hair done I am shocked at the lack of the most elementary sanitary precautions. The fact that I take my own comb is regarded with disfavour by the assistant, but if I do not do so a seemingly unclean comb emerges from her pocket, the pre-war jars of disinfectant being no longer used. When the hair is dried, a dirty-looking net is taken from a grimy box full of nets, clips, pins, etc., and a much-used wad of cotton-wool is placed over one's ears. I shudder to think of the diseases that can, and probably are, conveyed in this way. It is almost as alarming as the elementary way in which cups and saucers and so forth are washed up in restaurants and trains.

#### Geriatric Department

Mr. L. Z. COSIN (Orsett Lodge Hospital, Essex) writes: The synopsis of my article on "Modern Methods in the Care of the Aged" (*Journal*, Nov. 29, p. 870) failed to mention the other specialists required in a geriatric department. I append a complete list: (1) Physician experienced in the treatment and diagnosis of aged patients; (2) psychiatrist; (3) physician experienced in physical medicine; (4) orthopaedic surgeon; (5) genito-urinary surgeon; (6) general surgical service.

#### Snoring

Dr. OSMOND H. BROWN (Guildford, Surrey) writes: As to the horse and cow I am not qualified to speak, but as a close associate of cats for over fifty years I can state as a fact that cats can and frequently do both breathe through the mouth and snore. Other animals in which I have personally observed snoring are dogs, dormice, hedgehogs, parrots, owls, and canaries.

## Obituary

SIR JOHN FRASER, Bt.

K.C.V.O., M.C., M.D., Ch.M., F.R.C.S.Ed.

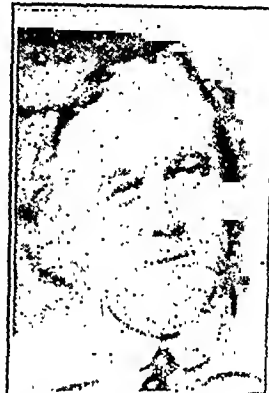
Sir John Fraser, Principal and Vice-Chancellor of Edinburgh University, was one of Edinburgh's most distinguished graduates and inspiring leaders. He died suddenly on Dec. 1 when leaving a meeting which he had been attending at the Old College, having recently resumed his work after a serious and protracted illness.

John Fraser was born at Tain, Ross-shire, in 1885. He graduated M.B., Ch.B. with honours at Edinburgh in 1907, took the degree of Ch.M. with honours in 1910, and was awarded a gold medal for his M.D. thesis in 1912. He studied in Paris and Freiburg, and under Harold Stiles engaged in research on tuberculosis, particularly tuberculosis of bovine origin. His book, *Tuberculosis of the Bones and Joints in Children*, was published in 1914. During the 1914-18 war he served as a captain in the R.A.M.C., was wounded, and was awarded the M.C. and mentioned in dispatches. On his return to Edinburgh in 1918 he became an extra-mural teacher in surgery, and was appointed surgeon to the Royal Hospital for Sick Children and assistant surgeon to the Edinburgh Royal Infirmary. His *Surgery of Childhood* appeared in 1926. His outstanding qualities as a teacher and surgeon were acknowledged when in 1925 he was appointed to succeed Sir Harold Stiles in the régus chair of clinical surgery at Edinburgh University, a post which he held with distinction until 1944, when he was appointed Principal and Vice-Chancellor of the University. In this capacity, in spite of serious ill health, he took a leading part in plans for integrating the development and extension of the University, and a keen interest in all aspects of university life.

Among his many public appointments he was honorary surgeon in Scotland to His Majesty the King, civilian consultant in surgery to the Royal Navy in Scotland, and consultant adviser to the Secretary of State for Scotland on the organization of hospitals in wartime. In 1937 he was honoured with a knighthood, and he was made a baronet in 1943. At the annual meeting of the British Medical Association in Edinburgh in 1927 he was president of the Section of Diseases of Children, and he was vice-president of the same Section at the centenary meeting in London in 1932.

John Fraser was a born teacher, a lucid speaker, a prolific writer, and a master of the art of demonstration. His clinics were popular not only with students but also with graduates from many schools. His surgical skill was widely appreciated, and in addition to his hospital work he had a large private surgical practice, which included many doctors and their families. His operative speed and accuracy of technique were exceptional. He was always unruffled and unhurried and inspired great confidence in his patients and devotion in his staff. Besides being a Fellow of the Royal College of Surgeons of Edinburgh since 1910, he was an honorary Fellow of the American College of Surgeons and also of the Royal Australasian College of Surgeons. As a man, he was sparing of himself in his work for others, and all those who were privileged to meet him will remember his unfailing courtesy and kindness and his quiet charm of manner. He is survived by Lady Fraser and a son and daughter.

J.B. writes: By the sudden death of Sir John Fraser his alma mater has lost a wise guide and a sage counsellor at a time when wisdom and vision are more than ever necessary in university affairs, and the rich promise of a memorable principalship must remain unfulfilled. There have been many





arm and eloquent testimonies to the brilliance of his many achievements and to his unique technical and intellectual gifts. There there is no greatness of character, however, there can be a great man; and Sir John possessed in rich measure the qualities of true eminence—a deep spiritual strength, the more so because so devoid of display, and a broad and sensitive humanity. To the young men he gathered round him in the heyday of his distinguished surgical career he was a supreme teacher and an inspiring example. From his lips fell no harsh criticisms or judgments of his contemporaries, for indeed he spoke ill of none. He was devoid of malice, of jealousy, and of envy; all the remarkable energy, the unsurpassed skill, and the exquisite gentleness he possessed he gave freely and fully to his craft. From his mere presence all his patients derived strength and confidence.

As a clinical instructor, even in a university which has never aimed to attract eminent teachers of the highest intellectual rank, he occupied a unique position. His classes and his operating sessions were alike crowded, and he was never too busy or too tired to explain and to demonstrate. For young men he set the best of all examples—that of a great surgical craftsman, superb in his gentleness and dexterity, wide in his knowledge and wise in his judgment. In his theatre there were no harsh words, no frivolous remarks; and his influence on surgical practice in many parts of the world, through the medium of the many thousands who flocked to his clinics, is incalculable. If, as Disraeli said, a great man is one who affects the mind of his generation, then Sir John Fraser was indeed pre-eminent. Something of his inspiration and his outlook, his humanity and his kindness, has been woven into the fabric of many lives. In such a manner the goodness that men do can live after them. If in a cosmopolitan university the great surgical teachers, like Sir John, are clothed in the dignity and heritage of their high calling and serve well its moral and its physical disciplines, they light a beacon which throws its light across the world. Yet his Celtic temperament and his natural humbleness combined to make him a shy, gentle, and retiring man; but to those who chose to breach the barrier of his reserve he offered a rich reward of loyalty and friendship. We who were privileged to work for him would often have liked to show our love for him more than we dared to do; but I think he comprehended more than we thought and his letters often revealed a depth of affection which he could seldom bring himself to show in any other way.

In his home life he was singularly blessed. His wife and he were deeply devoted to each other, and Lady Fraser, to whom our sympathy goes out at this time, played a notable part in a notable career. Those who saw something of them during his recent illnesses were privileged to witness an affectionate understanding which they will not soon forget. This is a personal tribute. Many, like the writer, will to-day mourn the grievous loss of a dear friend, a great surgeon, a good man. The life of Scotland has been nobly enriched by his presence amongst us and saddened by his death.

J. M. G. writes: Sir John Fraser's career was a record of achievement in everything he undertook. He will be remembered as a great surgeon and teacher and for his qualities of character, which endeared him to everyone with whom he came in contact. For nineteen years he upheld and enhanced the reputation of the regius chair of clinical surgery in Edinburgh. When he succeeded Sir Harold Stiles he was truly in the line of the great tradition, for he was the last house-surgeon of Annandale, who had been the colleague and successor of Lister and assistant to Syme. Even as a young house-surgeon Fraser made an impression on his seniors and on all with whom he worked. The late Mr. Dowden foretold a brilliant future for him from the time of their early association in Mr. Annandale's wards. His reputation was finally established when he read his first paper in Edinburgh, at a meeting of the Medico-Chirurgical Society, on tuberculosis of the bones and joints. The suggestion of the president, Sir Montagu Cotterill, that Fraser should be asked to read a further paper on the subject at the next meeting was received with acclamation by all who were present.

With his high sense of duty, which was one of his outstanding qualities, Sir John never spared himself. Few men in our time can have worked harder than he did, or applied themselves

more consistently to whatever task came to hand. With his special knowledge of the diseases of children as a foundation, he became, in the best sense of the term, one of the great general surgeons, highly competent in almost every branch of surgery. His operative technique was simple and straightforward, and was combined with a manual dexterity and a sureness and gentleness of touch which could scarcely be excelled. However busy he was, he always seemed to find time to read widely, not only in his own subject but in general literature. The knowledge and culture which he so readily acquired were always at his command, and were invariably apparent in his teaching and in his writings. Throughout his career Fraser's teaching was outstanding in its appeal to the students and for many years also to an increasing number of graduates.

Sir John received many distinctions and honours, but to the last he remained the same, the most unassuming and approachable of men, deprecating his own accomplishments and generous in acknowledging the efforts of others. In his personal contacts he had a charm peculiarly his own, and it is not surprising that he gained without exception the affection as well as the respect of his colleagues. Throughout his active career the calls on his time and energy seemed to be without limit or end. His advice was constantly sought by colleagues and practitioners on behalf of their patients, for they knew that everything that could be done would be done by him, and the patients themselves intuitively felt the utmost confidence when they were under his care. He served on and presided over innumerable committees, and delivered addresses to medical societies on many occasions in this country and abroad.

The honour of being appointed Principal and Vice-Chancellor of the University of Edinburgh in 1944 was accepted by him with a full sense of the responsibility involved. The burden of this office came at a time when he was tired with the strain of the war years, but without hesitation he entered on his new duties with the same energy and devotion which he had shown throughout his surgical career. A few months after his appointment he suffered an illness during which for a few days he was critically ill. It is at such a time that a man's true nature is revealed. Under the most trying circumstances he never complained, but showed a constant courage and gratitude for the efforts made to help him. It was characteristic of him that in these critical days his thoughts were always for others and never for himself. Shortly before his sudden death Sir John attended a meeting of the Council of the Royal College of Surgeons of Edinburgh. His colleagues rejoiced to see him, apparently stronger and fitter than he had been. He took an active part in the business of the meeting, but a few minutes after they had parted he passed away in the precincts of the university to which he had dedicated the completion of his life's work.

#### W. ROWLEY BRISTOW, F.R.C.S.

Major-General D. C. Monro writes: News of the death of Walter Rowley Bristow has just reached us here in the Middle East. He will be sadly missed in various circles, social, sporting, and professional, in all of which he had numerous friends and admirers and many grateful patients. Although I had met Walter Bristow before his Army appointment and have good reason to remember his hospitality, kindness, and encouragement on those occasions, it was not until he became a member of the War Office Consultants panel, and of the surgical sub-committee of which I was chairman, that I got to know him intimately and had an opportunity to appreciate his sterling qualities. Besides being one of the senior orthopaedic surgeons in Britain, he had an international reputation. I remember well an occasion in 1939 when a deputation consisting of senior orthopaedic surgeons, which included Bristow, McMurray, and Platt, practically demanded to see our D.G., then Lieut.-Gen. Sir William MacArthur. The deputation insisted that the role of orthopaedic surgery in the war surgical organization should receive fuller recognition, and warned us that it would be folly to forget the mistakes and lessons—all of which had received somewhat belated recognition—of the 1914-18 war. They pleaded that the teaching of the late Sir Robert Jones, whose breadth of view and forceful character had been such an influence for good at that time, should not go unheeded. This warning was timely, and that this advice was valuable is evident when the results in the two wars are com-

pared. The attainment of such results was mainly due to the work of the surgeons who treated the fractures, but Bristow, by his amazing energy, his zeal, his personality, and his amicable relations and close association with the leaders in orthopaedics not only in Britain but with the Dominion and the Allied Forces, and by his fatherly interest in the work of all his juniors, played a very considerable part in it all.

Not unnaturally, Bristow and I often toured and inspected together. I learnt much from him during our joint ward inspections. The tedium and strain of many a tour by land or air was relieved by his high spirits, his optimism, and his genial companionship. Between visits to centres, when we could relax for a while, I was never short of an opponent or partner for almost any sort of game. Bristow was a keen fisherman, a good shot, and an all-round sportsman. If the game we played had an element of chance in it, so much the better; and how often his good-natured and witty propaganda chat would turn the scales in his favour. Too often, whether he lost or won, he would insist on paying the forfeit himself, and what a wonderful host he was. If he could not be at home with his wife and family of whom he was so justly proud, or fishing or shooting, Bristow was happiest either at work or pitting his prowess and cunning against an opponent in some form of game.

This was the surgical colleague or teacher we all came to respect and admire. Those who could proudly regard him as a friend, and they were many, loved to call him "Rowley." Among his friends and admirers can be numbered many from the lower walks of life, especially in his own London—grand types of the old retainer class, club porters, head waiters, and even taxi-drivers and "Bobbies." These loved "Mr. Bristow" too, either because of some unobtrusive kindness or help, or because they admired his philosophy of life, his zest for living it, or were naturally attracted by his cheery personality. Because our friend "Rowley" has gone and we miss him, I and my friends of the surgical service in the Army want to pay a humble tribute to his memory. To his family, who are most entitled to our sympathy, we commend his philosophy of life.

Prof. K. H. BOUMAN, of Amsterdam, died at his home on Nov. 8. He had been until recently professor of psychiatry and neurology at Amsterdam University for many years.

Dr. Henry Robinson writes: All those who went with the British Medical Association tour to the Annual Meeting at Melbourne in 1935 will hear with deep regret of the death of Prof. K. H. Bouman. In the previous winter the professor and his wife went for a brief holiday tour to the Canary Islands; through meeting there a member of the Association they formed an ambition to make the world tour with the B.M.A. in the following summer. It was learned that this was feasible if he were elected an honorary member of the Association, about which, in view of his very distinguished academic record, there was no difficulty at all. Accordingly Dr. and Mrs. Bouman joined the party, and in a short space of time became two of its most popular members. Both of them spoke English admirably—practically without any foreign accent in Mrs. Bouman's case. On the return journey they broke the voyage home by remaining for a time in the Dutch East Indies; to visit mental institutions there had been the justification for the leave of absence granted to him by Amsterdam University.

Prof. Bouman was 73 at the time of his death: the name means "farmer," and is etymologically similar to the term "Boer" as used in South Africa. In normal circumstances he would have retired on pension some years ago, but the exigencies of war prevented this, and he carried on steadfastly, though many times threatened with death by the Nazis for refusing to carry out their orders. When, at the end of hostilities, relief should have been in sight it was further postponed because the deputy who had been trained up to succeed him was sent to prison for life on a charge of collaboration. Two years ago, after the liberation, Bouman visited London and delivered an address to the Medico-Psychological Society on the hardships and diseases produced among the population of Holland by the Germans, whose aggression and disregard of human rights he had foreseen long before the war broke out. This account of his privations and those of his compatriots produced a lasting effect upon his hearers, all the more so by reason of the grave composure, dignity, and emphasis, without any ostensible expression of rancour, with which it was delivered. To his widow, Mevrouw Wilhelmina Bouman-Slingenberg, the deep sympathy of her many English friends will surely be extended. There were no children of their marriage.

## Medical Notes in Parliament

### Criminal Justice Bill

Mr. CHUTER EDE on Nov. 27 moved the Second Reading of the Criminal Justice Bill, which was the subject of a leading article in our issue of Nov. 22 (p. 826). Mr. Ede said that the Bill abolished penal servitude and hard labour and also the division of prisoners into first, second, and third divisions. The abolition of penal servitude involved the abolition of the ticket-of-leave system. The Bill proposed to abolish whipping as a punishment to be ordered by the courts. Crimes of violence had increased markedly since 1938 and the Government could not regard the time as opportune for the inclusion in the Bill of a provision for the suspension or abolition of the death penalty. The Government would put their case before the House, but no attempt would be made to coerce the conscience of any member.

Mr. ALLEN noted that there was nothing in the Bill to provide for payment for inquiry by an expert into the mental condition of a child or adult. Viscountess DAVIDSON also remarked that the Bill did not make mention of educational psychologists.

Mr. GAGE asked that allegedly insane people should be given legal aid in the lower court. Dr. MORGAN did not agree. He said that if prisoners were insane or mentally defective what was required was a report by a psychiatrist. Mr. GALLACHER condemned the silent cell and said he had heard prisoners battering against the door night after night. There was no more exquisite torture.

When the debate was resumed on Nov. 28 Mrs. CORBET said that in one prison sick persons were obliged, however ill they were, to get up at 5 a.m. to consult the doctor. Mr. JENNER said the McNaghten rules were laid down some hundred years ago, and the judges found themselves to-day bound to observe rules which in the opinion of most people concerned were antiquated. The hanging of persons subject to attacks of epilepsy could be altered by having a proper record of an accused man's past. To-day in the prisons the man might be put under observation by a medical officer who had no knowledge of investigating mental deficiency.

Replying for the Government Mr. YOUNGER said that where it was practicable an inquiry into the physical and mental condition of an offender would take place in any institution and not necessarily in a remand centre. Medical personnel would be provided under the National Health Service, but how far it would be possible to provide enough skilled medical officers, psychiatrists, and psychologists no one in the House could say. Mr. EDE promised to see whether an extra half-day could be given for debating the Bill during the Report Stage, and the measure was read a second time without a division.

### Purchase Tax on Drugs

When the Autumn Finance Bill was taken in Committee on Dec. 2 Mr. SELWYN LLOYD moved to exclude from the increase in purchase tax drugs and medicines, manufactured or prepared. This point was discussed in an annotation in our issue of Nov. 22 (p. 829).

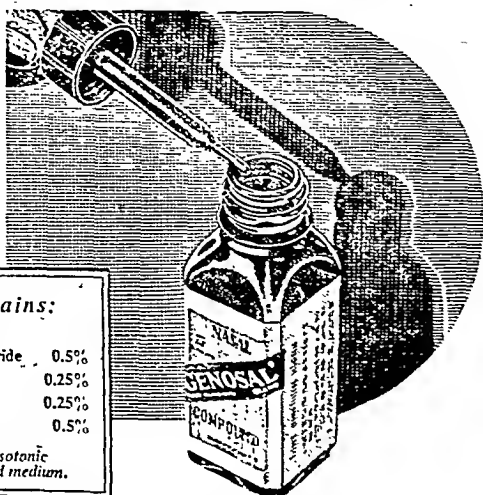
Mr. Lloyd said that at the moment drugs and medicines were subject to a tax of one-sixth of the wholesale value of the goods, which was now to become one-third. The matter had been dealt with on the last Finance Act. When Mr. Stanley spoke on that occasion he got a promise from the Financial Secretary to the Treasury that during the twelve months after June 17, 1947, the date of that debate, he would look into the matter of drugs and medicines and examine the illogicalities which he admitted to exist. The present was a convenient moment to make a progress report on how far the Financial Secretary had gone. Mr. Selwyn Lloyd went on to say that he had attempted to find out which drugs and medicines were subject to purchase tax. Iodine—a simple medicine very commonly used—was subject to tax. He was surprised that a Government so prone to make cuts should be keen on doubling the tax on a simple antiseptic.

Sir HENRY MORRIS-JONES said some drugs subject to the double tax were a great help in combating sleeplessness. Mr. ERROLL said many of the old and infirm needed medicines and drugs from time to time and the extra purchase tax represented a serious addition to their weekly budget. He reminded the House that the Purchase Tax (Exemption) Order, 1945, exempted penicillin, the sulphonamides, vaccines, and morphine. Parliament taxed the curing of toxic goitre but left free the curing of pneumonia. Matters should be arranged so that all important diseases could be cured without the tax.

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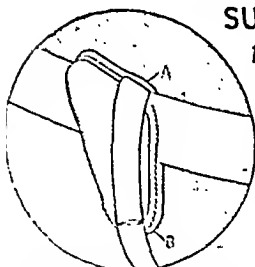
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ate of purchase tax being imposed on the necessary drugs and medicines. The dispensing practitioner who made up medicines or the use of his patients received a certain fixed rate for such medicines; he must bear entirely the cost of the ingredients or these medicines.

Mr. LINSTEAD asked the Chancellor to have a look at the whole operation of the purchase tax as it affected medicine. When the subject was first discussed in the House Mr. Dalton indicated that he could not afford the loss of revenue which the omission of the tax would entail. There was machinery or exempting costly and essential drugs from the tax, but that machinery had been used in a very restrained way. If the Chancellor imposed additional taxation on patent medicines there might be a good deal of sympathy with him. If he desired to do that this was the opportunity for the whole question of the taxation of medicine to be examined.

Sir STAFFORD CRIPPS said there was a long list of exempted drugs which had been dealt with in 1945. The extension of that list to get it on a sounder and better basis had for some time been discussed with the Ministry of Health. He admitted that the present basis did not seem to be wholly logical. This was a matter which between now and next April should be re-examined to exclude those drugs of real importance. By the definition of the Finance Act, 1940, medicines that were made up by a chemist did not attract the tax as a manufactured article, though some drugs in the medicine might be taxed. The incidence was not very heavy, and at present the tax affected what used to be known as patent medicines. Much the majority of the receipts from this tax were really in substitution for the old Medicine Stamp Duty.

Sir Stafford could not believe that the taking of patent medicines without the advice of a doctor was a good way of dealing with the health of any population. It was not always known whether these medicines would accomplish the ends which they were advertised to accomplish, or indeed any ends at all. The Committee could take it that when the list came to be properly considered the bulk of the increase in taxation would fall on goods which used to be subject to stamp duty. Before April he would look into the matter to see whether there could not be more logical and better arrangements about exemptions. They would be much assisted in this matter because the new Health Service Act would be coming into operation. The Ministry of Health would be large users in hospitals and in connexion with other matters.

Mr. PITMAN said that if the Chancellor was going to look at this list he could act quite apart from Budget day and change the list at any minute. If he could not do that now let him look at the grants to doctors under the Health Acts, because grants for the doctors were low enough as it was.

Mr. LINSTEAD said medicines which were prescribed by doctors would in fact attract the tax in so far as they were proprietary medicines. If they set aside medicines prescribed under the National Health Insurance Act, 50% of those prescribed to-day were proprietary medicines which would attract the full 33½% tax. The old stamp duty did not apply to medicines which were sent to the chemist to be sent out with a medical prescription. Therefore they would have a heavy tax on medicines which previously had not borne any tax at all.

The amendment moved by Mr. Selwyn Lloyd was defeated by 278 to 131.

## Medico-Legal

### A BROKEN SURGICAL NEEDLE

[FROM OUR MEDICO-LEGAL CORRESPONDENT]

In a case recently heard at the Liverpool Assizes the question was raised how far it may be the duty of a doctor to press his advice on a reluctant patient. The doctor was repairing a perineal laceration, sustained during childbirth on Oct. 24, 1945, in a girl of 18, when the needle broke and part of it remained imbedded in the tissues. He telephoned for advice to a gynaecologist, who expressed the opinion that the fragment should be left until after she had recovered from the effects of the delivery, and then removed if it had not already been extruded. Fifteen days later the patient complained of discomfort and was advised by the doctor to return in two days, on Nov. 12, to see his wife, also a doctor. This appointment was kept by the patient, but the doctor had forgotten to inform his wife, and made another appointment. The patient attended again, but, according to a Press report, "after sitting in the

waiting-room for some time she gathered the impression" that the lady doctor was not available, and so went home, thinking that the doctor had "lost interest" in her case. She did not attend again "because of her shyness" until ten months later, and then only because she was urged to do so by her mother-in-law. She was then admitted to hospital and had the fragment removed. The Court held, on these facts, that the doctor had been negligent, and awarded £75 damages. A stay of execution was granted. The doctor stated in evidence that, when the patient failed to keep her appointment to see his wife, he assumed that she must have gone direct to the surgeon, or changed her doctor.

It was urged for the defence that it was no part of the doctor's duty to "chase the patient," but Mr. Justice Streatfield said, "She was rather shy, timid, and, I think, a little nervous. It was not going to be a serious operation to have the needle removed, but she was afraid it was. The doctor should have reassured her. He made one appointment for her to see a woman doctor, but forgot to make the necessary arrangements. The doctor let the matter slide, did not make sure the needle was removed, and so was guilty of a breach of duty to the patient." Evidence was given at the hearing by a lecturer in pathology at the local university, who said that "the breaking of a needle could easily occur," and that if this happened it was the duty of a doctor to seek "the co-operation of a surgeon to have the needle removed."

It was not suggested that the breaking of the needle was any evidence of negligence, and the doctor did in fact seek, and follow, the advice of a surgeon as to the proper steps to be taken to deal with the imbedded fragment. Where he failed, in the view of the Court, was in that he did not go far enough in his efforts to persuade a timid and reluctant patient to undergo a minor operation. While it would not be practicable to ascertain in every case why a patient fails to keep an appointment or to act on the advice given, this case illustrates the danger of assuming that such a patient needs no further attention.

## Universities and Colleges

### UNIVERSITY OF OXFORD

In a Congregation held on Nov. 22 the following degrees were conferred:

D.M.—D. M. T. Gairdner (in absence).

B.M.—D. M. L. Doran.

### UNIVERSITY OF LONDON

Noel Francis MacLagan, M.D., D.Sc., M.R.C.P., F.R.I.C., has been appointed to the University Chair of Chemical Pathology tenable at Westminster Hospital Medical School from Oct. 1.

### UNIVERSITY OF DUBLIN

Joseph Warwick Bigger, M.D., F.R.C.P., professor of bacteriology and preventive medicine and dean of the Faculty of Physic, University of Dublin, was elected to the Senate on Nov. 20, to fill the vacancy created by the resignation of Mr. Justice Kingsmill Moore.

### SCHOOL OF PHYSIC, TRINITY COLLEGE

The following medical degrees were conferred on Dec. 3:

M.B., B.Ch., B.A.O.—K. Adler, C. L. S. Archer, Irene R. Christie, R. F. E. Coolican, Kathleen P. E. Crawford, S. Davis, J. R. Evans, Katherine S. P. Hill, Margaret W. Lamb, D. E. Mellon, T. J. Mills, P. R. Oliver, Irene S. Orgel, J. R. F. Smith, F. E. Williams, R. J. York.

M.A.O.—J. A. O'N. Mulcahy.

### UNIVERSITY OF WALES

The following candidates for the degrees of M.B., B.Ch. at the Welsh National School of Medicine have satisfied the examiners at the examinations indicated:

MEDICINE.—H. B. Davies, T. Griffiths, H. Harrop-Griffiths, T. R. Hunt, Dilly W. John, H. E. Jones, Margaret E. B. Jones, Margaret O. Jones, J. B. R. Lewis, Constance A. M. Llewellyn, Myfanwy M. G. Prethero, G. G. Richmond, Prudence K. Roberts, Mary Smith, T. M. Warren.

PHARMACOLOGY.—Josephine J. Candy, M. L. Castell, R. B. Davies, B. M. Frost Smith, B. J. Fudge, S. G. Gang, A. R. Harris, Mary E. V. Jones, Margaret Pugh, J. A. E. Richards, D. B. Scourfield, T. B. Stephens, S. Thomas.

### ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW

At a meeting of the Faculty held on Dec. 1 with the President, Prof. G. B. Fleming, in the chair, Graham Herbert Anderson, M.B., Ch.B. (Glasgow), Edward Kenyon Blackburn, M.D. (Sheffield),



Samuel Dunn, M.D. (Glasgow), Rankine Good, M.D. (Shotts), Arthur Thomson Hendry, M.B., Ch.B. (Giffnock), James Hood, M.B., Ch.B. (Lancaster), William Macfarlane Lancaster, M.B., Ch.B. (Glasgow), Thomas Davidson Veitch Lawrie, M.B., Ch.B. (Glasgow), George McCracken, L.R.C.P.&S.Ed., L.R.F.P.S. (Shirlett), Alastair Gould Macgregor, M.B., Ch.B. (Bearsden), Robert Montgomery, M.B., Ch.B. (Rutherglen), Archibald Walker Sloan, M.B., Ch.B. (Bearsden), and George Will, M.B., Ch.B. (Glasgow) were admitted Fellows *qua* physician; John Cuthbertson Jeffrey, M.B., Ch.B. (Glasgow), Alexander Macpherson Keith, M.B., Ch.B. (Glasgow), Shreedhar Shreenivas Kirtane, M.B., B.S. (Edinburgh) Andrew Bruce MacLean, M.B., Ch.B. (Glasgow), Norman McSwan, M.B., Ch.B. (Kilmalcolm), William Albert Watt Maney, L.R.C.P.&S.Ed., L.R.F.P.S. (Glasgow), Purushottam Bhagwant Sulakhe, M.B., B.S. (Glasgow), Andrew Tomney, M.B., Ch.B. (Glasgow), William Arthur Leigh Tucker, L.R.C.P.&S.Ed., L.R.F.P.S. (London), and Stuart Young, M.B., Ch.B. (Glasgow) were admitted Fellows *qua* surgeon.

## EPIDEMIOLOGICAL NOTES

### Poliomyelitis

The more rapid decline in notifications mentioned last week has been maintained. Notifications of poliomyelitis for the week ended Nov. 29 were 103 (142) and of polio-encephalitis 3 (3). The figures in parentheses are those for the week ended Nov. 22. It has several times been suggested in these notes that the original notifications tend to overstate the actual incidence of cases in epidemic periods because of the difficulty of diagnosis in the early stages and the desire of practitioners to secure early treatment for their patients. Figures for poliomyelitis recently supplied by the General Register Office for the June and September quarters confirm this view.

Notifications	Original	Corrected
June quarter .. .. .	268	244
September quarter .. .. .	6,192	5,077

### Discussion of Table

In *England and Wales* infectious diseases were less prevalent during the week. Decreases were recorded in the incidence of scarlet fever 135, measles 122, acute pneumonia 79, acute poliomyelitis 44, whooping-cough 34, and cerebrospinal fever 10; the only increases were in the notifications of dysentery 46 and diphtheria 25.

A small decline in scarlet fever occurred throughout the country. Although the total notifications of whooping-cough declined, an increased incidence was recorded for London and the south-east region 65, the south midland region 45, and Lancashire 41. The largest local variations in the trend of cases were increases in Northamptonshire 63, and Lancashire 63. The rise in the incidence of diphtheria was due to a small general increase.

There were 48 cases of dysentery notified in Berkshire, 13 from Reading C.B., and 35 from Wallingford R.D., where cases reappeared after a lapse of one week. An outbreak involving 18 persons was recorded in Staffordshire, Willenhall R.D. The only other large return for dysentery was Lancashire 20.

The incidence of poliomyelitis, which has been falling since the first week in September, decreased by 44 cases. The largest returns were Lancashire 16, London 13, Middlesex 12, and Yorkshire West Riding 10.

In *Scotland* the incidence of infectious diseases declined. There were decreases in the notifications of scarlet fever 42, measles 46, acute primary pneumonia 29, and diphtheria 14. The only exception to the general downward trend was a rise of 7 in the notifications of poliomyelitis contributed by the western area.

In *Eire* the only variations of any size in the returns of infectious diseases were decreases in the notifications of measles 19 and diarrhoea and enteritis 14. Only 8 cases of measles were notified in Wicklow, Bray U.D., where 78 cases were reported in the preceding week. An increase in the notifications of measles was reported from Dublin C.B. 18, Roscommon, Boyle R.D. No. 1, 14, and Waterford, Dungarvan U.D. 43.

### Week Ending November 29

The notifications of infectious diseases in *England and Wales* during the week included: scarlet fever 1,765, whooping-cough 1,513, diphtheria 216, measles 2,772, acute pneumonia 567, cerebrospinal fever 44, acute poliomyelitis 103, dysentery 77, paratyphoid 18, typhoid fever 8.

## INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Nov. 22.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included), (b) London (administrative county), (c) Scotland, (d) Eire, (e) Northern Ireland.

Figures of Births and Deaths, and of the 126 great towns in (a) The 126 great towns in (b) London (administrative county). The 13 principal towns in Eire. (c) ...

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1947					1946 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	30	2	21	1	—	43	4	26	2	—
Deaths .. .. .	—	—	—	—	—	—	—	—	—	—
Diphtheria .. .. .	220	23	46	23	2	319	12	107	39	12
Deaths .. .. .	2	1	—	—	—	5	—	1	—	—
Dysentery .. .. .	141	17	15	—	—	69	21	28	3	—
Deaths .. .. .	—	—	—	—	—	—	—	—	—	—
Encephalitis lethargica, acute .. .. .	3	—	—	—	—	2	—	—	—	—
Deaths .. .. .	—	—	—	—	—	—	—	—	—	—
Erysipelas .. .. .	—	—	24	12	1	—	43	12	2	—
Deaths .. .. .	—	—	—	—	—	—	—	—	—	—
Infective enteritis or diarrhoea under 2 years .. .. .	57	8	16	9	3	64	10	14	6	1
Deaths .. .. .	—	—	—	—	—	—	—	—	—	—
Measles* .. .. .	2,233	120	178	258	5	5,428	215	301	57	47
Deaths .. .. .	2	—	3	1	—	1	—	1	—	—
Ophthalmia neonatorum .. .. .	48	3	4	—	—	61	6	23	—	—
Deaths .. .. .	—	—	—	—	—	—	—	—	—	—
Paratyphoid fever .. .. .	4	—	—	—	—	20	2	—	—	—
Deaths .. .. .	—	—	—	—	—	1	—	—	—	—
Pneumonia, influenza .. .. .	503	31	5	2	4	708	54	12	1	6
Deaths (from influenza)† .. .. .	10	1	—	—	—	18	3	—	—	—
Pneumonia, primary .. .. .	—	47	292	14	6	—	43	339	16	13
Deaths .. .. .	—	—	—	—	—	—	—	—	—	—
Polio-encephalitis, acute .. .. .	3	1	—	—	—	—	—	—	—	—
Deaths .. .. .	—	—	—	—	—	—	—	—	—	—
Poliomyelitis, acute .. .. .	142	13	25	6	3	16	—	2	16	—
Deaths .. .. .	—	2	—	—	—	—	—	—	—	—
Puerperal fever .. .. .	—	1	8	—	—	—	3	11	—	—
Deaths .. .. .	—	—	—	—	—	—	—	—	—	—
Puerperal pyrexia‡ .. .. .	100	11	2	—	2	124	10	9	1	—
Deaths .. .. .	—	—	—	—	—	—	—	—	—	—
Relapsing fever .. .. .	1	—	—	—	—	—	—	—	—	—
Deaths .. .. .	—	—	—	—	—	—	—	—	—	—
Scarlet fever .. .. .	1,812	132	311	52	44	1,402	102	338	37	45
Deaths .. .. .	—	—	1	—	—	—	—	—	—	—
Smallpox .. .. .	—	—	—	—	—	—	—	—	—	—
Deaths .. .. .	—	—	—	—	—	—	—	—	—	—
Typhoid fever .. .. .	3	—	—	5	—	3	—	—	14	2
Deaths .. .. .	—	—	—	—	—	—	—	—	—	—
Typhus fever .. .. .	—	—	—	—	—	—	—	—	—	—
Deaths .. .. .	—	—	—	—	—	—	—	—	—	—
Whooping-cough* .. .. .	1,183	86	46	31	2	1,773	106	205	43	31
Deaths .. .. .	1	1	1	—	—	11	—	—	—	—
Deaths (0-1 year) .. .. .	359	52	83	33	11	397	70	71	30	—
Infant mortality rate (per 1,000 live births) .. .. .	—	—	—	—	—	—	—	—	—	—
Deaths (excluding stillbirths) .. .. .	4,822	799	684	197	142	4,779	753	632	183	151
Annual death rate (per 1,000 persons living) .. .. .	—	—	14.2	12.4	—	—	11.9	—	—	—
Live births .. .. .	7,465	1163	950	309	242	8,867	1387	1134	323	277
Annual rate per 1,000 persons living .. .. .	—	—	19.1	19.5	—	—	22.8	—	—	—
Stillbirths .. .. .	198	37	34	—	—	294	32	45	—	—
Rate per 1,000 total births (including stillborn) .. .. .	—	—	35	—	—	—	41	—	—	—

\* Measles and whooping-cough are not notifiable in Scotland, and the figures are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

## Medical News

### Dr. Charles Bolton, C.B.E., F.R.S., F.R.C.P.

We announce with regret the death, on Dec. 6, of Dr. Charles Bolton, C.B.E., F.R.S., F.R.C.P., consulting physician to University College Hospital and Fellow of University College, London.

### Moray Lodge Sick Bay

A sick bay was opened on Dec. 4 at Moray Lodge, Campden Hill, Kensington, London, W., for civil servants of the lower-paid groups who are appointed to posts in the London area and who live in hostels or lodgings. The sick bay will be administered by the Ministry of Health; the British Red Cross Society will be responsible for its day-to-day management; and the Treasury Medical Adviser and his staff will act as medical officers. While private doctors will be free to visit their patients in the sick bay this will not always be necessary since medical officers will be available on the spot. No case of serious or notifiable infectious disease will be accepted at the sick bay, its function being to deal with the "home nursing" type of case only.

### Common Cold Research

More volunteers are required for the experiments which for the past eighteen months have been conducted by the Common Cold Research Unit set up at the Harvard Hospital, Salisbury, by the Medical Research Council and the Ministry of Health. It was emphasized when the investigations started that dramatic results could not be expected, but the work is making steady progress. It has been established that the virus is about the size of the influenza virus, and that it can withstand freezing at temperatures as low as  $-70^{\circ}\text{C}$ . Attempts to grow the virus in the laboratory have so far proved unsuccessful. Ten-day sessions for which volunteers are required next year are the periods beginning Jan. 14 and 28, Feb. 11 and 25, March 10, April 14 and 28, May 26, and June 9. People of either sex between the ages of 18 and 40 are wanted, and full details may be obtained from the Medical Officer, Harvard Hospital, Coombe Road, Salisbury.

### British Association of Allergists

At a meeting held at Oxford on Nov. 15, it was decided to form a British Association of Allergists. The first general meeting of the association will be held at St. Mary's Hospital, Paddington, London, W., on Saturday, Jan. 24, when the speakers will include Dr. John Freeman and Mr. Frank Coke. Further particulars of the association may be obtained from the secretary (Dr. A. W. Frankland), The Wright-Fleming Institute of Microbiology, St. Mary's Hospital, Paddington, London, W.2.

### Yorkshire Society of Anaesthetists

The Yorkshire Society of Anaesthetists has been formed with the object of promoting fellowship and scientific advance in the subject, and an inaugural meeting was held recently at Leeds, under the presidency of Dr. S. T. Rowling. Any doctor who is interested in the society and who did not know of the first meeting should write for particulars to the honorary secretary, Dr. R. C. Lawrence, 6, Wedgewood Grove, Roundhay, Leeds, 8.

### Tuberculosis Fellowships

The National Jewish Hospital at Denver announces that Fellowships for postgraduate study in tuberculosis and allied diseases will be granted for three-months, six-months, or one-year periods. Information regarding the Fellowships can be obtained from Dr. Edgar Mayer, chairman of the National Medical Advisory Board, National Jewish Hospital at Denver, 470, Park Avenue, New York, N.Y., or Dr. Allan Hurst, medical director, National Jewish Hospital at Denver, 3,800, East Colfax Avenue, Denver 6, Colorado, U.S.A.

### Unification of Pharmacopoeias

The first meeting of the Expert Committee on the Unification of Pharmacopoeias—a committee of the World Health Organization—was held at Geneva on Oct. 13-17. Dr. C. H. Hampshire (Great Britain) was elected chairman. The intention is to produce an international pharmacopoeia whose scope in the first place would be limited to drugs considered essential in medical practice, and 244 drugs were selected from a list of 534 for immediate attention. The preparation of draft monographs and the carrying out of research were allocated among the members present. In view of the amount of work required the Committee recommended that at least three additional members be appointed and that a unified secretariat should be formed.

### William Gibson Research Scholarship

The Royal Society of Medicine has awarded the William Gibson Research Scholarship to Dr. Alice Palmer, of Sydney, Australia, for her proposed research on the circulation in pregnancy.

### Colony of Aden

Edgar Cochran, M.D., has been appointed a member of the Executive Council of the Colony of Aden.

### Change of Address

Messrs. Burroughs Wellcome and Co. announce that from Dec. 15 the address of their Home Division will be 183-193, Euston Road, London, N.W.1 (Telephone: Euston 4477). The same address will apply to their Overseas Division from Dec. 21.

### Wills

Dr. Walter Dickson, Ealing, W., who died on July 6, left £67,039; he left £500 to the Royal Medical Benevolent Fund. Dr. John Alexander Neilan, for some years M.O.H. for Seaham, left £6,208. Dr. Phillip William McCrea, of Bristol, who died intestate, left £178. Dr. Edward Theodore Withington, of Oxford, the well-known medical historian, who died on April 20, left £20,552; he left £100 to the Royal Medical Benevolent Fund.

## COMING EVENTS

### Royal Microscopical Society

A meeting of the Royal Microscopical Society will be held at B.M.A. House, Tavistock Square, London, W.C., on Wednesday, Dec. 17, at 5.30 p.m., when Mr. Basil Wright, president of the Scientific Film Association, will describe the aims and objects of the association; Mr. A. F. W. Hughes will show films, including "Tissue Culture by Phase-Contrast"; and Dr. Adrianus Pijper's film "Shape and Mobility of Bacteria" will be exhibited.

### Bearsted Memorial Hospital

The opening ceremony of the new building of the Bearsted Memorial Hospital in Lordship Road, Stoke Newington, London, N., will be performed by Viscountess Bearsted, president of the hospital, on Wednesday, Dec. 17, at 3 p.m. The hospital is open to patients irrespective of race or creed, and emergency cases and abnormalities may be referred to the board for admission and ante-natal treatment by the hospital's consultant obstetric staff.

### Pan-American Association of Ophthalmology

The Third Pan-American Congress of Ophthalmology will be held at Havana, Cuba, from Jan. 4 to 10, 1948, when it is anticipated that about 1,000 eye specialists will attend the sessions at the University of Havana School of Medicine. A programme of more than forty formal papers has been arranged, with speakers divided about equally between physicians of the northern half of the hemisphere and those of the Latin-American countries. In addition to the contributions by members there will be several by specially invited guests, including Sir Stewart Duke-Elder (London), who will speak on "Penicillin in Ophthalmology," and Dr. Elizabeth Cass (Gibraltar), who will discuss strabismus.

## SOCIETIES AND LECTURES

### ROYAL SOCIETY OF MEDICINE -

General Meeting of Fellows.—Tuesday, Dec. 16, 5.30 p.m. Ballot for election to the Fellowship.

Section of Pathology.—Tuesday, Dec. 16, 8.15 p.m. Communications by Dr. A. Glücksman: Quantitative Histological Examinations of Serial Biopsies in Relation to the Radiotherapy of Epithelial Tumours. Dr. G. Payling Wright: The Action of Tetanus Toxin on the Rabbit Iris. Dr. J. Holborow: Effects of Penicillin on the Nasopharyngeal Flora.

Section of Dermatology.—Thursday, Dec. 18, 5 p.m. (Cases at 4 p.m.)

Section of Obstetrics and Gynaecology.—Friday, Dec. 19, 8 p.m. Discussion: Urological Problems in Gynaecological Surgery, with Special Reference to the Vesicovaginal Fistula and the Divided Ureter. Openers: Mr. Everard Williams, Miss Catherine Lewis, and Mr. Ogier Ward.

EDINBURGH CLINICAL CLUB.—At B.M.A. Scottish House, 7, Drumheugh Gardens, Edinburgh. Thursday, Dec. 18, 8 p.m. Dr. H. M. Traquair: The Lazy Eye. A discussion will follow.

EUGENICS SOCIETY.—At Royal Society's Rooms, Burlington House, Piccadilly, London, W., Tuesday, Dec. 16, 5.30 p.m. Dr. J. A. Fraser Roberts and Dr. Eliot Slater: Genetics, Medicine, and Practical Eugenics. All interested in the subject are invited to attend.

**HUNTERIAN SOCIETY.**—At Talbot Restaurant, London Wall, E.C., Monday, Dec. 15, 7 for 7.30 p.m. Dinner-meeting. Discussion: Menstrual Disorders in Relation to General Medicine. To be opened by Mr. Aleck Bourne, Dr. Edward Sharp, and Mr. John Howkins.

**ROYAL INSTITUTE OF PUBLIC HEALTH AND HYGIENE**, 28, Portland Place, London, W.—Monday, Tuesday, and Wednesday, Dec. 15, 16, and 17, 3 p.m. Harben Lectures by Prof. E. D. Adrian, O.M., M.D., F.R.S., F.R.C.P.: The Organization of the Nervous System.

### POSTGRADUATE DIARY

**LONDON CHEST HOSPITAL**, Victoria Park, E.—Friday, Dec. 12, 6 p.m. Mr. S. C. Suggit: Common Lesions of the Glottis. (*Change of lecturer and subject.*) Friday, Dec. 19, 5 p.m. Dr. Franklin Wood: X-ray Kymography of the Heart and Lungs.

**LONDON SCHOOL OF DERMATOLOGY**, 5, Lisle Street, Leicester Square, W.C.—Tuesday, Dec. 16, 5 p.m. Dr. J. E. M. Wigley: The Pemphigus Group of Eruptions.

A two-months postgraduate course in surgery will be held at the Royal College of Surgeons in Ireland starting on April 12, 1948. The number of students is limited to 30 and the fee is 20 guineas. Students may enrol now with the Registrar, Royal College of Surgeons, St. Stephen's Green, Dublin.

### APPOINTMENTS

**LONDON COUNTY COUNCIL.**—The following appointments have been made in the Council's mental health services at the hospitals indicated in parentheses: *Physician Deputy Superintendents*, J. C. Batt, M.D., M.R.C.P., D.P.M. (St. Ebba's); D. Shaw, M.D., M.R.C.P., D.P.M. (Sutton Emergency).

### BIRTHS, MARRIAGES, AND DEATHS

#### BIRTHS

**Jermitt.**—On Nov. 28, 1947, at King's College Hospital, Denmark Hill, S.E., to Mary, wife of Dr. E. W. Jarratt, a son.

**Morles.**—On Nov. 22, 1947, at Albion House, Faversham, to Joan (*née* Cannon, M.B., Ch.B.), wife of Dr. Alexander Mories, a daughter.

**Petit.**—On Nov. 28, 1947, to Joan Lamplugh, M.B., Ch.B., wife of Joseph Petit, of Tanganyika, a daughter—Anne.

**Shaw.**—On Nov. 21, 1947, at Grove House Nursing Home, Norwich, to Jean (*née* Harri), wife of Richard E. Shaw, F.R.C.S., a son.

**Todd.**—On Nov. 28, 1947, at the Private Hospital, Leicester, to Eileen (*née* Gilbert), wife of R. McLaren Todd, M.D., M.R.C.P., a son—Hugh Ronald McLaren.

**Trussell.**—On Nov. 29, 1947, at South London Hospital, to Lily (*née* Chant, B.Sc.), wife of Sq.-Ldr. R. R. Trussell, R.A.F.V.R., a daughter.

**Zaki.**—On Nov. 30, 1947, at Private Clinic Nursing Home, 35, Drumsheugh Gardens, Edinburgh, to Irene (*née* Hope), wife of Dr. Y. E. Zaki, a son—Stuart Swinton.

#### DEATHS

**Bolton.**—On Dec. 6, 1947, in London. Charles Bolton, C.B.E., D.Sc., M.D., F.R.C.P., F.R.S.

**Downton.**—On Dec. 2, 1947, at Hornsey Central Hospital, Arthur Sydney Downton, M.R.C.S., L.R.C.P., aged 68.

**Fleming.**—On Dec. 5, 1947, at Innerhaven, Kintloch Rannoch, Robert Alexander Fleming, LL.D., M.D., F.R.C.P., F.R.S.Ed., Surgeon, H.M. The King's Bodyguard for Scotland.

**Forbes.**—On Nov. 27, 1947, at 9, Albany Terrace, Aberdeen, Charles Forbes, O.B.E., M.B., Ch.B.

**Fraser.**—On Dec. 1, 1947, Sir John Fraser, Bt., K.C.V.O., M.C., LL.D., M.D., F.R.C.S.Ed., Principal and Vice-Chancellor, University of Edinburgh.

**Hearry.**—On Dec. 8, 1947, at 8, Ravenslea Road, London, S.W., Patrick Nicholas Hearry, L.R.C.P.I.&L.M.

**Howard.**—On Nov. 26, 1947, outside his home, "Pleasance," Beaumont Rise, Marlow, Bucks, Robert Howard, M.B.E., M.D., aged 75.

**Jackson.**—On Dec. 1, 1947, after an accident, at Manchester Royal Infirmary, William Ferriaday Jackson, M.B., Ch.B., aged 74.

**Lacey.**—On Nov. 29, 1947, at Capetown, Bernard Warner Lacey, M.B., B.S., of 181, Herbert Road, Woolwich, S.E.

**Mason.**—On Dec. 7, 1947, at Southdown, the Shrubberies, South Woodford, E., Hamish Falconer Mason, F.R.C.S.Ed.

**Moffat.**—On Nov. 15, 1947, at Bulawayo, S. Rhodesia, Robert Unwin Moffat, C.M.G., M.D., Colonial Medical Service, retired.

**Moore.**—At "Blairfinde," Greystones, Co. Wicklow, George Peirce Moore, M.D., aged 77.

**Scott.**—On Nov. 20, 1947, at 13, Southernhay West, Exeter, Robert Scott, M.B., Ch.B.

**Smith.**—On Dec. 6, 1947, at "Marlburg," Chipping Norton, Oxon, Thomas St. Clair Smith, M.B., aged 71.

**Thomson.**—On Dec. 2, 1947, at 83, Duke Street, London, W., William Brown Thomson, M.D., aged 68.

**Young.**—On Nov. 20, 1947, John Miller Young, M.C., M.B., D.P.H., aged 56.

## Any Questions?

### Diet in Pre-eclampsia

**Q.**—What are the essential features of the diet in cases of albuminuria of pregnancy?

**A.**—It is assumed that the term "albuminuria of pregnancy" is used to mean pre-eclampsia. Although it is possible to make some general observations on diet in this disease, each case deserves individual consideration. Starvation should be avoided, except perhaps for short periods in severe cases when eclampsia is threatening. Overeating also should be discouraged and the total intake should be average, bearing in mind that the patient is confined to bed—say 2,000 calories a day. Carbohydrate foodstuffs should be given freely, in the form of glucose if necessary. Fats should be taken in moderate amounts only. The traditional low-protein diet is fast losing favour. There is, perhaps, something to be said for limiting the intake of red meat, but other protein foods—milk, eggs, etc.—should be encouraged. Indeed in some cases in which oedema is associated with hypoproteinaemia large amounts of protein are required. Vitamins A, B complex, C, D, and possibly E are important, and if the diet is not rich in these they can be given in the form of supplementary concentrates. A good supply of calcium is also desirable. Table salt should be excluded from the diet so far as possible, and this means excluding food cooked or preserved in salt. The harmful ion is sodium, and care is necessary to see that the patient does not take this in any other form—for example, mixtures given for indigestion. The intake of fluid is also important, particularly if it is impossible to exclude sodium from the diet completely and if oedema is a prominent feature of the case. In such cases the amount of fluid permissible can be gauged roughly by the output of urine during the previous twenty-four hours, and should not exceed this.

Dietetic restrictions (except in respect of fluid and salt) at present play a relatively unimportant part in the treatment of pre-eclampsia, and the emphasis is on rest in bed. With the present system of rationing in force there is little danger of overeating, and most patients can safely be told to eat their full allowance of all foodstuffs.

### Prevention of Venereal Disease

**Q.**—Is the application of penicillin ointment to the glans penis and meatus after sexual intercourse a certain preventive of venereal disease?

**A.**—The answer is in the negative. Penicillin cream applied immediately after sexual intercourse would probably destroy all or most of any spirochaetes or gonococci on the surface, but might not reach organisms which had penetrated into the tissues; naturally it would not protect against those forms of V.D. the organisms of which are not susceptible to penicillin. It seems doubtful whether penicillin applied locally would be any more effective in preventing the development of V.D. than any other ordinary hygienic measures, such as thorough washing with soap and water or bathing with mild antiseptics. In all probability gonococci penetrate some distance into the male urethra during sexual intercourse and so would be out of reach of local applications other than irrigating fluids. There is no certain preventive of venereal disease except the avoidance of any possible contact with the various causal organisms.

### "Privileged Communications"

**Q.**—(a) In the middle of 1946 two women came to Hore. One of them retired to bed, and was examined by her own doctor the next day. In view of the possible legal proceedings the uninjured person called in a second doctor, who, at the request of the first doctor and with the patient's consent, examined the latter and was paid a fee. Twelve months later the solicitor for the defendant (uninjured person) applied to the second doctor for a detailed report of his examination of the plaintiff ("injured" party). Should a report be forwarded to the solicitor?

(b) After the death of a patient from urogenital infection an insurance agent asked for a report on the patient's condition.

history, as only two years previously the man had been insured, without medical examination, by a relative, and the company felt this early claim needed investigation. Would a report under these circumstances be regarded as a "privileged communication"?

A.—(a) It is quite in order for the second doctor to send a report to the defendant's solicitor. The patient, in giving consent to an examination by the second doctor, and presumably knowing that he was acting on behalf of the defendant (otherwise this consent would be invalid), has given an implied consent to the communication of the results of the examination to the defendant and also to the defendant's solicitor. Such a report is privileged—that is, if given *bona fide* (without "malice") it will not be held to be defamatory of the plaintiff.

(b) The doctor should not send any report to the insurance company without the written consent of the deceased patient's executors (if he made a will) or administrators (if he did not). In order that such consent should be valid they should be fully informed of the circumstances so that they understand that the insurance company is seeking grounds to repudiate the policy for non-disclosure. Provided the doctor obtains such consent his report will be a privileged communication.

### Raspberry-leaf Tea

Q.—Many midwives tell their antenatal patients to drink raspberry-leaf tea. Is it any good, and if so in what way?

A.—Raspberry-leaf tea has long been used as a herbal remedy to allay labour pains and relieve dysmenorrhoea. In 1941 Burn and Withell (*Lancet*, 1, 1) showed that extracts of raspberry leaves contain a substance—fragarine—that relaxes the uterine muscle of the non-pregnant cat. A relaxing action on the human pregnant uterus was demonstrated by Sir Beckwith Whitehouse (*B.M.J.*, 1941, 2, 370). Crude raspberry-leaf tea was used at about the same time in a Worcestershire maternity hospital, but no results were ever published. Since then little has been heard of this concoction. The dose usually recommended is 10 to 20 oz. (28–56 ml.) of a 5% infusion of dried leaves in hot water. It is difficult to see how relaxation of the uterus will help a normal labour, unless the active principle in raspberry leaves acts mainly on the os and the lower segment. Conceivably it might have some application in the management of abnormal labour due to a rigid cervix or excessive uterine contraction, and in the treatment of spasmodic dysmenorrhoea.

### Absorption of Liquid Paraffin

Q.—Am I right in thinking that, though ordinary medicinal paraffin is not absorbed, when it is emulsified it is absorbed by the villi and laid down in the fat stores, whence it cannot again be mobilized, and that consequently the giving of paraffin emulsion as a laxative is unwise?

A.—Liquid paraffin can pass through the intestinal wall of the rat if very finely emulsified, oil globules of a diameter greater than 0.5  $\mu$  not being absorbed. The oil is then carried by the lacteals to the fat depots, without passing through the liver, according to the views of Frazer and his colleagues. It is not likely that medicinal paraffin emulsions contain globules small enough to be absorbed, and they may therefore continue to be regarded as simple intestinal lubricants, apart from the fact that we have no reason to believe that deposition of small quantities of paraffin in the fat depots is in any way positively harmful. However, the ingestion of liquid paraffin frequently or in large quantities may have an adverse effect on the body's vitamin-A status, for much of our vitamin A is available to us from the conversion of carotene in vegetable foods, and the absorption of carotene is seriously reduced by the presence of excessive hydrocarbon in the alimentary tract.

### Dercum's Disease

Q.—Can the diagnosis of Dercum's disease be made clinically and is there any specific hormone treatment for it?

A.—Before making the diagnosis of Dercum's adiposis dolorosa in an indefinite case it is advisable to remove one of the lumps for microscopical examination. The symmetrical deposition of fat, and its painful character, may be met with in

varying degrees in all types of adiposity. There is no specific hormone therapy, but the usual treatment for adiposity—diet, diuretics, and moderate doses of thyroid—may be helpful.

### Classification of War Wounds

Q.—What, if any, work has been done on the classification of military casualties during the recent war? I should like to know whether there is any classification of wounds along the lines of the length of time a patient is militarily unfit; also whether any surveys have been made in order to classify wounds statistically in "weapon groups"—that is, wounds caused by shell-fire, mortar-fire, high-velocity bullets, mines, etc. Is there any well-established criterion of wound severity based on the transfer of energy, or rate of transfer of energy, from a missile to the human body?

A.—A certain amount of work has been done by the statistical branch of the Army Medical Department along the lines indicated in this question—that is, classification of wounds according to the length of time a patient is militarily unfit. These figures, which are based on the results following the first two months after the Normandy invasion, are to be found chiefly in the War Office *Monthly Bulletin of Health Statistics*, 9th and 11th issues (July and September, 1945). Regarding the second part of the question—the classification of wounds into "weapon groups" and the relation of the transfer of energy from a missile to its effect on the human body—this has been dealt with at some length in an interim report of the Military Operational Research Unit (August, 1946), to which is attached a good bibliography on this and related subjects.

### Toxicity of Moth-balls

Q.—Recently I saw an infant who had eaten about one-quarter of a moth-ball, apparently without ill effect. What are the possible toxic effects of moth-balls and what is the treatment?

A.—Moth-balls are nowadays made of naphthalene, though they used to be of camphor. Naphthalene has a very low toxicity because little is absorbed, but huge doses may produce parenchymatous nephritis. In doses of 3–12 gr. (0.2–0.8 g.) naphthalene is used as an intestinal disinfectant and vermifuge. The *Extra Pharmacopoeia* says that 2 g. over the course of two days has proved fatal to a 6-year-old child, and suggests as treatment that the stomach should be emptied by an emetic or stomach-tube; that a purgative dose of magnesium sulphate and demulcent drinks should then be given, but no oils or fats.

### NOTES AND COMMENTS

Reflections of a Haemophilic.—Mr. WILLIAM CAMP (Long Ditton, Surrey) writes: I am a haemophilic of 52 years of age. . . . During the period from my birth until I was over 30 years of age I had spent over 20 years in hospital. I had almost no schooling and my education was very little, so please forgive me if my writing becomes confused. Apart from this awful haemophilia I don't know what it's like to feel "off colour". . . . Over 50 years ago my brother bled to death through circumcision. . . . When I was born my mother was a widow and I was brought up in the world's worst slum tenements, in Islington. My mother was ignorant about the complaint. I spent my early childhood in the tiny slum courtyard with hundreds of other kiddies. I can just remember being booted around and being bashed about. My playthings, I recall, were pieces of broken coloured glass and rusty tin cans. Lumme! I must have spent the first 16 years of my life in hospitals. I can just remember when I was about 10 years old I had a tooth drawn. I remember blood, blood, blood, day and night, night and day, until I was picked up somewhere and taken to hospital. At 16 I was ready to face the world alone—ignorant, and badly crippled in my legs through continuous painful swellings in my knees. I can remember seeing my mother once before I took on the whole world alone. I can just remember her clasping my cut thumb and plastering on to the cut a thick dirty old cobweb which she had pulled from the corner of her "sitting-room." (The sitting-room was also the dining-room and bedroom and, I believe, the lavatory for four of us.) My mother told me that I was a "bleeder." I didn't quite know what that meant, but I believe that I thought that it was my religion. I soon found out! One of my first jobs was in a glass-making factory. At dinner-time we used to stop in the workshop and the men used to throw old sacks and their coats on to piles of splintered glass. I can't remember any of them ever being cut. Neither was I. . . . Once I worked in the kitchen of a large

institution. Speed was the motto. The chef took a liking to me and one day he said that he would make me "the fastest man in the country at chopping up runner beans." The secret was to have a carving knife with an edge like a razor, and to slice the bean close up to the fingers. That time I "bandaged" my cut thumb with a good blob of dough about as big as a hen's egg. I changed the "dressing" every 2 hours for about a week. I kept the blood-sodden dough out of sight as much as I could because I was shy of telling people that I was a "bleeder." . . . I am very poor, yet I should bet that no living soul in this wide world has been shown greater kindness and sympathy than I have received from doctors and nurses. If the nurses have been angels to me (and they have, indeed), my doctors have had a very large dose of the "divine" about them. More than half a dozen doctors have pulled me back from the grave. Why? I've been a bloody nuisance to them most of my life. . . . Why do they do it? It's splendid! It's magnificent! It's superb! It's a miracle! It's—being a doctor. It's the quality of God in man. . . .

I can remember now how, about 30 years ago, I had been bleeding for about 10 days. Doctor said, I believe, "If it doesn't stop soon I shall have to cut one of your veins and let your blood mingle with his"—he said that to the sister, a sweet, lovely girl. She said to him, "Cut where you like. Start now!" That horrified me. I thought that I'd rather do anything than see her be maimed for me. I couldn't think what to do. So I stopped bleeding. . . . I remember how, after bleeding in my tongue for 12 days and nights, I walked and walked all night through with my tongue hanging right out—12 hours a night for 12 nights in the freezing air. The ambulance took me to hospital. I remember the shock when the doctor told me that he had given me snake poison.

I remember how a beautiful, wonderful woman fell in love with me about 20 years ago. I told her everything I knew about my haemophilia. She said, "Right, we get married to-morrow." That was the biggest shock of all. She still loves me. . . .

A long time ago I read an article in some English health journal dealing with "selective breeding" in human beings. . . . They advocated the sterilization (or asphyxiation) of the unfit. Haemophiliacs were about the first on the list to be sterilized. I am not sure about this, but I believe that 20 years ago if I knew as much as I now know I would have asked for sterilization.

I have a son 18 years of age. He is 6 feet tall and is classified A1 in the Army. . . . Through hard study and a brilliant intellect he has put himself on the road to becoming one of the finest mathematicians in the country one day. . . . Lucky that I had a son? Shouldn't he have been born? I have another son of 13 years. He has only had measles. I have a third son aged 7. So to the eugenists I would say, "So what?" Lucky to have 3 boys? I don't feel clever over the fact that my children are boys. I'm not clever. Are the eugenists so very hot? . . . I've got through so far—thanks mainly to my wife and to your wonderful profession.

**Pink Disease.**—Dr. A. E. BERNSTIEN (Liverpool) writes: It was of interest that I read the reply by Dr. G. M. B. Hales (Nov. 29, 1946) to a correspondent who asked advice about a case of pink disease. He mentioned that he has treated these cases with intramuscular injections of liver extract and vitamin B twice weekly. I have just had a case of a baby of 10½ months which at three months of age started with diagnosed pink disease and gradually lost weight all the time since then. When the child came to me it had all the signs of pink disease and was in a very sorry state. I treated the case with liver extract and vitamin B in a similar manner to that which Dr. Hales describes, with the exception that I added hydrochloric acid by mouth and calcium by injection. The results were surprisingly good. The child started to gain weight from the first three or four injections, and there was a complete loss of irritability. I found that I could finish with the child after about fourteen injections.

**Food Allergy.**—The adviser responsible for the answer to a question about food allergy which was recently criticized by Dr. John Freeman (Nov. 29, p. 896) writes: Dr. Freeman's contributions . . . in the past to our knowledge of hay-fever are so outstanding that his present statements on food allergy may be taken by your readers to be a reflection of present-day views on the management of an allergic patient. This, however, is unfortunately not true. The statements, "The way to test is by a skin test with egg protein; this is quite reliable for finding a positive or negative test to that particular sensitivity . . ." and "trial dieting is very fallacious . . ." are quite contrary to modern views as expressed in standard books on allergy, for example, *Allergy in Theory and Practice* by R. A. Cooke; *Clinical Allergy* by A. H. Rowe; *Allergy in Practice* by S. M. Feinberg; *Clinical Allergy* by L. Tuft; *Allergy in Practice* by W. T. Vaughan; others could be mentioned, as well as innumerable articles on the same subject. In fact it is the undue reliance on the results of skin tests which has brought discredit on much of the work done on allergy in the past. All these books

agree that it is only by careful trial dieting that food sensitivities can be found and proved beyond all doubt. May I quote from the preface of Rowe's book?—"The frequency of the negative skin reaction in food allergy and the fact that positive tests are only important when checked by clinical trial have become assured. . . ." Finally, everyone will not agree with Dr. Freeman's statement, "The child can be desensitized with egg protein." Chobot, in the chapter on food allergy in *Allergy in Theory and Practice*, by R. A. Cooke, writes, "Treatment by desensitization, so-called . . . is uncalled for and ineffective . . ." and "oral therapy with drop-by-drop increases has never been proven to produce the tolerance attributed to it but which nature unaided will provide in practically 90 to 95% of the cases." These are views with which the writer at least is in profound agreement.

**Prophylaxis of Dental Caries.**—Mr. R. B. D. STOCKER, L.D.S. (London, N.W.), writes: Your answer to a correspondent on this subject (Nov. 29, p. 895), while disposing of the suggestion that vitamin-D therapy might be useful, gives no positive advice at all. It is true that no single preventive measure except local fluoride application or any combination of preventive measures has yet been proved to be effective by rigorously controlled human experiments. Nevertheless there is ample experimental and other evidence to justify treatment which can confidently be expected to lessen caries in young adolescents. Local applications to the teeth of sodium-fluoride solutions are effective in children, but there is little evidence that such treatment is valuable after about the age of 15. The patient's consumption of refined sugar should be reduced and the calories lost should be replaced in detergent foods such as raw fruit and vegetables, preferably taken at the end of meals. This is effective in all but a small proportion of specially susceptible cases. A rational tooth-brushing technique must be taught and not merely demonstrated, and must be used after meals if possible; when this is impossible, rinsing should be substituted. Dental treatment should also include thorough polishing of the teeth several times a year. Painting with silver nitrate to disclose and arrest incipient caries before cavitation has begun may be classed as preventive or as curative treatment.

It is unfortunate that your correspondent cannot simply be told to refer his patients to a dental surgeon, but preventive dentistry will not develop until the public and the medical profession demand it, and it must somehow be made more profitable to the dentist than surgical and mechanical dentistry. Let us hope that the bureaucratic methods of the school dental service with its "output" of fillings and extractions (in the ratio of 100:180) do not foreshadow those of the brave new Health Service. The proposed introduction of hygienists suggests, rather, that the more preventive outlook of our American colleagues and the R.A.F. dental branch will be adopted.

**Judicial Hanging.**—Dr. J. R. V. FOXTON (New Norfolk, Tasmania) writes: I was interested in the answer to the question on the above subject (July 26, p. 160) and in the comments of Col. Rutherford (Aug. 16, p. 282). When a student at the Melbourne University, I attended a lecture on judicial hanging given by Prof. Frederic Wood Jones to a combined meeting of the Medical Students' Society and the Law Students' Society. If my memory serves me correctly he stated that the placing of the knot at the angle of the jaw (as is, I believe, the custom in British countries) rarely, if ever, fractures or dislocates the vertebral column, and death in judicial hanging occurs from strangulation or from fracture of the base of the skull. In either case consciousness may be retained for some time and death occurs slowly and painfully. He further stated that invariable fracture or dislocation of the cervical spine could only be obtained (a) by employing a very long drop, approximately that required to produce decapitation, or (b) by the placing of the knot under the chin, in which position it must be retained by some mechanical appliance. It would appear that judicial hanging as practised is an unnecessarily cruel and barbarous form of execution, and that reform is long overdue.

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# SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY DECEMBER 13 1947

## GENERAL MEDICAL COUNCIL

(Continued from p. 132)

### Convictions

On Nov. 27 the Council considered the case of James Albert Seavers, registered as of Benedon Road, Sheldon, Birmingham, who was summoned on the charge that on Aug. 13 last he had been convicted at the Birmingham magistrates' court after having pleaded guilty of an indecent assault upon a girl aged 14, and had been fined £50 or three months' imprisonment.

Dr. Seavers attended, accompanied by Mr. Basil Harwood, counsel, instructed by Brasseur and Oakley, solicitors, on behalf of the Medical Protection Society. An application by respondent's counsel to have the case heard *in camera* was refused.

Mr. Winterbotham, the Council's solicitor, said that since the end of 1946 Dr. Seavers had had among his patients the family of which the girl in the case was a member. He had been treating the girl for sore throat, and on July 8 he called at the house, said he wanted to examine the girl, and while the mother was dismissed from the bedroom on some errand he committed the assault. Later he said to the police that he had lost control of himself, that "something snapped," and at the police court it was stated that he was a sick man and that there was a psychological element in the case. He had had a breakdown while going to and serving in West Africa in the R.A.M.C., and had sought relief in drink.

Dr. A. S. Thorley, a psychiatrist on the staff of the Sutton Emergency Hospital, said that Dr. Seavers had been under his care since Oct. 6. He had an anxiety condition associated with chronic alcoholism. There was a family history of mental disorder. He had had three previous anxiety attacks, the first while taking his second M.B., and the second in West Africa, where he suffered from malignant tertian malaria. On returning he was posted to a busy depot in Yorkshire and had a severe breakdown. He had been six months under treatment at Crichton Royal and his condition improved. Dr. Thorley expressed the view that he had the chance of making a good recovery. He understood that employment as a ship surgeon on a cargo line was open to him, and he thought that this would be suitable. Mr. Harwood recounted the respondent's unfortunate history, and read a testimonial from a medical colleague.

The Council, after private deliberation, found the conviction proved and directed the Registrar to erase Dr. Seavers's name from the *Medical Register*.

The Council considered the case of Hugh Boyd Gillespie, registered as of Blairhall Avenue, Langside, Glasgow, who was summoned on the charge that on March 4, 1947, at the Sheriff Court, Glasgow, he had been convicted of being under the influence of drink to such an extent as to be incapable of having proper control of the car of which he was in charge, and had been fined £30 or three months' imprisonment and disqualified from holding a driving licence for two years. Dr. Gillespie attended, accompanied by Mr. Oswald Hempson, solicitor.

Mr. Winterbotham read the police report of the offence, which resulted in a collision between the car and a tramcar, no one, however, being injured. Dr. Gillespie had appeared before the Council previously, in 1942, to answer to a conviction for a similar offence in that year and a previous one in 1940, but after postponing judgment the Council on that occasion did not see fit to erase his name.

Mr. Hempson urged Dr. Gillespie's health as an extenuating circumstance, and put in a certificate from a psychiatrist at the Southern General Hospital, Glasgow, to the effect that Dr. Gillespie had been treated by him as a voluntary patient in the mental observation wards in the early part of this year. He found him to be suffering from chronic exhaustion, the result of long-standing personal maladjustment, aggravated by overwork in general practice.

He had responded satisfactorily to treatment. During Dr. Gillespie's stay in hospital he had shown an exaggerated and atypical response to the drugs used in treatment, which justified the inference that he might show a similar response to a small quantity of alcohol, which was all that was concerned in the offence leading to the present conviction. Mr. Hempson put in some testimonials, including one from Dr. Stuart Laidlaw, M.O.H., Glasgow, as to Dr. Gillespie's satisfactory conduct while in the service of the corporation, and an unsolicited testimonial from a patient. He gave an assurance that Dr. Gillespie would never again touch spirits, which he thought a more valuable assurance than a general one of abstinence from alcohol.

The Council found the conviction proved, and took a grave view of the fact that he had not yet overcome a habit discreditable to himself and potentially dangerous to his patients. But it took into account the illness from which he had recently suffered and postponed judgment for two years, requiring him to come forward at the end of one year with testimonials as to his conduct in the meantime.

The Council next considered the case of Ralph Martin Case, registered as of Gillott Road, Edgbaston, Birmingham, who was summoned on the charge that in May last, at Marylebone, he had been convicted of being unlawfully in possession, when not authorized, of 25 1/4-gr. tablets of morphine and 100 1/4-gr. tablets of heroin, contrary to the provisions of the Dangerous Drugs Act, 1920, and in August last, again at Marylebone, of attempting without lawful authority to procure five tablets of diamorphine, contrary to the provision of the same Act as amended by the Dangerous Drugs and Poisons (Amendment) Act, 1923. On the first conviction he had been fined 40s. and 2 guineas costs, and on the second conviction fined £25 or three months' imprisonment.

Mr. Winterbotham said that it was not for the practice of his profession that Dr. Case had used the drugs, but entirely for himself. He gave particulars of the events which led up to the convictions.

Mr. Gerald Howard, on behalf of the respondent, said that the case disclosed a miserable story, but, unlike many cases of the kind, the doctor had involved only himself in disaster. Dr. Case qualified at Birmingham in 1934 with an honours degree. In 1930 he gained the Queen's prize for the best student of the year at his university and in 1934 the Sampson Gamgee memorial prize for surgery. He desired to be a surgeon, but in order to maintain his wife, whom he married in 1937, he went into a general-practitioner partnership at Newbury, which, being a reception area during the war, involved him in a great deal of work and strain, especially as one of his principals was away on service. In 1940 he began taking morphine, believing that he could keep free from addiction, but in the year following he found himself addicted and twice put himself under the care of Dr. Laughton Scott at Tunbridge Wells and also signed an undertaking to the Home Office. In 1943, while in the R.A.F., he again became addicted, called at the Home Office and informed them of his condition, and again went for treatment. In 1944 he became free for some time, but in 1945 his wife, who was an American, decided to go back to America and take their two children with her. On a relapse in 1946 he wrote to certain firms of chemists asking them on no account to supply him with any more drugs; he also begged the police to take away his licence, but he was informed that this was not possible without court proceedings. Such proceedings were taken in May, and constituted the matter referred to in the first conviction. The magistrate had been reluctant to impose any penalty until it was pointed out to him that unless he did so there were difficulties in taking away the doctor's licence and the doctor himself wished that course to be taken. He undertook treatment at Maudsley Hospital, from which he was discharged cured at the end of May, and had taken no drugs since.

Owing, however, to unfortunate domestic and financial circumstances, partly arising from a misapprehension, and feeling that he had absolutely no future, he made an attempt to procure certain drugs from a chemist, but was arrested before he could do so. His circumstances, domestic and financial, had now entirely altered

for the better, and, moreover, he had obtained employment in the Medical Statistics Branch of Birmingham University. Prof. Lancelot Hogben, in whose department Dr. Case was now working, wrote that Dr. Case was a man of exceptional gifts and high character and endowed with an aptitude for research. He was unfitted for the wear and tear of general practice by a highly strung temperament, but should find his proper niche in a university post. He was now an active and invaluable member of a team, and Prof. Hogben added that he spoke with the full sympathy of several of his professional colleagues of the medical school when he expressed the hope that a happy environment among congenial colleagues would elicit the full manifestation of the undoubted gifts which Dr. Case possessed. In his department he had an opportunity of social usefulness for the advancement of medicine of a kind which did not bring him into contact with the individual patient.

Dr. Case went into the witness box and declared that his addiction had been solely caused by overwork and had been mainly an addiction to morphine and not cocaine, and that he had now freed himself from such addiction.

The Council, after deliberation *in camera*, found the convictions proved, but the President said that the Council was anxious to give the doctor a full opportunity to establish his recovery and therefore had postponed judgment for two years, until the November session, 1949, but would require him in November, 1948: to appear and produce testimonials.

The Council considered the case of John Hollis Drummond Lawrie, registered as of the Town Hall, Macclesfield, and found that a conviction against him had been proved, but decided not to instruct the Registrar to erase his name from the *Medical Register*. The Council took a similar course in the case of Allan Gillies Foreman, registered as of Lussielaw Road, Edinburgh, finding a conviction proved, but deciding not to instruct that his name be erased.

The Council, on evidence of the illness of the practitioners, postponed until the next session the hearing of four cases.

#### Restorations

The following names were restored to the *Medical Register* after previous penal erasure: Arthur Carr, Isaac David Klein, Gerald Green, Louis Aimee Newton, Horatio Matthews, Thomas Sylvester O'Neill, William Vincent Saint John Sutton, John Mackay Young.

The Council, *in camera*, considered a report of the Executive Committee on the question whether the Medical Acts empower the Council to make provision for the removal from the *Register* of the names of practitioners at their own request; and, if so, whether it is expedient that such provision should be made. The Council did make such provision from 1887 to 1937, but in 1937 it rescinded the relevant standing orders on the light of legal advice that they were *ultra vires*.

Prof. W. W. D. Thomson was nominated by the Council for appointment by the Minister of Home Affairs for Northern Ireland as a member of a tribunal constituted under the Dangerous Drugs Regulations, 1938 (Northern Ireland).

Formal business was transacted, and the session closed on Nov. 28.

## HEARD AT HEADQUARTERS

#### More Vice-chairmanships

We record here some other instances of the election of medical men, the choice of the local profession, to the vice-chairmanships of Executive Councils. Dr. N. E. Waterfield, a member of the B.M.A. Council and chairman of the Ethical Committee, has been made vice-chairman of the Surrey Executive Council. Dr. Alex S. Wilson, secretary of the Holland Division in Lincolnshire, has been elected vice-chairman of the Holland Executive Council. Dr. John McCrea, an ex-chairman of the Reading Division, is vice-chairman of the Executive Council for Berkshire. Dr. Robert Ellis, after 25 years as chairman of the Local Medical and Panel Committee for Cambridgeshire and a like period as vice-chairman of the Insurance Committee, becomes vice-chairman of the Executive Council for his county. Dr. J. Kerr, chairman of the Cheshire Local Medical and Panel Committee, has been made vice-chairman of the

Executive Council for the County Palatine. Dr. N. J. Cochran, chairman of the Burton-on-Trent and District Advisory Committee on Industrial Health, is vice-chairman of the Executive Council for Burton. There may be many other examples. The co-option of medical representatives on county and county borough health committees, notwithstanding the expressed wish of the Minister of Health, seems to differ considerably in different parts of the country. Thus in the north-west, in Cheshire, two such representatives have been appointed, but in the east, in Holland, the county council has taken no action.

#### Two Special Committees

Two of the special committees recently appointed by the Council are getting down to their work. The committee on the nursing problem held its first meeting a week or so ago, and appointed as its chairman Dr. Mary Esslemont, of Aberdeen. Its 24 members include representatives from the British Hospitals Association, The Royal College of Nursing, and the King Edward's Hospital Fund, as well as the chairmen of the principal standing committees, and ten other B.M.A. representatives, six of them members of the Council. Its first business was the consideration of the Working Party report, on which the Association has been asked to submit a written statement to the Minister. The Committee on Nutrition has also started its work. The first document laid before it was the report of the earlier committee, prepared under the late Sir Kaye Le Fleming's chairmanship in 1933. The tables of individual diets given in that report strike a rather poignant note at the present time. For example, the suggested weekly adult ration adequate to support health and working capacity includes 1 lb. beef, 1/2 lb. minced meat, 1/2 lb. bacon, 1/2 lb. corned beef, 1/4 lb. ox liver, 2 eggs, 1 1/2 pints of milk, 1/4 lb. butter, and some seventeen other items, and the cost of the first-class proteins in this diet was less than half a crown. Here is a target for Mr. Strachey.

## Correspondence

#### National Health Service

SIR,—In most of the recent correspondence under the above heading the accent has been very much on what the doctors think of the proposed Service. Surely the thoughts of their patients are of even greater importance, and after questioning many of mine during the last few months I am left in no doubt that the great majority of them consider that a completely State-controlled service, with its dangling earrot of regular hours, week-ends off, and night calls twice a week, is a menace to the doctor-patient relationship built up by past generations of medical practitioners.

All of us presumably know what we are in for when we take up general practice—a hard life with compensations which make it worth while, one of which surely is the gratitude of patients who know that they have our undivided loyalty. To share that loyalty between patient, State, and possibly other doctors at a health centre will undermine our profession and lower the standard of service which the public have rightly come to expect.—I am, etc.,

Lewes, Sussex.

J. P. MATTHEWS

#### Unity Through the Majority

SIR,—With reference to your latest appeal for unity (*Journal* Nov. 15, p. 777), you must be aware that much of the distrust is not due to differences in politics but to distrust of each other among the various members of the profession, due partly, I believe, to the failure of the Protection of Practitioners Scheme during the war, the failure being due entirely to the lack of co-operation within the profession. Speaking for myself, if asked whether I would work in the State Service, I would only be prepared to refuse if I could be reasonably sure that at least 90% of the profession would support the refusal. I suggest therefore that in addition to the

question as to whether or not the proposal should be accepted another question is asked—namely, "Do you agree to accept a majority decision?"

It would surely be a great boost to our cause if instead of just announcing, say, that 60% are against accepting and 40% are for it we could state that 90% were willing to accept the majority verdict of the profession. And if the answer to the second question showed that we are not willing to accept a majority verdict, then we may as well stop talking about lack of democracy and give in to our would-be dictators.—I am, etc.,  
Newport Pagnell, Bucks.

A. A. CLAY.

### In the Vernacular

SIR,—I am heartily fed up with opening the *B.M.J.* and finding many pages filled with articles upon State medicine. When I came out of the Army and attended a local B.M.A. meeting upon this matter during its early stages, I asked to be informed of the general feeling of the doctors regarding the subject, and I was informed that 90% were against a State service. I privately suspect that the doctors are against it in general because of their own reactions to the monetary and dictatorial sides as they will affect them, which is not unnatural.

We are kept in the dark as to what is going on, and my own feeling is that a hard-headed determined man who wishes to fulfil his own ideals is just "putting us where he wants us." And now the date of the meeting has been altered and we trail along like good little choirboys! Why the dickens don't we have the guts to say, "Yes, some of the ideas are good, but we'll have the State Service the way we think is to the advantage of the public and the doctors. We shall not permit ourselves to be dictated to by you or anybody else!"

I expect that more flowery language will need to be used, although I believe that to call a spade a spade would show more stamina. I also expect that it will not be considered *diplomatique* to publish this letter, but I have "got it off my chest" and perhaps off those of some other colleagues. I like freedom; why give it up for the Minister of Health?—I am, etc.,

Chilston, Lincs.

A. F. CHALKLEY.

### Records of Insured Patients

SIR,—One of my panel patients after many illnesses has now ceased to be insured. According to the rules I have had to return her envelope containing the whole history of her case. She still remains my patient, but I have now no record whatever to which to refer in case of subsequent illness. I wonder that this point has never been ventilated before. Where do all these records go, and who ever refers to them? Surely in such cases we should be allowed to retain these valuable aids to our future treatment.—I am, etc.,

Cambridge.

A. E. MOORE.

### Car Priority

SIR,—It is to be hoped that the resolution of the Annual Panel Conference reported in the *Supplement* of Nov. 8 (p. 109) pleading for effective priority for doctors in the supply of motor-cars be most rigorously pursued. Surely the combined resources of the manufacturers could deal effectively and speedily with the 2,000-3,000 cases of urgency in our profession, even though the supply of cars for the home market is limited.

It is a deplorable state of affairs when the B.M.A. must state that "technically in the list of priorities doctors, nurses, and midwives were second only to the police, but this did not work out in practice." What is the good of priority schemes if these are not carried out in practice? The medical profession as a whole should protest vigorously against this reprehensible state of affairs.—I am, etc.,

Leeds.

I. ROSE.

### "Doctor" Sign on Cars

SIR,—In view of the fact that after Nov. 30 all users of cars will be under police observation and must furnish evidence, when called upon, that they are using their car for some specific purpose approved of by the Ministry of Fuel, it is more than probable that doctors will be called upon frequently to state

why their car was at a certain place at a certain time—perhaps several days previously—or that they will be stopped and questioned while out on their rounds. I for one do not wish to drive round again with a "doctor" label on my windscreen and, with due deference and diffidence, offer a solution which I hope will be considered by the B.M.A.

My suggestion is a small badge about 3 in. square which can be stuck on the wind-screen in the top left-hand corner: the badge a red caduceus on a white background, with the words, "Issued by the B.M.A. (or Local Panel and Medical Committee)" and "approved by the ——— Borough/County Police," or something to that effect to make it officially recognized by the police. I am quite sure this would save both the police and doctors a lot of unnecessary trouble.—I am, etc.,

Northampton.

J. P. TRAYLEN.

## H.M. Forces Appointments

### ROYAL NAVY

#### ROYAL NAVAL VOLUNTEER RESERVE

Temporary Surgeon Lieutenant R. A. McKeown has been transferred to List I of the permanent R.N.V.R.

### ARMY

Colonel E. Percival, D.S.O., M.C., late R.A.M.C., has retired on retired pay.

#### ROYAL ARMY MEDICAL CORPS

Lieutenant-Colonel T. L. Henderson, having attained the age for retirement, is retained on the Active List supernumerary.

Major I. N. Fulton has retired, receiving a gratuity.

Captain H. G. Skinner to be Major.

*Short Service Commission*.—B. McConkey to be Lieutenant.

#### REGULAR ARMY RESERVE OF OFFICERS

Major-General D. S. Skelton, C.B., D.S.O., late R.A.M.C., having exceeded the age limit for liability to recall, has ceased to belong to the Reserve of Officers.

#### ROYAL ARMY MEDICAL CORPS

War Substantive Major S. P. Bellmaine has retired and has been granted the honorary rank of Lieutenant-Colonel.

#### TERRITORIAL ARMY RESERVE OF OFFICERS: ROYAL ARMY MEDICAL CORPS

Lieutenant-Colonel J. W. Craven, M.C., T.D., has relinquished his commission.

#### LAND FORCES: EMERGENCY COMMISSIONS

##### ROYAL ARMY MEDICAL CORPS

War Substantive Captains G. R. Wadsworth, H. A. Friedlander, and A. L. M. Christie have relinquished their commissions and have been granted the honorary rank of Major.

War Substantive Captain R. F. Griffith-Evans has relinquished his commission on account of disability and has been granted the honorary rank of Captain.

*Short Service Commission, Specialist*.—War Substantive Captain T. W. Howat has relinquished his commission and has been granted the honorary rank of Major.

### WOMEN'S FORCES

#### EMPLOYED WITH THE R.A.M.C.

War Substantive Captain D. J. B. Falconer has relinquished her commission and has been granted the honorary rank of Major.

War Substantive Captain H. M. Teunon has relinquished her commission and has been granted the honorary rank of Captain.

#### ROYAL AIR FORCE

To be Flight-Lieutenants: J. A. MacCarthy, O.B.E., T. H. Redfern, F. Latham, and A. J. K. Gallagher.

Flight-Lieutenants R. D. Bruce, A. L. Knipe, M. N. Phillips, and W. D. Peock to be Squadron-Leaders (Substantive).

To be Flying Officers: P. D. Sutton, M. D. Warren, T. C. Gibson, A. Stewart, and J. L. Struan-Marshall.

#### ROYAL AIR FORCE VOLUNTEER RESERVE

War Substantive Flight-Lieutenant J. Millar has resigned his commission, retaining his rank.

Flight-Lieutenants (Substantive) M. J. Cahalane and C. E. Tait have relinquished the temporary rank of Squadron-Leader.

Flying Officers P. W. Dagger, R. A. Armstrong, N. L. Bailey, J. Buchanan, W. K. Christopher, J. G. R. Ellis, R. E. Glenn, H. B. W. Greig, W. A. Jackson, W. R. Johnson, L. F. Levy, D. O. Lewis, J. W. Little, G. H. Lloyd, R. J. McWilliams, T. C. Nicol,

R. W. Rapinot, D. F. Robertson, R. H. Sage, J. A. Sindell, D. C. Adamson, N. Coulshed, A. C. Edwards, D. A. W. Edwards, A. W. Gilks, E. J. Innes, R. F. M. Jones, H. A. K. Rowland, A. D. Verniquet, I. G. Waugh, J. A. Waycott, R. H. Whitworth, C. P. Williamson, G. R. Wotton, R. Youngman, C. R. Kirkpatrick, K. W. Robinson, W. E. Arnold, C. E. Bagg, R. W. Baxter, J. H. Burt, F. E. V. Cant, R. B. Carr, S. Davis, E. Dillstone, J. C. Ham, A. C. Hill, R. A. Houston, W. M. Ironside, S. J. Krister, S. Lewis, D. W. J. O'Neill, C. Ounsted, J. H. Ridgwick, R. C. Robb, G. F. Roberts, R. A. K. Ross, C. S. Shaw, J. L. G. Thomson, W. F. Toomey, L. V. Martin, E. V. de C. McDill, J. D. Nelson, J. P. Nowlan, K. I. Roberts, L. Silverstone, T. A. Wylie, P. O. Yates, N. J. Blockey, N. K. Connolly, E. J. D. Craig, W. T. Edwards, R. H. Ellis, D. E. Fletcher, G. Gomez, J. H. Gough, A. S. Grimble, C. T. Hough, R. C. Jennings, N. D. Kapur, P. R. McElwain, D. Mackinnon, J. B. Metcalfe, H. R. Morton, E. G. Murphy, T. M. Nott-Bower, T. H. Park, J. A. Rycroft, S. A. K. Stokes, E. Tobin, J. M. Ward, and H. Wainstead to be War Substantive Flight-Lieutenants.

Flying Officer L. M. Henry has resigned his commission.  
Flying Officer J. Cunningham has relinquished his commission on account of medical unfitness for Air Force service.

### WOMEN'S FORCES

EMPLOYED WITH THE MEDICAL BRANCH OF THE R.A.F.

Flying Officer M. E. Buckley to be Flight-Lieutenant (Substantive).

### COLONIAL MEDICAL SERVICE

The following appointments have been announced: I. M. Almond, M.B., Ch.B., Lady Medical Officer, Malaya; E. N. Emmerson, M.R.C.S., L.R.C.P., and J. A. Ward, M.R.C.S., L.R.C.P., Medical Officers, Tanganyika; H. B. Gibson, M.B., B.S., Medical Officer, Nigeria; H. P. Fernandes, M.R.C.S., L.R.C.P., Health Officer, Tuberculosis, British Guiana; A. W. Sampey, M.R.C.S., L.R.C.P., Medical Officer, Kenya; B. N. V. Wase-Bailey, M.D., Senior Medical Officer (Health), Sierra Leone; L. M. Ram, M.B., B.S., Medical Officer, Malaya.

### B.M.A. LIBRARY

The following books have been added to the Library:

- Anderson, C. G.: *An Introduction to Bacteriological Chemistry*. Second edition. 1946.  
Ascoli, M.: *Nuove Vedute sulla Malaria*. 1947.  
Atkins, H. J. B.: *After-treatment*. Third edition. 1946.  
Becker, S. W., and Obermayer, M. E.: *Modern Dermatology and Syphilology*. Second edition. 1947.  
Brinn, W. R.: *Diseases of the Nervous System*. Third edition. 1947.  
Bréhan, J.: *Le Chirurgien en Présence de l'Etat Diabétique*. 1946.  
Cibert, J.: *La Tuberculose Rénale sous l'Angle de la Thérapeutique*. 1946.  
Cox, L. B., and Tolhurst, J. C.: *Human Torulosis*. 1946.  
Damianovich, J., and Freyre, A. V.: *La Apendicitis en la Primera Infancia*. 1945.  
Danielopolu, D.: *La Digitale et les Strophantines*. 1946.  
Davidoff, L. M., and Dyke, C. G.: *The Normal Encephalogram*. Second edition. 1946.  
Delarue, J.: *Le Problème Biologique du Cancer*. 1947.  
Dickinson, F., and Hall, K. G. C.: *An Introduction to the Prescribing and Fitting of Contact Lenses*. 1946.  
Goldring, W., et al.: *Experimental Hypertension*. 1946.  
Greenstein, J. P.: *Biochemistry of Cancer*. 1947.  
Hanmen, R.: *Studies on Impaired Fertility in Man*. 1944.  
Horney, K.: *Our Inner Conflicts: a Construction Theory of Neurosis*. 1946.  
Kamath, M. A.: *Ophthalmic Surgery and Sight Testing*. 1944.  
de Kok, W.: *First Baby*. 1946.  
Lufsig, W.: *Natural Treatment of Eye Diseases*. 1947.  
Merlino, A.: *Il Distacco Intempestivo di Placenta Normalmente Inserta*. 1943.  
Moncrieff, A., and Thomson, W. A. R. (Editors): *Modern Diagnosis (Practitioner Handbook)*. Second edition. 1946.  
Nicaud, P.: *La Periartrite Nouvelle: Maladie de Kussmaul*. 1946.  
Nielsen, J. M.: *A Textbook of Clinical Neurology*. Second edition. 1946.  
Ranson, S. W.: *Anatomy of the Nervous System*. Eighth edition, revised by S. L. Clark. 1947.  
Raper, H. R.: *Man Against Pain: the Epic of Anaesthesia*. 1947.  
Rice, J. V.: *One Hundred Years of Gynaecology, 1800-1900*. 1945.  
Roxburgh, A. C.: *Common Skin Diseases*. Eighth edition. 1947.  
Scott-Wilson, H. W.: *Aids to Bacteriology*. Seventh edition. 1946.  
Spillane, J. D.: *Nutritional Disorders of the Nervous System*. 1947.  
Spivack, J. L.: *Urgent Surgery, Vol. I*. 1946.  
Stopes, M. C.: *Contraception (Birth Control)*. Sixth edition. 1946.  
Strachan, G. I.: *Textbook of Obstetrics*. 1947.

## Association Notices

### SCHOLARSHIPS IN AID OF SCIENTIFIC RESEARCH

The Council of the British Medical Association is prepared to receive applications for Research Scholarships as follows: Ernest Hart Memorial Scholarship of the value of £200 per annum; a Walter Dixon Scholarship of the value of £200 per annum; a four Research Scholarships each of the value of £150 per annum. These scholarships are given to candidates whom the Science Committee of the Association recommends as qualified to undertake research in any subject (including State medicine) relating to the causation, prevention, or treatment of disease. Preference will be given, other things being equal, to members of the medical profession.

Each scholarship is tenable for one year starting on Oct. 1, 1948. The scholar may be reappointed for not more than two additional terms. A scholar is not necessarily required to devote the whole of his or her time to the work of research but may hold an appointment at a university, medical school, or hospital, provided the duties of such an appointment do not interfere with his or her work as a scholar.

In addition, applications are invited for the first award of the Insole Scholarship of the value of £250 for research into the cause and cure of venereal disease.

#### Conditions of Award: Applications

Applications for scholarships must be made not later than Friday, April 30, 1948, on the prescribed form, a copy of which will be supplied on application to the Secretary of the Association, B.M.A. House, Tavistock Square, London, W.C.1. Applicants will be required to furnish the names of three referees who are competent to speak of their capacity for the research contemplated.

### Diry of Central Meetings

DECEMBER

17. Wed. Special Meeting of Council, 11 a.m.

### Branch and Division Meetings to be Held

**BATH, BRISTOL AND SOMERSET BRANCH.**—At Large Physics Lecture Theatre, The Royal Fort, Bristol University, Wednesday, Dec. 17, 8.30 p.m. Dr. Charles Hill: The Present Position. All medical practitioners in the area of the Branch are invited.

**GREENWICH AND DEPTFORD DIVISION.**—At Miller Hospital, Greenwich Road, S.E., Wednesday, Dec. 17, 9 p.m. Dr. Geoffrie Loxton: Modern Medical Treatment.

**NORTH OF ENGLAND BRANCH.**—At Royal Victoria Infirmary, Newcastle-upon-Tyne, Thursday, Dec. 18, 7.15 p.m., Clinical Demonstration by Mr. G. A. Mason; 8.45 p.m. Address by Dr. Douglas Guthrie: The Patient—A Forgotten Factor in the Progress of Medicine.

### Meetings of Branches and Divisions

#### MORPETH DIVISION

A meeting of members of the Morpeth Division was held on Nov. 14. Those present were: Drs. Murray, Maclean, Stephenson, T. S. Brown, Hobbs, Macfarlane, Irvine, Skene, Macfie, Spitzer, and McGregor, of the Morpeth Division, and Drs. Lowry and McLaughlin, of the Blyth Division. In the absence of the chairman through illness the chair was taken by the vice-chairman, Dr. J. R. Murray.

Dr. Stephenson gave a report on the public relations conference held in Newcastle on Oct. 16. Following this, a discussion took place on the question of appointing a public relations secretary. Eventually it was proposed by Dr. Maclean and seconded by Dr. Stephenson that the decision should be postponed until the next meeting. Dr. Maclean then inquired if the secretary knew of the approach having been made by the Branch Council to the National Coal Board in connexion with the provision of insurance certificates to miners. The secretary stated that she had no information on the matter and it was agreed that she should get into touch with the secretary of the Branch Council and find out the position.

### TRADE UNION MEMBERSHIP

The following is a list of local authorities which are understood to require employees to be members of a trade union or other organization:

- County Borough Councils.**—Barnsley, Gateshead.  
**Metropolitan Borough Councils.**—Fulham, Hackney, Poplar.  
**Non-County Borough Councils.**—Dartford, Leyton, Radcliffe.  
(limited to future appointments), Tottenham, Wallingford.  
**Urban District Councils.**—Denton, Droylsden, Houghton-le-Spring, Huyton-with-Rohy, Portslade, Redditch (restricted to new appointments), Stanley (Co. Durham), Tyldesley.  
**Scottish Burghs.**—Motherwell and Wishaw.

LONDON SATURDAY DECEMBER 20 1947

## EXPERIMENTAL INVESTIGATIONS OF PARODONTAL DISEASE

### VI. FURTHER CLINICAL STUDIES OF SUGAR-CANE GNAWING IN TREATMENT OF GINGIVAL DISEASE

BY

J. D. KING, Ph.D., D.P.D., L.D.S.

Director, Dental Research Unit, Medical Research Council, King's College Hospital Medical School, London

Three previous reports have dealt with the aetiology, prevention, and cure of a form of parodontal disease in the laboratory ferret associated with dental calculus (King, 1944, 1945; King and Glover, 1945). The experimental findings clearly showed that, even in the presence of a nutritionally adequate diet, severe parodontal lesions occurred in this animal in the absence of supplements of short lengths of dietary bone plus muscular, tendinous, and periosteal attachments. Disease of the gum, and later of the periodontal membrane and alveolar bone, was in fact due to irritation and injury by deposits of tartar. Prevention of both calculus deposition and gingivitis, and eradication of these conditions when established, were effected by the friction provided by bone-gnawing, the importance of retaining muscular and other attachments being their inducement to gnawing of the bone by the ferrets. In other words, tartar deposition and parodontal disease were prevented or eliminated by adequate friction of the teeth and gingivae.

Some means was then sought of applying the animal data to the problem of parodontal disease in man. On the basis of unofficial reports that certain Jamaican natives were relatively free from gingivitis, it was considered that their habitual consumption of sugar-cane might be responsible—in short, that such apparently good gingival health might in fact be due to the same mechanical action (friction) operative in the prevention and cure of the ferret disease by bone. Supplies of sugar-cane were obtained and a preliminary investigation was made of the effect of cane-gnawing in the treatment of gingivitis in adults and institutional boys (King, 1947b), the main findings being summarized as follows:

1. The most striking results of the 7-8-week tests were the extremely rapid cessation of bleeding and soreness of the more severely diseased gingivae and the marked improvement in dental and interdental hygiene in all cases after daily gnawing of short lengths of longitudinally split sugar-cane.

2. The degree of resolution of the lesions was, however, largely dependent upon the extent to which the cane was able to remove dental calculus and to counteract any other sources of irritation. When calculus deposits were relatively slight and soft, recovery of gingival health could be achieved by sugar-cane therapy alone, but in the presence of heavy accretions of hard tartar resolution of the gum lesions was limited to cessation of bleeding and soreness (at least temporarily), defensive epithelial proliferation, and increased leucocytic activity.

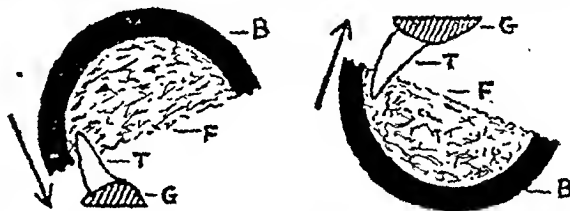
3. The findings suggested that the beneficial effects of gnawing sugar-cane were associated with mechanical cleansing of the teeth and interdental spaces, removal of the soft tartar and superficial necrotic gum tissue, and stimulation of the natural defence reactions of the gingivae, due to friction of tooth and gum by the cane fibres and bark. At the same time increased

salivation and certain chemical or even antibacterial properties of the expressed sugar juice may have played a part in one or more of the recovery processes.

The present report mainly concerns the findings of a second clinical investigation on two further groups of boys from the same institution in which attempts were made to eliminate the tartar factor by dental scaling prior to cane therapy, and a comparison between the results of this and the previous study.

#### The Investigations

The examination methods and criteria were identical with those previously described, being confined to the incisor and canine regions of the denture (King, 1947b). In the second investigation, however, the teeth of both test and control groups were thoroughly scaled immediately before the experimental period of eight weeks began. In the latter study also, to avoid refrigeration, the Nigerian sugar-cane used was preserved by canning, which involved exhaustion of the cane-filled cans by steaming for 30 minutes, followed



Lower jaw.

Upper jaw.

Diagram of method of using sugar-cane. G, gum; T, tooth; B, bark of cane; F, fibrous core of cane. Pieces of cane 2-4 in. (5-10 cm.) long are slit longitudinally, thus enabling the teeth to bite into the fibrous pith of each half-piece. The direction of the biting stress, shown by the arrows, is approximately at right angles to the labial gum margin, and the frictional force reaches its maximum when the teeth and gingivae come into contact with the inner aspect of the sugar-cane bark. Each test subject received a piece of cane daily, one half for the upper and one half for the lower jaw.

by reheating of the sealed cans for a further two hours. The method of using the cane is illustrated by the accompanying diagram, and was identical in both investigations. The numbers of subjects in the various experimental and control groups are shown in the Table.

#### 1. Pre-experimental Data

It is first of interest to consider the clinical state of the subjects before the sugar-cane and other tests began. The condition of the lower anterior gingivae was similar in both investigations, but in the two groups of boys of the second study the average degree of gingivitis in the upper jaw



Table showing Effect of Gnawing Sugar-cane on Gingival Haemorrhage. 1st (Raw Cane, no Preliminary Scaling of Teeth) and 2nd (Canned Cane, with Preliminary Scaling) Investigations on Institutional Boys

	1st Investigation*			2nd Investigation†					
	Raw Sugar-cane (19 Boys) (No Controls)			Canned Sugar-cane + Scaling (11 Boys)			Controls + Scaling (12 Boys)		
	No. of Gum Regions Tested	Regions with Haem.		No. of Gum Regions Tested	Regions with Haem.		No. of Gum Regions Tested	Regions with Haem.	
Upper jaw:									
Before expt.	111	8	7.2	65	17	26.2	68	21	30.9
After expt.	111	2	1.8	65	7	10.8	68	18	26.5
Difference			5.4			15.4			4.4
Lower jaw:									
Before expt.	112	46	41.1	66	33	50.0	72	39	54.2
After expt.	112	8	7.1	66	6	9.1	72	31	43.1
Difference			34.0			40.9			11.1
Both jaws:									
Before expt.	223	54	24.2	131	50	38.2	140	60	42.9
After expt.	223	10	4.5	131	13	9.9	140	49	35.0
Difference			19.7			28.3			7.9

\* 1st investigation on boys of 15-16 years. † 2nd investigation on boys of 14-15 years.

was much greater. In other respects the oral conditions were comparable, the gingival lesions being of a severe non-ulcerative form associated with relatively heavy tartar deposits and/or grossly defective mouth hygiene.

#### Relative Incidence of Haemorrhage from Upper and Lower Gingivae

Comparison of the two investigations (see Table), made in the same institution but on different boys at different times of the same year, shows that the incidence of initial bleeding in the first study was 7.2% for the upper and 41.1% for the lower jaw. In the second investigation the respective percentages were 26.2 and 50.0 for one group and 30.9 and 54.2 for the other. There was, therefore, a considerable variation between the upper and lower anterior gingivae in respect of liability to haemorrhage on digital pressure, but in the second study the difference was much less marked owing to increased incidence of maxillary bleeding. For example, the group of boys of the first investigation showed nearly six times as many haemorrhagic regions in the lower as in the upper jaw, while in the two groups of the second the frequency in mandibular was less than twice that of the maxillary regions in spite of the slightly increased incidence of the former. These differences may have been related to the season of the year and the relatively high incidence of upper respiratory tract infections, such as the common cold, in the second investigation. There was also a slight variation in age distribution between the subjects of the two studies, those in the second being about one year younger, but there is no reason to suppose that this small difference was of any significance.

#### Incidence of Tartar

In the first investigation 85.7% of the lower but only 23.4% of the upper anterior teeth showed evidences of tartar deposition. In the second study (both groups together) the respective percentages were 94.9 and 12.0. Both soft and hard varieties of dental calculus were included on the examination charts and, since it is difficult to differentiate between the former and food debris, the only possible comment is a suggestion that in the second study tartar was rather less prevalent on the upper teeth; no significant differences were apparent for the mandibular teeth. It would seem clear, however, that the increased incidence in haemorrhage from the upper gingivae (see previous section) was certainly not paralleled by greater prevalence of tartar on the adjacent teeth.

#### Association between Tartar Deposition and Gingival Haemorrhage

For the lower jaw, at least, both investigations provide ample evidence in favour of such an association, as shown by the following findings:

- 1st Investigation.*—Of the 64 lower gum regions with *no* bleeding 43 (67.2%) had little or no tartar on the adjacent teeth;
- 2nd Investigation.*—Of the 66 lower gum regions (both groups of boys) with *no* haemorrhage the figures were 3 (59.1%).
- 1st Investigation.*—Of the 48 lower gum regions showing *positive* bleeding only 12 (25.0%) were free or almost free from injury by tartar;
- 2nd Investigation.*—Of the 72 lower gum regions (both groups of boys) with *positive* haemorrhage the respective figures were still lower—6 (8.3%).

With regard to (a), there was little difference between the pre-test findings of the two investigations ( $\chi^2=0.600$  and  $5 > p > 3$ ), but consideration of (b) indicates a closer association between presence of tartar on the teeth and liability of the adjacent gum to haemorrhage in the subjects of the second study ( $\chi^2=5.035$  and  $0.05 > p > 0.02$ ). It is possible that in the later investigation the encroachment of tartar on to and beyond the gum margin was more extensive, or that the resistance of the gum tissues to such injuries was less. For the upper jaw the low incidence of gingival bleeding (7.2%) in the first investigation and of tartar deposits (12.0%) in the second study precluded testing of the association of such conditions with any degree of accuracy. Moreover, as indicated earlier, in the second investigation the much higher incidence of gum haemorrhage in the upper jaw was not accompanied by an increase in tartar deposition.

#### Mouth-breathing

In the first investigation 9 of the 19 boys were affected by nasal stenosis of tonsillar and/or adenoidal origin before the cane-gnawing was started; none were then suffering from coryza. In the second investigation 14 of the 23 boys (7 in each group) had some nasal stenosis accompanied by coryza at the pre-experimental examination; 8 of these were chronic mouth-breathers (5 in the experimental and 3 in the control group).

#### Dental Caries; Abnormal Alignment and Occlusion

The possibility that any of the observed gingival lesions might have been related to injury of the gum margin by cervical or interstitial caries of the adjacent teeth was discounted by the absence of caries of the anterior teeth in all of the boys of both investigations before and during the experimental period.

Varying degrees of labioversion, linguoversion, and torsion of the incisors and canines were seen in most subjects, and abnormal positioning of the premaxilla and mandible was a common feature. In general, gingival lesions were more prevalent when such conditions existed. In neither jaw, however, did there appear to be any significant difference in incidence or degree of positional or occlusal abnormalities between the three groups of boys.

#### 2. Effects of Gnawing Sugar-cane, with or without Dental Scaling, on Non-ulcerative Gingivitis

*Dental Hygiene.*—Rapid improvement in cleanliness of the anterior teeth and interdental spaces was one of the first effects of gnawing sugar-cane, especially if the latter was in the raw state. This was noticeable, to the patient as well as to the observer, within a short time of the initial application of cane to the teeth. The effect was particularly obvious when preliminary dental scaling was carried out, but was also apparent when raw cane alone was used. In the latter case, however, the degree of cleansing of the

teeth was largely dependent on the extent to which cane could dislodge calculus and other deposits. Further improvement in dental hygiene occurred in the sugar-cane groups as the tests approached the eighth, and final, week of observation. On the other hand, the control group, while showing improved hygienic conditions for the first few days after scaling, rapidly reverted to their previous dirty state, and by the end of the experimental period most of the boys were worse than before. It should here be stressed that there was an almost complete lack of *personal* dental hygiene on the part of the subjects of all three groups.

**Gingival Haemorrhage.**—In confirmation of the previous report another very early response of diseased gum to sugar-cane was relatively profuse bleeding and slight soreness for about the first three days during the actual process of cane-gnawing. After this period the great majority of formerly susceptible gum regions rapidly ceased to be sore or to bleed either from the impact of sugar-cane or on firm digital pressure. For the boys receiving cane supplements, in the lower jaw at least, these findings held good in all studies irrespective of the method of cane preservation or of preliminary dental scaling. Little or no improvement could be determined in the control group, which received treatment in the form of scaling only (see Table). For example, the percentage decreases in haemorrhagic regions in the lower jaw at the end of the experimental period were:

1st Investigation.—After sugar-cane only	34.0
2nd Investigation.—After scaling + sugar-cane	40.9
After scaling only (controls)	11.9

In the *upper* jaw, however, the differences between the cane and control groups were not so marked, although the former in the second investigation showed more than three times the slight improvement of the controls, the percentage decreases in bleeding regions being:

1st Investigation.—After sugar-cane only	5.4
2nd Investigation.—After scaling + sugar-cane	15.4
After scaling only (controls)	4.4

**Colour, Contour, and Texture of the Gingivae.**—As described in the earlier report, when raw sugar-cane alone was employed the degree of gingival recovery varied according to the extent to which the cane could dislodge the tartar and food debris from the cervical and approximal surfaces of the adjacent teeth and from the interdental spaces. Evidence of these changes could be seen in the clinical condition of the gum surface and in the microscopic appearance of the gingival capillaries (King, 1947a, 1947b). For example, under favourable conditions previously diseased tissue passed through various colour gradations from bright red to bluish red and finally to the pale pink associated with health; the glazed texture became matt and then stippled; and swollen, pocketed, and "everted" gingival margins became tightly rolled and finally thin and tapered towards the teeth. Such surface alterations were associated with certain well-defined changes in the epithelium and corium beneath and followed closely those observed in the parodontal tissues of the ferret (King, 1944; King and Glover, 1945). With the addition of preliminary scaling of the teeth it was hoped that sugar-cane therapy would hasten or accentuate these signs of recovery. However, when this possibility was put to the test, using *canned cane*, the response was not as good as anticipated. Nevertheless definite epithelial defence reactions were seen in the sugar-cane groups, while the controls not only showed no such resistance but, indeed, became progressively worse a few weeks after the scaling.

**Tartar Deposition.**—The first investigation demonstrated the removal of relatively soft tartar deposits from the and interstitial surfaces of the anterior teeth. The more adherent accretions were only slightly affected by friction with the sugar-cane, but certainly no increased amount of tartar could be detected during the eight week experimental period. A striking feature of the second investigation was the extremely rapid recurrence of calculus on the lower anterior teeth, particularly the incisors. Within three to four weeks of dental scaling appreciable amounts of fairly hard yellowish-brown tartar were observed. In the sugar-cane group these were almost entirely confined to the lingual and, to a lesser extent, the approximal aspects of the tooth necks—areas relatively inaccessible to the cane fibres; the labial tooth surfaces were comparatively free from deposits. In the control group the formation of tartar was, if anything, still more rapid, and was seen on labial as well as lingual and approximal aspects of the lower teeth.

**Mouth-breathing and Coryza.**—In the first investigation 9 of the 19 experimental subjects were chronic mouth-breathers, but none suffered from the common cold during the period of observation. In the second study all of the 21 boys (both groups) had colds for some part, and many for the whole, of the test period.

### 3. Other Studies in Progress

Sugar-cane, both raw and canned, is being used in the parodontal department of King's College Hospital when supplies are available. In accordance with the experience gained with institutional and other subjects elsewhere, the general procedure comprises the use of cane-gnawing as an adjunct to the more usual forms of gum treatment and mouth hygiene. *Non-ulcerative* lesions associated with dirt and tartar are treated by scaling and one or two applications of 3% chromic acid plus hydrogen peroxide irrigation before beginning cane therapy. When considered necessary, gingivectomy and extraction of loose, maloccluding, or functionless teeth are carried out. In cases of gingival ulceration, such as Vincent's disease, penicillin lozenges, 3% chromic acid plus hydrogen peroxide, and scaling are first employed to eliminate pain and eradicate the bulk of the necrosed tissue and other debris, sometimes supplemented by internal administration of nicotinic acid or nicotinamide. In short, cane-gnawing is used solely to apply friction to the teeth and interdental spaces for cleansing purposes and to the healing gum for stimulating epithelial defence reactions and recovery of health.

### Discussion

I have previously laid stress on the empirical nature of some of the procedures adopted for treating gingival disease and have ample clinical evidence that the over-enthusiastic use of drugs and of surgical intervention (gingivectomy) does in fact play no small part in producing a further breakdown in parodontal health, curable only by extraction of teeth. There is urgent need for reducing the frequency and strength of local applications of escharotics (chromic acid, copper sulphate, silver nitrate, phenol), of astringents (zinc sulphate, zinc chloride, tannic acid), and of oxidizing agents (hydrogen peroxide, sodium perborate). In this respect, at least, sugar-cane therapy if introduced at a relatively early stage, may help to relieve the necessity for these more dangerous forms of treatment.

At the same time the underlying purpose and the limitations of cane-gnawing must be borne in mind. It is of value as a cleansing agent, for stimulating tissue resistance

TABLE II.—Complement-fixation Titres of Normal Human Sera against Influenza Virus B

Titre	Series				Total
	1 Northampton, 1943 (Hoyle, 1944)	2 Northampton, Jan., 1946 (Hoyle, 1946)	3 Northampton, Autumn, 1946	4 Manchester, Autumn, 1946	
1:16 .. ..	0	0	1	2	3
1:8 .. ..	4	2	3	14	23
1:4 .. ..	8	2	33	57	94
1:2 .. ..	9	3	40	65	117
Doubtful (1:2) ..	9	3	16	18	46
Negative .. ..	19	32	157	55	263
Total .. ..	46	45	250	107	448

doubtful or negative readings. Only about 1% of the sera gave titres of 1:16 or higher. Table II shows the results of similar tests with virus B. Of 448 sera examined, 31% gave positive and 69% doubtful or negative readings. Less than 1% of sera gave titres of 1:16 or higher.

The age distribution of antibody against virus A was studied by Fairbrother and Hoyle (1937) and by Martin (1940). It was shown that children under 6 months old showed a similar antibody distribution to adults (presumably maternal antibody is transmitted to the infant), but that after 6 months it was unusual to find antibody in the sera of young children. The incidence of positive sera increased with advancing age.

#### Complement-fixation Titres of Convalescent Sera

The complement-fixation titres of convalescent sera in live epidemics of influenza due to virus A and one epidemic due to virus B are shown in Table III. Similar results were

TABLE III.—Complement-fixation Titres of Influenza Convalescent Sera

Titre	Virus A Epidemics					Virus B Epidemic	Total
	1 Leningrad, 1936 (Fairbrother and Hoyle, 1937)	2 Manchester, 1937 (Hoyle and Fairbrother, 1937)	3 Northampton, 1943 (Hoyle, 1944)	4 Haddington, 1946 (Hoyle and Lyell, 1946)	5 Northampton and Manchester, 1947	6 Northampton and Manchester, 1946	
1:256	0	0	1	0	1	0	2
1:128	0	0	1	0	2	3	6
1:64	0	13	2	2	2	4	23
1:32	1	13	2	2	2	2	22
1:16	1	13	4	4	4	0	26
1:8	1	11	4	5	6	1	28
1:4	1	5	2	0	6	0	14
1:2	0	0	1	0	3	0	4
Doubtful (1:2)	0	0	0	2	0	1	3
Negative	0	0	0	1	2	0	3
Total	5	65	14	13	30	11	138

obtained in all six outbreaks. Over 95% of convalescent sera gave positive complement fixation with the infecting virus, and 64% gave titres above the normal limits—that is, 1:16 or higher. The test differentiated sharply between virus A and virus B: thus in the A epidemics the convalescent sera showed an increased titre to virus A antigen but titres against virus B were within the normal range,

and the converse was true in the B epidemic. Fairbrother and Martin (1938) studied the rate at which the high titres in convalescent sera returned to normal. A rapid fall in titre took place in the six months following infection, and by one year all the titres were within the normal range.

The above results show that the complement-fixation reaction can be a valuable diagnostic test in influenza. The test has been positive in over 95% of 138 convalescent sera, and it is interesting to note that the few negative or doubtful results almost all occurred in the very mild outbreaks of 1946 and 1947. The severe epidemics of 1937 and 1943 gave 100% of positive results. In fact a negative complement-fixation reaction in a convalescent serum tends to exclude the diagnosis of epidemic influenza. Over 60% of convalescent sera give titres of 1:16 or higher, while these titres are found in less than 1% of normal sera, so that a titre of 1:16 or higher is practically diagnostic of recent infection.

It is to be noted that figures comparable with the above cannot be obtained by the red-cell agglutination inhibition test. Both normal and convalescent sera show enormous variations in titre by the Hirst test according to the strain of virus used, so that no normal base-line can be drawn and it is impossible to decide whether a given titre in a convalescent serum is diagnostic of infection. To make a diagnosis of influenza by the Hirst test it is essential to examine two samples of serum—one collected at the onset of disease and the other during recovery—in order to demonstrate a rise in antibody titre. The test is therefore much less convenient and reliable than the complement-fixation test.

#### Comparison of the Complement-fixation Test and the Red-cell Agglutination Inhibition Test

The Hirst test has been much used in the diagnosis of epidemic influenza, but it became evident in recent years that the results were inferior to those of the complement-fixation test. It was at first thought that this inferiority was due to antigenic differences between the strain of virus used in the Hirst tests and that responsible for the infection, and that better results would be given if the homologous virus could be used. Experience in 1946-7, however, has shown not only that this is not so but also that the homologous virus may in fact be less suitable for use in the Hirst tests than other strains.

During the last year paired samples of blood serum from acute and convalescent cases of supposed influenza have been examined at the Northampton Public Health Laboratory. Some of the samples were received before the mild outbreak of influenza which occurred in the winter and were almost certainly not from cases of influenza. The sera were tested by complement fixation and by red-cell agglutination inhibition, using six different strains of virus A. The Salk (1944) modification of the Hirst test was used. A fourfold increase in antibody titre was taken as diagnostic of infection. The results are given in Table IV.

TABLE IV.—Comparison of Complement-fixation and Red-cell Agglutination Inhibition Tests in the Diagnosis of Epidemic Influenza (Virus A)

Total pairs of sera examined	14
Total positives (i.e., positive by any one or more tests)	14
Positive by complement-fixation test	14
Positive by red-cell agglutination inhibition tests with:	
P.R.8 virus	12
Swine virus	11
Barratt virus	11
Melbourne virus	11
D.S.P. virus	11
W.S. virus	11

The complement-fixation test shows an obvious superiority over the red-cell agglutination inhibition test. In the Salk tests the best results were given by the P.R.8

and swine viruses. The Barratt strain, received from Dr. C. H. Andrewes, was actually isolated from the mild epidemic of 1947; but gave results inferior to P.R.8 and swine viruses. It is of interest to note that the worst results in the Salk tests were given by the W.S. strain of virus; it was from this strain that the preparation of complement-fixing antigen used in the fixation tests was made. Table V

TABLE V.—Quantitative Increase in Antibody Titre in 18 Cases of Influenza Virus A Infection as Measured by Complement-fixation and by Red-cell Agglutination Inhibition Tests

Increase in Titre	Complement-fixation Test	Red-cell Agglutination Inhibition Tests					
		P.R.8	Swine	Barratt	Melbourne	D.S.P.	W.S.
<128	4	0	1	0	0	0	0
x 64	2	0	1	0	0	0	0
x 32	2	1	3	1	1	0	1
x 16	4	2	0	3	2	0	2
x 8	2	5	4	0	3	3	2
x 4	2	5	3	7	5	7	3
x 2	1	1	4	2	2	0	4
No increase	1	4	2	5	5	8	6

shows the quantitative increase in titre of the positive sera measured by the complement-fixation test and by the six different Salk tests. In general the increase in titre as a result of infection was greater in the complement-fixation test than in the red-cell agglutination inhibition tests.

#### Increase in Antibody Titre as a Result of Vaccination

The rise of antibody titre as a result of the prophylactic inoculation of a vaccine containing a concentrated suspension of virus A of Australian origin was tested in 16 individuals, using the complement-fixation test and Salk tests with P.R.8 and Melbourne viruses. The results are shown in Table VI. Considerable individual differences

TABLE VI.—Quantitative Increase in Antibody Titre in 16 Individuals Vaccinated against Influenza A Virus

Increase in Titre	Complement-fixation Test	Red-cell Agglutination Inhibition Tests	
		P.R.8 Virus	Melbourne Virus
<128	0	0	1
x 64	0	1	1
x 32	0	1	0
x 16	0	2	0
x 8	1	3	3
x 4	4	4	6
x 2	5	2	1
No increase	6	3	4

occurred in the response to the vaccine. The rise of antibody titre was greater when measured by the Salk test than by the complement-fixation test. The antibody response to vaccination therefore differs from that due to infection. In infection the body is exposed to large amounts of both virus and soluble antigen and reacts to both stimuli. The vaccine, however, contains only small amounts of soluble antigen, and the antibody response is therefore small when measured by the fixation test.

#### Discussion

The most striking feature of the red-cell agglutination inhibition test is its strain variability. Results obtained with one strain of virus A may differ completely from those obtained with a different strain. This phenomenon is even more marked with strains of virus B. This strain variation renders the test unsuitable for the serological diagnosis of epidemic influenza, since the results are dependent on a chance antigenic relationship between the infecting virus and that used in the tests. By contrast the complement-fixation test is species-specific, distinguishing sharply between virus A and virus B but giving identical results with individual strains of virus A or virus B. On theoretic

cal grounds, therefore, the complement-fixation test should be more suitable for the serological diagnosis of epidemic influenza, and the work described in this paper shows that this theoretical superiority is in fact observed in practice.

In view of the considerable differences in antigenic structure between different strains of both virus A and virus B, the question arises what degree of difference from the classical strains would lead to a virus being regarded as a new species. We would suggest that the essential species characteristic is the soluble antigen. Any virus having a soluble antigen identical with that of the classical W.S. strain should be regarded as a strain of virus A, while any virus having soluble antigen identical with that of the Lee strain should be regarded as a strain of virus B.

The position of the swine virus is of interest in this connexion. On serological grounds there is no reason to regard the swine virus as anything other than a strain of virus A. Its soluble antigen is identical with that of the W.S. virus, and even in red-cell agglutination inhibition tests it is at least as satisfactory an antigen for the diagnosis of human infections as any human strain available. It might be maintained that the swine virus differs from other strains of virus A in being avirulent for man, but in this respect it does not differ from the majority of laboratory strains, which as a result of adaptation to mice or fertile eggs have lost human virulence. If the soluble antigen is regarded as the essential species character, then the complement-fixation test becomes the essential criterion for the diagnosis of influenza outbreaks. It has obvious advantages for this purpose. The range of complement-fixation titres of normal human sera is remarkably constant at a low level, while the majority of convalescent sera show titres above the normal range. It is advisable to examine two sera (acute and convalescent) from each patient, but a diagnosis of epidemic influenza can often be made by the examination of convalescent serum only.

The increase in antibody titre as a result of infection is generally greater when measured by the complement-fixation test than by the red-cell agglutination inhibition test, while the complement-fixation titres of normal sera are not greatly influenced by prophylactic vaccination. Moreover, the complement-fixation test presents no special technical difficulties, and we have obtained strictly comparable results even when working in different laboratories. Results obtained over a period of ten years also seem to be exactly comparable.

#### Summary

The results of complement-fixation tests on normal sera and the sera of influenza convalescents over a period of ten years are described.

The complement-fixation titres of normal human sera are very constant at a low level, while the majority of convalescent sera show titres above the normal range.

The complement-fixation test is species-specific, distinguishing between virus A and virus B, but shows no strain specificity such as is seen in the red-cell agglutination inhibition test. The complement-fixation test is therefore superior to the red-cell agglutination inhibition test for the serological diagnosis of epidemic influenza.

The complement-fixation test is not suitable to assess the antibody response to vaccination with influenza virus.

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## THE GENERAL PRACTITIONER AND THE INFLUENZA PROBLEM

BY

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The general medical practitioner undoubtedly is closely concerned with the problem of human sickness attributable directly or indirectly to the operation of the influenza viruses. Long before the statistician has decided that an influenza epidemic has begun in the population, the practitioners in at least some parts of the country have begun

to experience the well-recognized phenomena of crowded surgeries and long lists of sick people who require to be visited. There is no doubt that, if a solution of the problem of influenza could have been reached by mere clinical observation alone, someone concerned in actual general practice would have been the most likely person to suggest the remedy. As it is, however, mere clinical observation failed to distinguish any clear light in the darkness which enveloped the whole subject of influenza prior to the nineteen-thirties, when the first clues of the influenza viruses of animals and of man were picked up in the laboratory.

Now, laboratory workers concerned with the influenza viruses have always recognized the fact that influenza is a disease which lies peculiarly within the province of the general practitioner. Whenever opportunity has presented, the laboratory findings and problems, both solved and unsolved, have been laid before practitioners in the traditional manner. If it had not been for the great practical difficulties connected with the laboratory technique needed to prove the existence of human influenza virus infection, patients under the care of general practitioners would have been chosen for investigation instead of individuals in the Services, school-children, and others who were in fact investi-

gated. Nevertheless, though few direct tests have ever been made on subjects from a general practice, as knowledge has grown it has become clear that information furnished by the practitioners of this country has an important part to play in the general study of the epidemiology of influenza. The information referred to is that supplied in the form of notifications of deaths from influenza in the great towns of England and Wales. The manner in which this information has been correlated with the isolation of influenza virus from actual outbreaks of influenza or with serological tests has been referred to in detail on several occasions (Stuart-Harris, 1945, 1947). Briefly, the facts are that in the last ten years, whenever practitioners have notified 100 or more deaths from influenza in one week, laboratory workers have been able to obtain evidence that one or other of the influenza viruses is concerned in the causation of outbreaks of the disease in what are usually termed semi-isolated communities—i.e., schools, hospitals or Service establishments. The years when the deaths never rose above 100 a week have also failed to supply the laboratory with evidence of virus infection. Furthermore, the laboratory worker has been able to correlate the type of curve obtained from plotting the figures of deaths from influenza with the type of virus concerned in the outbreak. Thus the sharp peaks reaching 1,000 or more in a week

have been associated with influenza virus A. The less peaks between 1 and 500 have been associated with either or both the two viruses A and B. These facts are shown in graphic manner in the accompanying chart.

Such facts were at once suggested that influenza virus infection in the general practitioner is clinically recognizable. At the same time it became clear that some of us have studied patients of actual outbreaks of influenza infection in the general practitioner and that the individual is recognizably and clinically

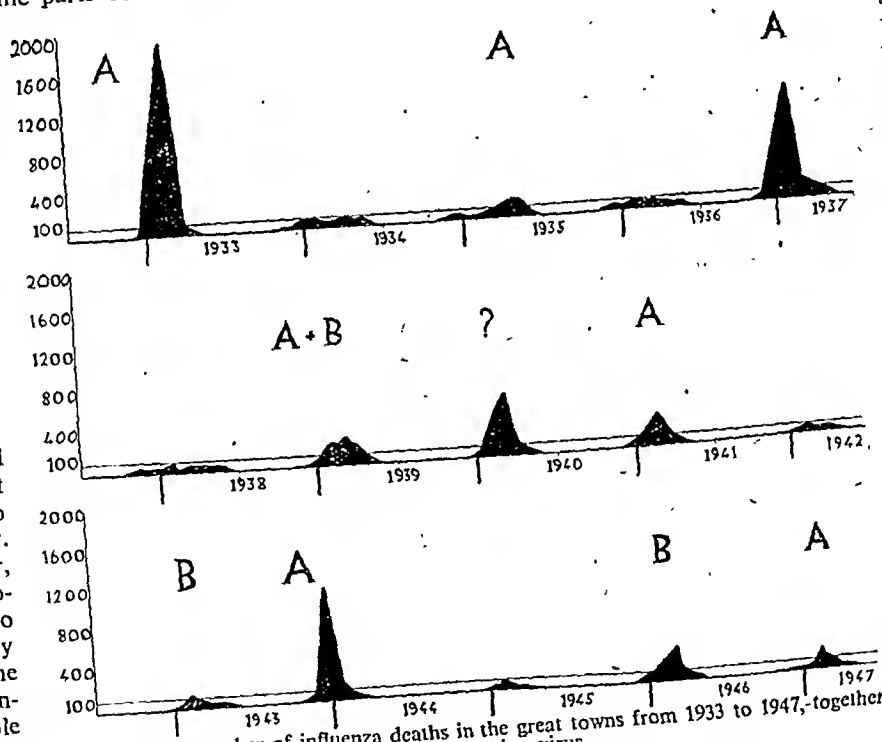


Chart showing number of influenza deaths in the great towns from 1933 to 1947, together with the causative virus.

other acute infections of the respiratory tract. Further the cases which are notified as deaths from influenza fatalities, whereas influenza is in the vast majority of cases a benign disease. Thus it has come about that of us who have been concerned with research on the prevalence of influenza in this country are continually puzzled, all, why fatal cases of the human disease should be correlated with influenza virus infection, and, secondly, to know what sort of disease is constituted by this notification of a "fatal case from influenza." The puzzle has not been merely that of armchair speculative type but has concerned us with the imperfection of our knowledge of the extent of damage caused by the influenza viruses. We know that virus is causative of that type of clinical picture cor-



med uncomplicated influenza and probably of the complication of basal bronchiolitis. We also know that the case of acute rapidly spreading pneumonia with helio-cyanosis is associated with a staphylococcal infection of the lung combined with an influenza virus infection. Yet the relationship between influenza virus infection and the ordinary case of pneumococcal pneumonia seen during outbreaks is obscure. Indeed, the actual patient has usually given negative results when tested for evidence of influenza virus infection at the time of admission for treatment of the pneumonia. If we knew whether such cases were in fact initiated by influenza virus infection, even if the subsequent pneumonia was due to pneumococcal infection permitted by the weakened defence of the respiratory tract, we should also know whether to expect that control measures such as immunization with influenza virus vaccines would prevent "deaths from influenza."

It seems, therefore, that more knowledge concerning the complications of influenza, and particularly of fatal cases, is needed. Such knowledge is not likely to be gained by investigation of the localized outbreaks of the disease such as those studied thus far, for complications of any character in the populations ordinarily affected are uncommon. Obviously this is due to the type of subject affected, who is usually a previously healthy young adult or child. When a full-time department of medicine of the University of Sheffield came into being in 1946 we decided to attempt to study this problem from a different angle. In view of the fact that deaths from influenza must often occur in hospital, it seemed to us probable that a cross-section of the ordinary hospital cases of pneumonia admitted during an outbreak of influenza would be likely to include cases of a type familiar to practitioners and attributed by them to influenza. The department has clinical facilities both the voluntary and the municipal hospitals of Sheffield, and thus is in a position to study such cases.

Last winter a number of explosive outbreaks of influenza occurred during January in Army camps housing German prisoners-of-war in the Midlands. From each of three outbreaks Dr. Margaret H. Miller was able to recover strains of an influenza virus and identified the serological response in cases of the disease as that found in influenza A. The general public at this time was largely unaffected, though the deaths from influenza rose and reached a peak in the first week of February and workers at the National Institute for Medical Research (Dudgeon *et al.*, 1947) identified influenza A outbreaks in the South of England.

Though the weather was very severe in the Sheffield region fewer cases of pneumonia than the average were admitted to hospital during the winter. An analysis of the work of several general practitioners in the Sheffield area was carried out by Dr. J. Pemberton; this showed, however, that 30 to 50% of their work during the first week of February was concerned with diseases of the respiratory tract. Dr. A. Dick studied the clinical features and bacteriology of some 40 cases diagnosed as pneumonia and admitted under my care during January, February, and March. The patients were often only mildly ill, their illness responded in the usual way to chemotherapy, and none died. Pneumococci were, however, usually identified in the sputum, including pathogenic organisms such as types I, II, VII, and VIII. A few tests of sputa from such patients were made by Dr. Miller with the technique which was successful in the case of the influenza patients, but virus strains were not obtained. Yet the serological tests on the cases of pneumonia suggested that many of the patients admitted in January and February had in fact suffered from

an infection with influenza virus A at some time shortly before or during the pneumonic episode. The results surprised us and, largely because of their unexpected character, we failed to establish by adequate control studies the crucial point of whether, so far as the virus was concerned, the patients with pneumonia were in any way different from Tom, Dick, or Harry of the general population. In other words, the influenza A of last winter might have affected a similar proportion of individuals in the general public as in the cases of pneumonia by an unusually widespread subclinical infection, even though the "epidemic" seemed to be restricted clinically to certain community groups. It thus remains for us to repeat the study during future outbreaks in order to determine whether cases of ordinary pneumococcal pneumonia at the time of influenza outbreaks are or are not related to the virus infection. Because of the periodic character of influenza outbreaks, this work will probably take some years to complete.

Meanwhile, however, it seemed to us possible to collect together useful information concerning the cases which are actually notified by practitioners as "deaths from influenza." Only in this way will it be possible to decide whether mortality from influenza is particularly liable to occur in any one section of the population. It may be worth while pointing out in this connexion the probability that heart failure may be precipitated by influenza virus infection. An example of such a case is given below; this would have been regarded as that of ordinary bronchopneumonia and congestive heart failure had it not been for the serological results, which clearly implicated influenza virus A. It is possible, therefore, that this investigation may reveal information of value in connexion with a variety of topics, and may supplement the observations made on our own patients. It will be particularly important, for instance, to ascertain whether there are any clinical differences between deaths from influenza notified in years when influenza virus infection is not identified and those occurring in years when the viruses are active.

In order to provide sufficient material for statistical analysis within a reasonable period of time it will clearly be necessary to collect data from many sources. The more detailed clinical and laboratory observations possible on patients in hospital will then furnish a useful collateral study to the wider investigation which is proposed.

### Case Report

A man aged 52 was admitted on Jan. 24, 1947, in a condition of great restlessness, with a history of cough and dyspnoea for about four weeks, increasing greatly in the four days before admission. He presented signs of hypertensive heart disease with congestive failure, though there was as yet no oedema. Rhonchi were heard in the lungs and over the left base, which was slightly impaired to percussion; there were numerous rales. There was a low irregular fever (98-100° F. (36.7-37.8° C.)) for three days, accompanied by tachycardia (100-110) and a slightly increased respiratory rate (20-26). After four days the restlessness had if anything increased, the signs in the lungs persisted unchanged, and orthopnoea was present. Skiagrams by portable apparatus showed congestion at both lung bases and considerable cardiac enlargement. Inoculation of the sputum into mice yielded a pneumococcus which could not be typed. Treatment with penicillin was begun, and continued for nine days. A week later the general condition had improved, but venous congestion had increased, sacral oedema had appeared, and the heart sounds showed a triple rhythm. The blood pressure had risen from 160/85 on admission to 185/120. There was no further deterioration, but the heart failure was slow to respond to therapy by digoxin and venesection, and basal rales persisted at both lung bases. Further treatment with diuretics was followed by slow improvement and the patient was

discharged on March 28 in reasonable health though still with cardiac enlargement and hypertension. The serum antibodies to the PR8 strain of influenza virus A and the Lee strain of virus B were estimated in samples collected on admission (Jan. 25) and on Feb. 15 by the agglutination-inhibition test (Hirst). The results showed that the antibody level against influenza virus A had increased 64 times during the progress of the patient's illness, whereas that against influenza virus B had remained unchanged.

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## AMOEBI ABSCESS OF THE LEFT BUTTOCK IN A SYMPTOMLESS CYST CARRIER

BY

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AND

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Cutaneous amoebiasis has been reported from many parts of the world. The cases fall into five groups according to their connexion with other primary conditions: (1) those following the drainage of an amoebic abscess of the liver (Heimbürger, 1925); (2) those following the drainage of a lesion of the appendix (Cole and Heideman, 1929); (3) those following a colostomy for a rectal obstruction (Smyth, 1946); (4) those about the anus associated with amoebic colitis (Van Hoof, 1926); and (5) those without any direct connexion with the viscera.

In practically all of these cases motile entamoebae were found in fresh preparations from the lesions of the skin. The case described below falls into the last category. The only references we can find in the literature that are at all analogous to our case differ from it in some respects; these will be discussed later. Van Hoof (1926) reported the case of a negro woman who suffered from dysentery in 1915 for which she received injections, probably emetine, but was not cured. In July, 1925, multiple ulcerations appeared on the skin of the buttock and around the anus, some of the ulcers communicating with the bowel. In the pus of both the fistulous ulcers and those not communicating with the rectum active entamoebae containing red blood cells were found; after specific treatment with emetine the amoebae could no longer be demonstrated and the lesion healed rapidly. In our case there was no history of previous dysentery, and the most careful search failed to reveal any direct communication with the rectum.

Ngai and Frazier (1933) described a case in which a papilloma of the anal region was invaded secondarily by *Entamoeba histolytica*. We believe that a secondary invasion of a staphylococcal abscess occurred in our case. This is reported, as, apart from the rarity of the condition, it is felt that similar cases may arise during the next few years in Service personnel, and unless the condition is recognized at an early stage gross destruction of the tissue will occur as in the case reported by Norwich and Muskat (1946). Their case occurred in a negro, who gave a history of a small blind boil appearing near the anus which eventually burst and instead of resolving was followed by a rapidly spreading ulceration. There was a previous history

of colicky lower abdominal pain and diarrhoeal stools with occasional blood. On his admission to hospital an ulcer measuring 5 in. by 2 in. (12.5 cm. by 5 cm.) was present on the left buttock, extending obliquely across the sacrum to the opposite buttock. Sigmoidoscopy revealed a large necrotic ulcerating area covering the posterior wall, while a biopsy from the edge of the ulcer of the skin revealed the presence of numerous *E. histolytica*. A colostomy had to be carried out to prevent soiling of the ulcerated area, but eventually, after specific anti-amoebic therapy followed by a skin graft, complete healing occurred.

This case differs from ours in that there was gross ulceration of the rectal mucosa. An extensive search through the literature has failed to reveal an exactly parallel case to the one here recorded.

## Case Report

A warrant officer aged 27, of excellent physique, was admitted to an R.A.F. station sick quarters on Jan. 4, 1947, with a painful swelling on the left buttock which had been discharging pus for five days. He stated that he had had some pain in the left buttock about four months previously and that there was a swelling in this region. Apart from pain on sitting this gave no trouble and did not interfere with his normal activities. On Dec. 29, 1946, the swelling burst and discharged pus, and after this the pain increased in severity and he reported sick.

**Previous History.**—In September, 1945, he was kicked in this area while playing football in Bombay, where he had served for two years. He returned to the United Kingdom in October, 1946, and three weeks later he first noticed the pain in his buttock. He had never had dysentery, and remembered only one mild attack of diarrhoea, lasting one day, during his tour abroad.

**Present Illness.**—He was transferred to an R.A.F. station hospital on Jan. 4. On examination a slight bilateral inguinal adenitis and a swelling of the left buttock some 4 in. by 4 in. (10 cm. by 10 cm.) were found. This swelling was hard centrally but soft and fluctuating peripherally; pus was escaping from a small opening, and probing of this opening revealed a short sinus some 3/4 in. (1.9 cm.) long. Pus from the sinus grew *Staphylococcus aureus* and *albus*. His B.S.R. was 40 mm. in one hour. A skiagram of the lumbar spine and pelvis revealed no abnormality. The skin showed dark purplish discoloration. The W.R. and Kahn test were negative. The abscess was incised on Jan. 8, and two main cavities were found communicating with each other and lying subcutaneously; there was no sign of any communication with the rectum. Histological examination of the curettings revealed granulation tissue with aggregations of plasma cells scattered among the polymorphonuclears; there was no specific evidence of tubercle or actinomycosis. After the operation short-wave therapy and the instillation of 100,000 units of penicillin on alternate days led to considerable local improvement, and the abscess cavity appeared to be granulating satisfactorily. On Jan. 18 further undermining of the skin laterally led to pocketing of pus and the appearance of fresh sinuses.

Local treatment having failed it was decided to try the effect of systemic penicillin, and a million units were given over five days without any response. The failure of any form of treatment and the unusual features of the ulcer then suggested that it was a fungous infection (? sporotrichosis), and iodides were given for several days, again without any noticeable improvement.

By Feb. 19 the ulceration had spread both medially and laterally, and fresh sinuses had appeared near the medial edge. The abscess had to be re-incised on Feb. 21, and the gelatinous material was curetted from the sinuses, but the cultures were sterile. Histological examination of the material from the curettings revealed an oedematous granulation tissue infiltrated with plasma cells and macrophages and scanty cells which resembled *E. histolytica*. The patient was transferred to Princess Mary's Royal Air Force Hospital for further investigation. Examination showed a granulating ulcer measuring

2½ in. by 1½ in. (6.25 cm. by 1.25 cm.) with an overhanging undermined edge on the inner wall; internal to this there was a dusky, devitalized area of skin with three sinus openings close to the natal cleft, superior, and one 3 in. (7.5 cm.) lower down, inferior. A probe could be passed from each of these sinuses for from 2 to 3 in. (5 to 7.5 cm.) emerging below the undermined edge of the ulcer. Curettings from the walls of these sinuses revealed actively motile *E. histolytica*, many of them with ingested red blood corpuscles. In view of this positive finding it was not considered justifiable to carry out a biopsy. Sigmoidoscopy to 25 cm. revealed a normal mucosa, except for the presence of two pin-point petechiae on the anterior wall of the rectum; no communication or induration that suggested a fistula could be felt, and pressure on the left wall of the rectum revealed no tenderness and did not lead to any discharge from the external sinuses. *E. histolytica* cysts were present in the faeces in small numbers. A course of emetine, gr. (65 mg.) intramuscularly for ten days, together with "diiodoquin" three tablets t.d.s. by mouth, was completed. At the end of this course the condition had greatly improved; the pain, swelling, and discharge had disappeared, but it was still possible to pass a probe in various directions beneath the dusky devitalized skin, and it was decided to lay open and excise the sinuses.

The operation was carried out by Squadron-Leader Pike on Feb. 25. On slitting open the sinuses they were found to communicate with each other like an extensive rabbit-warren, and it was considered advisable to excise the whole devitalized skin. The sinuses were found to be entirely subcutaneous and appeared to have spread laterally without penetrating the deeper tissues; there was no evidence of any communication with the rectum. This form of peripheral spread was reported by Ngai and Frazier (1933), who stated: "After reaching the deeper layers of the epidermis the parasites tended to advance along the plane of least resistance between the epidermis and the utis." It was also a marked feature in the case reported by Smith (1946), in which an ulcer involving half the abdominal wall followed an operation for closing a colostomy in an unsuspected case of amoebiasis. A skin graft was carried out on April 21 by Wing-Commander Morley in order to expedite healing, and this was entirely successful. The patient was discharged to duty on May 21.

### Discussion

It is difficult to decide the exact role of *E. histolytica* in the genesis of the abscess. There are three ways in which the abscess may have arisen. (1) By invasion through the blood stream. Although this is possible, Craig (1944) in his unique experience has never heard of amoebiasis cutis. (2) By invasion from the rectum. If the abscess was primarily due to *E. histolytica* it must be presumed that infection occurred through the rectum in a symptomless cyst carrier via a fistulous tract which subsequently healed spontaneously and of which no trace as remained; this is an extremely unlikely occurrence. Norwich and Muskat suggest the possibility of lymphatic spread from the rectum; this is a possibility in our case. (3) By secondary infection with *E. histolytica* in a distorting staphylococcal abscess. This appears to be the most reasonable explanation, and is supported by the negative biopsy findings at the time of the first operation, the initial improvement followed by further spread and sinus formation, and the failure to respond to penicillin. The pathology of amoebiasis cutis has been well described by Hu (1937), and the localization of the amoebae immediately under the skin, together with the peripheral spread, would produce the clinical picture found in this case.

Christophers's *Text Book of Surgery* states: "It seems to the writer that one or all of the following conditions would obtain before it can be fairly stated that amoebae are participating actively in any infection: (1) there should be histological evidence of the invasion of the tissues by

the amoebae, (2) they should be found either by smear or culture in the advancing margin of the lesion, or (3) the lesion should respond to medical treatment recognized as adequate for amoebic disease. The writer believes that the mere presence of amoebae on the surface of the lesion or in the exudate is no more evidence of their participation in the infection than the presence of *B. coli*, *B. proteus*, *Cl. welchii*, or any of the other intestinal organisms is evidence of their activity in the tissues about a faecal fistula." Our case satisfies these three conditions.

### Summary

A case of amoebic ulceration of the buttock in a symptomless cyst carrier is described and the recent literature on the subject is reviewed.

The aetiology of the genesis of the abscess is discussed and the importance of excluding amoebiasis in any lesion of the ano-rectal region is stressed, especially in personnel who have served in the Tropics.

We are indebted to the Director-General of the Royal Air Force Medical Service for permission to publish this paper.

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## A CASE OF SEVERE PRE-ECLAMPTIC TOXAEMIA WITH CENTRAL PLACENTA PRAEVIA

BY

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A married woman, 32 years of age and in her third pregnancy, was admitted to hospital as a moderately severe case of pregnancy toxæmia on March 25, 1946. On admission she complained of some swelling of the ankles and occasional vomiting during the past week or ten days. She had had no headaches, visual disturbances, or pain elsewhere, and her only other complaint was a certain amount of epigastric discomfort caused by indigestion and flatulence which was relieved by a carminative mixture. Her last menstrual period was Aug. 1, 1945.

The patient had two children, now aged 8 and 10 years, and no miscarriages. She had had no illnesses or operations except for some degree of hypertension during the latter part of the second pregnancy.

On examination she looked rather ill and had slight conjunctival pallor. There was some oedema, not marked, of both ankles and the lower parts of both legs. Her blood pressure was 150/100 mm. Hg, and testing the urine revealed a distinct cloud of albumin. The fundus of the uterus corresponded to a height of about 36 weeks' pregnancy and was not tender on palpation. Although it was rather difficult on abdominal palpation to determine precisely the presentation of the foetus it seemed more likely to be a breech rather than a vertex.

The next day, March 27, after starting treatment for toxæmia, which consisted in complete administration of "ostocalcium," "marmex," glucose drinks, and phenobarbital.

(32 mg.) b.d., there was a slight improvement in her general condition and the oedema became less. The blood pressure was then 160/98 mm. Hg, and a catheter specimen of urine still showed a cloud of albumin on testing.

The following day she complained of some blurring of vision, with spots in front of her eyes during the night, and this persisted during the day. She also complained of backache and headache mainly in the frontal region, and her blood pressure rose to 168/110 mm. Hg. In view, therefore, of the sudden deterioration in the patient's condition it was decided to perform a surgical induction forthwith. Artificial rupture of membranes was attempted but had to be abandoned because an unsuspected central placenta praevia was felt completely covering the internal os. There was some slight bleeding on digital examination. The patient was thereupon prepared at once for caesarean section, for this was considered to offer the best chance of survival to both mother and baby.

### Operation

On March 28 at 6.30 p.m. atropine, 1/100 gr. (0.65 mg.), was given. At 7 p.m. a general anaesthetic was started (chloroform 1 part mixed with ether 3 parts). At 7.15 p.m. the abdomen was opened through an incision for a classical caesarean section. As soon as the uterus was reached its anterior wall was seen to be a deep purple in colour, almost the whole of the myometrium being extremely thin—in places almost like paper. It appeared to consist merely of the outer peritoneal covering and a little fibrous tissue and to be in imminent danger of spontaneous rupture. There were many peritoneal adhesions, especially on the anterior uterine wall, and omentum and intestine were also adherent to the uterus. A living female infant, breech presentation (right sacro-anterior) was then delivered. The upper segment of the uterus was separated from intestines and omentum and removed. During this part of the operation the wall of the uterus came apart in fragments when pulled upon by forceps. Hysterectomy was attempted but found to be impossible owing to adhesions, so the remaining lower portion of the uterus was sewn together with a double row of catgut sutures. The placenta, which was of the central variety and almost filled the lower segment, was very disorganized and infarcted in appearance. Towards the end of the operation the patient became shocked and was given oxygen. She was then returned to the ward.

At 8.15 p.m. anti-shock treatment was continued and intravenous plasma started. Soon afterwards the patient began to recover consciousness but was still in a very shocked condition. There was some improvement after one bottle of plasma. At 9 p.m. intravenous transfusion of Group-O Rhesus-negative blood was begun. There were some slight rigors in spite of satisfactory cross-matching.

At 11 p.m. there was marked deterioration in the general condition. The patient became very restless and delirium started. Morphine, 1/6 gr. (11 mg.), was given at 11.45 p.m. At 12 midnight the pulse became very much weaker and the respirations were infrequent, shallow, and irregular. Nikethamide and continuous oxygen were given, but the patient soon became comatose and died.

### Discussion

The sudden change from a moderately severe toxæmia to a condition bordering on true pre-eclampsia, in spite of treatment having been started, after symptoms had been present for only just over a week before admission to hospital is noteworthy. There were present three abnormal conditions, any one of which might have proved fatal, for at any moment immediately before entering hospital the patient might have been overtaken by (1) the sudden onset of eclampsia, (2) a severe antepartum haemorrhage, and (3) a ruptured uterus.

The cause of the low-lying placenta in this case might have been the poor condition of the upper portion of the uterus, with consequent difficulty in nidation of the ovum

in a normal position. The reason for the excessive thinness of the upper uterine segment and the almost complete disappearance of muscle fibres in certain areas was not determined. There was no history of peritonitis or an operation which might have accounted for the many dense adhesions found at laparotomy. So far as the patient herself knew her previous confinements were quite normal, apart from some degree of hypertension towards the end of the second pregnancy. There was no history of pyrexia during the puerperium after the birth of her other children.

The previous hypertension might have contributed to the degeneration of the myometrium, for in women dying from eclampsia areas of myometrial infarction have been found post mortem. Hypertension could presumably lead to a relative ischaemia of the tissues supplied by the affected vessels and perhaps in some cases, if severe enough and prolonged, to their replacement by fibrous tissue. Furthermore, this patient was clinically rather anaemic, although unfortunately a haemoglobin estimation and erythrocyte count were not done. Anaemia would conduce to any degenerative processes which might occur. Another possibility is that there was an undiagnosed partial rupture during one of the previous confinements, although there was no history of any previous dystocia; nor, if the myometrium was then healthy, is there any reason why even a partial rupture should have occurred. Probably, as often in medicine, the cause of this and other morbid conditions will ultimately be found to be a combination of several factors.

I wish to thank Dr. R. A. Zeitlin, Medical Superintendent of St. Mary's Hospital, Portsmouth, who has kindly given permission for the report on this case to be published, and Mr. Trevor Barnett, consulting obstetrician and gynaecologist to the hospital.

## Medical Memoranda

### Abdominal Implantation of Fertilized Ovum

Since examples of implantation of a fertilized ovum in the peritoneal cavity are comparatively rare, the following case may be of some interest.

#### CASE REPORT

A married woman aged 32 was admitted to the Royal Victoria Infirmary, Newcastle-upon-Tyne, on Jan. 16, 1947, as a case of ruptured ectopic pregnancy. In 1940 she had a normal full-term delivery and her puerperium was uneventful. She had never had a miscarriage, nor could any evidence of previous abdominal or pelvic inflammation be obtained. Her menstrual cycle was regular every 28 days and the period usually lasted four to five days. Her last normal period began on Dec. 10, 1946, and was of the usual duration. She was perfectly well until Dec. 26, when at 1 a.m. she was seized with sudden acute lower abdominal pain which prostrated her and made her crawl about in agony. She remarked that the pain was similar to that of labour. After three hours the pain disappeared suddenly and she felt well again. There was no pain thereafter until Jan. 12 when she had another attack of lower abdominal pain, not so severe as previously, but on this occasion it persisted until Jan. 15, although it was not particularly acute. With the onset of pain, haemorrhage per vaginam was noted, and it continued right up to the time of operation. While reading in bed on the morning of Jan. 16 a further sudden attack of acute lower abdominal pain occurred and she felt very ill indeed. She was seen by her doctor at 6 a.m. and sent into hospital.

On admission the patient looked very ill, with a definite cyanotic tinge of the skin. The temperature was 98.6° F. (37° C.); the pulse was 100 and of poor volume. She complained of generalized lower abdominal pain, and also pain in the right shoulder region and the lower ribs on the right side. Examination showed a diffuse tenderness over the lower abdomen, possibly slightly greater on the right. There was no rigidity and Cullen's sign was absent. Vaginal examination caused the patient much pain, but it was possible to feel a boggy mass in the pouch of Douglas. A lump was not palpable.

Operation was carried out without delay on the diagnosis of suspected tubal gestation. The abdomen was opened through a midline subumbilical incision and was found to be full of blood—in the main fluid, but containing some large dark clots. Both tubes were examined and found to be normal in appearance, as was the right ovary. A small bleeding-point was noticed on the left ovary (possibly due to the points of the dissecting forceps) and was sutured. On clearing away the clots in the pouch of Douglas the ovum was found to be implanted at the bottom of the pouch and slightly to the right, and was about the size of a cherry. There was a steady trickle of blood coming from the implantation site. The ovum was picked up with sponge-holding forceps and dissected clear of the peritoneum by means of a dissector. The peritoneum was fixed with a continuous catgut suture as there was still a little seeping from the raw area. Some difficulty was experienced in this part of the operation on account of the depth of the pouch of Douglas. The abdomen was cleared of blood so far as possible and a further examination of the Fallopian tubes made. To the naked eye and to palpation both appeared normal. The abdomen was closed in layers without drainage. Blood transfusion was started as soon as the abdomen was opened and continued throughout the operation and on return to the ward.

The patient's convalescence was satisfactory as regards her abdomen, but a weakness of the muscles of the left arm and forearm was noticed immediately after the operation, due to over-reliance of the brachial plexus. It was this arm that was used for the transfusion, and the condition was undoubtedly caused by over-contraction of the arm with the patient in the Trendelenburg position. The condition improved rapidly, but there was still some weakness of the biceps when she was discharged from hospital. The tissue removed from the pouch of Douglas had the appearance of chorionic villi, and this was subsequently confirmed by histological examination. The pathologist's report stated: "The material consists of recent blood clot and chorionic villi." An ovum was not found.

#### COMMENT

The interest in the case lies in whether this was a primary or a secondary abdominal implantation. On the visual evidence of normal tubes one is tempted to say that it was indeed primary. A consideration of the history, however, puts a rather different complexion on the matter, and it is almost certain that her first attack of abdominal pain on Dec. 26 was due to the successful efforts of one tube to expel the ovum in its lumen. The second attack of pain and the bleeding per vaginam are more difficult to explain. Only four days elapsed between the onset of the pain and operation, and it seems barely feasible to suggest that the expulsive efforts of the tube on Dec. 26 were not completely successful and that total expulsion did not occur till Jan. 12. Had this been the case one would have expected to find some visual evidence of recent tubal involvement. Furthermore, the ovum was firmly implanted on the peritoneum of the pouch of Douglas, pointing, in my opinion, to a longer "implantation-time" than four days. The available evidence therefore points to this being a case of secondary implantation of a fertilized ovum.

I wish to thank Mr. H. Harvey Evers, honorary gynaecologist, Royal Victoria Infirmary, for permission to publish this case, and the Pathology Department of the infirmary for the histological report.

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### A Case of Cerebellar Tumour Simulating Pyloric Obstruction

It is recognized that in cases of intracranial tumour nausea and vomiting may be sufficiently prominent, especially in children, to attract attention to the stomach as the cause of the trouble (Camp, 1925). Bailey *et al.* (1939) mention one case of their own in which appendicectomy had been performed, and two others, reported by Babonneix, which had been treated for some months for enteritis and chronic appendicitis respectively. Cushing (1930) found cyclical vomiting and pyloric stenosis among various erroneous diagnoses of cases which eventually came under his care.

In the following case, owing to the prominence of the gastrointestinal symptoms and the absence of physical signs in the central nervous system, it was thought wise to perform a barium-meal examination to exclude a lesion of the gastro-intestinal tract before subjecting the patient to the more elaborate neuro-

surgical diagnostic procedures. The surprising discovery of a 26-hour delay in the stomach led to the mistaken diagnosis of organic pyloric obstruction.

#### CASE HISTORY

On Aug. 15, 1945, a boy aged 10 was admitted with a six weeks' history of vomiting, occurring each morning within a few minutes of waking up, followed by a frontal headache; this was severe and usually lasted 10 to 20 minutes but occasionally persisted till midday. The vomiting sometimes recurred during the morning, but it, too, always ceased about midday. He also complained of loss of weight and general malaise.

On examination the child was thin, but no other abnormal physical signs were detected. The early morning vomit was about 100 ml. of greenish-yellow, clear, glairy fluid. The temperature, pulse, and respiration rate remained normal throughout. The blood count, E.S.R., catheter urine, and a straight radiograph of the skull and chest were all normal. The cerebrospinal fluid was clear and colourless, under pressure of 80 mm. of water; no clotting occurred; cells 2 per 3 c.mm.; W.R. negative; Lange, no precipitation. The visiting ophthalmic surgeon, Mr. Eugene Wolff, declared the fundi to be normal, as did the neurologist, Dr. Hinds Howell, who also found no evidence of abnormal signs in the central nervous system.

Several attempts at a barium-meal examination were frustrated by vomiting, but eventually some was retained. The report stated: "Oesophagus, no obstruction; stomach, slight dilatation; duodenum, cap not clearly seen, no tenderness; caecum, no tenderness, mobile. Stomach surprisingly shows 26-hour delay and irregularity of the pyloric end." Pyloric obstruction of unknown aetiology was diagnosed, a surgical opinion was obtained, and laparotomy was advised.

On Sept. 13, as the child was showing signs of dehydration, an intravenous drip infusion of saline was set up in preparation for a laparotomy next day. While this was being done in the afternoon, the child complained of headache, and this was the first occasion on which the headache was noted to have persisted after midday. At 7 a.m. on the 14th, respiration became irregular, the face flushed, and the neck rigid and extended. Shortly afterwards the patient became cyanosed; the pupils were widely dilated and did not react to light; respiration became shallow and then imperceptible; the radial pulses were palpable, but heart sounds could still be faintly heard. Nikethamide and digoxin were given intravenously; and artificial respiration was started with oxygen administered by a B.L.B. mask. The heart beat improved at first but later became weaker and ceased at 9.15 a.m. The respiratory rhythm showed no signs of restoration.

At necropsy no anatomical defect of the pylorus could be found, and the stomach was not obviously dilated. A large gush of cerebrospinal fluid appeared when the tentorium cerebelli was cut, and a tumour was found in the cerebellum, about 2 in. (5 cm.) in diameter and approximately symmetrical about the midline. The morbid histological report stated that the tissue was "a spongioblastoma showing clear evidence of rapid growth."

#### COMMENT

The mechanism of the delay must presumably have been a gross interference with the normal peristaltic movements. The radiographic appearance of the stomach was not suggestive of gastroparesis, and it seems likely that there was a central interference with the normal vagal control of the stomach leading to a gastric stasis, such as was observed by Dragstedt and Schafer (1945) in three of their series of 15 cases in which vagotomy was performed for peptic ulcer. Orr and Johnson (1947) also found that most of their patients after vagal resection had a six-hour residue, and two had a 24-hour delay without any evidence of organic obstruction and without any inconvenience (Orr, personal communication).

My thanks are due to Dr. Bruce Williamson, physician in charge of the case, and to Mr. Roland Segar, medical superintendent of Wellhouse Hospital, for permission to publish the case.

H. R. MALLOWS, M.A., M.B.,  
Surgeon, Lieut., R.N.; Late House-Physician,  
Wellhouse Hospital.

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Sweden's oldest inhabitant, Mrs. Johanna Johansson, aged 107 years 6 months. She was congratulated on birthday by a great-grandson 105 years younger than



## Reviews

### EXAMINING THE EYE

*Diagnostic Examination of the Eye. Step-by-Step Procedure.* By Conrad Berens, M.D., F.A.C.S., and Joshua Zuckerman, M.D., C.M., F.A.C.S. (Pp. 711; 410 illustrations, including 48 in full colour on 13 plates. £4 10s.) Philadelphia and London: J. B. Lippincott Company.

As the specialties in medicine become more and more differentiated, so the elaboration of their diagnostic techniques increases. In no branch of medicine is this more evident than in ophthalmology; and, though the standard techniques of focal illumination and ophthalmoscopy can fortunately provide a wealth of information for the practitioner, the eye is particularly suited to the development of specialized methods for minute objective examination because of its optical properties, while the high differentiation of the visual sense invites the elaboration of refinements in subjective tests. The extent to which this tendency has been carried in ophthalmology is seen in the fact that a book of 711 pages has been filled—without much “padding”—with descriptions of a multitude of such methods.

The book is arranged in “steps.” Step 1 is the interrogation of the patient and the interpretation of his complaints; step 2, a general survey of the patient and the gross ocular appearance; step 3, palpation of the globe and its adnexa; step 4, auscultation—useful in eliciting a bruit in arteriovenous aneurysm, and said to be helpful in detecting an orbital foreign body when an increased resonance to the patient’s speaking voice is heard through the stethoscope placed over the closed lids; step 5, visual acuity for distance and near (accommodation); step 6, motor anomalies—an elaborate chapter; step 7, confrontation fields; step 8, biomicroscopy with the slit-lamp; step 9, ophthalmoscopy; step 10, transillumination; step 11, contact illumination; step 12, retinoscopy and refraction; step 13, tonometry; step 14, post-cycloplegic tests; step 15, colour-vision testing; step 16, fusion; step 17, light sense; step 18, perimetry; step 19, general supplementary tests; step 20, the summary of clinical findings, how to give advice to the patient, etc. As if this were not enough, in a further 271 pages the authors describe supplementary examinations, including such techniques as gonioscopy, red-free ophthalmoscopy, angioscopy, eikonometry, and many others.

The book is interesting, well and profusely illustrated, and contains a wealth of information, but it illustrates the tendency for the elaboration of methods to go to the extreme of becoming an end in itself. For example, a complex apparatus involving a large and expensive optical cabinet seems hardly necessary to measure the inter-pupillary distance. And among all the modernity it is somewhat of a shock to find the pupillary pathways described after the scheme of Bernheimer, which has for some considerable time been shown to be wrong.

STEWART DUKE-ELDER.

### RADIANT ENERGY AND HEALTH

*Applications of Germicidal, Erythemat and Infra-red Energy.* By Matthew Luckiesh, D.Sc., D.E. (Pp. 463; illustrated. 30s.) New York: D. Van Nostrand Co., Inc. London: Macmillan and Co. 1946.

Dr. Luckiesh, director of the research laboratory of the General Electric Company, U.S.A., has written an authoritative book on the use of radiant energy for human welfare. It is fully illustrated with spectrograms and graphs showing the range of radiant energy in the infra-red, visible, and ultra-violet regions of the spectrum, and the reflection by and penetration of the skin by these different rays, whether coming from the sun and the light of the sky or from various artificial sources which the author describes and evaluates. He discusses fully the germicidal effectiveness of the recently developed sources of ultra-violet rays used for killing air-borne and water-borne (3) a. thus preventing the spread of infection in rooms and

The canination of food, and keeping the air in containers have been tungsten-filament lamp, with special glass for the uterus, with c

bulb which transmits ultra-violet rays, can be used, or low-pressure mercury-vapour lamps, the bulbs containing the small arcs being in similar glass. For production of fluorescent light the bulbs can be coated with phosphors on the inside surface, and by this means even a dark source of ultra-violet rays is obtainable.

The use of these lamps in air-ventilation ducts and on the ceilings of occupied rooms greatly diminishes the number of bacteria and, therefore, catarrhal and other infections. Plates illustrate the germicidal power by showing the result of bacterial growth in Petri dishes exposed to the air before and after irradiation. One illustration shows a work-room in which a “sun” lamp emits ultra-violet light of the wavelength of the midday summer sun. It is fixed in the ceiling and radiates a sufficient amount of erythemat energy. Such an installation has been used with benefit to health for 20 years. Young tomato plants are conservative indicators of that intensity of germicidal rays which it is safe for the eye and skin to be exposed to. A minimal perceptible erythemat effect is obtained in 20 minutes’ exposure to midday sun on a clear day in summer and in about three hours in mid-winter. Rays longer than those that cause most erythema tan the best.

The author describes exact methods of measuring radiant energy, and considers both the very effective ultra-violet rays and the infra-red and luminous rays, as well as their relative influence on welfare and their penetration of the skin. He exposes the quackery of so-called colour therapy, and proves the safety of new sources of illumination with some unfamiliar tints. He devotes a chapter to the fading of materials and another to the influence of radiant energy on plant life.

LEONARD HILL.

### HYPOGLYCAEMIC STATES

*L’Hyperinsulinie. Les Etats de Suractivité Fonctionnelle du Pancréas Endocrine en Médecine Expérimentale et en Clinique.* By Marcel Sendrail. (Pp. 256; 25 figures and 2 in colour. 500 francs.) Paris: Masson et Cie. 1947.

The author, professor of general pathology at Toulouse, has written a detailed survey of hypoglycaemic states, which he designates by a new term—“hyperinsulinie.” He discusses both experimental and clinical data and quotes or mentions most of the literature on this subject, confining his references much less exclusively to the work of his compatriots than do the authors of most French monographs. But the misspelling of foreign authors’ names is so frequent as to be annoying. The quotation of contrary findings and opinions and theoretical possibilities in juxtaposition confuses the reader, since the author often fails to express his own opinion on which view is right. It seems that he must mention everything and appraise little in this vast compendium. He considers every imaginable cause of hypoglycaemia—pancreatic insuloma, liver conditions, starvation, other endocrine disturbances, and a curious group of “renal” and “morphine” hypoglycaemias whose nature will be obscure to the reader.

A word or two on nomenclature: the author rejects the commonly used English term “hyperinsulinism”—a nasty hybrid, no doubt, but it has come to mean a hypoglycaemia produced by a pancreatic tumour and excessive uncontrolled insulin production. He does not use the accepted French “hyperinsulinémie” to denote an excess of insulin in circulation—presumed though never proved. He has invented the word “hyperinsulinie” as being more in the traditional French form. This it may be, but he uses it too vaguely and ascribes it not only to conditions that arise from insulomas but to hypoglycaemic states, “insulinaries rénales,” and others where excess of insulin is highly improbable. I have looked in vain for a definition of true hypoglycaemic levels in this book. Figures of 70 to 80 mg. of blood sugar per 100 ml. are constantly referred to in both the experimental and clinical section as indicating hypoglycaemia, yet such figures are within the accepted normal limits.

The author describes the experimental work done by himself and his colleagues at Toulouse. It has two main aspects. First, they have studied the effect of sympathetic influences on the pancreas by periarterial section of all pancreatic arteries, and the author claims that this causes hypoglycaemia “hyperinsulinie,” though the graphs do not show it very clearly.

Secondly, as a test of insulin sensitivity they use a new technique—the *intramuscular* injection of 20–30 units (0.5 unit/kg. body weight), which is said to cause a more regular depression of blood sugar than the usual intravenous test. The book would be very useful for study and reference if it had an index.

R. D. LAWRENCE.

### LABORATORY METHODS

*Clinica y Laboratorio.* By Dr. G. Pittaluga, in collaboration with E. Gajan and A. Guernica. (Pp. 459; illustrated. Paper covers: \$7.00; cloth \$9.00.) Habana: M. V. Fresneda, Neptuno 561. Cuba.

In this book on clinical practice and the laboratory the authors have critically considered laboratory techniques and methods of examination in order to demonstrate which are the most informative and accurate for clinical diagnosis. The only descriptions of laboratory methods given are of those tests devised by the authors themselves, and either little known or of which accounts have not hitherto been published, which they have found to give more accurate results or be less difficult to perform. They give references to all standard procedures, and at the end of each chapter a full and up-to-date bibliography.

Especially well written is the section on examination of the functional capacity of the kidney. The authors present a well-balanced account of the various kidney tests, including measurement of glomerular filtration rate, effective plasma flow, and maximal tubular capacity. The chapters on liver function and mycology are also excellent. The photomicrographs and illustrations are of a high standard. The book is well produced and should be of great use to the practising physician.

W. T. COOKE.

### SUICIDE

*Suicide and the Meaning of Life.* By Margarethe von Andics. Preface by Prof. Cyril Burt. (Pp. 219. 8s. 6d.) London: William Hodge and Co. 1947.

This book is based upon a study of 43 men and 57 women, 70% being unskilled workers, who had attempted suicide and were examined by Dr. von Andics at the psychiatric and neurological clinic at Vienna, where they were sent by the police commissioner of their respective districts. The author approached the material as a psychologist, and excluded from examination all cases of attempted suicide by the mentally deranged or by inebriates in a state of intoxication. Even so she was not primarily concerned with the unconscious genesis of the act, but with the experience itself as it affected the consciousness of the individual, and she noted, like other observers, the occasional cathartic effect of the attempt.

Dr. Andics believes that for 100 persons who decide to commit suicide there are about 250 motives. This neat ratio probably means no more than the fact that the motive here, as so often elsewhere in anti-social activity, is complex. Indeed, like other workers in this field, she finds that suicide and attempted suicide occur when several of life's difficulties intersect. She states that 81% of her patients had had an unfavourable childhood and a similar proportion had made no friends. Above a certain minimum standard it was not so much the smallness of income or the insufficiency of the livelihood that impelled the attempt but uncertainty and aimlessness about the future. The subjective reaction of the women was in marked contrast to the objective outlook of the men, who were mainly concerned with material issues and principles. It was found that subjective factors may leave ineffaceable traces in the person's character and sometimes operate in a future conflict. The interesting fact emerged that an overwhelming majority in both sexes were sexually subnormal, and that this was an indirect cause of attempted suicide and acted either by isolating the person or by making the attachment to one single partner irreplaceable if death or misadventure intervened.

The number of cases is too small for the author's conclusions on these and other topics in the book to be more than interesting, but some of the excerpts from her notes are illuminating and the book is clearly written. There is no indication of the date of the investigation, a matter to be regretted in view of the disturbed state of Europe in recent years.

W. NORWOOD EAST.

### BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

*Social Health and Morals.* By I. Fraser Mackenzie, M.D., D.P.H., D.T.M.&H. (Pp. 173. 7s. 6d.) London: Victor Gollancz. 1947. Includes discussion of the sexual instinct in society, venereal disease, marriage and family life, trial marriage, and divorce.

*Malaria.* By W. K. Blackie, M.D., Ph.D., F.R.C.P.Ed., D.T.M.&H. (Pp. 101. 10s. 6d.) Capetown: The African Bookman (for the Post-Graduate Press). 1947.

A general account of malaria, with an introductory historical review and special reference to forms of the disease met with in Africa.

*Abnormal Psychology.* By J. D. Page. (Pp. 441. 5s. 4d. or £1.) New York and London: McGraw-Hill Book Company. 1947.

An introductory textbook of mental disorders, intended for students with some knowledge of psychology.

*Paediatrics for Nurses.* By A. G. Watkins, M.D., F.R.C.P. (Pp. 192. 10s.) Bristol: John Wright and Sons. London: Simpkin Marshall. 1947.

A clinical account of diseases of children, intended for nurses.

*The Conduct of Life Assurance Examinations.* By E. M. Brockbank, M.B.E., M.D.Vict., F.R.C.P. 2nd ed. (Pp. 176. 12s. 6d.) London: H. K. Lewis. 1947.

An account of how to examine persons for life assurance companies.

*The 1947 Year Book of Radiology.* Edited by C. A. Waters, M.D., and I. I. Kaplan, M.D., F.A.C.R. (Pp. 416. \$5.50 or 30s.) Chicago: The Year Book Publishers, Inc. 1947.

Recent advances in radiological diagnosis and therapeutics; with many illustrations.

*Die Diagnostik und Therapie des Nebennierenausfalls und das Krankheitsbild der relativen Nebennierenrindensuffizienz (Hypoadrenie).* By A. Kappert. (Pp. 102. 8 Swiss francs.) Basle: Benno Schwabe and Co. 1947.

A monograph on the diagnosis and treatment of adrenal cortical insufficiency.

*Clinical Methods in Surgery.* By K. Das, M.B., F.R.C.S. (Pp. 240. Rs.20 or 35s.) Calcutta: The City Book Company. 1947.

Describes the clinical examination of surgical cases.

*The Story of a Scottish Voluntary Hospital.* By T. C. Mackenzie, M.D., F.R.C.P.Ed. (Pp. 284. 8s. 6d.) Inverness: "Northern Chronicle" Office. 1946.

A history of the Royal Northern Infirmary, Inverness.

*A Manual of Fractures and Dislocations.* By B. B. Stimson, A.B., M.D., Med.Sc.D., F.A.C.S. 2nd ed. (Pp. 223. 17s.) London: Henry Kimpton. 1947.

A short guide intended for medical students.

*Health Services in England.* By R. C. Wofinden, M.D., B.S., D.P.H., D.P.A. (Pp. 191. 10s.) Bristol: John Wright and Sons. London: Simpkin Marshall (1941), Ltd. 1947.

A survey of public health services in England.

*The Causation and Treatment of Delayed Union in Fractures of the Long Bone.* By K. W. Starr, O.B.E., M.S., F.R.C.S., F.A.C.S., F.R.A.C.S. (Pp. 233. 42s.) London: Butterworth and Co., Ltd. 1947.

An essay awarded the Jacksonian Prize in 1944.

*Handbook of Communicable Diseases.* By F. H. Top, A.B., M.D., M.P.H., F.A.C.P., et al. 2nd ed. (Pp. 992. 42s.) London: Henry Kimpton. 1947.

An illustrated textbook of communicable diseases; with references.

*The Selected Writings of Benjamin Rush.* Edited by D. D. Runes. (Pp. 433. 55s.) New York: Philosophical Library, Inc. 1947.

Dr. Rush's liberal ideas were later of great influence during the American Revolution.

*Physical Medicine in General Practice.* Edited by A. L. Watkins, M.D. (Pp. 341. 30s.) London: J. B. Lippincott Company. 1946.

A practical account for the general practitioner.

## BRITISH MEDICAL JOURNAL

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## THE MINISTER'S REFUSAL

About a year ago the British Medical Association sought by means of a plebiscite the opinion of the medical profession on the National Health Service Act. The result of the plebiscite showed that for all categories voting there was a majority against negotiations on Regulations within the framework of the Act. Of the general practitioners voting the percentage of Noes was 64. When the Council of the B.M.A. met on Dec. 11, 1946, to decide what action to take on the results of the plebiscite it passed this Resolution to be forwarded to a special meeting of the Representative Body:

That the Negotiating Committee be advised that in view of the results of the plebiscite the Minister be informed that, because of the divergence between the principles of the profession and the provisions of the National Health Service Act, the Committee is unable to enter into discussions with the Minister on the Regulations to be made under that Act.

On Jan. 2 of this year the three Presidents of the Royal College of Physicians, the Royal College of Surgeons, and the Royal College of Obstetricians and Gynaecologists wrote a letter to Mr. Bevan<sup>1</sup> in which they sought to avoid the impasse that would arise if the medical profession refused to renew discussions with the Government on the National Health Service Act. Mr. Bevan replied<sup>1</sup> that if discussions took place he would "endeavour to meet any views of the profession which do not conflict with the principles of the Act." When the Representative Body met on Jan. 28 of this year it passed the following Resolution:

That the Association, having considered the final results of the plebiscite and the Minister's letter of Jan. 6 to the Presidents of the Royal Colleges, and desiring to secure for the people the best possible Health Service, is willing that discussions be entered into with the Minister to that end, provided that such discussions are comprehensive in their scope and that the possibility that they may lead to further legislation is not excluded; that after the conclusion of these discussions a second plebiscite of the profession be taken on the issue of entering the Service.

On Jan. 31 the Minister expressed his willingness to resume discussions with the Negotiating Committee in the light of the above Resolution. Since that date the Negotiating Committee has been hard at work, and the six subcommittees it set up have had many meetings both at B.M.A. House and with the officers of the Ministry of Health. These discussions have been "comprehensive in scope" and have been conducted on the assurance that the possibility of amendment would not be excluded. By now all members of the profession in Britain will have received copies of the statement of the Negotiating Committee summarizing the work of the past months and put before the Minister in advance of the meeting with him on Dec. 2 and 3. The Minister's reply has also been circu-

lated, and both documents are printed in this week's *Supplement*, together with the legal opinion of Sir Cyril Radcliffe, K.C., and Mr. J. H. Stamp on the interpretation of Section 35 of the Act.

Commenting on the situation in the first week of this year *The Times* said in a leading article<sup>2</sup>: "Yet a crisis of confidence has been precipitated, and it cannot be denied that Mr. Bevan himself has helped to precipitate it." We expressed the hope then<sup>3</sup> that Mr. Bevan would "seize the opportunity to show himself a statesman by responding to the profession's earnest desire to discuss clauses of the Act as well as the Regulations." Mr. Bevan has certainly discussed clauses of the Act, but in spite of the cogent case put to him by the Negotiating Committee he has refused to amend the Act in any one particular and has in effect done little to remove those grave doubts on certain aspects of the Act which unsettle the majority of the profession in this country. He has made, it is true, concessions to the consultants and specialists, in particular by his offer to set aside in State hospitals a limited number of beds in which consultants and specialists may treat patients with no restriction on the fees to be charged. Mr. Bevan, whose persuasively written reply is much more conciliatory in tone than his oral responses of Dec. 2 and 3, has gone some way to ease difficulties of procedure, but the substance of the Act is unchanged. Has he precipitated another crisis of confidence by refusing to amend the Act in a way that would remove the doubts of those who see it as the first step to a whole-time State medical service?

The Negotiating Committee's statement is long, and so is the Minister's reply to it. The legal opinion on Section 35 presents some difficulty to those not accustomed to following legal arguments. It is hoped, however, that medical men and women will find the time to read and reread these important statements so that they will fully understand the issues when the time comes to answer the questions in the plebiscite to be issued on Jan. 31. There is the danger that many will become confused by the details of the arguments, and that some who flatter themselves as practical men will look only at the financial implications of service under the Act. Yet the essence of the Negotiating Committee's case is nothing more nor less than the preservation of the essential freedoms of a profession with centuries of a fine tradition behind it. At a public luncheon the other week Mr. Herbert Morrison boasted of the revolution now taking place in Britain. Mr. Bevan's National Health Service Act is part of this revolution. His proposed State monopoly of hospitals and his proposed purchase of the ownership of private practices are two important measures directed to the eventual establishment of a whole-time salaried State medical service. The consultant or specialist who perforce must work in the State hospital will while he works in it be an employee of the State through the Regional Board. The general practitioner in the new Health Service will be a servant of the State through the Executive Councils. Medical men have always been proud to serve the community in which they

<sup>1</sup> *British Medical Journal*, 1947, 1, 66.

<sup>2</sup> *Ibid.*, 1947, 1, 57.

<sup>3</sup> *Ibid.*, 1947, 1, 141.

<sup>4</sup> *Ibid.* (*Supplement*), 1943, 2, 29.

live. This tradition of direct service to the patient is now in the process of being broken. The doctor will now serve the patient through the State. The medical profession will come under the dominance of a vast administrative machine operated by one man—the Minister of Health—exercising a power never before wielded by any one man in the history of medicine. Under the new Act, which the Minister refuses to amend in spite of the reasoned case of the Negotiating Committee, all medical men taking service in hospital as well as in general practice will cease to have an undivided allegiance to the individual patient. The doctor will have a duty not only to the patient but to the paymaster, and the paymaster himself will have one eye on the political weather and the other on his master, the Treasury. Apart from any detailed consideration of this, that, or the other section of the Act, or this, that, or the other method of payment, it is undeniable that the National Health Service Act is a revolutionary measure introduced into a sphere of public life in which the trial-and-error of evolutionary development has increased knowledge and has raised British medicine into the proud position it now holds in the esteem of the world. "Evolution, not Revolution," was indeed the title of an article published in the *Supplement*<sup>1</sup> by the late Dr. G. C. Anderson. It is the way of progress most suited to the profession of medicine and most congenial at least to the English temperament. But Mr. Bevan will have none of this and seeks to impose what to the majority of medical men is unacceptable.

In paragraph 3 of its document the Negotiating Committee at the outset asked the Minister "to seek by amendment of the Act where necessary to have the changes made to meet the points raised by the Committee." The Negotiating Committee, it is well to point out, is representative of all phases of professional life. In addition to the British Medical Association there are represented on it the Royal College of Physicians, the Royal College of Surgeons, the Royal College of Obstetricians and Gynaecologists, the Scottish Royal Corporations, the Society of Apothecaries, the Society of Medical Officers of Health, the Medical Women's Federation, and representatives of the Non-teaching Voluntary Hospital Staffs. Jointly these bodies have failed to secure the essential amendments asked for. Jointly, it is hoped, they will persist in seeking those changes if the profession by plebiscite asks them to do so. The chief points which the Negotiating Committee wish to secure, if necessary by amendment, are listed in the summary at the end of the Committee's document. The Committee has agreed with the principle that the Service should be available to the whole community, with the proposed hospital planning and development on regional lines, and with the general structure of Local Executive Councils. The Committee considered it to be undesirable that a Minister should be empowered to establish a monopoly of hospitals, and requested that private nursing-homes should be excluded from the definition of hospitals and clinics set out in Sections 9 and 10 of the Act. They asked, too, that the Minister's discretion should be replaced by an obligation to permit specialists in the Service to attend their patients in private hospital accommodation. The Minister has now promised to arrange in the Hospital Service for four types of beds: (1) beds for patients to be

treated free of charge; (2) beds for patients who wish to pay for privacy but not for consultant fees; (3) beds for patients who wish to obtain privacy and also wish to pay private fees according to a Ministerial scale; (4) beds in which no limitation on fees is imposed. The Minister also has given his assurance that private nursing-homes run for profit will not be taken over by the State. These concessions can in time be as easily withdrawn as given, and the present Minister's assurances are in any case not binding on any future Minister. After no great lapse of time the young consultant of to-day will find himself working as a whole-time servant of the State in a State hospital.

Mr. Bevan has refused to remove the anxieties of general practitioners by amending the Act. He refuses to alter the mechanism of distribution, and the power to direct doctors remains in the Act. He refuses to grant the right of appeal to the High Court on a decision to remove a practitioner's name from the list of an Executive Council. He refuses to meet the profession's strongly rooted objection to a basic salary. Even though almost the only argument he himself used in supporting a basic salary was that it was desirable for a young man entering general practice, he has made it applicable to all practitioners of whatever age entering the public service. General practitioners will naturally ask themselves to what is this salary *basic*, and the answer would appear to be that it is basic to a future whole-time salary. Mr. Bevan refuses to amend the Act in respect of the ownership of goodwill. The retention of the custom of buying and selling practices, which general practitioners as a whole regard as essential to their freedom as individual doctors, would be the one obstacle in the way of Mr. Bevan's intention to direct them by the mechanism of the Medical Practices Committee.

In addition to all this Mr. Bevan refuses to remove the ambiguity and anomalies of Section 35 of the Act in spite of the fact that his interpretation of the wording in particular of Subsection 4 of this section is challenged by two of the most prominent legal advisers in this country, Sir Cyril Radcliffe, K.C., and Mr. J. H. Stamp, the latter being counsel to the Treasury. Their reasons for disagreeing with the Minister's interpretation of Subsection 4 of Section 35 of the Act are set out in this week's *Supplement*. Their important conclusion is as follows:—

"If Sections 35 and 36 are allowed to become operative without amendment the profession and the Ministry alike will labour under embarrassing uncertainty on matters of great importance until the debatable matters have been finally adjudicated upon, and in the meantime steps may have been taken on the footing of a construction which is ultimately found erroneous with unfortunate consequences to all concerned. In our opinion it would involve a real hardship to the practitioners concerned if they were required to submit to such uncertainty when it has been clearly foreseen and can be removed by an amending Act."

Whether the Minister's interpretation is right or wrong, the interpretation of this subsection is so ambiguous that no general practitioner at present in partnership taking service under the Act will know where he stands in relation to partnership agreements entered into before the appointed

date—July 5, 1948. No one in fact will know what the subsection means until the matter has been settled in the Courts, and the Minister is content to leave it for the Courts to decide. In the meanwhile he gives his assurance that his interpretation is as stated in the Negotiating Committee's document, and on the basis of this proposed methods whereby those in the Service should not suffer financial loss owing to partnership agreements. But the sole concern of the Courts when called upon to interpret Section 35 will be with the wording of the Act and not with the assurances of Mr. Bevan or any subsequent Minister. Mr. Bevan could have remedied this situation by amending Section 35 so as to remove all ambiguity from it. This he refuses to do.

According to the Minister's interpretation of Subsection 4 of Section 35 (which with Section 36 on Compensation is reproduced in full in the *Supplement*) the Act does not determine partnership agreements entered into before the appointed day. This means that two doctors in partnership with agreement to buy or sell a share of the practice on the death or retirement of one or other partner can hold each other to this agreement if one or both enter the National Health Service in July of next year. The sale of a share under pre-existing partnership agreements will not constitute an offence under Section 35 (2) of the Act. There are not a few partnerships in which the one partner conducts the private side of the practice and the other the panel side. The Minister has stated that he does not wish to interfere with private practice. Many men, even though the Act might be rendered acceptable, would still wish to continue in private practice, and it is likely that in such a partnership as is described the one partner will continue in private practice and the other will place his name on the list of the Local Executive Council. The matter is summarized thus by the Negotiating Committee:

"In fulfilling his contractual obligations under a partnership deed a practitioner may be required (a) to buy a partner's public practice, the capital value of which he cannot realize, the income from which he cannot receive, and compensation for which is not available to him. . . ."

The effect of the Minister's interpretation is to force the private practitioner into the public service.

The Minister, having introduced a basic salary against the wishes of the profession, has settled upon a method of capitation payment which again leaves the actual financial position somewhat obscure. The capitation fee, for example, will vary from area to area according to the number of doctors taking part in the Service. The Minister proposes that there should be created a central pool of £40,826,250. This sum is arrived at by multiplying 95% of the estimated population of Great Britain for June, 1948, by 18s. From this pool is to be subtracted £6,000,000 odd to provide mileage fees, basic salary, and fees for certain special services. If, in fact, 95% of the population were on doctors' lists, and 17,900 principals joined the Service, the actual remuneration per head would amount to 17s. 6d. There will in addition be maternity fees, fees for emergencies and anaesthetics, and special grants for training assistants. There will also be set aside a sum equal to 1% of the central fund for "inducement" payments to assist doctors to practise in difficult areas.

Preoccupation with financial and other details, important as they are, for medical men have their living to make, must not obscure the main issue which the medical profession now has to face. This issue is summed up in the first of the principles enunciated by the Negotiating Committee exactly two years ago, thus:

"The medical profession is, in the public interest, opposed to any form of service which leads directly or indirectly to the profession as a whole becoming full-time salaried servants of the State or local authorities."

Mr. Bevan claims that his Act does not conflict with any of the profession's principles. We believe, on the contrary, that the Act is the first step towards a whole-time salaried State medical service, and the refusal of Mr. Bevan to amend the Act strengthens this belief. If the medical profession after careful reflection on the effect of the Act as a whole comes to the same conclusion, then it must decide for itself whether the above principle is merely a form of words or something which it considers fundamental to the practice of the art and science of medicine.

## SUICIDE IN PEACE AND WAR

The recently published *Criminal Statistics* for the year 1939-45 show that the number of suicides and attempted suicides in England and Wales decreased during the war. In 1938 there were 5,263 suicides, and the number diminished almost regularly until 1944, when the total was 3,651. There was a slight rise to 3,818 in 1945. The number of men who committed suicide each year, 1938 to 1945 inclusive, was almost twice the number of women—22,618 males and 11,646 females. In both sexes the numbers increased in each decade, and reached a maximum in people aged 40 and over. In those aged 21 to 30 years, 2,113 males and 942 females committed suicide; for 50 to 60 years the figures were 4,812 males and 2,822 females; and, for 60 and over, 7,957 males and 3,256 females. These figures support the general view that men are more prone to commit suicide than women and that the tendency increases with age. F. L. Hoffman,<sup>1</sup> as the result of thirty-five years' experience in insurance cases, considers that the age factor in suicide is of most importance among the very young and the very old. Karl G. Dahlgren,<sup>2</sup> in a recent and comprehensive psychiatric and statistical investigation in Sweden found that, broadly speaking, the increase with advancing years of the number of suicides in relation to the size of the population groups still holds good; he refers to the work of Füllkrug<sup>3</sup> for Germany from 1919 to 1923, of Dublin and Bunzel<sup>4</sup> for the U.S.A. from 1911 to 1930 (insurance cases) and of Wicksell<sup>5</sup> for Sweden from 1921 to 1929. Dahlgren points out that the curve of the suicide incidence in Germany shows a small peak for both men and women aged 20 to 25 years. A similar peak is faintly shown in Wicksell's curve for Swedish women aged 30 to 35 years.

<sup>1</sup> *Suicide Problems*, 1927. Newark, New Jersey.

<sup>2</sup> *On Suicide and Attempted Suicide*, 1945. Lund.

<sup>3</sup> *Der Selbstmord in der Kriegs- und Nachkriegszeit*, 1927. Schweinf.

<sup>4</sup> *To Be or Not to Be: A Study of Suicide*, 1933. New York.

<sup>5</sup> *Om självmord* (Svenska Föreningens för psykisk hälsövård småskrifter nr 7), 1934. Stockholm.

<sup>6</sup> "Suicide," *Encyclopaedia Britannica*, 1937.

<sup>7</sup> *Text Book of Psychiatry*, 6th edition, 1944. London.

<sup>8</sup> *J. ment. Sci.*, 1913, 69, 428.

<sup>9</sup> *Amer. J. Psychiat.*, 1938, 95, 97.

<sup>10</sup> Article in *Encyclopaedia Britannica Book of the Year*, 1945. Chicago.

<sup>11</sup> *Munch. med. Wschr.*, 1906, 53, 1408.



De Jastrzebski<sup>6</sup> collected figures showing the suicide rate per million in nine belligerent countries and non-belligerent Sweden and Switzerland in the years immediately before, during, and after the first world war. In each instance a notable decline occurred during the war. This writer points out that the men withdrawn from civil life, and consequently from the populations under statistical review, were not at the ages when suicide is most prevalent. He considers that, had suicide remained at the same level among the civil population as previously, the general rate would have risen owing to there being fewer people left at ages when suicide is less likely. He believes his figures show that mental strain is not one of the prime causes of suicide, but that lack of interest in life itself is one if not the most potent factor. However this may be, the fact that the percentage decline in 1915 to 1918 was greatest in Sweden and greater in Switzerland than in six of the belligerent countries suggests a complex motivation. It could hardly be otherwise, for the related emotional disturbance, whether psychotic or non-psychotic, is in the final analysis itself complex. Moreover, the view formerly held by some that suicide was inevitably due to mental disease is no longer acceptable. Henderson and Gillespie<sup>7</sup> have been impressed by the large proportion of cases of attempted suicide admitted to the Royal Infirmary, Edinburgh, and Guy's Hospital, London, that have never previously seemed to require psychiatric guidance or control; and Norwood East,<sup>8</sup> in an analysis of 1,000 consecutive cases of attempted suicide, estimated that about one-fifth were certifiable as insane.

The number of attempted suicides recorded in the *Criminal Statistics* for the year 1938 was 3,303. This is an underestimate, since all cases are not reported to the police. The figure reached a minimum of 2,386 in 1942; it rose to 2,600 in 1943, and a further rise to 2,972 was recorded in 1945. During the years 1938 to 1945 inclusive 11,711 males and 10,248 females attempted suicide. The number recorded was greatest among those aged 30 to 40 years; those aged 60 and over provided the next highest number. The greatest number of males attempting suicide was among those who were 60 and over and was 2,836, while the corresponding number for females was among those aged 30 to 40 and was 2,231. The second highest incidence for males occurred in this group. Dahlgren states that most authors find the largest number of cases of attempted suicide among men in those aged 25 to 29 years, and among women in those aged 20 to 24. He refers to Piker,<sup>9</sup> who found the figure for men was highest in those aged 25 to 29 years and for women in those aged 15 to 29 years. East found that in males the greatest incidence was in the group 25 to 30 years. Former volumes of *Criminal Statistics* show that during the years 1921 to 1938 there was an almost constant rise in the number of suicides and attempted suicides in England and Wales. The figures for the years after the second world war may have unusual social significance.

The seasonal incidence of suicide and attempted suicide is not considered in the *Criminal Statistics* but has some general interest. Esquirol found that suicides were most numerous in spring and summer. Morselli arranged the seasons by greatest incidence of suicide in the order summer, spring, autumn, and winter. Hoffman stated that

the mortality rate per 100,000 in 27 American cities (1924 to 1926) was highest in December and lowest in August. Lotka<sup>10</sup> found that during 1940 in the U.S.A. the peak month was April with a suicide rate of 16.2 per 100,000. The low points were 12.5 in January and 12.9 in November. Dahlgren states that in most European countries the peak of the curve is reached in May or June. For attempted suicide Dahlgren refers to the work of Rothfuchs<sup>11</sup> and East among others. The former found a maximum in June to July, a smaller peak of incidence in September, and a minimum in March. East found in his cases a maximum in June to July and a minimum in February. Dahlgren noted that the figures for both sexes were often highest in April, with a less pronounced increase in November for men and in October for women. He found a distinct periodicity of attempted suicide in both psychotic and non-psychotic subjects. Various reasons have been suggested for the seasonal incidence, yet none are very convincing. It is not without reason that suicide has been described as our most baffling social disease.

#### ADVANCE INFORMATION

The British Medical Association agreed with the Ministry of Health that the Negotiating Committee's statement should be issued at the same time as the Minister's reply to it. It was agreed that no information should be divulged which would prejudice in advance the issue between the B.M.A. and the Minister of Health. On its side the B.M.A. has kept faith. It was therefore disturbing to find in the *Tribune* on Friday, Dec. 12, two long paragraphs under the title of "What's Happening" which could have been written only by someone with direct knowledge of the confidential discussions between the Minister and the Negotiating Committee on Dec. 2 and 3.

The *Tribune* writes: "At his final meetings with the Negotiating Committee, Aneurin Bevan made it quite clear that the Service will start on July 5 'with the resources at our disposal'." The words "with the resources at our disposal" appear between quotation marks. As there has been no published account of the discussions with the Minister on Dec. 2 and 3 it is pertinent to ask whom or what the *Tribune* is quoting. This paper goes on to state that Mr. Bevan "stood firm" on the question of buying and selling of practices, the distribution of doctors, and basic salary. It then suggests that the consultants and specialists "are likely to break away." The *Tribune* is obviously supporting Mr. Bevan's evident intention to divide the profession.

The *Tribune* makes a remarkable disclosure of financial details which could have been worked out only by someone in full possession of the figures given by Mr. Bevan to the Negotiating Committee on Dec. 2 and 3. Thus "the capitation fee will work out, it is stated, at not less than 17s. 6d. per head of the population. . . ." Again we may ask who made this statement.

"Politically," the *Tribune* states, "the Minister's firmness has been most important. If he had been weak in face of this reactionary profession . . . it would have increased doubts as to the intention to carry out a Socialist programme."

Can we take this as a confirmation of the suspicion many have that in refusing to amend the Act the Minister is governed chiefly by political considerations?

## MUSCULAR CONTRACTION

With the basic mechanism of muscular contraction still unknown, there is a special value in the collection of detailed and precise data on the observable effects which accompany contraction. The simplest of these is the release of heat which Prof. A. V. Hill has long studied at University College under the inevitably confused conditions of continued stimulation. Valuable as these earlier investigations have been, it is clearly more illuminating as a test of theory to follow a single twitch of muscle through the successive stages of contraction, relaxation, and recovery. This he has now done, and his methods and results were described in a recent paper before the Royal Society.

His measurements were made on the leg muscle of frog at a temperature of zero Centigrade, but have been accompanied by sufficient comparison with more usual conditions to show that the heat changes thus observed can be accepted as typical. Under these conditions contraction lasts about 0.4 second, relaxation 0.6 second, and recovery is extended over some 45 minutes. Even so, however, the sorting out of the initial stages involves time measurements to an accuracy of two-thousandths of a second. Also, the total temperature rise resulting from a single twitch is no more than about  $0.0025^{\circ}\text{C}$ , so that for detailed analysis temperature measurements of the order of one-hundred-thousandth of a degree are needed. The difficulty, which he has surmounted, is to combine these two requirements of speed and sensitivity.

Procedure on the physical side was to translate the temperature changes to be recorded into changes of electric potential through a miniature thermopile of thickness comparable with the length of a red blood cell. This in itself gives a fair indication of the instrumental difficulties which are involved. The output from this thermopile was then fed into a spring-mounted mirror galvanometer designed and built to combine stability and speed of response. Final display was on the now familiar cathode-ray tube. By this time voltage had been multiplied by a factor of thirty million, and the deflection of the electron beam of the cathode-ray tube was equivalent to that which would have been obtained by observing the light beam of the mirror galvanometer from a distance of some 300 yards down the road. Any further magnification would have brought Prof. Hill to the stage when disturbance would have been introduced by the random movements of the atoms which make up the deflecting coil of the galvanometer. It may be said, therefore, that in a literal and exact sense sensitivity of measurement has been carried to the extreme limit possible.

The conclusions which follow are that to within two-thousandths of a second the release of heat and physical contraction begin simultaneously; that the release of heat begins at once at maximum rate as if the muscle had been "triggered" into activity; and that at no stage in the complete cycle represented by twitch and recovery is there any sign of a chemical reaction accompanied by the absorption of heat such as the theories of Szent-Györgyi would presuppose. Finally, there is the peculiarity, which like so much else is left for later explanation, that the initial release of heat in a single twitch is independent of the work done in contraction. It would be a very odd sort of cartridge, as Prof. Hill has pointed out, of which the same were true in the firing of a bullet. No wider picture is yet possible, facts have at least been provided which any future theory of muscular activity must either explain or be rejected.

WORLD FEDERATION OF ASSOCIATIONS OF  
CLINICAL PATHOLOGY

An international association of societies devoted to that branch of medicine known in this country and the United States as clinical pathology was brought into being at meetings held in Paris on Nov. 21 and 22, in the course of the first International Congress of the Société Française de Biologie Clinique. The International Conference had been called under the presidency of Prof. Polonovski, of the Paris Faculty of Medicine, but at its opening Prof. Polonovski, in recognition of the pioneer work of the European Association of Clinical Pathologists, invited its president, Dr. S. C. Dyke, of Wolverhampton, England, to occupy the chair. Delegates and observers attended from Belgium, Czechoslovakia, Denmark, France, Great Britain, Greece, Italy, Peru, and the United States.

The term "clinical pathology," though long accepted in both Great Britain and the United States, is not in general use in many Continental countries; the Conference therefore decided to adopt for international usage the term "clinical biology," defined by the European Association of Clinical Pathologists as "the application of pathology and all its related sciences to clinical medicine." The objects of the International Association were laid down as the establishment of permanent co-operation between the member national societies of clinical biology; the co-ordination of their scientific and technical methods; and the furtherance of clinical biology in every aspect by means of conferences, congresses, and meetings, and by the interchange of publications and more especially of personnel.

The Conference had before it texts of proposed statutes prepared both by the Société Française de Biologie Clinique and by the European Association of Clinical Pathologists. Though prepared independently, they showed a surprising degree of conformity, and in the course of two sessions the Conference was able to draw up a provisional constitution. This was designed according to the rules established by Unesco for its associated international bodies and sets up the governing body of the International Federation as a council or commission of the delegates from the national member societies. This council acts through the executive committee of six members elected by itself.

The English and French texts of the statutes will come up for ratification at a full meeting of the council which it is hoped to hold in England in the course of the next summer gathering of the British Association of Clinical Pathologists. The Conference elected its officers as follows: president, Dr. S. C. Dyke (England); secretaries, Dr. A. Durupt (France) and Dr. J. Ungar (England); vice-president, Prof. Raoul Kourilski (France); treasurer, Dr. W. H. McMenemey (England). The second office of vice-president was left vacant in the hope that it might be filled by a representative of the United States of America.

National societies devoted to clinical biology wishing to become members of the International Association are invited to communicate with either of the secretaries, Dr. A. Durupt, 20, Rue de la Pompe, Paris, or Dr. J. Ungar, Glaxo Laboratories, Greenford, Middlesex, England.

The work of rebuilding the King George V Merchant Seamen's Memorial Hospital in Malta, which was destroyed by the enemy in 1942, is now nearly complete. £15,000 is urgently needed for medical and surgical equipment. Donations, which will be gratefully acknowledged, should be sent to the Medical Secretary, 46, Denison House, Vauxhall Bridge Road, London, S.W.1.

# Correspondence

## Fatal Cases of Influenza

SIR,—In connexion with the proposed investigation of fatal cases of influenza referred to in the paper on p. 994 of this issue of the *Journal*, I would like to invite the co-operation of practitioners. Would any practitioner who is interested in the subject and who might in the future be able to supply clinical details of fatal illnesses notified by him as being due to influenza please write to me at the address given below.—I am, etc.,

University Department of Medicine,  
The Royal Hospital, Sheffield, 1.

C. H. STUART-HARRIS.

## Erythroblastosis Foetalis and Breast-feeding

SIR,—The paper by Dr. I. A. B. Cathie (Oct. 25, p. 650) has given guidance of the clinical management of erythroblastosis foetalis. His conclusions confirm the suggestions concerning the breast-feeding of affected infants made by one of us some months ago.<sup>1</sup> However, a point of technique needs clarification.

Cathie incubated equal volumes of gastric secretion and serum of high Rh-antibody content for one hour and proceeded to investigate the resulting mixture for Rh antibodies. A similar experiment was carried out in the laboratories of the N.B.T.S., Sheffield, in August, 1946, by one of us (I. D.). The fasting gastric contents of six babies, all less than 10 days old, were used. The procedure adopted was identical with Cathie's, but it was found on testing the resultant mixture for antibody content, using known Rh-positive cells, that the mixture had a lytic action, and no results were obtainable. The pH of the mixture was determined with the facilities available and found to be acid. Attempts were made to neutralize this mixture, without satisfactory results. The acid nature of the gastric contents was expected.<sup>2,3</sup>

From the experiments conducted two further points of interest were observed. First, by separating the milk into lipid and aqueous fractions there was strong evidence to suggest that the antibody content was in the aqueous portion and not the lipid fraction. This was considered to be of importance in view of the possibility of antibody being ingested adsorbed on to fat molecules without digestion occurring. Secondly, it was found that by digesting breast milk containing Rh antibodies with rennin there was a definite reduction in antibody content of the milk examined. Rennin has been found in the stomach of infants during the first day of life,<sup>4</sup> and it is generally accepted that the digestive enzymes are present in the foetus some weeks before term.<sup>5</sup>

Further studies of the digestion of breast milk and antibodies are being undertaken as and when material and apparatus become available.—We are, etc.,

C. CHRISTOPHER BOWLEY.  
IVOR DUNSFORD.

Sheffield.

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- 2 Holt, L. E., *Diseases of Infancy and Childhood*, p. 320. New York, 1940.
- 3 Feldman, W. M., *The Principles of Ante-natal and Post-natal Child Physiology—Pure and Applied*, p. 462. London, 1920.
- 4 Prichard, E., *Physiological Feeding of Infants and Children*, 4th ed., p. 29. London, 1922.
- 5 Stone, E. L., *The Newborn Infant*, 3rd ed., p. 290. London, 1945.

## Direction of Labour

SIR,—As a result of labour direction during the war the members of our profession have become used to certifying men as physically fit or unfit for specific jobs. On the whole such certification was in the interest of the worker, as it was a safeguard against men being compelled to do work at which they would be inefficient or which would be detrimental to their health. Obviously there was no ethical objection to such certification. But the recent introduction by the Government of the Control of Engagement Order may well raise an issue of ethical importance to the profession. For the first time in the history of our country legislation has been introduced to compel workers in peacetime to engage in work which is not their own choice. Without going into the arguments for and against this type of legislation, there can be little doubt that the vast majority of us look upon the Order as the introduction of industrial slavery. In the controversy which recently raged round the

proposed National Health Service our profession took a very strong line against the direction of doctors to take up practice in districts which were not their own choice. We took this stand on ethical grounds. The practice of compulsion, to which we rightly objected, is now being applied to the vast majority of citizens with very few exceptions.

Now here is the practical point. If the workers should prove recalcitrant it may well be that the Ministry of Labour will ask us to examine the rebels as to their fitness for the job to which they have been directed. If we agree to undertake such examinations we will make ourselves accessories to the enforcement of a practice which we consider morally wrong. On the other hand, if the worker should ask us in confidence for such an examination, there would be no ethical objection to issuing a certificate. The worker could use it or not as he saw fit. I trust the Association will give this matter immediate consideration and that it will warn members of the impropriety of conducting such examinations if asked to do so.—I am, etc.,

Woodford Green, Essex.

L. P. GRAY.

## B.C.G. Vaccination in Control of Tuberculosis

SIR,—I should be grateful if you would let me correct an error that has been pointed out to me in Table IV of my paper on B.C.G. vaccination (Nov. 29, p. 855). In the text of their paper Aronson and Palmer have grouped their non-pulmonary with their advanced pulmonary cases, and in the corresponding table they have failed to indicate that their advanced cases refer to pulmonary cases alone. On re-examination of their figures, it seems probable that the real numbers were as follows:—No. developing N.P.T.: 3 in vaccinated, 19 in control group; No. developing P.T.: 14 in vaccinated, 49 in control group. Though this change in distribution affects the N.P.T./P.T. ratio and the argument I have based on it, it does not, of course, alter the total number of cases in the vaccinated and control groups. Readers may be interested in a recent paper by Levine<sup>1</sup> in which he draws attention to technical defects in some of the American investigations on B.C.G. and to the completely negative results obtained by Blanch, Blanch, and Lieutier<sup>2</sup> in a study of over 100,000 infants vaccinated by B.C.G. in Uruguay.—I am, etc.,

G. S. WILSON.

## REFERENCES

- 1 Levine, M. I. (1947). *Amer. J. pub. Hlth.*, 37, 1089.
- 2 Blanch, P., Blanch, H., and Lieutier, H. (1945). *Rev. Tuberc. Uruguay*, 13, 1.

SIR,—All tuberculosis workers in the field will welcome the pungent paper by Prof. G. S. Wilson on "The Value of B.C.G. Vaccination in Control of Tuberculosis" (Nov. 29, p. 855). I hope it will be read and re-read. He suggests a possible trial on nurses entering the larger hospitals. Too many would be lost sight of to make the trial a success. There are at present no short cuts for the eradication of pulmonary tuberculosis. Find, isolate, educate, treat, rehabilitate the adult positive case; encourage the sure but unspectacular work of tuberculosis health visitors. This, I suggest, is the hard but only way.—I am, etc.,

Church Stretton, Salop.

G. LISSANT COX.

SIR,—The critical article on B.C.G. by Prof. G. S. Wilson (Nov. 29, p. 856) and your able leading article thereon (p. 873) are of great interest at the present time. I propose to comment briefly on only one aspect of Prof. Wilson's paper—namely, his suggestion that, as children of tuberculous parents undergoing B.C.G. vaccination must be separated from their homes for 2 or 3 months following vaccination, this separation might be prolonged "till the tuberculous member of the family has been cured, has died, or has been admitted to an institution for chronic cases."

Dealing with each of these alternatives in order: (1) No patient can by definition be considered as "cured" until a minimum of five years from the onset of the disease, and many patients may take longer than this. I have, for instance, at present an afebrile patient aged 39 in this hospital who first showed a "positive" sputum 19 years ago. (2) The average survival time of a patient dying of pulmonary tuberculosis from the date of diagnosis is probably also in the neighbourhood of five years. (3) Where are the institutions for chronic cases at the present moment? Beds in them, in my experience, are practically unobtainable.

It seems obvious, therefore, that if these suggestions were acted on semi-permanent banishment of the child from its home environment would be necessitated, and I cannot feel that this disruption of family life would be approved of either on humanitarian grounds or by child psychiatrists even if practicable. I was glad to read in your leading article that tuberculin-negative nurses certainly need protection, a point I endeavoured to make in your correspondence columns some three years ago. Unfortunately, some of our leading tuberculosis workers still await conversion to this belief.—I am, etc.,

London, N.W.9.

W. E. SNELL.

### Student Health and the B.M.S.A.

SIR,—As a medical student who happens to have begun his studies a decade later than the majority I was greatly interested by the letter of Dr. G. H. Blair (Dec. 6, p. 931) on the B.M.S.A.'s proposal to make it compulsory for students to be medically examined. Your correspondent implies, in my opinion correctly, that this is an example of the political orientation which tilts the views of the organization, but I should like to discuss the probable aetiology of this "revolutionary" bias. Most students being in their adolescent or early adult phase of life, it seems not unexpected that a high proportion of them should be susceptible to impulsive social feelings. At this age, when the rational faculties tend to be submerged by the emotions, one would surely anticipate that impatience with prosaic conventionalism found its outlet in a sincere but quite misguided appetite for revolt. Unhappily, more experienced advocates of political extremism (whether to the "left" or to the "right") exploit and manipulate this common leaning.

I certainly recall going through this phase myself many years ago, but in my contact with students I have seen little sign of it among those who have reached the clinical stage of the curriculum. I did, however, encounter much of it at an institution where I studied First M.B. subjects, though this included a large proportion of general science students. Significantly, perhaps, these were composed of the much younger groups. Because such manifestations are the outcome of a psychological immaturity, much might be done by skilful and timely guidance. Young men should be taught to adopt an objective attitude towards social problems, just as they are trained in the impartial handling of professional controversies. If it were possible to reduce the incidence of this revolutionary passion, which I venture to christen the "Emotional Diarrhoea Syndrome of Adolescence," we should almost certainly control a great deal of current and future unrest.—I am, etc.,

London, S.W.10.

J. A. FLETCHER.

SIR,—I am grateful to Dr. G. H. Blair for making his remarks (Dec. 6, p. 931), not because I agree with what he has said, but because it gives me an opportunity of replying and providing certain relevant facts which he either did not possess or overlooked. First, as a result of the B.M.S.A.'s resolution calling for compulsory annual medical examination of clinical students, a meeting was held in Edinburgh on Nov. 26, 1947. Roughly a third (approximately 200) of all clinical students of the University attended, and the following resolution was adopted and carried by a 73% majority of those voting:

"That the clinical students of this University are in favour of yearly compulsory medical examination with provision for genuine objections."

As far as is known no "expert to study and report on student health" has ever been appointed by the medical school, as was suggested by Dr. Blair. I need make no further comment, therefore, about the first part of Dr. Blair's letter.

I should, however, like to explain what the resolution aims at and why it was made. It was felt that in the matter of student health the clinical students should give an active lead to the rest of the student body. The examinations are to be for the benefit of the students themselves and presumably also for the benefit of the public with which clinical students come into intimate contact. It is true to say that almost all students realize the value of thorough medical check-ups, but obviously they are not unanimous about compulsion. The word compulsion has unfortunately acquired a very political significance, and we have attempted in this case to consider it purely on its merits in relation to the problem discussed. In the light of past

experience compulsion seems to be the only possible way in which the majority of students will benefit from the amenities offered to them. This has been adequately illustrated by the provisions made in the University of Aberdeen, where, I understand, medical students are compulsorily examined (no objections have been raised so far), while the students in other faculties have been encouraged to make use of the same facilities voluntarily, the response being about 25%. Recently in a questionnaire to all students at St. Andrews University it was found that a two-thirds majority was in favour of compulsion. In actual fact those who are against the examination itself, not merely against compulsion as such, will still have the chance of objecting in the recognized way, while the compulsion will aim at those who are simply apathetic (still a very large group).

Secondly, I shall deal with the entirely unwarranted attack on the B.M.S.A. This body was formed by, and at the request of, medical students in 1941. It was formed because there are many problems which concern all medical students and also because it was felt that an exchange of views and students between the various schools was highly desirable: this has since been proved to be the case. The headquarters of the B.M.S.A. are in B.M.A. House, London, and all but a few London schools are members. The policy is laid down by the Annual General Meeting and the Association has so far succeeded in concerning itself entirely with matters pertaining to medical students. The work of the Association has now received recognition from most medical students in the country and from very many senior members of the staff, who take part in our many activities. The insinuations of Dr. Blair are without any foundation whatsoever, and before making derogatory remarks of that nature I think one ought at least to be sure of the facts.—I am, etc.,

Edinburgh

S. M. DRANCZ,  
President, B.M.S.A.

SIR,—As one connected with the origins of the B.M.S.A. and as its first president I read with interest Mr. S. M. Drancz's letter on student health (Nov. 22, p. 843) and the reply from Dr. G. H. Blair (Dec. 6, p. 931). The subject of student health has been considered by the B.M.S.A. since its inception, and it would appear to most medical men that there is advantage in a regular routine examination, to include pulmography, for all students at set intervals throughout their career—this not only for their own benefit but to safeguard fellow students against the infectious conditions during the period of university overcrowding. The question of compulsion is debatable but can only be finally settled in practice. I doubt that even a proportion will object, nor can I see a valid objection on the part of the subject provided such examination and medical confidences are not abused.

It was known in 1942, the year the B.M.S.A. was founded, that Edinburgh had an excellent student medical service, as had other schools. This was then thought to be a good reason for spreading the service to include the less fortunate student communities on both sides of the border. This—to me—simple deduction makes Dr. Blair's letter difficult to understand, and the logic of his statement, "An Edinburgh student has no other responsibility than to his own medical school," is not apparent, relevant, or true. I can only be thankful that generations of brilliant Edinburgh students and graduates have not acted on it and have published their advance in system and knowledge to the world at large. I cannot see, nor, I hope, will most people allow, that because an idea comes from outside a particular locality it should be condemned, and I hope that most universities will consider the B.M.S.A. scheme on its merits and not in the limited aspects of Scottish nationalism.

As to the question implied in Dr. Blair's second paragraph, the origins of the B.M.S.A. were never concealed. It began in 1942 as the result of a meeting of London medical schools' representatives who wished, in view of the differences, especially in the clinical years, between medical and other students, to have an organization other than the existing faculty committee of the N.U.S. The B.M.S.A. owed its inception largely to the generous financial and moral support of the B.M.A. and particularly to the encouragement given to its officers by the present secretary, Dr. Charles Hill. I have not had the privilege of reading Sir Ernest Graham-Little's observation on its colour, nor was I aware, either during my presidency or

later, that it had a colour, athletic or political. Looking back on that year my recollection is of a generously multi-hued enthusiasm.—I am, etc.,

London, N.W.6.

IVAN R. CLOUT.

### Sudden Death after Intravenous Injection of Mercurial Diuretic

SIR,—A. G. Oettlé's case of sudden death after intravenous "neptal" (Oct. 4, p. 530) prompts me to a few remarks. Such disasters cannot always be avoided—e.g., if they happen after the first injection to a patient, where there is no reason to expect untoward reactions. Such cases, fortunately, are extremely rare. More often, faulty choice of the case and an overdose are the cause of toxic reactions.

The following rules should help to restrict fatal or toxic reactions. Mercury administration must never be given in excess of the excretory power of the kidneys. Low concentrating power and poor response to a previous injection are warning signals. The minimal injection-free interval should be three days, except in acute emergencies. Digitalis, strophanthin, urea, and ammonium chloride help to make this possible. The dose of ammonium chloride must be adapted to the needs of the case; 15 gr. (1 g.) t.i.d.—the usual dose with many practitioners—is insufficient for most cases. 15 gr. four to six times daily two days before the injection, plus an additional dose of 30 gr. (2 g.) on the day of injection, is needed in most cases. Ambulatory patients should be asked about unpleasant reactions to the previous injection. Warning signals are quite common and most important. Fever is one of them. Patients should rest for half to one hour after the injection before leaving.

Nobody has yet found out why some people tolerate intramuscular mercurials invariably well, while others don't, in spite of local analgesics. Research should be directed towards finding a uniformly well-tolerated mercurial diuretic.—I am, etc.,

Trutnov, Czechoslovakia.

M. WINTERNITZ.

### "Unjustified" Use of d-Tubocurarine Chloride

SIR,—Dr. A. H. Galley's letter (Nov. 22, p. 840) does call for comment, and perhaps the more so because of its title "Unjustified" Use of d-Tubocurarine Chloride." Technical details apart, the account of how even one of the great may be incommoded by the annoyances that beset lesser men is quite gratifying. In most operations the choice and management of the anaesthesia is left entirely to one's anaesthetic colleague: in a caesarean section the technical procedures of the obstetrician have to be closely adapted to the type of anaesthesia being used, and this is my excuse for intruding upon an anaesthetist's argument. Surely Dr. Galley has missed the main point stressed by those who advocate the use of d-tubocurarine chloride for this operation. Its value is that the section can be done with the minimal amount of general anaesthesia and yet with complete control of the patient. If properly administered the patient should regain consciousness as soon as the last stitch is tied. Thereby the special menace of general anaesthesia for this operation is averted. If of course the drug is not used with this object then its use might certainly be termed "unjustified."

The point about the dynamic effects of curare as opposed to thiopentone may be left for further inquiry; myself, I have no doubt in the matter, but Dr. Galley's remarks about relaxation of the abdominal muscles should not go uncontested. To say that anaesthetic muscular relaxation is unnecessary in a caesarean section because the muscles have been well stretched by the pregnancy is surely wrong. Some relaxation must be obtained for a lower-segment operation, and particularly when any general anaesthetic is being given as well; sometimes indeed when the bleeding occurs from torn sinuses on the surface of the lower flap a quiet abdomen becomes an urgent need. The whole discussion certainly is profitable if it serves to emphasize my earlier point, that d-tubocurarine chloride as an adjunct to general anaesthesia in caesarean section can only give its admirable results if both the anaesthetist and the obstetrician know what they want from its use.—I am, etc.,

Liverpool.

PERCY MALPAS.

### Dicoumarol

SIR,—Dr. M. J. Pivawer (Dec. 6, p. 928) complains of anomalous results from prothrombin estimations by Quick's method and states he had to substitute (for prothrombin estimation) clotting time by the method of Lee and White. Prothrombin estimations are the safest guide; and the method of Quick has passed through many hands (and heads) with great benefit. The method we use is only partly modified here, but is very reliable. Important points are (i) use fresh plasma, (ii) conduct the operation at 40° C., (iii) vary the concentration of calcium chloride, (iv) use perfectly fresh viper venom (if possible) guaranteed potency, (v) perform at least six estimations on every sample of plasma, varying the calcium chloride, and report the test giving the shortest time. It may be necessary to do twelve tests on one specimen of plasma, but usually six tests are enough. It is necessary to have a very bright light concentrated on the vessel in which the estimation is being performed, so that the earliest indications of the reaction can be observed. The normal time is 11 to 12 seconds; it is unsafe to allow the time to exceed 30 to 35 seconds.

It is necessary to remember that dicoumarol takes at least 48 hours to act; many failures have been reported because the process of embolism or thrombosis continued unabated after dicoumarol had been given. For immediate effect heparin is unrivalled. Heparin 100 mg. intravenously every four hours for two days is a good introduction for dicoumarol given simultaneously with the first dose. After 36–48 hours the heparin is stopped and the dicoumarol continues the anticoagulant effect. The effect of heparin, though powerful, is transient.—I am, etc.,

Exeter, Exeter.

FRANK MARSH.

### Case of Camphor Poisoning

SIR,—At 1.25 a.m. on a Wednesday in March, 1945, I was called to see a child 2½ years old who was delirious. On crossing the threshold I noticed the whole house smelt of camphor, and the bedroom where slept parents and child smelt strongest.

#### CASE REPORT

The child was sitting up in bed frightened; it obviously saw things which it referred to as "quack-quacks." It was flushed, with a scarlet rash all over the body, limbs, and face, least red on the extremities. The pupils were widely dilated but contracted to the light of a torch. Temperature, 100.2° F. (37.9° C.); pulse and respirations normal; chest clear. Its chest and night clothes were well soaked in camphorated oil. Its bowels had recently opened and it had passed urine.

I was told that the child started with a cold on Saturday evening, and to protect its chest the parents had soaked it in camphorated oil ever since—i.e., for about 80 hours. Diagnosis: Camphor poisoning.

Treatment: There being no better diaphoretic available I ordered hot water with sugar to taste and a very hot bath, which was easily obtainable. While Pater was going to see to this, Mater was to collect the child's night clothes, day clothes, some of its bedclothes, its towel, and everything that smelt of camphor and remove them to the furthest corner of the scullery; open windows and doors, and clear the house of the smell of camphor; then warm up bedroom and provide clean warm bed and night clothes. This treatment was completely successful.

I understand that in 1945 camphorated oil consisted of 1 part camphor and 4 parts arachis oil by weight. Hence 1 oz. (30 g.) of camphorated oil would contain 96 gr. (6.4 g.) of camphor, which, if completely absorbed, would be more than three times the fatal dose for such a child. More than 1 oz. of oil had been used.—I am, etc.,

Lincoln.

G. D. SUMMERS.

### Battle Neurosis Treated with Leucotomy

SIR,—Is reluctance to advocate leucotomy in neurotic conditions really due to "misinformed opinion or theoretical prejudice," as Drs. William Sargant and C. M. Stewart (Nov. 29, p. 866) suggest? In the huge neurosis centres which had been set up in Germany in 1918 when discipline had begun to crack "active treatment" was organized on a large scale with the aim to cure neurotics, if possible, in one session, discharge them home, and employ them in factories serving the war industries.



I worked in one of these centres. On the day of admission patients were given an interview; on the following day under mild ethyl chloride anaesthesia an injection of methylene blue, and, if cured, discharged the day after. 97% of the cases responded to the treatment given. 3% were thought to be incurable. But the study of the psychological make-up of these "incurables" showed that their case was by no means hopeless.

There was a man who had been in bed for over three years suffering from spastic paralysis of both legs, the muscles of which were atrophied to such an extent that it appeared extremely doubtful whether, even after a successful treatment, the patient could possibly stand on them. He had been through all sorts of treatment without any improvement, and the methylene blue had been of no avail either. I decided to give him methylene blue again, but after a different and more thorough psychological preparation. When this man came round from the anaesthetic, and was told to climb down from the table, he did so and walked through the room practically without help. This case became the subject of much controversy; it was argued that the man was a malingerer, as no genuine neurotic with a record of such severity could have been cured by what in the opinion of the critics amounted to a simple appeal to the patient to give up hostility, hate, and distrust and place himself willingly, confidently, and happily into my hands. Of course, the dynamic possibilities of what Freud later described as "positive transference" were not yet understood in those days. The patient was no more a malingerer than the one cured by leucotomy was a compensation neurosis. The methylene-blue treatment was no farce, as was argued, but the bridge of silver over which the patient could walk to health. It legalized, as it were, his surrender before the tribunal of his conscience, or, in psycho-analytical terms, it appeased his superego.

In my experience some sort of magic has always to be employed in cases where a powerful and obstinate superego defeats all ordinary measures of treatment, unless one is prepared to embark on a long course of psycho-analysis. The magic of the methylene blue was not very impressive even in 1918. I could have chosen a better one; and it had failed before. But I wished this case to be a test case for the thesis that our cures were really not due to suggestion, as was generally believed, but to the solving of conflicts. Therefore the suggestion value of the treatment had to be diminished. I could do it because I was dealing with an infantile personality. His superego was open to bribery.

I do not say that leucotomy is no genuine cure for neuroses. I do not know really how it works; so the cure which it brought about may not be due to magic. But I do say that leucotomy to-day is a better magic than methylene blue even was in 1918. It could have been an efficient and suitable appeaser for the patient's more sophisticated superego, though I doubt whether in the later stages of the atom age an enlightened ego would dare to suggest it to his "super" as suitable appeasement. Incidentally, if empirical evidence of *post hoc* cures should be relied upon in preference to theories, it would be more in favour of nasal than of neurosurgery. Therefore practitioners who are called upon to recommend leucotomy against neuroses will have to depend on "theoretical prejudice" after all.—I am, etc.,

London N.W. 11

B. SAALER.

### Tetralogy of Fallot

We are not wishing to underestimate the real value of Mr. J. D. Murray's contribution (Dec. 6, p. 905) to the treatment of Fallot's tetralogy. I feel that there are some points, (a) clinical and (b) historical, which can be challenged. Of the clinical points, I suggest: (1) The "blue malady" is a term which is not necessarily synonymous with the "tetralogy of Fallot"; it refers to any member of the cyanotic group of congenital cardiovascular malformations in which there is persistent cyanosis. (2) Mr. Murray might well have been more correct if he were to have said that, in a patient over the age of, say, 6 years who is suffering from chronic persistent cyanosis as the result of a congenital cardiovascular defect, the "probabilities are about 75% that the diagnosis is the tetralogy of Fallot."

The points of historical interest are largely dealt with by E. Gintrac in a monograph entitled *Observations et Recherches sur la Cyanose ou Maladie Bleue*, published in Paris in 1824. In his book Gintrac mentions some matters of relative interest as follows: (1) His own publication: "Recherches Analytiques sur Diverses Affections dans Lesquelles la Peau Présente une Coloration Bleue, et, en particulier, sur Celles que l'on a Désignées les Noms de Cyanose ou Maladie Bleue" (Collection des Thèses de la Faculté de Paris, 1814, No. 95). (2) The term "morbus cœruleus" which had long been in use by several authors. (3) The term "ictère bleu" as used by many other medical writers was probably a translation of that used by Paracelsus—viz., "icteritia cœlestina seu cyanea"—in his *De Ictericis*, p. 487. Apparently, according to Gintrac, this term, as used by Paracelsus, was not employed with sufficient discrimination to be of any value for "modern diagnosis" purposes. However, there seems to be little doubt that Peacock, whose book *On Malformations of the Human Heart* was first published in 1858, was not the first person to speak of the "blue malady."—I am, etc.,

London, N.4.

I. H. MILNER.

### Penile Carcinoma

SIR.—Dr. D. Preiskel (Dec. 6, p. 928) can hardly expect ritual circumcision to be instituted as a routine measure, in spite of its proven therapeutic value, while prophylaxis against such killing diseases as smallpox and diphtheria is not on a compulsory basis. Surely the "psychological objection to imitating the Jews" is a far-fetched and unwarranted hypothesis. After all, the Christian ritual and religion are of Jewish origin and the insinuation of possible racial prejudice cannot be taken seriously, since we are told—in Luke—that the Founder of Christianity underwent the Abrahamic ritual.—I am, etc.,

Pencoed, Glam.

BEN SAMUEL.

SIR.—The unsupported statement (Nov. 22, p. 841) of even so distinguished a member of the profession as Mr. W. Sampson Handley cannot be taken as proof that the "mixed bacterial flora that flourish beneath the prepuce" can cause or even have caused carcinoma. In the absence of scientific proof to this effect it is, I submit, wholly illogical to attribute a relative immunity to cervical carcinoma possessed by Jewesses to the mutilated condition of their spouses' sexual organs. One might almost as well suggest that the greater Jewish liability to diabetes is to be attributed to ritual circumcision.—I am, etc.,

Launceston, Cornwall.

DONALD M. O'CONNOR.

SIR.—Jewish thought on the relation of man to his Maker dominates the Christian world. In hygienic matters it is equally worthy of attention. The relative freedom of Jewish women from carcinoma of the cervix is almost certainly due to the circumcision of Jewish males. This immunity is not a racial peculiarity, for, as I have shown, it is manifest in the circumcised Fijians, who share Fiji with a separate community of uncircumcised Indians. It is a strange reflection that in this matter the hygienic code of Moses in the dawn of history is still ahead of present standards and that in consequence thousands of women are annually sacrificed to this form of cancer.

Dr. D. Preiskel's letter (Dec. 6, p. 928) suggests that circumcision is an operation of Jewish origin. That is not the case. It is found in independent communities separated by the breadth of the world, but always inhabiting hot climates, where its hygienic advantages became most manifest. It was practised by the Egyptians before the Jews went to Egypt. The oldest known mummy, that of Ra Nefer, destroyed in the bombing of the Royal College of Surgeons in 1940, had been subjected to the operation. It was practised in Arabia, and Abraham learnt its advantages from his Arabian wife Zipporah, who circumcised their son. His broad-minded adoption of the operation for himself and his descendants is an example of freedom from racial prejudice worthy of imitation.

But except for the phimotic with a long prepuce it can be replaced either by meticulous cleanliness, or more certainly by

preputiotomy. Dr. Preiskel's criticisms of this latter simple operation appear to show that he has never performed it. The clumsy lateral flaps of prepuce left by it so atrophy and retract that in a few years the result is practically indistinguishable from a circumcision, though no tissue has been removed.—I am, etc.,

London, W.1.

W. SAMPSON HANDLEY.

### Foreign Body in the Vagina

SIR.—The unusual nature of the following case makes it worthy of publication.

The patient was a widow aged 60 years who wore a 2½-in. (6.3-cm.) watch-spring pessary for prolapse. The ring had not been changed for a year, and she complained of an unpleasant vaginal discharge and slight discomfort in the left iliac fossa—this latter being present for two weeks. On questioning her with regard to douching I elicited the fact that she had been in the habit of douching with a weak solution of "lysol," using a bone-nozzle enema syringe. She had last done this three months ago.

I removed the ring with some difficulty with the patient lying on her right side and with her knees drawn well up (I am left-handed), and thought at the time that there was something peculiar about the ring—namely, that it appeared to have an irregular bar fixed across its centre. When it was removed I found the "bar" to be the bone nozzle of an enema, which had become firmly jammed across the inner diameter of the pessary. On questioning her as to whether she had ever mislaid the nozzle of the enema she said that she had—*nine months ago*. She added that the reason she did not suspect the whereabouts of the nozzle was that she thought she had seen the cat playing with it at about the time that it was lost.

My reason for writing the above note is to show how long a foreign body of moderate size may be retained in the vagina without producing symptoms of any severity.—I am, etc.,

London, S.W.4.

G. J. GRAINGER.

### Asthma and the Inhaler

SIR.—It is agreed that the treatment of patients suffering from bronchial asthma is a real problem, especially during the winter months. The inculcation of a careful regime and breathing exercises rarely, if ever, succeeds in warding off attacks, and patients have to resort to antispasmodics. Apart from some expensive proprietary preparations most antispasmodics are associated with troublesome side-effects in a large number of asthmatics, and these unfortunates dread the treatment as much as their affliction.

The modern inhaler with inhalant proves a godsend to these patients, and the results from the doctor's point of view are most gratifying. The important point is that the doctor must teach the patient how to use and maintain the inhaler, and apart from treating the attack I advise the use of the inhaler three times daily during a flare-up of acute bronchitis. Simply to prescribe the inhaler is an utter waste of time, and there must be many of them locked away in cupboards and regarded as useless because the patients have not been taught their correct use. Personally I keep one in the surgery for demonstration purposes, and the few minutes thus expended pay dividends not only in the gratitude of the sufferer but also in reducing emergency calls. A small proportion of patients cannot be taught to use the inhaler.

Doubtless there are cases of severe asthma requiring injection of antispasmodics, but I think that the doctor will find that most of his emergency calls will respond to the inhaler if he cares to carry it in his bag.—I am, etc.,

St. Helens, Lancs.

JAMES KAY.

### Food Cuts and Calories

SIR.—It is indeed timely that such figures as those of Dr. G. T. Mills (Dec. 6, p. 926) should be published. For too long now has this country been stuffed up with the half-truths and misrepresentations of the Ministry of Food. By using "calories" as a basis of nourishment the M.O.F. gives an entirely false picture—a bottle of whisky a day will supply all the required calories. As is pointed out, the actual calories obtained from our diet are nothing like those promised and even less like those needed. Perhaps this accounts for the poor resistance of the population to minor infections and their lack of physical stamina.—I am, etc.,

Coventry.

JOHN HALE POWER.

### Foetal Cries

SIR.—I was interested in the cases of vagitus uterinus which have recently been described in your correspondence columns, particularly with Dr. Jean Burton-Brown's letter (Oct. 25, p. 672), in which she mentions 123 cases occurring between 1800 and 1941. The phenomenon, however, has been known for well over 2,000 years. In book xxiv of Livy's *History of Rome* he records a case which occurred in Italy during the critical days of the second Punic war in 214 B.C. On this occasion the Romans were encouraged by a foetal cry of "Io triumphe" to persevere and ultimately overcome the fears and trials of their time. It is to be regretted that foetal cries of to-day, interesting though they may be, contain no encouragement for us to endure our present hardships.—I am, etc.,

Isleworth, Middlesex

C. W. F. BURNETT.

### Future of Almoners

SIR.—As practising hospital almoners we should like to comment on Dr. Trevor H. Howell's letter (Nov. 22, p. 843) on the care of the "chronic sick" by almoners when the new National Health scheme comes into force. May we first correct the implication that almoners cherish "their money bags" and regard assessment or collection as their main function? In hospitals where almoners have not yet been able to shake off this millstone they anticipate the new scheme with joy because it will leave them free to carry out the job for which they have undergone an intensive training—i.e. to do social work in co-operation with the medical staff to facilitate the patient's recovery.

It is true that we may be free to do more for the "chronic sick," but in many hospitals a great deal is already done. The main difficulty is that our scope is severely limited by the lack of suitable old people's homes or domiciliary nursing services. While we are willing and anxious to do all we can to relieve the often unpleasant and pathetic lot of the aged sick folk, the magnitude of the problem far exceeds the resources at our disposal. The difficulty lies not so much in almoners' being so busy with money bags that they have no time for caring for the chronic sick, as that there are inadequate voluntary or statutory provisions for their care.—We are, etc.,

M. CHAVE JONES.

M. EPPS.

Wallington, Surrey

### Pulmonary Tuberculosis in Austria

SIR.—Only recently I happened to see Dr. A. Macfarlane's letter (Aug. 30, p. 348) containing rather far-reaching conclusions regarding the effect of undernourishment on tuberculosis. Unfortunately the figure given for 1945 is not correct. In 1945 there were 7,269 deaths from pulmonary tuberculosis in Austria and not 5,043. The corresponding figures for Vienna are as follows:

Year	Deaths from Pulmonary Tb
1940	2,146
1941	1,957
1942	2,337
1943	2,230
1944	2,393
1945	3,734
1946	2,379

The drop in 1946 can only be explained in one way. In 1945 under the stress of hunger, overcrowding, lack of hospital accommodation and medical attention a great number of cases have died who under normal conditions should have lived some more years. In my opinion this will be felt in 1947 and probably in 1948. The number of newly discovered cases of pulmonary tuberculosis has been increasing steadily since January, 1946. Clinical experience indicates a close connexion between undernourishment and the incidence of primary tuberculosis in young people and the flare-up of inactive disease in older persons. I do not think that the death rate and the morbidity in Vienna allow to abandon proved views and to build up a new theory on the effect of undernourishment on tuberculosis.—I am etc.,

Public Health Department, Vienna.

A. FISCHER,  
Chief Tuberculosis Officer.

**Alleviation of Prickly Heat**

SIR.—I have read your annotation on prickly heat (Nov. 15, p. 779) and should like to mention a method of alleviation of this annoying complaint which is very effective and dramatic in its action, although it is not a cure, nor does it supersede any methods which are known to be effective in its prophylaxis or cure. I am referring to the beneficial effect of "benadryl." Within the space of several hours of taking 100 mg. of benadryl there is a blanching of the affected area and a concomitant relief from the intense itching. A short course of benadryl lasting 1-2 days is able to cause a complete remission of symptoms, but naturally in an adverse climate there will be a recurrence. I presume that other antihistamine drugs will act similarly. I should be very grateful to hear of anyone's experience of this method.—I am, etc.,

Nedley, Hants.

LEON RADCLIFFE.

**Diet and the Nation's Health**

SIR.—In the debate of the Hunterian Society on Nov. 17 (*Journal*, Nov. 29, p. 882) the dietitians fought a losing battle on the issue "That our present diet is undermining the health of the nation." Mr. Dickson Wright stated that the assembly looked a well-fed one—not a very scientific remark, as his audience were in a favoured position to keep so, and I doubt very much whether he himself was living on the calorie level he suggested as adequate for others.

Sir Jack Drummond gave an account of the robust health of our present-day children. He never mentioned their mothers who nowadays are unable to suckle their own progeny for more than a week or two and then have to turn to dried milk, orange juice, and cod-liver oil or substitutes. I suppose these substitutes are better than the real article and will build better Britons than their grandparents. In addition these self-sacrificing mothers who give up their meagre rations to keep their children healthy are now called upon to do extra factory work. The dietitians are trying to flog a dying horse, dying of malnutrition without hope or energy.—I am, etc.,

Woodley, Cheshire.

J. G. BENNETT.

**POINTS FROM LETTERS****What is a Psychiatrist?**

D. J. B. GURNEY SMITH (Epsom, Surrey) writes: Having reference to the recent correspondence on the M.R.C.P. and specialists and the D.P.M., I should be very glad to know what is a psychiatrist.

It would seem that there are many medical men definitely engaged in psychiatric work calling themselves psychiatrists who have no real right so to style themselves. A surgeon is usually the possessor of the F.R.C.S. or M.S. and a physician the M.D. or M.R.C.P. Surely all psychiatrists should be diplomats in their particular subject? I shall be glad of any official and informative views on this subject.

**Hospital Treatment of School-children in Shropshire**

Dr. CLAUDE E. TANGYB (Truro, Cornwall) writes: This correspondence must have roused great regret. With the advent of the National Health Service it is more than ever vital that there should be complete accord between the general body of practitioners and the medical officer of the authority. . . . I would like to suggest that such difficulties can be avoided by the appointment of a medical advisory committee. Over more than a quarter of a century in Wiltshire such a committee, appointed by the County Branch, was of the utmost value to the profession and myself. It ensured that in presenting any proposal to the authority affecting practitioners I could rely on the support of the profession, since a free and informal discussion had already taken place at the medical committee and agreement been reached. I take this opportunity of putting on record my gratitude to those who came so regularly and so cheerfully from all parts of the county to collaborate with me. . . .

**Companions of St. Luke**

Dr. ISABEL PULTENEY (2, Bryanston Place, London, W.1) writes: Some of the readers of the *Journal* may be interested to know of the existence of the Companions of St. Luke. This is a society of women doctors and medical students, communicant members of the Church of England, which has as its aim the mutual support of the members in leading a Christian life and the spread of the Catholic faith. The numbers are at present small and inquiries are welcomed from any who feel themselves to be in sympathy and would like further information. The Constitution allows of the admission of men students and doctors, either as a separate ward or as a mixed body; we shall be glad of suggestions on this point.

**Obituary**

CHARLES BOLTON, C.B.E., M.D., D.Sc., F.R.S. F.R.C.P.

With the death of Charles Bolton on Dec. 6, at the age of 77, the profession loses one of its remaining links with that vigorous Edwardian period when general consulting practice and fundamental laboratory research did not appear incompatible. The start had not been easy for him. A Yorkshire lad from Whitby, he was apprenticed there at 16 to a local doctor for three years, and then to a Manchester practitioner for a further two years. Guided perhaps by the success of his elder brother, he used his time as an apprentice so well that at the age of 21 he was able to enter for the medical course at University College, London, with an exhibition of £100 a year. The scientific atmosphere he met there was at first an astonishment and soon a life-long inspiration to him.

He took the London B.Sc. in 1894 and graduated M.B., B.S. two years later. After holding resident appointments at his own hospital under Sir Rickman Godlee and Dr. Frederick Roberts, he became resident medical officer to the Evelina Hospital for Children and, thereafter, assistant medical officer at the Eastern Fever Hospital during the distinguished superintendence of Dr. E. W. Goodall. He then returned to University College Hospital, where for three years he was resident medical officer. Two years later he was appointed to its staff as assistant physician, became physician in 1912, and consulting physician in 1935. In 1908 he gained the D.Sc. degree; he was elected F.R.C.P. in 1909, F.R.S. in 1918, and he was awarded the C.B.E. in 1920. In 1911 he married Ethel, daughter of the late Henry George, and, although he had no children, the family medical tradition begun by him and his brother, the late Joseph Shaw Bolton, professor of mental diseases in the University of Leeds, is carried on by his nephew and niece.

Bolton was peculiarly fortunate in the period of his training, for he came to University College when it housed a galaxy of talent in its medical faculty. The medical school had not then been separated from its parent body and the faculty at University College combined both clinical and preclinical subjects and housed all the laboratories. Thane and Schafer were at the height of their powers. On the clinical side were Ringer, Barlow, Rose Bradford, Victor Horsley, and Sidney Martin, and at that time Horsley and Bradford were in the full flood of active research. A little later Bayliss and Starling joined the staff. It is not surprising that in this atmosphere Bolton should have had his scientific enthusiasm aroused and should have acquired that habit of mind which he retained through his whole life—the habit of research into the mechanism of phenomena. But he did not diverge into physiology. Perhaps his early apprenticeship in general practice determined his road, for it was to pathology he turned, and in this he was largely influenced by the writings of Cohnheim. His first researches were undertaken while he was at the Eastern Fever Hospital, where he demonstrated that in typhoid fever the infecting organism could pass the placenta and infect the foetus, and that in fatal diphtheria chromatolysis occurred in the medullary nuclei.

In 1903 he was awarded a Grocers' Company research studentship for six years, and thus obtained the desired freedom for laboratory work. His earlier interest in the mechanism of bodily function now reasserted itself, and, stimulated by clinical observations on a case of constrictive pericarditis, he began a long series of investigations into the nature of dropsy. In these he was far ahead of his time, in



fact only now is the essential correctness of his views beginning to be appreciated. Two examples will suffice to show this. Over thirty years ago Bolton clearly stated that the oedema of cardiac failure could not be accounted for by increased venous pressure but that the prime factor in this condition was a change in the permeability of the capillary wall. It is only recently that the work of Landis on the effects of stagnant anoxia on capillary permeability has vindicated Bolton's views. Again, Bolton showed that the centrilobular damage in the nutmeg liver of cardiac failure was not due to back pressure but was the result of an active necrosis in the parenchymal cells. Large as this subject was, it was not his only research interest. In 1904 he published the first of his important papers on gastric ulcer; he used specific gastrotoxins in order to produce a localized ulcer in animals. This led him to the proof that gastrotaxins produced no visible damage in the stomach's cells unless they were exposed to acid gastric juices. Neutralize the acidity and no ulcer results; augment it and the lesion extends, though it never becomes a chronic ulcer like that seen in man. It was on the basis of these observations that he shaped his therapy of peptic ulcer and substantiated it by a monumental research on the clinical aspects of this condition.

By the middle of the first decade of this century Bolton's reputation as an investigator was established, and in 1907 an event occurred which gave him the opportunity he deserved. University College Hospital Medical School separated from its parent body, University College. The new school had acquired its own research facilities and a director was needed. In 1908 Bolton was appointed, on a part-time basis, as the first director of the Graham Research Laboratories. Two years later he was appointed to the lectureship in pathology, which made him responsible for all pathological teaching and work in the school. These posts he continued to hold until 1914, when, their duties having grown greatly, they were merged in a single whole-time post to which the late Prof. A. E. Boycott was appointed. Then came the first world war. Bolton took charge of the military wing at University College Hospital and became fully immersed in clinical practice.

With the close of the war the second period of Bolton's life began. His reputation as a clinician had advanced to equal his reputation as an investigator. He now reaped the rewards—or penalties—of distinction: he was in demand. His practice grew widely, not only in regard to his particular interest in peptic ulceration, but in general medicine. Yet it was characteristic of the man and his generation that, although accepting the rewards of his reputation, throughout the whole of this busy period, and until his retirement, he reserved one afternoon a week for research. Then he would be found in his laboratory with old John Vandome in faithful attendance. Cigarette in the corner of his mouth, smoke curling into his eyes, he operated on his animals with a casual deftness that was in surprising contrast to his large frame and deceptively slow manner.

Behind this record of solid achievement as a practising physician, as an investigator, and as a teacher lay a massive personality. Bolton was a man of singular concentration. Embarked on a line of thought, he pursued it with an undeviating momentum which rendered him cheerfully impervious to all distractions. But once his attention was captured the questioner received a scrutiny as intense as the preceding abstraction and found himself cross-examined with a relentless precision that soon got to the root of the matter. Yet there was nothing of the unapproachable about Bolton. He was the most friendly and cheerful of souls. Add to this a dry humour, as native to Yorkshire as his accent, and the secret of his personal popularity is not far to seek.

#### ROBERT A. FLEMING, LL.D., M.D., F.R.C.P.Ed.

Dr. Robert Alexander Fleming died at Innerhadden, Kinloch-rannoch, on Dec. 5, at the age of 85. A native of Dundee, he graduated M.A. at Edinburgh University in 1884, and M.B., C.M. with first-class honours in 1888. He also studied at Vienna and Berlin, became a Fellow of the Royal College of Physicians of Edinburgh in 1892, and took his M.D., with a gold medal, in 1896.

A long connexion with the Edinburgh Royal Infirmary began in 1897 when he was appointed pathologist, and in 1900 he became an assistant physician. He was made a junior physician in 1913 and senior physician in 1919, with charge of wards. He was also senior lecturer in clinical medicine at the University. When he retired from the Royal Infirmary in 1927 under the age limit he was appointed consulting physician, and thus maintained his link with the hospital for a further twenty years. As a Territorial officer he saw active service with the Salonika Expeditionary Force when over the age of 50 as a major in charge of the medical division of the 2nd Scottish General Hospital, and also with the 42nd General Hospital. He was later surgeon to the King's Bodyguard in Scotland, Royal Company of Archers.

During the course of a long medical career he held many appointments, including that of physician to the Royal Edinburgh Hospital for Incurables, examiner in medicine for the Royal College of Physicians of Edinburgh, and medical adviser to the Prison Commissioners for Scotland, in which capacity he interested himself particularly in Borstal and other reform institutions. In 1927-9 he was president of the Royal College of Physicians of Edinburgh, and was honoured by the University of Edinburgh in 1928 with the degree of LL.D. His publications included a *Short Practice of Medicine* in 1919, and he wrote a number of articles on diseases of nervous and respiratory systems. A member of the British Medical Association since 1889, he was secretary of the Section of Neurology in 1898, and vice-president of the Section of Medicine at the annual meeting in Edinburgh in 1927. He was a Fellow of the Royal Society of Medicine, and a Fellow of the Edinburgh Royal Society. As a clinician and teacher he will be remembered by his colleagues and former students for his quiet and kindly personality, and for his ready sympathy. With a wide circle of friends, and a keenness for archery, shooting, and fishing as recreations, he remained in active professional work until a few months before his final illness. He is survived by Mrs. Fleming, three sons, and a daughter.

#### JULIAN AUGUSTUS ROMAINE SMITH, M.D.

We record with regret the death of Julian Augustus Romaine Smith on Nov. 13 at Melbourne. He was one of the most versatile men who have practised medicine in that city. Born in Surrey in 1873, he went early in life with his parents to South Australia. He was educated at Prince Alfred College, Adelaide, obtained the B.Sc. degree at Adelaide University at the age of 19, and returned to Prince Alfred College as mathematical and science master. Medicine attracted him, however, and he began studying it at the University of Adelaide. At this time, as the result of a dispute with the Government of the day, the teaching staff of the Adelaide Hospital resigned in a body. In order to complete the course some of the senior students went to Sydney; others, including Julian Smith, to Melbourne. He qualified in 1898 after gaining first place in every examination for which he sat. He rowed twice for Adelaide University in the inter-university boat races and later coached the Ormond College (Melbourne University) crew. His language as a coach has become a legend, and his dark piercing eyes seemed to bore through oarsman or student who failed to reach the quite attainable standards expected of him; but the dawning smile which ultimately irradiated his face held his victim's affection.

As appointments to the resident staff of the Melbourne Hospital are made according to the position of the graduates in the final honours list, he became senior resident officer. Not only was he a most original teacher but he had the skill to read blue-prints and the manual dexterity to construct complicated technical apparatus. For example, soon after x rays were discovered and drawings of machines were available, Julian Smith—having undertaken for a few years a practice in a country town where there was no electric current available—made a Wimshurst generating machine and produced excellent x-ray negatives with it. Being invited to join the staff of St. Vincent's Hospital he returned to Melbourne, and here his great ability found full scope. He studied biochemistry as it evolved and made use of it in his practice. He learnt the technique of cystoscopy in its earliest days and played his part

in raising the efficiency of diagnosis and the standard of urological surgery. When Almoth Wright published his first work on the opsonic index Smith came to England to determine its value at first hand. As elsewhere in the world at that time hygienic measures had scarcely begun to lower the incidence of surgical tuberculosis, and many patients were sent to Australia because of its excellent climate. Smith, although an accomplished surgeon, was never content to accept a traditional operation as the final word and ever hopeful of finding a cure by means more rational than surgery. Later, when Ronald Canti made his first film of tissue culture, Smith visited England again to see this and to learn what progress was being made in cancer research. Meanwhile he carried on a large surgical practice with a fine clinical mind, balanced judgment, and technical skill. He exacted from his students what he practised as a habit in his own work—careful clinical examination controlled by relevant laboratory methods.

During his long experience of peptic ulceration, which began with the dawn of gastric surgery in Australia, he became convinced that blood transferred direct from a donor was more effective than citrated blood in controlling haemorrhage. With his skill in making or adapting apparatus he modified the "Frankfurt" rotary pump, had his own connexions and needles made, kept the latter flawlessly sharp, and collected and grouped donors. At first he employed this method for his own patients and those colleagues who desired it at his own hospital. As with increasing years he gradually relinquished general surgical work he applied himself with missionary zeal to transfusion. He gave his time and strength to organizing the method of direct transfusion for the teaching and the military hospitals in and around Melbourne. With battle casualties returning, as well as the demands of civilian practice, many physicians and surgeons gladly availed themselves of his services. He continued this work for several years after his 70th birthday. He was also elected an honorary Fellow of the Royal Photographic Society; he exhibited regularly at the exhibitions of that society, at the London Salon of Photography, and in America.

Julian Smith was singularly free from personal ambition—certainly of its more vulgar manifestations. His investigations of other methods of treatment never turned him from the teaching and practice of sound surgery. They were evidence of his restlessly inquiring mind, satisfied with nothing that seemed to him capable of improvement. He was a very lovable man. He is survived by his wife, three sons, a daughter, and the affection of the whole profession and inhabitants of Melbourne and Victoria.

Dr. CECIL BERESFORD HOGG, medical officer of health of Kettering, died in the Middlesex Hospital on Nov. 26 at the age of 57. He graduated M.B., Ch.B. at Aberdeen University in 1914, and proceeded M.D. in 1925, obtaining his D.P.H. in 1922. After serving with the R.A.M.C. during the 1914 war, he was appointed senior assistant medical officer at the Monsall Fever Hospital, and later held a similar appointment at the Royal Hospital for Consumption, Ventnor. He then became senior assistant medical officer of health and assistant school medical officer for Blackburn. In 1930 he was appointed the first whole-time medical officer of health and school medical officer for Kettering. In addition he was medical superintendent of the Kettering Joint Board Infectious Diseases Hospital and medical referee to the Kettering crematorium. Dr. Hogg published a number of papers on such subjects as artificial pneumothorax, paratyphoid, and Sonne dysentery. He was a fellow of the Society of Medical Officers of Health, and will long be remembered by his colleagues, with whom he was working until six weeks before his death. He is survived by his widow and one daughter.

A. T. J. writes: I should like to pay a tribute to the memory of the late Sir John Fraser. We cannot realize that he has gone from us, as he appeared to have a strong physique and vigour and seemed to be a real picture of health and strength. I may say that he was the most charming man I ever met, so genial, kind, and sympathetic. He had the well-being of everyone who contacted him at heart, and I know he always wanted to give every assistance to all who appeared before him. His death will be a loss to Edinburgh and especially to the University, in which he held the honourable position of principal. He has well deserved the honours bestowed upon him by His Majesty the King, in which honours all his friends

and acquaintances rejoiced. We revere his memory and realize the great loss which the community and especially his family have sustained. He has gone from his labour to his reward, and I personally mourn with all who knew him.

## Medical Notes in Parliament

### Medical Practitioners and Pharmacists Bill

The Medical Practitioners and Pharmacists Bill, which had already passed the House of Lords, where its provisions for admitting foreign practitioners to the United Kingdom Register had been fully expounded, came up for second reading in the House of Commons on Dec. 5.

Mr. ANEURIN BEVAN recalled that before and during the war a number of doctors from abroad came to this country but had been unable to practise until special arrangements were made under Defence Regulation 32B of July, 1940. That temporary register had been closed in February, 1946, but doctors on that register continued to be registered till Dec. 31, 1947. After that they would be unable to practise unless the position was regularized. At the same date Polish doctors temporarily registered under the Polish Resettlement Act would cease to be registered. Some of these, however, might not be in Britain at the end of the year. He estimated that about 1,500 to 2,000 doctors would want to avail themselves of the facilities under the Bill. About 200 Polish doctors brought here under the Polish Resettlement Scheme had registered, and this figure would have increased by the end of the year. The Bill would also cover graduates of the Polish School of Medicine, Edinburgh, and other doctors who arrived here owing to war circumstances before Aug. 4. Aug. 4 was the date on which the intentions of the Government had been made known.

Mr. WALTER ELLIOT said that the Conservative Opposition proposed to afford every facility for the passage of the Bill. He trusted it would be possible to go a little further and to extend the arrangements for reciprocity. Relaxation of our stringent conditions, even as regards distinguished physicians from the New World, would be of great advantage.

Mr. SOMERVILLE HASTINGS said the Bill arose at the suggestion of the British doctors themselves, who were willing to give up exclusive possession of facilities to practise obtained by six years of hard study, to reward doctors from abroad who had served the country well during the war. He was grateful to the Minister for agreeing with the medical profession and he hoped the profession would reciprocate by agreeing with the Minister in the negotiations now proceeding. He felt some doubt about Clause 81, which conferred a temporary right to practise on persons from abroad who satisfied the General Medical Council that they intended to be in the United Kingdom temporarily for employment in a medical capacity in a hospital or other institution approved by the Council. The Clause would allow doctors from abroad who came here for postgraduate instruction at the hospitals and medical schools to take jobs as house-surgeons. Some doctors who came to this country did not reach the standard of men and women qualified here. Patients in the ward of a hospital would be placed in the charge of one of these doctors and would have no choice in the matter. The Clause should be recast to say "demonstration and instruction" instead of "employment," and "a teaching hospital" instead of "a hospital." He thought Parliament was giving the General Medical Council too much power in this Bill.

Sir HENRY MORRIS JONES did not agree that the generosity of British doctors to foreign doctors justified an appeal to the former to show equal generosity in accepting the provisions of another Act to which many of them objected. He drew attention to Clause 4 under which many would come in whose capacity for general practice was little known. He suggested they should undergo an *ad hoc* examination to protect the public.

Mr. BEVAN, replying to the debate, said he was pleased with the reception given to the measure. He was grieved, however, at Mr. Somerville Hastings's remarks on postgraduate medical education. They had not enough postgraduate facilities now, but could make London, Edinburgh, and Great Britain generally the medical Mecca of the world. There would be provisional registration of doctors not on the temporary register so that their experience and knowledge could be tested before they were permanently registered.

The Bill was read a second time.

### Professional Freedom

Mr. House asked on Dec. 4 whether the attention of the Minister of Health had been directed to evidence recently given



at an inquest at St. Pancras that Henry William Maryon died within three minutes of being given an injection of congo-red dye by a medical practitioner; and would he take steps to stop this practice of injecting drugs.

Mr. BEVAN said he had heard of this unhappy case. Accidents due to this cause were extremely rare. The injection of drugs had for years been an essential part of modern therapy, and there was no reason to think that its discontinuance would be anything but a disadvantage in the public interest. Nor was it his proper province to prevent doctors from using their free clinical judgment to the best of their professional ability.

*Industrial Health Research.*—Mr. HERBERT MORRISON said on Dec. 8 that the expenditure of the Medical Research Council on that part of the programme in which it was advised by the Industrial Health Research Board amounted to £161,520 over the last four financial years. During the same period twelve reports on this work had been published officially and forty-six other reports as contributions to scientific journals. The policy was to continue the expansion which had already taken place on a considerable scale since the war.

## EPIDEMIOLOGICAL NOTES

### Poliomyelitis

In the week ended Dec. 6, for the first time since the week ended July 5, notifications of poliomyelitis, 70 (103), were below the peak figure for 1938 of 85 notifications in the week ended Oct. 22, 1938. The fall from 103 to 70 maintained a more rapid rate of decline which has been noticeable since the week ended Nov. 15, and if this rate continues notifications should be reaching the usual winter level of 4 to 5 cases a week by the middle or end of January.

### Discussion of Table

In *England and Wales* an increased incidence was recorded for cases of measles 539, whooping-cough 330, acute pneumonia 64, cerebrospinal fever 14, paratyphoid fever 14; the only decreases were dysentery 64 and scarlet fever 47.

An increase in the notifications of measles was recorded in most areas, the rise in the North being greater than in the South; the largest increase during the week was Glamorgan-shire 64. Cases of whooping-cough were more numerous throughout the country; the largest increase in notifications was Yorkshire West Riding 68; the only exception of any size to the general increasing trend was a fall in Lancashire 59.

The 44 cases of cerebrospinal fever were notified from 17 counties, the largest local returns being Birmingham C.B. 4 and Liverpool C.B. 5. Seven of the total of 18 cases of paratyphoid were notified in Yorkshire West Riding, Kirkburton U.D. Only small variations occurred in the returns of scarlet fever. The largest fluctuation in the notifications of diphtheria was an increase of 10 in Durham. Only 3 further cases of dysentery were notified from the outbreak in Berkshire, Wallingford R.D., and no further case from the outbreak in Staffordshire, Willenhall R.D. The largest returns of dysentery were Lancashire 24 (Liverpool C.B. 14) and London 14.

The cases of poliomyelitis were widely dispersed throughout the country, the highest totals of notifications being Lancashire 12 and Surrey 11. The largest number of notifications in an administrative area was 9 in Surrey, Hambledon R.D.; the other seven administrative areas with more than 1 case notified had only 2 or 3 cases.

In *Scotland* increases were recorded in the notifications of measles 159, dysentery 25, scarlet fever 23, and acute primary pneumonia 17. No large increases occurred. Notifications of measles in Glasgow were 303, compared with 155 in the preceding week, and an increase of 20 was reported in the notifications of dysentery.

In *Eire* only 190 cases of measles were notified, 68 fewer than in the preceding week. In Dublin the number of notifications fell by 30, and no further cases were reported from Waterford, Dungarvan U.D., where 43 cases were notified in the preceding week.

In *Northern Ireland* the notifications of measles increased by 18.

### Week Ending December 6

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 2,027, whooping-cough 1,488, diphtheria 205, measles 2,799, acute pneumonia 530, cerebrospinal fever 46, acute poliomyelitis 70, dysentery 93, and paratyphoid 8.

## INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Nov. 29.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1947					1946 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	44	3	22	2	—	47	5	11	3	—
Deaths .. ..	—	1	—	—	—	—	—	1	—	—
Diphtheria .. ..	216	30	52	20	10	301	24	85	42	10
Deaths .. ..	3	—	—	1	—	—	—	—	1	—
Dysentery .. ..	77	14	40	—	—	58	17	36	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Encephalitis lethargica, acute .. ..	—	—	—	1	—	—	—	—	—	—
Deaths .. ..	—	1	—	—	—	—	—	—	—	—
Erysipelas .. ..	—	—	37	8	—	—	—	49	13	6
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Infective enteritis or diarrhoea under 2 years .. ..	61	4	8	45	4	64	6	9	49	1
Deaths .. ..	—	—	—	7	—	—	—	—	9	—
Measles* .. ..	2,772	121	337	190	23	6,005	221	331	45	10
Deaths .. ..	1	—	—	1	—	2	—	—	—	—
Ophthalmia neonatorum ..	51	1	4	2	—	61	2	10	—	1
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Paratyphoid fever .. ..	18	1	1(B)	—	—	19	1	2(B)	—	—
Deaths .. ..	—	—	—	—	—	—	—	1	—	—
Pneumonia, influenzal ..	567	31	7	4	33	745	64	11	2	6
Deaths (from influenza)† ..	18	1	—	1	—	20	3	—	1	—
Pneumonia, primary .. ..	—	34	309	17	—	—	41	319	33	—
Deaths .. ..	—	—	5	17	—	—	—	—	—	—
Polio-encephalitis, acute ..	3	1	—	—	—	1	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Poliomyelitis, acute .. ..	103	7	15	6	2	18	—	—	16	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Puerperal fever .. ..	—	3	10	—	—	—	3	10	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Puerperal pyrexia‡ .. ..	134	6	9	—	1	139	5	10	1	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Relapsing fever .. ..	—	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Scarlet fever .. ..	1,765	123	334	54	47	1,353	108	309	33	53
Deaths .. ..	1	—	—	—	—	—	—	—	—	—
Smallpox .. ..	—	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Typhoid fever .. ..	8	2	—	1	1	3	—	—	9	1
Deaths .. ..	—	—	—	—	—	—	—	—	1	—
Typhus fever .. ..	—	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Whooping-cough* .. ..	1,513	105	57	28	6	1,878	109	253	56	28
Deaths .. ..	—	—	—	1	—	8	—	1	2	1
Deaths (0-1 year) .. ..	382	34	66	29	25	418	67	80	41	11
Infant mortality rate (per 1,000 live births) ..	—	—	—	—	—	—	—	—	—	—
Deaths (excluding still-births) .. ..	4,711	721	646	185	156	4,763	778	662	198	133
Annual death rate (per 1,000 persons living) ..	—	—	13.4	11.7	—	—	—	14.6	—	—
Live births .. ..	7,691	1245	1009	431	201	9,609	1433	1133	402	247
Annual rate per 1,000 persons living ..	—	—	20.3	27.2	—	—	—	22.9	—	—
Stillbirths .. ..	189	27	22	—	—	294	29	39	—	—
Rate per 1,000 total births (including stillborn) .. ..	—	—	21	—	—	—	—	33	—	—

\* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

## Canadian Red Cross Memorial Hospital

At an "At Home" for local medical practitioners held at the hospital on Dec. 6, presided over by Mr. Ralph Marnham, Director of the Department of Surgery, Sir Francis Fraser spoke on "Post-graduate Medical Education at a Hospital Centre." Sir Francis referred to the association of the hospital with a university centre and of the various forms of postgraduate education which might be developed under the new Service. Dr. E. G. L. Bywaters, Director of the Special Unit for Juvenile Rheumatism, Dr. G. D. Hadley, Director of the Department of Medicine, Dr. L. E. Glynn, Director of the Department of Pathology, and other members of the medical and surgical staff of the hospital were present, and the wards and departments of the hospital were open to visitors.

## New President for Tuberculosis Association

Dr. F. R. G. Heaf has been elected President of the Tuberculosis Association. He is Honorary Consulting Medical Director of the British Legion Village at Preston Hall, near Maidstone, and Nayland Sanatorium, near Colchester, where ex-Service men and women suffering from pulmonary tuberculosis are treated.

## Leprosy Research

Prof. John Lowe, of Calcutta University, has gone to Nigeria to institute research into the treatment of leprosy by sulphones.

## COMING EVENTS

### Conference on Remedial Gymnastics

The Ling Physical Education Association (Hamilton House, Bidborough Street, London, W.C.) has arranged a conference on remedial gymnastics at Sloane School, Hortensia Road, Chelsea, London, S.W., on Monday, Tuesday, Wednesday, Thursday and Friday, Dec. 29, 30, and 31, 1947, and Jan. 1 and 2, 1948. The programme opens at 9.30 a.m. on Dec. 29 with a lecture by Dr. Harold Balme on "The Place of the Remedial Gymnast in the National Health Scheme." Contributions by other members of the medical profession are as follows: Dec. 29, 1.45 p.m., Dr. Doris M. Baker, lecture-demonstration on "Remedial Treatment in School of Children with Postural Foot Defects." Dec. 30, 1.45 p.m., lecture by Prof. A. B. Appleton, "Feet and Posture"; 2.50 p.m., Dr. Doris M. Baker, lecture-demonstration on "The Medical Significance of Postural Valgus Deformity of the Foot." Dec. 31, 9.30 a.m., lecture-demonstration by Dr. F. S. Cooksey, "Postural Defects of the Spine in Childhood and Adolescence"; 11.20 a.m., lecture by Dr. Maud F. Forrester-Brown, "Team Work in the Prevention and Cure of Postural Defects." Jan. 1, 4.35 p.m., Dr. J. L. Dunlop, "The Place of the Educational Gymnast in a School Health Service." The fees are: whole conference (including travelling expenses to various institutions), £2 2s. (if paid in advance) or £2 5s. (if paid at conference); per day, 14s. or 15s.; single session, 3s.

## APPOINTMENTS

The Minister of Health has made the following appointments to Regional Hospital Boards:

**Oxford.**—Mr. H. A. Goddard, Welfare Officer of Morris Motors Ltd., member of the Committee of the Radcliffe Infirmary and vice-chairman of the local hospitals contributory scheme, to fill the vacancy caused by the resignation of Prof. Seddon owing to pressure of other work.

**South-western.**—Mr. W. J. Carter, chemist at the Imperial Smelting Corporation and one of the workers' representatives on the board of the Bristol Royal Infirmary, to fill the vacancy caused by the resignation of Major Egbert Cadbury owing to pressure of other work.

**Sheffield.**—Dr. J. G. McCrie, Dean of the Faculty of Medicine of the University of Sheffield, to fill the vacancy caused by the resignation of Prof. E. J. Wayne.

## BIRTHS, MARRIAGES, AND DEATHS

### BIRTH

**Stanbridge.**—On Dec. 2, 1947, at No. 8 R.A.F. Hospital, Germany, to Inez Holland, wife of Group Captain R. H. Stanbridge, O.B.E., a son.

### DEATHS

**Larson.**—On Nov. 30, 1947, at 621, Loughborough Road, Birstall, Leicester, John Richard Larson, M.B., Ch.B., aged 54.

**Mamlock.**—On Dec. 6, 1947, at Musgrove Park Hospital, Taunton, Somerset, Harold Charles Mamlock, M.D.

**Stone.**—On Dec. 9, 1947, at The Stone House, Rose Hill, Dorking, Surrey, William Gream Stone, M.D., F.R.C.S., aged 81.

## Syphilis in a Nursing Mother

**Q.**—When an apparently healthy full-term baby is born of a mother who in the second month of pregnancy had a positive blood Wassermann reaction, for which she received the usual antisyphilitic treatment during the remainder of her pregnancy, is it advisable to administer antisyphilitic treatment to the baby, despite a negative serological test for syphilis, or is one justified in waiting until tests become positive or the baby develops clinical evidence of the disease? Can the breast milk of a clinically healthy woman with a positive serological test be fed with impunity (a) to her own baby who is clinically healthy and sero-negative, and (b) to someone else's baby who is apparently healthy and in whom there is no reason to suspect syphilis? Is it likely to make any difference whether the woman has or has not had antisyphilitic treatment?

**A.**—The sero-negative baby of a sero-positive mother should not receive antisyphilitic treatment merely because the mother's Wassermann reaction was positive. The baby should be kept under careful observation and its blood should be tested once a month for six months. If at the end of this time the baby shows no clinical or serological signs of syphilis it can be considered free from infection. The treatment given to the mother may well have been sufficient to protect the child but not to reverse the Wassermann reaction of the mother. A syphilitic woman may suckle her own baby even though it appears free from syphilis, but she should not suckle someone else's healthy baby. Apart from the possible presence of spirochaetes in the breast milk, the organisms might be conveyed through a cracked nipple. Previous treatment, especially with penicillin, reduces the chance of a syphilitic woman passing her infection on to her baby or to anyone else, in proportion to the adequacy of the treatment given. It should be remembered that a positive serological test for syphilis is not necessarily equivalent to a diagnosis of syphilis.

## Enuresis in Young Adults

**Q.**—Can anything be done to benefit chronic enuresis in young adults? In the case I have in mind full neurological and urological examinations have proved negative.

**A.**—This condition is almost certainly a psychological one. Drug treatment, such as the use of belladonna, may sometimes break a vicious circle in that the very suggestion of past failures makes for present and future ones, whereas a few nights of success might give greater confidence and start a new rhythm. But in the vast majority of cases the specific unconscious causes of the enuresis have to be discovered. The commonest are: (a) An unconscious desire to return to infancy, associated with a fear of going out into life, so that the patient unconsciously reverts to his infantile habit. (b) There is very commonly an infantile sensuous or sexual basis to the condition, for the infant finds pleasure in micturition, as in other excretory functions, and these, owing to repression, may be fixated and therefore arrested in development. These people often prove to be impotent or semi-impotent in adult life. (c) On the other hand, the enuresis may represent an unconscious rebellion, and the infant often uses this mode of making a nuisance of himself as a means of getting his own back on his nurse or mother: on account of the repression of their assertiveness such patients are commonly docile in character. Unfortunately, merely telling a patient the causes is not likely to help much, as they are repressed and will be denied, so that in most cases analytical treatment from a medical psychologist to discover the causes offers the only hope of cure.

## Tubercle Bacilli in Cheese

**Q.**—Are living tubercle bacilli present in cheese—that is to say, does the process of cheese-making destroy any tubercle bacilli which may be present in the milk?

**A.**—The answer to this question depends on whether the cheese (a) is made from raw or heat-treated milk, and (b) is stored long enough to enable any tubercle bacilli present in it

immediately after manufacture to die out. Generally speaking, tubercle bacilli in milk are destroyed by pasteurization, and tubercle bacilli in cheese die out within two months in storage at 50° F. (10° C.). At present about 90% of our cheese is imported. Most of this is made from pasteurized milk, and only a very small proportion of it comes on the market in under four months. The chief exceptions are Danish blue cheese and the soft Normandy cheeses of the Camembert type, both of which are made from raw milk. Danish blue cheese, however, is ripened for ten or twelve weeks, so that it should be relatively safe. Camembert, on the other hand, is only two weeks old at the time of export, and is marketed as rapidly as possible after arrival in this country, so that it must be regarded as potentially dangerous. Of the cheese made in Great Britain an increasing proportion of the Cheddar type is prepared from pasteurized milk, and little, if any, Cheddar cheese reaches the shops in under two months. Cheshire and Lancashire cheeses are usually made from raw milk, and may be sold within two weeks. It is probable, therefore, that they often contain living tubercle bacilli, particularly as they are now produced almost entirely in the North Midland region, where the incidence of tuberculosis in cows is higher than in any other part of the country. Soft cheeses made from salvaged milk, and eaten within a few days of manufacture, must also be frequently infected. There is no reliable information on the danger of eating cheese containing tubercle bacilli. Whatever the risk, it is probably considerably less than that of drinking raw milk, which not only contains greater numbers of tubercle bacilli but is generally consumed in larger quantities than cheese. (The subject of cheese-borne infection, with particular reference to typhoid fever, was dealt with in an annotation on page 730 of our issue of June 12, 1943.)

#### Induction of Labour

**Q.**—*What are the methods of choice for inducing labour in cases which are overdue, or in which it is desirable to induce labour two or three weeks early? Authorities seem to vary, and I should like to know the latest views.*

**A.**—Medical induction is preferable to surgical methods and, although it is rarely successful unless the patient is at or past term, should always be tried first except when there is urgency. Medical induction consists in the usual castor oil, enema, and hot bath; quinine should not be used if the foetus is alive. It is difficult to prove, but nearly all obstetricians believe that this drug is harmful to the child and may cause its death. Posterior pituitary extract, if used at all, should be given with caution and in the smallest doses; moreover, it is often contraindicated by the condition for which induction is necessary—for example, toxæmia of pregnancy or disproportion. When the foetus dies *in utero*, priming of the uterus with oestrogens for five to eight days before the medical induction is an advantage, but it is doubtful whether oestrogens have any significant effect when the foetus is alive.

Of the surgical methods, rupture of the forewaters is probably the most popular, but it should be carried out only when the cervix is already effaced and the presenting part is fitting well down into the pelvis. Some prefer to tap the hindwaters with a Drew-Smythe catheter. Stripping of the membranes from the lower uterine segment, either alone or preparatory to withdrawing liquor, is also a useful procedure. The use of bags, bougies, and tubes has been largely abandoned, and most obstetricians believe that no surgical method of induction should be practised when the foetus is dead. When the pregnancy is not ripe for induction—that is, when the presenting part is not engaged or the cervix is long and undilated—induction is best avoided.

#### Osteomyelitis of Femur

**Q.**—*What is the prognosis in adult cases in which osteomyelitis of the femur began in childhood? What is the correct treatment for a discharging sinus when x-ray examination shows no evidence of a sequestrum?*

**A.**—When chronic osteomyelitis follows an acute haematogenous attack the prognosis for permanent cure is notoriously uncertain, particularly if multiple "flares" of infection have occurred. Even after complete skin-healing and absence of

symptoms for many years there is always a risk of further recrudescence. Such exacerbations may sometimes be precipitated by deterioration of the general health, or by unaccustomed activity of the part, or by injury. In spite of the uncertainty of the long-term prognosis, however, it should as a rule be possible to clear up existing sinuses by appropriate treatment. This usually necessitates surgical exploration of the extent of the sinuses and eradication of their cause—most often a sequestrum or a persistent area of osteitis. The fact that sinuses persist indicates with certainty either one or both of these lesions, even if the radiographs are apparently negative. Surgical treatment on these lines should be supplemented by an adequate period of general rest, preferably in an open-air hospital, and by temporary immobilization of the affected part. Adequate doses of penicillin both during and after the operation increase substantially the prospects of cure; indeed, under penicillin control it has in many cases been possible, after removing all diseased bone, to obtain first-intention healing by primary suture of the skin. It is perhaps better, however, to leave the wound open for five to fourteen days and then undertake delayed primary suture or a skin graft.

#### Treatment of Sclerodermia

**Q.**—*Dihydratachysterol was reported to have given excellent results in sclerodermia (J. Amer. med. Ass., 1946, 130, 570). Has this claim been substantiated by further reports?*

**A.**—There is no certain treatment for sclerodermia. Psychogenic factors may be important. Gold therapy sometimes helps, as may x-ray therapy locally in small dosage. The reference cited is to a case of sclerodermia following thyroidectomy and probable removal of the parathyroids, so that there were special circumstances indicating the use of dihydratachysterol. The writer has not found help from the antihistamine preparations or calciferol. Recently the local application of promin jelly has been advocated in America (Wuerthele-Caspe, V., Brodtkin, E., and Mermod, C., *J. med. Soc. N.J.*, 1947, 44, 256).

#### Chilblain of the Nose

**Q.**—*Is there a remedy for chilblain of the nose? Except in the warmest weather my nose is very cold and inclined to be red. For the past five or six years, with the onset of cold weather, the end of the nose becomes swollen and shiny and a typical chilblain develops. I have tried prolonged courses of calcium lactate, vitamins, nicotinic acid, and short-wave diathermy without success. I am 74 and lead an active and busy life. I never before had a chilblain.*

**A.**—It is not common for chilblains to appear first at this late age; such an event suggests a degenerative change in the cutaneous vessels. The questioner has tried most of the accepted remedies without success, but iodine has been acclaimed by some. It should be prescribed as Lugol's iodine 5 drops twice daily, increasing the dose slowly to 60 drops in the day; it may be combined with dried thyroid, especially if the patient is over weight. Bathing the affected part with equal parts of hydrogen peroxide (15 vols.) and hot water for ten to fifteen minutes daily, followed by vigorous friction with a rubefacient such as methyl salicylate ointment, often gives relief. Artificial sunlight has been found by many to be a useful prophylactic.

#### Unequal Pupils and Fibrillatory Twitchings

**Q.**—*(a) What significance should be attached to unequal pupils in a candidate for life insurance?*

*(b) Do fibrillatory twitchings in muscles invariably indicate the onset of a neuropathic muscular atrophy? I have two patients who exhibit this phenomenon in the calf muscles following high ligation of the saphenous veins.*

**A.**—*(a)* Unequal pupils in themselves do not debar a candidate from life insurance. A consistent pupillary inequality should, however, call for special clinical vigilance on the part of the examining medical officer. He should, to begin with, determine which of the pupils is the "normal" one—that is, whether the smaller pupil is forming part of the syndrome of an oculo-sympathetic paralysis. X-ray examination of the neck and chest, a blood Wassermann test, and an examination of

family doctor, the hospital at which he should be treated, and free to decide whether he avails himself of the public service or obtains the medical service he needs independently.

IV. Doctors should, like other workers, be free to choose the form, place, and type of work they prefer without governmental or other direction.

V. Every registered medical practitioner should be entitled as a right to participate in the public service.

VI. The hospital service should be planned over natural hospital areas centred on universities in order that these centres of education and research may influence the whole service.

VII. There should be adequate representation of the medical profession on all administrative bodies associated with the new service in order that doctors may make their contribution to the efficiency of the service.

6. In this memorandum the Committee concentrates on those aspects of the Government's scheme which appear to it to need modification. There are others which are commended or accepted by the profession, including the principle that the service should be available to the whole community, the proposed planning and development of hospital services on regional lines and the general structure of local executive councils.

[NOTE.—In general, the principles of the Negotiating Committee's case are applicable to the Scottish Act as well as to the Act for England and Wales, with the Secretary of State taking the place of the Minister.]

### GENERAL PRACTICE

7. The two features of Part IV of the Act which have aroused the gravest misgivings of the medical profession are the abolition of the custom of buying and selling general practices and the establishment of a machinery of "negative direction" over the movements of general practitioners. In its published comment on these features of the Act, issued by the Negotiating Committee in November, 1946, the following statement appeared:

"The Act provides for the abolition of the custom of buying and selling general practices and for the establishment of a machinery of negative direction over the movement of general practitioners, while the profession maintains that the ownership of goodwill is essential to the continued freedom of the general practitioner. This abolition is regarded as a first and substantial step to a State salaried service, while the system of 'negative direction' which is proposed is an unjustifiable and unnecessary interference with the freedom of the doctor. Any necessary improvement in the distribution of doctors can be achieved on the existing basis of general practice.

"The abolition of the custom of buying and selling practices creates more problems than it solves."

### DISTRIBUTION

8. The question of distribution of the profession is taken first because it is upon the need for better distribution that the Minister based his arguments for the abolition of the ownership of goodwill in public general practice.

Problems of distribution can be met in a satisfactory way by dealing with any cases of under-doctoring as they actually exist or occur. No areas will remain under-doctored because of inability to purchase medical service, for, as a result of the Act, there will be available a medical payment in respect of every member of the community. The medical payment will be the same in respect of every patient, wherever he lives and whatever his status. Doctor-distribution in relation to population-distribution will follow naturally upon a 100% service. When stability has been reached any remaining deficiency in medical man-power

in particular localities can be effectively remedied by adjusting the terms and conditions of service so as to attract to the under-doctored area the medical practitioners who are needed, even to the extent of an appointment by the Minister of a doctor on special terms.

The discontinuance of the traditional methods of transfer of and succession to practices creates fresh problems of distribution.

9. The Act provides that every practitioner seeking to enter general practice in the public service in any area after the appointed day must first obtain the permission of the Medical Practices Committee, and, as is shown subsequently, in no case will the granting of this permission be a mere formality. An examination of the procedure proposed demonstrates that it will be a cumbersome and slow-moving business. An illustration of this is afforded by the course of events on the occurrence of a doctor's death. The Local Executive Council, being informed of this event, must first report to the Medical Practices Committee on the necessity of filling the vacancy. The Medical Practices Committee will need local knowledge before it can determine this issue. Neither in these nor in any other circumstances will the Medical Practices Committee be able to rely on overall figures for general practitioners and population in the area, for the experience of the Central Medical War Committee proves that the over-doctored area contains under-doctored patches and the under-doctored area contains over-doctored patches. It is no help to a patient of the deceased doctor to explain that, in the county as a whole, there are sufficient medical practitioners. The Medical Practices Committee must examine the report of the local committee before it decides whether or not to fill the vacancy.

Let it be assumed that it is decided to fill the vacancy. Presumably the Local Executive Council or the Medical Practices Committee will advertise and candidates will duly apply. It will fall to the Local Executive Council, in consultation with the Local Medical Committee, to examine the applications, to interview the candidates, and to arrive at a short list for recommendation to the Medical Practices Committee. In due course the Medical Practices Committee, presumably after interviewing the short-listed candidates, will reach a decision. This done, the unsuccessful candidates may appeal to the Minister against the decision. Such appeals having been considered, the final decision will be reached and a doctor will be chosen to fill the vacancy.

10. But what has happened in the meantime? At a conservative estimate, the procedure outlined above will have taken some three or four months. In the meantime the Local Executive Council is responsible for securing medical care for the patients of the deceased practitioner. The Council may ask the neighbouring practitioners to undertake the work. If they agree, it is probable that after three or four months many of the patients of the deceased practitioner will have transferred to the lists of the neighbouring practitioners, leaving little practice for the appointee on arrival.

On the other hand, the neighbouring practitioners may not agree to undertake the work, or their lists may be so heavily burdened that they cannot undertake extra work, and the Council may appoint a locum. After three to four months the locum may be generally accepted by the patients of the practice. The widow may have sold the house to him (or she may have sold it to another doctor or to a layman). It is difficult to see how the Medical Practices Committee could make yet another change and bring in a fresh practitioner.

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11. Many of these difficulties arise from the fact that from the moment of her husband's death the widow has no interest in the practice as such and owing to the cumbersome machinery neither the Local Executive Council nor the Medical Practices Committee can effectively replace her in this respect.

12. Examples could be multiplied of the difficulties which will arise. Sons will join fathers only with the permission of the Medical Practices Committee. The final decision as to whether the incomer shall be male or female, young or old, British or alien, lies with a committee remote from the area. The burden of work falling on the Medical Practices Committee will be intolerably heavy. For in every case which comes before its notice there will need to be inquiry into the circumstances of the particular area in order to determine whether or not there is a sufficiency of doctors in it. This is a burden which no committee can discharge efficiently. The average number of additions to the medical register during the last five years is nearly 3,000 a year, and the removals from the register on death, etc., during the same period average 1,100 a year.

In an area, or part of an area, covered by say two doctors the Medical Practices Committee may decide that a vacancy arising from the death or retirement of one need not be filled. The effect would be to compel the patients of the vacant practice to secure their medical attention from the practitioner remaining in the area—who is not the practitioner of their choice, but the practitioner from whom those patients have chosen not to obtain their medical service.

13. There is another feature of the Act which contravenes the fundamental principle that the citizen should be free to choose or change his family doctor. Section 34 (4) empowers the Medical Practices Committee to grant an application to practise "subject to conditions excluding the provision of general medical services by the applicant in such part or parts of the area of the Executive Council as the Committee may specify." To restrict a doctor's practice, for example, to a particular part of a town is to deny his services to patients who may wish to obtain them and to compel those patients to seek treatment not from the doctor of their choice but from some other practitioner. This objection applies whether an area is held to be under-doctored or over-doctored. The present arrangement, which has worked satisfactorily over many years, gives discretion to an insurance practitioner to accept any person on his list whether or not the person lives within the area ordinarily covered by the doctor's practice.

### OWNERSHIP OF GOODWILL

14. In the discussions which have taken place between the Minister's representatives and the Committee, the Committee's original statement that "the abolition of the custom of buying and selling practices creates more problems than it solves" has been abundantly justified. Some examples of the problems created are given below.

#### Existing Partnership Agreements

15. Practically every existing partnership is governed by an agreement. In general, these agreements provide that in certain circumstances—e.g., the retirement, death, or sickness of one partner—the other partner, or partners, shall have an option, and often an obligation, to purchase the share of the partner retiring or dying.

16. So far as these partnership agreements are concerned the interpretation which the Ministry places on Section 35 of the Act on the advice of its legal advisers is:

"(a) Existing partnerships between doctors are not determined on the appointed day, nor is there any reason for partners to determine existing agreements. The position is the same whether all or only of the partners in a partnership join the new service.

(b) Clauses relating to the sale and purchase between partners of shares in the goodwill of the practice or the option to purchase such shares contained in a partnership agreement entered into before the appointed day will be unaffected by Part IV of the Act coming into operation on the appointed day and will remain operative. An obligation in such an agreement by a partner who joins the new service to buy from or sell to another partner a share in the practice, or the right of such a partner to exercise an option to buy or sell a share, either on a fixed day or the happening of an event after the appointed day, will continue as a right or liability of the partner concerned. No such sale would constitute an offence under Section 35 (2) of the Act.

(c) A doctor who is a member of a partnership and who joins the new service will lose the right to sell his existing share in the partnership, except to an existing partner in pursuance of the partnership agreement. While the various rights (whether in the form of options or obligations) to buy a further share in the partnership which exist under the typical partnership agreement will continue he will not be able to sell those rights. All these matters will have to be taken into consideration in fixing as between partners their respective shares of the compensation attributable to the partnership practice, and provision for this will be made in the Regulations under Section 36 (3)."

17. This official interpretation means that all partnership agreements in existence on the appointed day retain their full validity. Is the Ministry interpretation right? This was the question the Negotiating Committee submitted to an eminent Chancery counsel, who found himself able to express an opinion, to use his own words, only "after long suspense of judgment and fluctuations of view." His first conclusion was that on balance (he regarded it as a "fifty-fifty" affair) the Ministry interpretation should prevail. His opinions have been conveyed to the Ministry. What follows in paragraphs 18-27 is on the assumption that the Ministry interpretation of Sections 35 and 36 is right.

18. Acceptance of the Ministry's interpretation, however, gives rise to two main difficulties: (a) It is impossible to determine, in advance of the various contingencies which may arise under the usual partnership deed, the amount of compensation "payable to any medical practitioner." Even if it be assumed that the amount of compensation due to a partnership can be calculated it is impossible to calculate the shares of individual partners. (b) It is impossible to determine at the appointed day how and to whom interest due on the compensation moneys should be paid.

19. It is necessary to examine some implications of the Section, on the Ministry's interpretation. Where practitioners A and B are bound by a partnership deed which contains the usual mutual options or obligations to buy the share of a retiring or deceased partner, the compensation due to each partner *cannot be determined until it is known who dies or retires first*. It is impossible to assess in advance the cash value of the various options and liabilities. The amount of compensation due to a practice can be estimated, but in the case of a partnership the division of the amount of compensation is impossible until certain events have in fact happened. In the meantime it will not be known in what proportions to divide between the partners the interest which the Government has promised to pay between the appointed day and the liquidation of the compensation sum.

20. It has been suggested that this difficulty could be overcome where both (or all) members of a partnership enter the new service: (a) by regarding the partnership as one practice for the purpose of calculating compensation; and (b) by arranging, when subsequent transfers of shares are made between the partners, for the compensation to "follow the share." Thus where a continuing partner A is required to buy the share of his retiring partner B (in, say, five years' time) the compensation apportioned to B's share will be transferred to A. Having received A's purchase money, B would have suffered no loss by reason of being unable to sell his share in the practice and would not, therefore, be entitled to compensation under the Act. A, who cannot resell, has suffered the whole of the loss sustained by the partnership and would receive the whole of the compensation. C, whom A brings into the practice to help him in B's place, will lose nothing, because he will pay nothing on entering the practice.

21. There are at least two objections:—(a) Though compensation may "follow" a share of the practice when it is sold, such compensation may or may not be equal to the sum paid by the purchaser for something which he cannot subsequently sell. A practitioner buys something at one price, but its value, when he comes to be paid the compensation due, may be a lower or a higher price—probably a lower price. (b) The Act requires that interest should be paid annually from the appointed day until the time when the compensation sum is paid. Under Section 36 (3) (d) the interest is to be paid "on the compensation payable to any medical practitioner"—that is, to the practitioner entitled to the compensation. If interest were apportioned and paid on the basis of the partnership shares as they exist on the appointed day, a partner who in, say, five years' time fulfils an obligation to buy an additional share in the partnership would lose the interest paid over those five years on the compensation due in respect of that share of the partnership. On the other hand, the seller would have received during those five years the interest in a compensation sum to which he is not entitled, in so far as the Act has not prejudiced his right to sell and, in fact, has not precluded him from selling. He will have received interest on a compensation sum which is going to be paid, not to himself, but to the man who has bought him out. In brief, the buyer has bought something which the Act precludes him from selling but has lost some of the interest on the compensation which the Act provides in respect of that prohibition. The seller has received interest on a capital sum to which he is not entitled.

22. The Ministry contends that the position is the same whether all or any of the partners join the new service. This is inaccurate. For example:

(i) Consider the case of practitioners A and B in partnership, with B under an obligation to purchase A's share on A's death or retirement. Assume that A enters the service, but B does not. The medical profession has been promised that its members will be free to enter or not to enter the service. B, exercising this right, decides not to enter the service. In due course A retires and B is required to purchase his share. B, having no alternative, purchases A's share, only to find that he cannot enjoy the income from the public general practice which he has purchased without entering the service. But on entering the service he forfeits the right to dispose of both his own share and the share he has just purchased from A. He sacrifices these rights without compensation, for there can be no compensation to a practitioner who joins the service after the appointed day. The Committee does not believe that Parliament contemplated that the Act would have this effect of expropriation. It may be that the practitioner desiring to remain outside the service will in self-protection be forced into the service. This would be a breach of the promise given

during the second reading of the Bill that the profession is free to enter or not to enter the service—viz.: "The Bill places no obligation on any medical practitioner. He may stay outside the service altogether if he wishes to do so." (*Hansard*, May 1, 1946, col. 220.) The Committee asks the Minister whether he proposes to leave the position where it is.

(ii) Another situation arises if B retires or dies first and A is required to purchase B's share. Having done so, A is precluded from disposing of that share because he is a member of the service. Having joined the service on the appointed day he is entitled to compensation in respect of his own share of the practice, but he is left bound to buy a share which he cannot sell and for which there is no compensation. The Minister's representatives have stated that they are advised it is lawful to give compensation to a practitioner in partnership not merely in respect of the share he holds on the appointed day but in respect of a further share which he subsequently lawfully acquires in pursuance of the partnership agreement. On the contrary, the Committee is advised that the Act provides for compensation only in respect of the goodwill a practitioner owns on the appointed day. But even if the Minister's advisers are correct, there is no element in the global sum of £66,000,000, or the "appropriate proportion" thereof, for this compensation; for this amount will, under the Act, be calculated in proportion to the number of practitioners who actually join the service on or before the appointed day. Compensation in respect of a share purchased from a partner outside the service could be provided from the global sum only at the expense of the practitioners within the service. To provide fresh money would involve new legislation.

23. There is a further complication of a technical character. £66,000,000, or some proportion of it, is the global sum for compensation purposes. Hitherto it has been contemplated that, when all the claims have been made, steps will be taken to calculate the amount of compensation due in respect of each practice brought into the service. This is on the assumption that the whole of the global sum is to be distributed. But the effect of the Act is to leave an undistributable residue in the compensation fund. The Act requires that there shall be paid out in compensation the sum of £66,000,000 or an appropriate proportion thereof, this proportion being calculated on a formula laid down in the Act relating the amount to the number of practitioners who do in fact enter the service. For an amount of money to remain undistributed would be in conflict with Section 36 (2) of the Act. For example, if practitioner A, being in the service, is bought out under an existing agreement by practitioner B, not in the service, practitioner A, having been paid in full, loses his claim on the compensation fund. The amount which, on the appointed day, was set aside for his compensation can no longer go to him or to anyone else—and interest on this amount will have been improperly paid. It is impossible to calculate in advance what the size of this residue will be. Accordingly, it is impossible finally to calculate the amount to be allocated to any individual practitioner in compensation until the death or retirement of the last practitioner in partnership who joins the service. Being unable to calculate the amounts of compensation, the Government is unable to calculate the appropriate amounts of interest which it is required to pay each year to individual practitioners.

24. Furthermore, if every principal entered the service, either of his own free will or because of this pressure of the Act, the number of principals would be in excess of the figure of 17,900 used in the calculation of the £66,000,000. The Government's advisers calculated this number, it will be recalled, on the assumption that some principals remained outside the service. If every principal entered the service the sum of £66,000,000 would, apart from all other considerations, be inadequate for their compensation.

25. The Negotiating Committee has been promised that wherever a principal entering the service on the appointed day can demonstrate that he has suffered hardship in respect of a debt incurred in the purchase of his practice he will receive immediate payment of the compensation to which he is entitled. It will be impossible to give effect to this promise because, for reasons already adduced, it is impossible accurately to assess at the appointed day the amounts of compensation due either to individual practices or to individual practitioners.

26. To sum up, the consequences of the Ministry interpretation of Sections 35 and 36 of the Act in their present form include:

(i) Existing agreements, with all their options and liabilities, financial and other, remain legally valid despite the fact that they were designed to meet entirely different circumstances.

(ii) As a result, an individual practitioner may be required to pay out a sum of money to purchase a share the compensation value of which is less than the amount he has paid.

(iii) As it is impossible to estimate in terms of money the various rights, obligations, and options in typical partnership agreements, it is also impossible to estimate at the appointed day the shares due to individual partners. This being so, it is impossible to carry out the requirement of the Act that interest should be paid annually to individual practitioners.

(iv) In fulfilling his contractual obligations under a partnership deed a practitioner may be required (a) to buy a partner's public practice, the capital value of which he cannot realize, the income from which he cannot receive, and compensation for which is not available to him; or (b) to buy a partner's private practice, which he cannot sell and in respect of which no compensation is payable from the moneys provided under the Act.

(v) It appears likely that the assumption hitherto made that it will be possible to estimate the shares of individual practices (as distinct from individual practitioners) is unfounded, as the Act requires, in theory, that the whole of the £65,000,000, or the appropriate proportion thereof, shall be paid out, and in practice there will be an undistributable residue. The Government cannot keep its promise in regard to the relief of hardship and at the same time put into operation the Act in its present form.

(vi) In the Committee's view Sections 35 and 36 of the Act in their present form are unworkable. The official interpretation is doubtful because of the ambiguity of the phraseology used, and even if it be accepted unfairness amounting in some cases to expropriation will result.

27. The preceding paragraphs have been written on the assumption that the Ministry interpretation of Section 35 in relation to pre-existing partnership deeds is correct. The doubts expressed on this point by Chancery counsel of the highest eminence have already been mentioned. Counsel has used these words: "I still have very grave doubts as to the true construction of Section 35, which, unless made clear, will in my opinion reflect no credit on its authors." Because of the obvious doubts in the mind of counsel, a further legal opinion was sought jointly from Sir Cyril Radcliffe, K.C., and Mr. J. H. Stamp. After the fullest consideration, they have both reached the conclusion that the Ministry interpretation of Sections 35 and 36 is wrong. Their reasoned opinion will be conveyed to the Ministry as soon as it is received.<sup>1</sup>

It is submitted that a grave injustice would be done if this situation is allowed to remain. An authoritative opinion can only be given by the House of Lords, and while it is recognized that this is true of any legislation the essential feature in this case is that it is known now that ambiguity exists, giving rise to the situation that no medical practitioner, even after consulting his solicitor and

counsel, can be certain of his position. Moreover, the question can only be brought before the House of Lords at the expense of some individual medical practitioners in an action at law. Setting aside the arguments which have been raised earlier in this memorandum as to the inequity flowing from the Ministry interpretation, it is strongly urged that in any case the Act should be amended to remove the ambiguities.

Indeed, individual members of the medical profession have a right to know before the appointed day how the Act will affect them. It is unjust to leave a demonstrably ambiguous Act unamended and their own financial position uncertain until a case has been fought out in the Courts. Doctors who do not join the service by the appointed day will not qualify for compensation. For this reason alone they need to have the position precisely defined at least six months before the appointed day.

They must know beyond all reasonable doubt whether existing partnership agreements remain in force or not. The Ministry says they do and the highest legal opinion available says they do not. Where do partners stand? Are all existing agreements rendered null and void, with all the consequences which flow from such an extraordinary position?

The Act has nothing to say about the validity, after the appointed day, of existing partnership agreements. If learned counsel are right, a practitioner who, being bound by an existing agreement to buy or sell a share, carries out his obligation will be liable to fine or imprisonment, or both. Such a situation is intolerable.

#### Partnerships after the Appointed Day

28. In partnerships formed after the appointed day between practitioners involving a practice in the public service it will be illegal for the partners to distribute the emoluments of the practice except in the proportion in which they are earned. In the terminology of the Act there is deemed to have been a sale of goodwill "where in pursuance of any partnership agreement between medical practitioners services are performed by any partner for a consideration substantially less than those services might reasonably have been expected to be worth having regard to the circumstances at the time when the agreement was made."

Even if the argument be admitted—and it is based on no more than a Ministry interpretation of the Act—that the "worth" of a partner could be assessed not only on services rendered but also on his seniority and experience, it is impossible to assess what the experience of the senior partner "might reasonably have been expected to have been worth." It is equally difficult to assess the anticipated value of the services of a junior partner at the time when the agreement is made. In any case, the respective "values" of junior and senior partners may change materially over the years. The general effect will be to discourage senior partners from taking junior partners. It illustrates that the Act seeks to destroy the indestructible, for, whatever legislation may be passed, the successful practitioner possesses something of value in the goodwill of his practice.

29. It is ironical that an Act which purports to encourage the development of group practice should in its operation have precisely the opposite effect—that of discouraging practitioners from entering into partnership one with another, whether inside or outside health centres.

30. It is a curious and presumably unforeseen anomaly arising from the Ministry interpretation that, should practitioners after the appointed day but before their entry into

<sup>1</sup>This opinion has now been conveyed to the Ministry, and appears at p. 151.

the service enter into a partnership deed involving buying or selling, that deed will still be binding on the participating practitioners.

### Assistants

31. It is highly desirable that newly qualified practitioners seeking to enter the field of general practice should, for a period, act as assistants to practitioners whose names are on the lists of Executive Councils, so as to gain the necessary experience. A practitioner who employs an assistant at remuneration "substantially less than his services might reasonably have been expected to be worth having regard to the circumstances at the time when the remuneration was fixed" and who subsequently admits the assistant to partnership commits an offence. The effect of this will be to discourage practitioners from admitting assistants to partnerships and to encourage them to employ assistants for short terms without the prospect or possibility of partnership. Add to this the diminished incentive to become an assistant because by application one may succeed in acquiring an independent practice and it appears the prospect of there being sufficient assistants will become remote. The effect will be that more and more practices will be left with no one in charge when a principal dies or retires.

### The Doctor's House

32. The widow of a practitioner who has worked in the service is precluded from selling the house to another practitioner with the knowledge that it will be used for practice purposes, if the purchase price is "substantially in excess" of the price which might reasonably have been expected if the premises had not previously been used for practice purposes.

The effect of this may be, first, to penalize the widow by leading her to accept a price which is less than the real value of her property; secondly, to run the risk of prosecution by putting up the house for auction; or, thirdly, to lead her to sell to a third party who will offer it at a higher price to the incoming practitioner; or, fourthly, she may sell it outside the medical field entirely, so making medical practice in the area more difficult.

Many premises have been adapted structurally for professional use, and in these cases it will be impossible to assess the price "which might reasonably have been expected if the premises had not previously been used for practice purposes."

33. It may be argued that the system of registration of agreements with the Medical Practices Committee will protect the profession and the public from the dangers referred to in the foregoing paragraphs, although it is difficult to see how the widow could be afforded protection. But nothing is now known, or can yet be known, by the Ministry or the profession, of the attitude which may be adopted by any Medical Practices Committee. Such a committee will have no alternative but to interpret the sections of the Act as passed by Parliament. However much it may desire to do nothing to endanger partnerships and assistantships or to endanger practitioners, it cannot act except in conformity with the definitions set out in the Statute.

### Remuneration

34. The Committee asks that the Minister will now make clear his attitude on the subject of remuneration. The subject is not dealt with in the Act. The Committee is aware of the Minister's acceptance in principle of the majority recommendations of the Spens Committee. It would now be grateful for the Minister's views on the

translation of those recommendations into terms of actual remuneration. It is the Committee's view that, except where special circumstances justify it, the remuneration of general practitioners should be by capitation payment in proportion to the number of persons on a doctor's list, and that this principle, which it regards as fundamental, should be embodied in the Act. It is opposed to the payment generally of a salary, basic or other, considering that in ordinary circumstances the general practitioner should be paid by capitation fee. The time has now come for a clear and detailed statement on the whole subject. The Minister will recall the statement of the Lord Chancellor in the House of Lords on Oct. 28, 1946, replying to an argument that the terms and conditions of service should be made known to the profession well before the appointed day, that "the Minister agrees that we ought to aim at a period of six months so that the doctors can have ample time to make up their minds as to whether they are going to come in or not."

### Right of Appeal to the Courts

35. The view is widely held in the medical profession that there should be a right of appeal by the practitioner affected to the Courts of Law from any decision of the tribunal to remove a practitioner's name from the lists of any or all Executive Councils, or, alternatively, that there should be a right of appeal from any adverse decision of the Minister on this point. In the Health Service Bill for Northern Ireland a practitioner aggrieved by any decision of the tribunal is given the right of appeal to the Supreme Court.

36. As the Seventh Schedule now stands the medical member of the tribunal will act in all cases in which the case of a medical practitioner is considered by that body. Only if he is unable to act will it be possible for the Minister to appoint a deputy. This position is unsatisfactory. It is highly desirable that the case of an individual medical practitioner should be adjudicated upon by a tribunal containing a practitioner familiar with the type of practice and the type of area from which he comes. An amendment of the Schedule would be necessary to make this possible.

### Midwifery

37. The criteria for the statutory qualifications to practise medicine, surgery, and midwifery are similar in England and Wales, in Scotland, and in Northern Ireland. The right to participate in the midwifery service provided as part of the National Health Service in Scotland and Northern Ireland is accorded to all practitioners by virtue of their statutory medical qualification, but in England and Wales the Minister has taken power to restrict that right by imposing a qualification additional to the statutory qualification. This is inconsistent, unnecessary, and undesirable.

### OTHER POINTS

#### Chairmanship of Local Executive Council

38. This body should enjoy the right of appointing its own chairman from among its own members—professional or lay—or from outside, just as insurance committees appoint their own chairmen to-day. Even if it is accepted as a matter of convenience that the Minister should appoint the chairman for a preliminary period, there is no case for continuing to deprive the committee of the right to appoint its own chairman. Any such preliminary period should be of short duration. To effect this change amendment of the Act is necessary.



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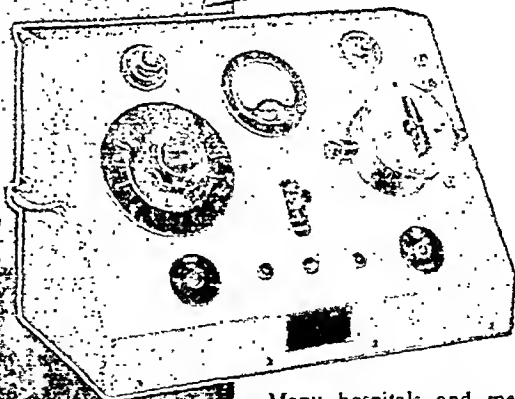
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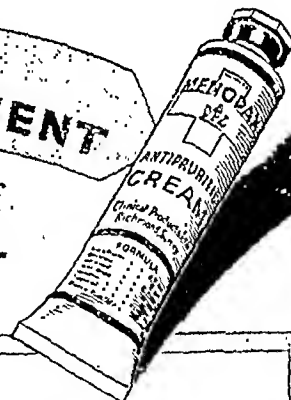
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### Consultation with Local Units of the Profession

39. So far as general medical, dental, and pharmaceutical services are concerned, the responsible local body—namely, the Executive Council—in exercising its functions under Part IV of the Act, is required to consult with local committees representative of the professions concerned. The Act does not impose a corresponding measure of consultation in the case of the Regional Boards and the Local Health Authorities. The Regional Hospital Board, in preparing its scheme for the local administration of hospital and specialist services, is not required by the Act to consult the local medical profession. The Local Health Authority, in preparing its scheme for carrying out the duties imposed by Part III of the Act, is not required by the Act to consult the local medical profession, though it is required to send a copy of its proposals to the Regional Hospital Board, the Governors of any teaching hospital in the area, the Executive Council, other Local Authorities in the area, and “to every voluntary organization which to the knowledge of the Local Health Authority provides in the area of the Authority services of the kind dealt with in the proposals.” This means, for example, that the Body which is charged with the duty of providing, equipping, and maintaining Health Centres where, *inter alia*, general medical services will be provided is not required to consult the local medical profession by whom these services will be provided. Such consultations should be provided for as a requirement in the Act.

The local executive council is not required to consult the local medical committee in all appropriate matters coming before it but only “on such occasions and to such extent as may be prescribed.” This limitation is regarded as unsatisfactory.

### Scope and Conditions of Service

40. (a) In general, and subject to what is recommended below, the definition of the scope of the general practitioner service should follow the lines of the existing definition of the obligations under the National Health Insurance Act.

#### Anaesthetics

(b) The administration of anaesthetics in midwifery and dental cases should be excluded from the practitioner's obligations.

(c) The administration of other anaesthetics for patients on the list of the practitioner concerned should be within the terms of service only if: (1) the operation is of a kind which is usually performed by, and is in fact performed by, a general medical practitioner, and (2) the administration of the anaesthetic or the other assistance rendered does not involve a degree of special skill or experience not possessed by general practitioners as a class.

#### Emergency Attendances

(d) The following procedure should govern emergency attendances:

A. *Public Service Patients on Practitioners' Lists*.—(i) That a public service practitioner should be under an obligation to make deputizing arrangements to the satisfaction of the Executive Council and the Local Medical Committee.

(ii) That in an emergency the public service practitioner could properly be under an obligation to attend a public service patient not on his list; where the patient has tried unsuccessfully to obtain the services of his own doctor or his deputy, or where the doctor is satisfied that such is the grave nature of the emergency that the calling in of the nearest available doctor is justified.

B. *Patients Not on Practitioners' Lists*.—Where emergency treatment is rendered to a patient whose name is not on the list of any practitioner in the service: (i) The patient may, if he so desires and if he is resident in the area of the doctor's practice, ask to have his name included in the list of the practitioner rendering the treatment. Where the patient does not reside in the area of the practice he may express a desire to be treated as a public service patient. In the circumstances here indicated no fee should be payable by the patient for the emergency treatment. (ii) The patient may, if he so desires, elect to be treated as a private patient.

C. *Practitioner's Fee for Attendance in Emergencies*.—Where a public service practitioner attends in an emergency he should be entitled, on making application, to a fee from the service for his attendance.

#### Practitioners' Lists

(e) (i) A practitioner entering the service should retain his present National Health Insurance list. (ii) The objective should be a maximum of 4,000 public patients per practitioner.

#### Certification

(f) The requirement is imposed by Section 33 (2) (d) of the Act to issue certificates “for the purposes of any enactment,” which includes the purposes of regulations made under any enactment. The Committee's view is that the practitioner's obligation should be limited to certificates under the National Health Service and the National Insurance Acts, 1946. Although it welcomes the establishment of a committee to examine the whole position of certification, the burden of certification is bound to be oppressive while Section 33 (2) (d) of the Act remains in its present form.

#### Health Centres

(g) (i) The Central Health Services Council should appoint a Standing Advisory Committee on Health Centres; the establishment of these Centres should proceed experimentally and under central control. (ii) No practitioner should be compelled to undertake service at a Health Centre. (iii) The Medical Committee of the Centre, including its chairman, should have an appropriate status in relation to (a) the administrative arrangements of the Centre, and (b) the making of appointments of persons—e.g., nurses—employed at the Centre. In general, the responsibility for the arrangements at the Centre so far as these relate to general medical services should rest with the Medical Committee.

#### Assistants

(h) (i) It is highly desirable that newly qualified practitioners seeking to enter the field of general practice should, for a period, act as assistants to practitioners whose names are on the lists of Executive Councils so as to gain the necessary experience. (ii) There should be no legal requirement to prohibit a newly qualified practitioner from having his name included, for the purposes of independent practice, on such lists. (iii) It should be permissible for an agreement to be required by a principal from an assistant which would prohibit him, on leaving the practice of the principal, from having his name entered on the local list in competition with the practitioner for whom he has been working.

#### Collective Responsibility

41. On and after the appointed day a proportion of the population will sign on doctors' lists. Of the remainder, a proportion, varying in different areas, will sign on doctors' lists when the need arises to consult a doctor. A third group will consist of persons who do not intend to use the service and adhere to their intentions.

The Committee has considered the possibility of limiting the obligation of public service practitioners to those persons who have in fact signed on doctors' lists. It soon became obvious that it would be impossible so to limit this obligation, bearing in mind that at any time, including the beginning of an illness, an individual may decide to use the service.

Thus an obligation will exist to attend two of the three groups described above, those who have in fact signed on doctors' lists and those who will at some future date. Indeed, as any member of the community can at any time call a doctor, and at the outset of the consultation request to be accepted as a public service patient, there does exist a responsibility relating to the whole community. In any case, it is clear that for the first two groups that responsibility will exist from the beginning.

With this in mind, collective responsibility for the great majority of the community will exist and it is essential that this should find expression in a central fund, made up of the total number of persons estimated to be at risk multiplied by the agreed capitation fee. The two things necessarily go together—collective responsibility and a central fund.

There should be established a central practitioners' fund equal to the capitation fee agreed upon multiplied by a number equal to a high percentage of the population; this percentage being less but only slightly less than 100. The allocation of the central practitioners' fund would be the responsibility of a Distribution Committee analogous to the one now in existence for the purposes of National Health Insurance.

## HOSPITAL AND SPECIALIST SERVICES

### Transfer of Hospitals

42. In its present form the Act makes possible a State monopoly of hospitals. To the Minister are transferred on the appointed day all voluntary and council hospitals—the definition of voluntary hospital covering any institution for the reception and treatment of persons suffering from illness of any kind, including associated clinics, dispensaries, and out-patient departments, such institutions not being carried on for profit. So wide a definition may cover not only institutions generally regarded as voluntary and public hospitals but a number of institutions hitherto regarded as, and sometimes called, nursing-homes. There is no assurance either that such private accommodation as is taken over will continue to be used for that purpose, or that private accommodation will be retained or developed according to the public demand for such accommodation. Quite apart from this automatic transfer the Minister is given power to acquire by compulsory purchase any institution not so taken over, even though it may be conducted privately on a profit-making or dividend-paying basis.

The Committee asks that the position of private nursing-homes should be clarified by excluding such institutions, whether carried on for profit or not, from the definitions of hospital and clinic set out in Sections 9, 10, and 79 of the Act.

43. State ownership of nursing-homes is in no way essential to the efficiency of the service. It would tend to deprive the profession of facilities for independent practice. The continuance of independent practice is necessary to the maintenance of a high standard of medical service. If this is to be ensured, a Minister should neither take over automatically existing nursing-homes nor have power to acquire either those nursing-homes which are in existence or those which may be set up in the future.

44. It is the two situations—the automatic transfer and the power to acquire—regarded together that arouse the fear that a Minister, present or future, may establish a monopoly in hospitals by compulsorily acquiring, or threatening so to do, any private or voluntary hospital, home dispensary, or clinic established in the future. The Committee believes on grounds of public policy that a Minister should not be so enabled and empowered to establish a monopoly, but rather that facilities should be provided to enable private establishments to be carried on outside the service, whether on a profit or non-profit basis.

45. Under Section 6 (3) of the Act the Minister is empowered, if it appears to him that the transfer of a particular hospital is unnecessary, to "disclaim" such a hospital, subject to the right of the governing body to serve a notice on the Minister stating that they wish their hospital to be taken over. The Committee asks that an early announcement should be made of the hospitals which the Minister proposes to exempt from transfer under this Section. In the Committee's view the Minister himself should determine the principles to be applied by regional boards in considering the exemption of individual hospitals.

### Hospital Accommodation for Private Patients

46. Under Section 5 (2) the Minister may allow any practitioner serving on the staff of a hospital to treat his private patients at that hospital or at any other hospital. In the Committee's view the Minister's discretion should be replaced by an obligation to permit specialists in the service to attend their patients in private hospital accommodation.

47. It is common practice to-day to allocate a proportion of private rooms to patients of moderate income who pay fees, professional and other, in proportion to their income or to the type of room selected. It is desirable and necessary in the interests of those who pay less than the cost that there should be low ceilings to the scales of fees charged for such facilities. Maximum charges appropriate to such patients, however, would be wholly inappropriate to those who pay the full costs involved. In at least a proportion of such private beds arrangements between specialist and patient should be entered into privately and should not be subject to control by regulation.

48. Section 4, authorizing the Minister to make any available accommodation in single rooms or small wards available for patients who agree to pay for the accommodation charges covering part of the cost, may make it virtually impossible for specialists to undertake private practice. Such patients will enjoy private accommodation paying an additional sum, in the terminology of the Act only "for such accommodation." During the Standing Committee debate the Minister, in reply to a question whether medical fees could be recovered from persons who pay for special accommodation under Clause 4, stated:

"Yes. Medical fees could be recovered in certain circumstances because it might be possible that in some hospital there would be no pay block. . . ."

The Committee asks the Minister to reaffirm this statement, and to secure the necessary amendment of Section 4 to enable it to be given effect. For professional attendance there should be a sliding scale of fees varying according to the circumstances of the patient, the scale being determined by the hospital management committee with the approval of the regional board. By so much as separate rooms are set aside to provide accommodation under Section 4 for patients not paying professional fees, by so much will specialists be deprived of facilities for independent practice and by so much will patients of moderate

means be deprived of facilities for obtaining private treatment which they now enjoy. Hospital services should be planned so that all classes of the community may obtain the accommodation they desire. Patients should not be deprived of the opportunities which they now enjoy of arranging to be treated as private personal patients.

49. Implicit in the provision authorized by Section 4 is the principle of grant-in-aid, the patient paying only the additional cost in respect of the accommodation. In the Committee's view the same principle should be extended to patients who pay the full cost of private treatment in the private accommodation referred to in Section 5 of the Act.

50. Where the professional services of a radiologist or pathologist are required for a patient occupying a private ward, the radiologist or pathologist should receive a fee for his services in the same way as any other specialist.

#### Method of Reference of Patients to Specialists

51. The Committee accepts the general principle that the National Health Service should provide a full specialist service. In its view there should not be conferred on the patient the right to consult a particular specialist. It considers that: (a) Patients should be referred to specialists only at the request of a general practitioner; (b) It is desirable that a written communication from the general practitioner should accompany the patient; and (c) Facilities for diagnosis should be made directly available to general practitioners, whether in hospital or elsewhere.

#### Appointment of Specialists

52. Appointments in non-teaching hospitals at levels corresponding to those of the present honorary staffs will be made by Regional Hospital Boards on the advice of Advisory Appointments Committees. It is understood that appointments to the junior staff, up to and including the registrar level, will be made by hospital management committees with formal approval by the regional board. There should be an early announcement of the precise constitution of advisory appointments committees. The Committee stresses the need for a close liaison between teaching and non-teaching hospitals and considers that, so far as the appointment of specialists is concerned, there should be representation on the advisory appointments committee both of the hospital management committee and of the university concerned, with provision for the attendance as observers of external assessors. The Committee recognizes that, though it is desirable, it might be impracticable to have a common advisory appointments committee selecting candidates for both teaching and non-teaching hospitals.

#### General Terms of Service

53. The Committee recognizes that any decision on specialist remuneration must await the report of the Spens Committee. In regard to the mode of remuneration it recommends:

(a) That for *hospital work* remuneration should be by annual payments generally related to status, responsibility, and estimated total time spent in the service, and possibly also to length of service;

(b) That for *domiciliary work* remuneration should be on the item-of-service basis and that specialists should be free to determine whether or not they will undertake an obligation for domiciliary work under the service.

Appointments for domiciliary visits should be made by the hospital concerned on the application of a general practitioner. Each hospital should keep a list of specialists undertaking domiciliary work, including days

and hours at which they will be available. Except in emergency, patients should be permitted to consult the specialist of their choice, subject to his availability.

#### Boards of Governors of Teaching Hospitals; Hospital Management Committees—Chairman

54. The Committee considers that after the initial appointments boards of governors of teaching hospitals and hospital management committees should be permitted to appoint their own chairman.

### LOCAL HEALTH AUTHORITY SERVICES

#### Statutory Health Committees

55. The Act requires each local health authority to appoint a health committee and that a majority of the members shall be members of the authority. The Committee's view is that local health authorities should be required to co-opt to the health committee medical practitioners representative of the local profession. In a circular to the authorities the Minister, while not accepting the view that these authorities should be required to co-opt medical representatives, has emphasized the importance of the inclusion on health committees of proper representation of the profession.

The Committee has collected information on the extent to which these powers of co-option have been exercised from 42 of the 62 county councils and 57 of the 83 county borough councils. Of the 99 authorities in respect of which information is available 94 have co-opted a total of 138 members of the profession, and five authorities have decided not to co-opt medical practitioners.

#### Remuneration

56. The Committee attaches importance to the principle that the remuneration and conditions of service of all medical officers employed by local authorities (including those which are not local health authorities within the meaning of the Act) should be negotiated at the same time and through the same machinery.

#### Decentralization of Local Health Authority Services

57. In county areas the Minister has advised local authorities that the best method of organizing the county administration of the services enumerated in Part III of the Act is by the subdivision of the county into local health areas, with a subcommittee of the county health committee exercising delegated functions for each area. Such local subdivisions will be based on the general health considerations of the locality rather than on the areas already determined for the purposes of divisional administration under the Education Act, 1944.

Where such schemes of delegation result in county district medical officers of health losing the major part of their present work there should be adequate compensation for loss or partial loss of office. In the Committee's view it ought to be made possible for such medical officers to claim and receive compensation in lieu of accepting new posts offered by a county council merely with a view to finding them work without loss of salary.

### MENTAL HEALTH SERVICES

#### Division of Responsibility

58. The Committee is anxious about the division of responsibility for the mental health services between regional hospital boards and local health authorities, and wishes to stress the importance of securing a close liaison between specialist psychiatrists working in these two fields.



There should be available to local health authorities the services of a practitioner of specialist standing in psychiatry and mental deficiency. Local health authorities might be grouped to employ such an adviser and encouraged to make "joint user" appointments in consultation with regional or teaching hospital boards.

#### Regional Psychiatrists

59. The Committee attaches considerable importance to the appointment of regional psychiatrists. It emphasizes that the remuneration attaching to these posts should be of an order sufficient to attract psychiatrists of the highest ability.

#### SUPERANNUATION

60. The Committee regards as unsatisfactory the omission from the Superannuation Scheme of: (a) Provision for "added years" to compensate for the long period of training before medical qualification and the relatively late age of entry to the service. (b) Some form of immediate cover (whether by "added years" or the reckoning of non-contributing service) against permanent-incapacity or death in the early years of service. This applies particularly to practitioners who are 55 years of age or more on the appointed day.

61. So far as the profession is concerned the proposals for widows' pensions are inadequate. The basic minimum of one-third is too low, especially in view of the substantial reductions that may be made in cases where the widow is younger than her husband.

62. Consideration should be given to the desirability of extending the Scheme: (a) to include provision for the transfer of superannuation rights for medical officers who transfer from the local government service to the university service; and (b) to include superannuation facilities for secretaries and dispensers of practitioners who enter the service.

#### REPRESENTATION OF THE PROFESSION ON ADMINISTRATIVE BODIES

63. The Minister, during the Second Reading debate in the House of Commons, expressed the view:

"In fact, the whole scheme provides a greater degree of professional representation than any other scheme I have seen." (*Hansard*, col. 52, April 30, 1946.)

The Committee does not share the Minister's view. It is far from satisfied with the extent to which the Minister has appointed the profession's nominees to the Regional Hospital Boards. For example, the British Medical Association nominated 85 members of the profession for the 14 Regional Boards, an average of six per region. Only 27 of these nominees were appointed by the Minister. In five regions only one of the six practitioners nominated was appointed; in five regions two of the six were appointed, and in the remaining four regions three of the six were appointed by the Minister. The Royal College of Surgeons nominated a total of 31 practitioners, of whom seven were appointed by the Minister, including one who was also a B.M.A. nominee.

At the time of this report the membership of the Central Health Services Council has not been announced.

So far as local health authority services are concerned the extent to which county and county borough councils have exercised their powers of co-option to health committees has already been discussed under paragraph 55.

The Committee desires to remind the Minister of his statement during the Second Reading debate:

"I believe that democracy exists in the active participation in administration and policy. Therefore I believe that

it is a wise thing to give the doctors full participation in the administration of their own profession."

#### POWERS OF THE MINISTER

64. The Act involves an excessive concentration of power in the hands of the Minister. He will appoint the Central Health Services Council and its committees. He appoints the Regional Hospital Boards, which will in turn appoint the Hospital Management Committees. He will determine by Regulation a wide variety of issues, including mode and amount of remuneration. He will determine the issue of the continuance of a practitioner in the general medical service without a right of appeal to the Courts. The majority of Regulations the Minister makes will become law from the moment he makes them, subject only to their annulment by a Prayer in the House of Commons. He will deal with many important subjects by Orders which are not subject to Parliamentary control.

#### MAIN POINTS OF THE NEGOTIATING COMMITTEE'S CASE

65. In many respects the Act as it now stands is unacceptable to the medical profession. The main points which need modification, in most cases by amendment of the Act, to secure the approval of the majority of the profession include:

##### 1. Distribution

Doctors should be free to determine without pressure, direct or indirect, whether or not to enter the public service. If they decide to enter the service they should be free to choose their area of practice.

##### 2. Buying and Selling of Practices

It is in the best interests of the public and the profession that general practitioners should retain the ownership of the goodwill of their practices. This ownership provides an important incentive, encourages good and keen work, provides a basis for co-operation between practitioners and a bond between doctors and their patients. Although in this document emphasis is laid on the unworkability of the Act in this regard, the issue of ownership of goodwill is regarded by the medical profession as fundamental to its freedom.

##### 3. Remuneration

Remuneration of general practitioners should be by capitation payments in proportion to the number of persons on a doctor's list, except where special circumstances justify some other method of payment, and the Act should be so amended to provide for this, as in the Northern Ireland Bill. The Minister has accepted in principle the majority recommendations of the Spens Committee, and the profession asks for his views on the translation of those recommendations into terms of actual remuneration.

The remuneration of specialists for hospital work should be on the basis of annual payments and for domiciliary work should be on the item-of-service basis.

##### 4. Right of Appeal to Courts

There should be a right of appeal to the High Court against a decision to remove a practitioner's name from the list(s) of any or all executive councils.

##### 5. Midwifery

It is inconsistent, unnecessary, and undesirable that the Minister should seek to impose upon practitioners undertaking midwifery in England and Wales a qualification which is not imposed by the Medical Acts or upon practitioners undertaking midwifery in Scotland and Northern Ireland.

##### 6. Administrative Bodies

Executive and other councils and committees set up under the Act should elect their own chairmen.

##### 7. Public Hospitals

It is undesirable that a Minister should be empowered to establish a monopoly in hospitals. Private nursing-homes,

whether carried on for profit or not, should be excluded from the definitions of hospital and clinic set out in Sections 9, 10, and 79 of the Act.

#### 8. Hospital Accommodation for Private Patients

The Minister's discretion should be replaced by an obligation to permit specialists in the service to attend their patients in private hospital accommodation. In at least a proportion of such private accommodation arrangements between the specialist and the patient should not be subject to control by Regulation.

#### 9. Facilities for Diagnosis

Facilities for diagnosis, including radiological and pathological services, should be made directly available to general practitioners, whether in hospital or elsewhere.

#### 10. Statutory Health Committees

Local health authorities should be required to co-opt to Health Committees medical practitioners representative of the local profession.

#### 11. Public Health Service

The remuneration and conditions of service of all medical officers employed by local authorities (including those which are not local health authorities) should be negotiated at the same time and through the same machinery.

#### 12. Representation of the Profession on Administrative Bodies

There should be adequate representation of the medical profession on administrative bodies concerned with Parts II and IV of the service, such representation being arranged by the Minister in agreement with, as well as after consultation with, the appropriate medical organizations.

### POSTSCRIPT

66. The Act as it stands is full of legal perplexities and anomalies which could only be resolved, if at all, after prolonged litigation accompanied by widespread uncertainty among the profession and the public. Many of the Act's provisions are fraught with the risk of grave hardship to patients and with serious injustice to doctors and their dependants. Even with the utmost good will on the part of the medical profession, the wording of the Act is in places so obscure that to bring it into force as it stands will create chaotic conditions. The Committee offers these views as the mature conclusion of many months of detailed study of the Act carried out in company with officers of the Ministry.

When the reply from the Minister is conveyed to the Negotiating Committee it is proposed to circulate to the profession both the Committee's memorandum and the Minister's reply.

The next step will be for the profession as a whole, by plebiscite and meeting, to decide its attitude. As the Minister so plainly put it in his letter of Jan. 6, 1947, to the Presidents of the Royal Colleges: "Every doctor will have to decide for himself when the proper time comes whether or not he should take part in the new service, and the profession as a whole will be free to determine their views on the service when they know what it is to be."

In the light of the Minister's reply the profession will proceed to determine its views on the service.

November 7, 1947.

## NATIONAL HEALTH SERVICE ACT, 1946

### SECTIONS 35 AND 36

#### JOINT OPINION OF SIR CYRIL RADCLIFFE, K.C., AND MR. J. H. STAMP

In our opinion the provisions of Sections 35 and 36 of the National Health Service Act, 1946, are too ambiguous to enable any confident opinion to be formed as to their construction and effect in relation to medical partnerships whose members on the appointed day under the Act are, or include, practitioners on the list for general service. There can, we think, be no reasonable certainty as to the answer that would be given to the questions that arise under the sections by the highest tribunal that may be required to adjudicate upon them, and only such an adjudication can finally resolve the meaning of any ambiguous document. Further, on every possible construction of the sections serious difficulties arise which cannot be evaded by any Regulations authorized by the Act, and this is particularly the case if the view at present favoured by the advisers of the Ministry prevails that options and obligations to purchase contained in subsisting partnership agreements are kept alive by the final provisions (which have been conveniently but inaccurately referred to as the "proviso") of Subsection (4) of Section 35 of the Act.

If Sections 35 and 36 are allowed to become operative without amendment the profession and the Ministry alike will labour under embarrassing uncertainty on matters of great importance until the debatable matters have been finally adjudicated upon, and in the meantime steps may have been taken on the footing of a construction which is ultimately found erroneous with unfortunate consequences to all concerned. In our opinion it would involve a real hardship to the practitioners concerned if they were required to submit to such uncertainty when it has been clearly foreseen and can be removed by an amending Act.

It appears to be suggested that difficulties may be removed by suitable Regulations under the Act, but such Regulations cannot amend the Act, or affect its construction. In any conflict between the Act and Regulations made under it the Act must prevail. The Ministry cannot by any expression of official opinion or by any Regulation prevent the construction of the

Act from being tested by the Courts and, if past experience can be trusted, it is highly probable that sooner or later some practitioner or combination of practitioners will be, or think itself to be, sufficiently interested to challenge the official view, and carry their challenge, if necessary, to the House of Lords. This possibility may keep the uncertainty alive for many years.

The official view of Section 35 may be regarded from three different aspects: (1) What, under Section 35, are the factors for and against it, and the alternative to it? (2) How does it square with the provisions of Section 36 as to compensation? And (3) What as a matter of practice and policy is there to recommend the official view as compared with alternative constructions that might be adopted by the Court or by an amending Statute?

#### 1. Factors For and Against the Official View

The official view rests upon the implications found by its supporters in the "proviso" to Subsection (4) of Section 35. After providing in paragraphs (a), (b), and (c) that in the events therein mentioned there shall be deemed to have been a sale of goodwill the section by the "proviso" enacts that "the said sale shall be deemed . . . to have been effected (i) in a case to which paragraph (a) or paragraph (b) applies, at the time when the consideration was given or, if the consideration was not all given at the same time, at the time when the first part thereof was given; or (ii) in a case to which paragraph (c) applies, at the time when the agreement was made." Upon this provision it is argued that all the terms of the partnership agreement form a single contract and that every one of its terms is part of the consideration for all its other terms so that part of the consideration for every sale provided for by the agreement goes back to the inception of the partnership. This argument is supported by the observation that Subsection (4) clearly contemplates that service in the partnership

may be a valuable consideration for a transaction deemed for the purposes of the section to constitute a sale.

This argument is somewhat *recondite* but for all that it is by no means to be rejected as impossible. In our opinion, however, (a) if it was in fact the intention of the legislature to keep alive all purchase provisions in subsisting partnership agreements it is strange that it should have been content to allow an intention of such importance to be elicited from the Act only by so subtle an argument, when it could have been quite simply expressed, and (b) in our opinion the argument overlooks the true scope and effect of Subsection (4) and its "proviso."

The placing of Subsection (4) in the section between Subsection (3) and Subsection (5), each of which has as its purpose to prescribe "deemed" sales for the purpose of the section, is to us significant. It seems clear that the primary purpose of Subsection (4) is not to protect any subsisting agreements from interference by Section 35 but to bring within the prohibition of the section various transactions so framed as not to have the technical character of sales but having in fact a similar effect which the legislature intends to prevent; and this is in truth the only effective operation of its substantive enactment. Plain undisguised sales under the Partnership Agreement would come within the section without any aid from Subsection (4), transactions which require to be "deemed" to be sales alone require its aid. The wording of the subsection was inevitably such as to cover sales in the true sense, but this does not in our opinion affect the foregoing statement. The use of the expression "shall be deemed to have been a sale" in the operative sentence of the subsection is, we think, very significant of its object to bring in transactions which are not in truth sales.

The official view depends ultimately, however, upon the "proviso," and in particular upon the assumption that the considerations which under the proviso determine the dates of the transactions to which it relates include the day-to-day services that partners render to one another, through the partnership, in performing their ordinary duties as partners. Nothing less than this will suffice, and in our opinion the assumption is not justified.

The object of the proviso is to fix the statutory date of a transaction deemed to be a sale under the earlier part of the subsection; it relates to the "said" sale, where the word "said" is significant, and it follows in our opinion that the "consideration" referred to in the proviso is a consideration referred to in the earlier part—i.e., the consideration by virtue of which the earlier part applies to the transaction. Such considerations do not in our opinion include, in the case of an ordinary partnership, the day-to-day service of the partners. In this context the three paragraphs of Subsection (4) must be referred to.

Under paragraph (a) services in the partnership are expressly excluded from ranking as considerations for a sale, and under paragraph (c) they rank as considerations for a sale only when otherwise they are insufficiently remunerated. There remains paragraph (b), upon which supporters of the official view must rely. Its leading terms are "any valuable consideration is given to a partner, on or in contemplation of his retirement or of his acceptance of a reduced share of the partnership profits, or to the personal representative of a partner on his death," and in our opinion there is no justification for attaching to the words "in contemplation of" any other than their ordinary natural meaning, which confines the reference to considerations directly associated with a contemplated retirement, and does not include any day-to-day duties performed in the ordinary working of the partnership, which would go on just the same whether a retirement were or were not in contemplation.

If the foregoing analysis of Subsection (4) is correct the official view is necessarily displaced.

An additional difficulty in adapting paragraph (b) to the official view is that in the case of a sale by executors the words "or in contemplation of" do not grammatically apply and the paragraph contains no grammatical justification for dating back any part of the consideration.

This does not, however, involve as a consequence that all purchase provisions in current partnership agreements are invalidated, for some such provisions will fall within the terms of paragraph (c) and will consequently be saved by the "proviso." This paragraph covers cases in which "services

are performed by any partner for a consideration substantially less than those services might reasonably have been expected to be worth." In such cases the partner in question has been actually earning the right to take over another partner's share of the goodwill by contributing to the partnership the otherwise unremunerated fraction of his professional services, and if he were prevented from calling for his purchase he would be deprived of the benefit of this contribution, which does not on any natural interpretation of Section 36 confer any right to statutory compensation.

The result of the foregoing reasoning is that in our opinion purchase provisions contained in subsisting partnership agreements are saved by the proviso only in cases coming within paragraph (c) of Subsection (4) but not in other cases.

It seems obvious that the existence or even the probable existence of this difference between the effect of partnership agreements which, on the face of them, may be in identical terms must be a cause of serious embarrassment to the partners concerned. It must often, especially after a lapse of years be a difficult question of fact whether paragraph (c) does or does not apply to any particular partner; but on it will depend not only rights as between the partners but also rights of compensation.

## 2. How Does the Official View Square with Section 36?

In our opinion the compensation provisions of Section 36 cannot on any reasonable construction be made to square with the official view of Section 35 or with the construction which we feel constrained to put upon paragraph (c) of Subsection (4) of Section 35 taken in conjunction with the "proviso" to that subsection.

The first question that arises under Section 36 is whether the practice in respect of which a practitioner is to secure compensation is his practice at the appointed day or his practice at the date at which the question of selling it would in fact arise.

In our opinion the answer to this must be that it is at the appointed date. We do not think that the wording of Subsection (1) of Section 36 is well conceived to achieve this construction, since it is the right to sell his share of a practice at any time in the future that Section 35 deprives a listed practitioner of, and it is compensation for the loss inflicted on him by Section 35 that Section 36 is expressed to provide. But it would in our opinion be wholly impracticable to put off the ascertainment of the compensation payable in respect of each practice until the time came in the ordinary course for its sale as on that footing not only could no compensation be fully ascertained until a relatively remote date in the future but the payment of interest would be impossible with any degree of accuracy, even if the persons ultimately becoming entitled to it were ascertained. In the meantime payments on account could at the most be made.

In the case of single practitioners there is no further question or difficulty, but it is far otherwise in the case of partnerships. Taking, for example, the simple case of two practitioners, both on a general list, operating under a partnership agreement containing a provision that on the death or retirement of either the other should purchase his share. It is obvious that if Section 35 does indeed secure that the purchase provisions are to remain in force the partner who first retires or dies will suffer no loss and ought to receive no compensation under Section 36. On the other hand the continuing partner will suffer a double loss through being forced to purchase the now unsaleable share of his outgoing partner as well as having his own sterilized in his hands. This is a typical state of fact resulting from the operation of the official view, but the application to it of the provisions of Section 36 presents the gravest difficulties. Reading Sections 35 and 36, with the adjustment required in the case of a partnership by Section 35 (12), we find that under Section 35 a partner is forbidden to sell his share of the goodwill of the partnership practice and by Section 36 he is given the right to compensation for the loss suffered by him by reason that he is or will be unable to sell all or any part of his share of the goodwill of the partnership practice. These provisions require violent treatment to make them fit the foregoing state of facts. Only one of the partner

will have suffered any loss, and what he will be unable to sell is not his share of the goodwill but the whole goodwill of the partnership made up of his own share and the share purchased from the outgoing partner or his estate. Further, if interest is paid to both partners under Section 36 (3) (d) it must prove to have been wrongly paid.

It would be easy to enact that in the case of partnerships containing purchase provisions the whole goodwill should be valued as at the appointed day, but the appropriate compensation should be retained and only paid over when the course of events has shown which partner has suffered the loss and if more than one in what proportions, and that in the meantime the interest should be added to the corpus. We cannot, however, extract this meaning from the context. It involves payment of compensation to a partner in respect not of his own share of goodwill but in respect of the shares of himself and of his partners, and it also involves the non-payment of interest between the appointed date and the payment of compensation and indefinitely postpones the ascertainment of the persons entitled to compensation or the amount of their compensation.

Nor in the case of such a partnership do we think it possible to satisfy the Act by calculating the compensation by reference to the value of each partner's present and contingent interest in the partnership goodwill as a whole, treating as each partner's share of goodwill not his half or one-third or as the case may be but the proportion of the whole which may be considered most fairly to represent his portion having regard to his immediate share and the probabilities of its actually being subsequently purchased by another partner or of its being increased by subsequent purchase or purchases under the partnership agreement. First, this would relate the compensation to something quite different from the share of goodwill of each partner and, secondly, the effect of it would be that one of the two partners would receive compensation without ultimately suffering any loss and the other would by that same amount fail to receive compensation for his whole loss. To allot compensation to the partnership as such in respect of the whole goodwill of the partnership practice and leave the partners to partition it between themselves obviously abandons Section 36 (1) altogether and substitutes something quite different. Each partner is, we think, clearly entitled to separate compensation, and for this purpose the partners are in the same position as if they were practising separately.

It seems impossible to reconcile the payment of interest under Section 36 (3) (d) of the Act with any construction of Section 35 that would postpone to a future date the effective ascertainment of the partners entitled to compensation. The interest must in our opinion be paid to the persons effectively entitled to the compensation, and any interest not so paid will have gone to the wrong persons.

The difficulties so far adverted to can be removed by enacting without ambiguity that existing partnership purchase provisions (including the special cases intended to be dealt with by Section 35 (4) (c)) shall be avoided. This step would enable the title to compensation to be decided promptly and the payment of interest to be regularized. There seems insufficient reason for keeping existing partnerships within paragraph 35 (4) (c) having regard to the resulting difficulties.

The case of partnerships which include one or more partners who are on the general list and one or more partners who are not on the list does, however, present very special difficulties which cannot be simply dealt with. The case can be examined by taking the case of two partners—one ("A") on the general list and the other ("B") off it—operating under an agreement containing mutual purchase obligations on retirement. The prohibition on sales in Section 35 has no application to "B's" share, so that if he is the first to die or retire, whatever may be the construction of that section, "A" will be bound to purchase his share. Plainly he will be in a great difficulty under Section 35 (1) if he wishes to resell the share; will it be part of the "goodwill of the practice" of "A" so as to be caught by Section 35 (1)? If so he will be forbidden to resell. Presumably this will be the case, for presumably when a partner buys in his partner's share of the goodwill the whole goodwill becomes his and the purchased goodwill becomes in consequence part of the goodwill of his practice.

If he is forbidden to resell, is he entitled to compensation? The answer to this question is not easy, but there is serious difficulty whichever way it is answered. If in the negative, injustice will be done to "A": if in the affirmative, the operation will bring the value of an entirely fresh practice within the scope of the compensation provisions of the Act—i.e., the share of "B," who has not come upon any general list, so that the share in his hands carried no restriction on sale and no right of compensation and is only brought within the Act by its transfer to "A." If under the Act as it stands the share carries compensation the allocation of the compensation fund will be kept open until the last partnership of the type has come to an end. If it does not, a new statute would be necessary in order to enable the extra sum required to be provided. A Regulation under the Act to that effect would be *ultra vires*. In our opinion it would be a case for a new statute.

If on the other hand "A" is the first to retire, then according to the official view "B" will be bound to buy his share and "A" will have no claim to compensation. This contingency produces no new difficulty of construction but it is highly unsatisfactory from "B's" point of view. It is true that he might have a right to sell the goodwill (if it really exists) that he has bought from "A" or "A's" executors, but he can neither make use of it himself nor in fact sell it inasmuch as a list practice from its very nature is likely to be a practically unsaleable asset. His own practice not being a list practice will be a more marketable asset if there are any buyers.

The case of "mixed" partnerships does not appear to have been considered by the draftsman of the sections, but it plainly calls for express statutory treatment. The best solution may perhaps be to cancel the obligations on the footing that this will not harm the "listed" partner and that in the case of the other partner release from a possible liability to purchase a "list" practice will compensate him for the loss of a secured purchase of his own practice leaving him free to sell on the market.

### 3. Policy

It appears to us to be very decidedly preferable that purchase provisions in partnership agreements between practitioners on the general list should be cancelled at once (in accordance with the effect of the sections as any ordinary intelligent reader would almost certainly understand them) and allow each partner to receive compensation in respect of the share which is his share at the appointed date. Each will then have received compensation whether, if the purchase provisions had stood, he would have in fact sold his share under those provisions or not, the compensation taking the place of the purchase money that he would have taken from his partner if a sale under the partnership agreement had taken place. In that case any partner who, if such a sale had taken place, would have been the purchaser should at the appropriate time take the share without payment. This in our opinion would be right, because if he had purchased the share the only fair course would have been that he should receive the compensation in respect of it, so that, if the compensation was adequate and the price fair, the two would have balanced, and the net result would have been the same as if he had taken the share without payment. If the right to purchase a share were cancelled without leaving any right to acquire it, a serious injustice would be done to junior partners who had entered a partnership with a "small" share in reliance on a right to purchase a further share or further shares in due course.

If purchase provisions are kept alive so that a purchase price and statutory compensation are paid in effect in respect of the same transaction there will be likely to be great discontent whenever the two amounts are substantially different.

To keep alive rights or obligations of purchase over "list" practices appears to us to be really inconsistent with the intention of the Act that there should be no goodwill in such practices. If a list practice is not a saleable asset this must apply as much between partners under existing partnerships as between future partners.

CYRIL RADCLIFFE.  
J. H. STAMP.

Lincoln's Inn.  
Nov. 19, 1947.

# THE NATIONAL HEALTH SERVICE AND THE MEDICAL PROFESSION

## GENERAL COMMENTS OF THE MINISTER ADDRESSED TO THE INDIVIDUAL DOCTOR

The Minister's memorandum on the Negotiating Committee's statement about the National Health Service follows. The Secretary of State for Scotland associates himself with the memorandum, which may therefore be read as applicable (with the necessary changes) to the service in Scotland so far as conditions in that country are the same as in England and Wales.

The memorandum deals only with the points raised by the Committee. But, for the individual doctor, there are other—simpler—matters on which he wants to know exactly where he stands. If he participates in the new health service, how does it affect him personally?

Hardly any major step to better social services (in which doctors, above all, are interested) has provoked more mis-statements or misunderstandings than the National Health Service Act. The Minister would like to take this opportunity, in preface to his main memorandum, of clearing some of the more fundamental points which must be exercising many doctors' minds. He can only deal with some of these in this paper—but on any others he will be glad to try to help doctors to understand what the scheme means to them if they will get in touch with his Department.

Here are some of the points, mainly affecting the general practitioner:—

### What Does Taking Part Mean?

(1) Any doctor, like any other member of the public, can participate in the new scheme or not—or partly do so and partly not—just as he thinks fit. There is no compulsion whatever.

(2) Any doctor participating can also retain private practice. This and other professional services for fees or other remuneration, other public or private medical work, may go on. The only limitation is that no fees may be charged to patients whom he has accepted on his list within the scheme.

(3) "Service" is perhaps a misnomer—if it is thought of as an organized corps, like the medical branches of the Fighting Services. Nor is there any hierarchy of "supervision" or interference with a doctor's professional judgment and clinical practice. He undertakes to look after patients and is left to do so in his own way and to the best of his clinical ability. He is not "under orders."

(4) He is not "employed." He enters into an arrangement with a Local Executive Council (half professional, doctors, dentists, and chemists) which takes the place of the old insurance committee, and, in essence, his contract is to look after the patient whose care he undertakes—and to be paid for it from public funds, in these cases, instead of by private fee. He is certainly not a civil servant.

### How Will the Doctor be Paid?

(5) What is this payment from public funds? It is set out in detail in paragraphs 26 and 27 of the main memorandum attached. But examples of it can be usefully given here.

If a doctor takes on 4,000 potential patients under the new scheme, his gross income from this source would be £3,300. If his number is 3,000 potential patients, the gross income is nearly £2,600. In addition he may have private fees from other patients, other public or private paid appointments, additional fees for undertaking maternity work, mileage allowances, allowances for training assistants, and other extras.

(6) Also there will be a fund of over £400,000 a year available for discretionary payments as "inducements" to assist practice in difficult and unpopular areas.

(7) The aim will be to set 4,000 as the maximum number of patients for a doctor under the scheme, but there is no rigidity in this.

(8) All of this assumes that no less than 95% of the population use the new service. If the figure is less, the payment per patient is proportionately higher. But in two years' time that position will be reviewed. It is the essence of a successful national service that both doctors and the Government co-operate in getting the nation as a whole to benefit by it.

### Compensation and Superannuation

(9) Doctors who participate in the scheme on the appointed day will establish their claim to their share of the £66,000,000 which the Government has set aside as compensation for their being unable in future to sell public practices. The sum of £66,000,000 represents an amount agreed with the profession's representatives. The Minister is prepared to take the profession's own advice as to how this is to be most equitably distributed. Normally it will be payable when capital values would otherwise be realized—on retirement or death—with interest in the mean time. But if there is hardship, like some undue debt burden on the practice, it can be paid at once. If a doctor wants, later on, to stop practice for any reason he can draw his compensation at once and do so.

(10) In addition, a superannuation scheme is to be started; the doctor contributing 6% of the payment he receives in the new service (less a percentage for "practice expenses") and the Government 8%; the benefits to include a pension and a lump sum on retirement (including retirement on incapacity), a death benefit, and a widow's pension.

(11) The profession's representatives think that partnership agreements will be prejudiced by the new arrangements. The Minister is advised otherwise, as will be seen (see paragraphs 14 to 22 of the main memorandum). But, if the Minister finds, on any judicial decision, that he is wrong, he undertakes to introduce legislation to restore his original intentions, as indicated in the main memorandum.

### No Direction of Doctors

(12) All existing doctors can participate in the new scheme where they are practising now. After the scheme is operating a doctor wishing to participate—and draw public remuneration—will need to get consent from a public medical body to be set up. Private practice is, of course, unaffected. Consent in respect of public practice will only be refused in those few areas where there is clearly no need for additional "public" practice. (This is dealt with more fully in paragraphs 6 to 13 of the main memorandum attached.) No doctor can be directed anywhere.

(13) Under the old National Health Insurance Scheme a doctor can be debarred by the Minister from continuing to participate. In future he can only be so debarred by a special and statutory tribunal—a lawyer (appointed by the Lord Chancellor), someone representing the Executive Councils, and a doctor. If they do debar him, he can still be retained by a successful appeal to the Minister. If they



decide he should remain, the Minister has no power to intervene. The advantage lies only with the doctor.

(14) Although a doctor may not get consent to opening a surgery for practice with the scheme in a particular area (on the grounds that it is not needed) he can accept patients from any area he wishes as long as he is prepared to visit them as necessary.

(15) As and when health centres are set up, no doctor will be compelled to practise in them. Their object will be to provide premises and equipment, usually costly for the doctor to provide for himself, and to enable him the better to treat his patients. In health centres the personal relationship (of "my doctor") will be retained. There is no question of setting up "institutions" where the patient has to see the doctor "on duty." They will be a substitute for the doctor's home surgery, publicly serviced and equipped. Group practice, like present partnerships, will be encouraged in them.

#### Assistants

(16) Assistants, paid by the doctor, will permit—as before—of enlarged lists of potential patients. In addition there will be a system of grants to doctors for the training of young assistants—still to be worked out in detail in consultation with the profession.

#### Doctors in the Running of the Service

(17) Doctors are, for the first time, brought on a substantial scale into every main field of administration of the new scheme—Regional Hospital Boards, Boards of Governors of Teaching Hospitals, and Executive Councils. It is a new experiment in bringing the profession itself into the direct administration. In addition there is to be a

Central Health Services Council, with a majority of doctors (to advise the Minister on the whole scheme) and a special Statutory Advisory Committee of the Medical Profession. Both can advise without being asked, and the Minister has to publish the Council's report (save only where the public interest prohibits).

#### General

It is the very essence of a doctor's relationship to his patients that it should be personal and confidential. The scheme in no way interferes with that. The object of the new Act is a simple one. It is to help, by public funds, to ensure that anyone—the highest and the lowest—should be confident of getting all the best that a great profession can give. If the profession rally to it the greatest health service in the world can come into being. There is no reason whatever why the personal relationship of doctor and patient—and the professional independence of the doctor—should be affected by a switch-over from private fees to public funds.

A scheme of this magnitude is bound to need correcting, amending, as it is found wanting. But, in its conception, it is something of incalculable social value to the great mass of the population, and the medical profession will be the first to want—as they have wanted—something of this kind. For his part, the Minister is concerned mainly to get this great national scheme launched, and to plan on wider, better lines, with the profession directly co-operating in the management of the new service. He asks the profession to help him in launching it next year and in constantly improving it as it goes along. It is a big thing, and he is confident that the profession will join with him, as constructive and often properly critical partners, in getting it under way.

## THE MEMORANDUM OF THE MINISTER ON THE STATEMENT OF THE NEGOTIATING COMMITTEE'S VIEWS

1. The Minister has studied the statement of the Negotiating Committee's views. He has also discussed its main points in meetings with their representatives on Dec. 2 and 3, 1947, and the subject matter of the statement has been discussed in greater detail earlier with his officers.

2. The Minister now sets out his own views, following on the discussions, and in doing so follows the same subject headings as the statement—for ease of reference.

#### PRELIMINARY

3. The Minister agrees with the account given of the events leading up to his discussions with the Negotiating Committee. He has never excluded—and does not now exclude—the possibility of amending legislation being found desirable. Indeed, in his experience, it would be most unusual if points for amendment were not discovered sooner or later in any measure of the scope of the National Health Service Act. He expects this to be no exception. But the discussions have not convinced him of any sufficient reason to go to Parliament and ask it to alter its intentions as to the new service before that service has been tested in actual operation and found to need amendment. If, when the time comes, it is so found, the Minister will not only be willing to seek—but will himself be the first to wish to seek—its modification and improvement by Parliament.

4. Meanwhile, within the framework of the Act and in its administration, there is clearly room for those adjustments which result from discussion and which are the purpose of discussion. These are dealt with, point by point, in the rest of this paper. The Minister will certainly be prepared to give effect to them, and he assumes that the

profession, for their part, will whole-heartedly help him in making the new health service the success which both they and he want it to be.

#### THE PROFESSION'S AIM

5. The Minister has again examined the seven general principles set out in the Committee's statement, and he does not believe that anything in the proposed National Health Service is really in conflict with them.

#### GENERAL PRACTICE

##### Distribution

6. The decision of Parliament to assure all people the opportunity to benefit from a full medical service—which the Committee approve in their statement—involves the placing of responsibility somewhere for watching the reasonable distribution and availability of that service. A public duty cannot be undertaken without any reasonable means of fulfilling it. Public money cannot be attracted to practice in areas where the public interest does not warrant it. Even so, the Act deliberately avoids any power of "direction" of doctors (such as is mentioned by the Negotiating Committee's fourth stated principle). All existing doctors can take part in the new arrangements where their practice lies, without disturbance. After that, and for the future, there is reserved to the new health service the right only to say in what areas it has no need for additional participants or replacements—for its own purposes. This has nothing to do with, and does not affect, private practice.

7. Nor is it the Minister who will normally decide this, but a mainly medical body (the Medical Practices Committee) specially set up for the purpose and not subject to

his direction. A doctor, having been refused participation in the new service in a given area, can appeal to the Minister; but it is a one-way appeal (for the doctor, and not against him)—i.e., the Minister can reverse the committee's decision and turn it in the doctor's favour, but cannot reverse what the committee have allowed and turn the decision against the doctor. The "worst" that the Minister can do, from the doctor's point of view, is to uphold a decision already reached by the professional Medical Practices Committee.

8. In the Minister's view, and the view endorsed by Parliament, this is the minimum public intervention in the distribution of a public service which could possibly be justified to the country and the taxpayer when the new situation, of a public undertaking to see that all people can get what they need, has come into being. To go beyond this would be, not a question of the right to practise privately anywhere (which doctors will still be perfectly free to do), but a question of giving them the right to demand publicly remunerated work where they like—a position which no other profession or occupation enjoys.

9. Especially when there may not be enough doctors for the needs of all the population, it cannot, in the Minister's view, be assumed that payment in respect of all—or practically all—the people will result in an equal distribution of doctors in relation to population.

10. Nor will the procedure for obtaining consent to practise in the public service in new areas be cumbersome and elaborate, as the Negotiating Committee present it. The Medical Practices Committee will, as a matter of common sense, make it its job to keep in regular touch with Local Executive Councils (the successors to the Insurance Committees) and will know the areas where there is no need for new public practice or replacement—and these will be few, for many years to come, until the number of doctors available has increased. Apart from such areas consent can usually be given automatically—unless the question of two or more claimants for one practice arises. In the latter cases involving selection and consultation with the Executive Council, the Executive Council can find out the Local Medical Committee's view and make its recommendations at the same time as it sends in the names for selection. There need be no delay, and, even in selection cases, the period of settlement should usually be nearer one month than four.

11. Such interval as there is will be dealt with by regulations. If a doctor dies and his representative wants to appoint a "locum" to look after matters temporarily, he can be authorized. Alternatively, the Executive Council itself, consulting the Local Medical Committee, can appoint a locum and make such arrangements as are necessary (including arrangement for accommodation).

12. On the point whether consent might be withheld from practice in a particular part of an area, this power to deal with parts as well as whole areas is simply designed to meet the case where the need for refusal only arises in one part of what may be a large area—such as London. It will not have the effect of stopping a patient from crossing some imaginary boundary line to consult a doctor (as the Negotiating Committee seem to think) because the Medical Practices Committee will be asked to make any such refusal only a refusal of consent to the carrying on of surgeries or centres in a specified part of the area. Although the doctor may not get consent to the surgery in that area he can accept patients from anywhere as long as he is prepared to visit them as may be needed.

13. On the whole of this question of consent to new participation in the service in new areas, it must be empha-

sized that the areas where this is likely to be found unjustifiable and redundant are few. Also, the picture is not one of a Medical Practices Committee going through an involved procedure in every individual case, as though it had each time to ascertain the situation of an entire strange area. It will be a body which exists to know the facts of the country generally, to keep up to date on them by contact with Executive Councils, and to know—in short—in which few areas it has to be specially watchful. I will, therefore, be able to act quickly and, normally, from its own knowledge.

#### Ownership of Goodwill: Existing Partnership Agreement

14. The interpretation of the Act set out in paragraph 16 of the Committee's memorandum correctly sets out what the Minister believes to be the effect of the Act (on all the legal advice which he has obtained) and also what he understands Parliament to have intended in the Act. If there are varying opinions as to the validity of this interpretation the Minister has no power to decide upon their merits; that is for the Courts. If, in the event, this interpretation is proved to be wrong, the Minister will unhesitatingly seek from Parliament such correction of the Act as will be designed to restore it. He gives that assurance without question. All of this is normal and familiar constitutional procedure. The Minister, with Parliament's endorsement does what he is advised to be right in achieving his intentions. If and when that is proved to be wrong he asks Parliament to adjust it.

15. The interpretation referred to means that the Act does not make it illegal to carry out, as between partners existing partnership agreements. Existing powers or obligations between partners to buy or sell shares of the partnership practice will remain in force and can be fulfilled. Careful provision is necessary to secure that the right proportion of compensation goes eventually to the practitioner who actually suffers the loss and that a practitioner whose share is bought by his partner does not get both the purchase money and the compensation. The methods by which it is proposed to deal with the problem are set out in paragraphs 17 to 22 below, and the Minister considers that provision by regulations on these lines will dispose of all the major difficulties, which it is his firm intention to do.

16. But suppose that his advice is wrong. It is always within the power of any partners, if they still feel that in exceptional cases some anomaly is left which is not and cannot be covered by any general provision, to vary by agreement the terms of the partnership and so to remove the anomaly.

17. Where all partners participate in the new service, the Minister proposes to provide by regulation that—

(1) compensation will be assessed in respect of the value of the partnership practice as a whole at the appointed day

(2) partners may, if they like, agree how the compensation for the practice shall be apportioned between them—an interest will then follow the agreed apportionment;

(3) failing agreement between the partners, compensation will be assessed and interest will be paid on the basis of the shares which they hold at the appointed day. Whenever the Minister is later notified that a sale of shares has taken place in accordance with the partnership agreement, the assessment of compensation will then be corresponding adjusted and interest will follow the change;

(4) in cases of hardship early payments on account of compensation will be made, subject to arrangements for securing that if the recipient's share of the partnership is afterwards bought by his partners (and he therefore suffers no loss entitling him to compensation) the compensation will be repaid.

18. The Negotiating Committee consider that such arrangements would still leave two anomalies—

(1) the price which a partner had to pay for the purchase of a further share under his agreement (which he could not re-sell) might be more than the compensation;

(2) a partner will not necessarily receive interest on the full amount of the compensation which ultimately becomes due to him.

19. The former situation will arise if the value of the practice increases as a result of the new health service (involving also an increase in the income from the practice). It might also arise in individual cases without any change in the income of the practice. The basis on which the purchase price is to be fixed varies from one agreement to another, and it is just as possible for the price so fixed to prove smaller, instead of greater than the amount of the assessed compensation. Partners who anticipate difficulty from this can, if they think it necessary, agree among themselves that the price to be paid for shares bought under the partnership agreement should be the same as, or not exceed, the compensation assessed in respect of those shares.

20. The suggestion that the payment of interest in the manner proposed by the Minister is inequitable seems to be ill-founded. Compensation is provided under the Act to meet the loss which a practitioner may suffer because he cannot sell his practice except under a partnership agreement in existence on the appointed day. Interest on compensation is paid because, until the compensation is finally paid, it has to be regarded as invested capital. It is true that this capital may change hands under the partnership agreement but until it does so it seems most equitable to pay the interest to the owner of the asset for the time being.

21. Where one or more partners do not participate in the new service the position will be as follows—

(a) compensation will be fixed in respect of the proportionate part of the partnership practice belonging to the partners who do participate;

(b) compensation and interest as between partners inside the service will be paid as in paragraph 17 (2), (3), and (4) above;

(c) a partner within the service, required to buy the share of a partner not in the service, will receive compensation for the share so bought on the basis of the value at the appointed day. The value of this share will be ascertained when ascertaining the value of the shares brought into the service;

(d) it will not be possible to compensate a partner outside the service who is required to buy the share of a partner within it. The Act is only concerned with those within the service and only the partner inside the service will be assured of compensation for any loss. Partners can, however, themselves arrange to modify their agreements so as to remove any difficulty which might arise from this obligation;

(e) when a partner not participating in the service buys the share of a partner in it, compensation in respect of that share will no longer be payable to the partner in the service—as he will have suffered no loss.

22. The effect of paragraph 21 (c) will be payment of compensation for which there is no provision in the aggregate amount of compensation. On the other hand, the effect of paragraph 21 (e) will be non-payment of compensation for which there is provision in that aggregate. For the time being it is proposed to proceed on the assumption that the excess on paragraph 21 (c) will be balanced by the saving on paragraph 21 (e), but the precise effect cannot be known for many years, and probably the balance can hardly be exact and will need later adjustment. The Committee also contend that the total amount provided for compensation will be insufficient if every practitioner in general practice takes part in the service before the appointed day. If this happens the Minister will ask Parlia-

ment to provide an appropriate increase in the global sum. All these points are matters for such later amending legislation as experience proves necessary.

### Partnerships after the Appointed Day

23. The main object of new partnerships, entered into after the appointed day, will be greater convenience and better facilities for carrying on practice. The remuneration of each partner must be assessed on the general basis of his value to the partnership, and in making this assessment account can be taken not only of his earnings but also of his knowledge, experience, and standing. There seems to be no reason whatever why this basis of partnerships should discourage them in future or why the buying and selling of shares should be regarded as the essence of a partnership in medical practice. If there is any doubt whether a proposed division of earnings is in accordance with the Act the Medical Practices Committee can be asked for their opinion; if they think the proposal is in order they will then issue a certificate which will be a complete defence if the transaction should ever be questioned.

### Assistants

24. An offence will only be committed if an assistant is paid so obviously less than he is worth as to amount to a sale of goodwill, and this is obviously not what the profession would wish to do. In case of doubt there is again the complete safeguard of a certificate from the Medical Practices Committee. This being so, the Minister cannot think that the difficulties anticipated by the Negotiating Committee are likely to arise. He entirely agrees as to the desirability of an initial period of assistantship, and he has suggested to the Committee a scheme of grants to experienced practitioners willing to train assistants, which he hopes will benefit both principals and assistants alike.

### The Doctor's House

25. Some of the difficulties anticipated by the Committee will be met by enabling the Executive Council to buy the house for the incoming doctor. For the rest the Minister is advised that there is no risk of committing an offence if the house is put up to auction *bona fide*, whoever may buy it; and in any case a certificate from the Medical Practices Committee will be a complete protection. The Medical Practices Committee was devised as a professional body so as to ensure that it would understand and pay full regard to the proper interests of the profession in the matters before it, and it will have a wide measure of discretion.

### Remuneration

26. The Minister proposes the following arrangements in order to translate the general recommendations of the Spens Committee (which he has already accepted) into actual terms of remuneration for general practitioners (the Spens Committee on Specialists not having yet reported):—

(1) A central fund as contemplated in paragraph 41 of the Negotiating Committee's statement (coupled with the assumption by the profession of collective responsibility for all who wish to use the new service) will be established—equal to a capitation fee of 18s. multiplied by 95% of the civilian population.

(2) This 95% of the population, by which this 18s. is multiplied before being put into the fund, will be reconsidered at the end of two years, having regard to the aggregate number of people who are in fact found to be using the new service at that date.

(3) There will be a first charge on that fund for—

(a) allowances for mileage (which may be in a separate sub-fund), fees for temporary residents, emergencies and

anaesthetics, on the general lines followed in the National Health Insurance Scheme;

(b) a sum sufficient to distribute to every doctor taking part in the service, on an Executive Council's list, a fixed annual payment of £300 a year—subject to conditions to ensure that some reasonable minimum number of patients is accepted by such doctors within a reasonable period.

(4) The remainder of the fund will be distributed to each Executive Council area on the basis of a capitation payment multiplied by the number of people on the doctors' lists in that area, plus one-third of the number not on the lists. This would then be distributed among the doctors taking part in the service in the area in the form of a capitation fee for each person on each doctor's list.

(5) In addition, a sum equal to 1% of the central fund (about £400,000) a year will be attached to the central fund for use in providing discretionary extra "inducement" payments—in addition to the fixed payment under (3) (b) above—to assist doctors to practise in peculiarly difficult (e.g., sparsely populated or unpopular) areas. Any unexpended balance of this sum will periodically accrue to the main central fund. The award of these inducement payments will in each case be determined by the Minister after taking the advice of the Medical Practices Committee—general principles as to the basis of that advice being first settled with that Committee and in consultation with the profession.

(6) Payments met otherwise than from the funds described above will be maternity fees, special grants for training assistants, and payments for drugs.

(7) The apportionment of the central and other funds or sub-funds, between England and Wales on the one hand and Scotland on the other, has still to be settled.

(8) Special machinery for negotiating future revisions of the terms of remuneration is at present under discussion with the profession.

(9) In addition, of course, there will be the superannuation scheme, the benefits of which are already familiar.

27. On these remuneration proposals, the following points are of interest:

The estimated civilian population of Great Britain at June 30, 1948, is	47,750,000
Therefore, 95% of this number is	45,362,500
A payment at the rate of 18s. per head of this number would produce a Central Fund of	£40,826,250
Assuming 17,900 principals take part in the service, the deductions to be made from this amount would be—	
(a) 17,900 fixed annual payments @ £300	£5,370,000
(b) Mileage payments, say	£1,000,000
	£6,370,000
Leaving a net amount to be distributed of	£34,456,250

If the full 95% of the population were actually on doctors' lists the payment per head (additional to the £300 fixed sum) would still be ... 15s. 2d. (approx.)

The gross income (exclusive of receipts from private practice, obstetric service, mileage, etc.) would be—

1,000 public patients	£300 + £758 = £1,058
2,000 " "	£300 + £1,516 = £1,816
3,000 " "	£300 + £2,274 = £2,574
4,000 " "	£300 + £3,032 = £3,332

In addition there would be a pool of £408,262 available for "inducement" payments for practice in certain areas.

If the number of principals were only 17,500 the payment per head would be ... 15s. 3d. (approx.)  
and if only 17,000 ... 15s. 4d. (approx.)

With 17,900 principals in the service, then—

If 90% of the population were on doctors' lists the rate would be ... 16s. 0d. (approx.)

The gross income (exclusive of receipts from private practice, obstetric service, mileage, etc.) would then be—

1,000 public patients	£300 + £800 = £1,100
2,000 " "	£300 + £1,600 = £1,900
3,000 " "	£300 + £2,400 = £2,700
4,000 " "	£300 + £3,200 = £3,500

If 85% of the population were on doctors' lists the rate would be ... 17s. 0d. (approx.)

The gross income (exclusive of receipts from private practice, obstetric service, mileage, etc.) would then be—

1,000 public patients	£300 + £850 = £1,150
2,000 " "	£300 + £1,700 = £2,000
3,000 " "	£300 + £2,550 = £2,850
4,000 " "	£300 + £3,400 = £3,700

And if 80% of the population were on doctors' lists the rate would be ... 18s. 0d. (approx.)

The gross income (exclusive of receipts from private practice, obstetric service, mileage, etc.) would then be—

1,000 public patients	£300 + £900 = £1,200
2,000 " "	£300 + £1,800 = £2,100
3,000 " "	£300 + £2,700 = £3,000
4,000 " "	£300 + £3,600 = £3,900

### Right of Appeal to the Courts

28. Parliament have accepted the view, embodied in the Act, that as the ultimate responsibility for the service is placed by Parliament on the Minister, it must be left to him to decide in the last resort whether it is possible for him to retain in the public service in any particular area, or even at all, a practitioner whose retention, in the Tribunal's view, "would be prejudicial to the efficiency of the service." Any other situation would be impossible. If the Minister is to be answerable to Parliament for the success of the service, he cannot be put in a position where he has to answer for a doctor whom he is forced to retain. The Minister thinks that it would help him to consult an Advisory Committee of the type which has hitherto advised on similar cases arising under the insurance scheme and provision will be made for this in regulations.

29. Nor would such a situation apply to any other profession or vocation. Of course, there is fully retained the doctors' ordinary legal rights to go to the Courts on the grounds of unlawful action by the Minister or others. Nor are the rights of the General Medical Council in any way prejudiced.

### Midwifery

30. There is no suggestion, of course, that any qualified medical practitioner should be in any way debarred from practising midwifery. The new health service is concerned with arrangements for maternity only within the service. There have been some discussions on this with general practitioners, midwives, and others, and the Minister is advised that the best arrangements to secure that the standard of attention for the expectant mother is uniformly good throughout the new service should be as follows. The hospital and specialist service will provide for specialist obstetrics and for confinements in hospitals. Otherwise all general practitioners in a local health authority's area will be asked to say whether or not they wish to practise midwifery and to answer calls by midwives for medical aid under the Midwives Act, as applied to the new service by the new Act. Any who wish to do so will be asked the extent and nature of their obstetrical practice during the preceding three years. Their particulars will be put before a local professional committee (including general practitioners, a local consulting obstetrician, and the medical

officer of health). This committee will decide on the list of local practitioners suitable for answering calls from midwives and at the same time taking part in the maternity services provided by the new Act. Others, not included in the list, will need further obstetrical experience first, and the list will be periodically reviewed.

31. Every woman will be entitled under the Act, for all ordinary purposes, to the medical advice and treatment of a general practitioner, by their mutual agreement. She will no doubt consult him in pregnancy, and, for her confinement, he will tell her how to obtain the services of a midwife under the Act; also, if he is not himself on the maternity list (above), he will tell her how to choose a doctor on the list who will look after her through her pregnancy and—if he wishes—be present at her confinement. If he is on the list he will do it himself. Maternity care will not be part of the obligatory terms of service of all general practitioners and an additional, inclusive, fee for pre-natal and post-natal care and the confinement will be payable. But it will be open to every family doctor to see his patient through her confinement if he is willing to do so.

### OTHER POINTS

#### Chairmanship of Local Executive Council

32. The Minister agrees with the Committee that, after the term of office of the first Chairmen (due to end on March 31, 1949) Executive Councils should propose their own chairmen. Practical effect can be given to this by inviting Executive Councils, when the time comes, to nominate the persons whom they want the Minister to appoint as chairmen, and the Minister can then adopt their suggestions. No practical point arises on this until after the first chairman's office has expired in 1949, and the matter will be reconsidered then.

#### Consultation with Local Units of the Profession

33. The Minister agrees that there must be maximum co-operation between the various bodies responsible for different aspects of the new health service and the local representatives of the professions taking part in it. But the consultations necessary for this are, in his view, better left to the good sense of those concerned than placed on any stereotyped or compulsory footing. It is certainly his intention that the planning and equipping of health centres, for example, should be carried out in the closest touch with local representatives of the professions—any other method would be unworkable—and particularly with those wishing to work in the centres, but it is not necessary for this purpose to incorporate any formal regulations into the Act.

34. Consultations between Executive Councils and Local Medical Committees should not be limited to occasions prescribed by regulation. Co-operation is of the very essence, and the local medical profession is strongly represented on every Executive Council under its constitution. It will be for these medical members to make sure that consultations do in fact take place on all appropriate occasions.

#### Scope and Conditions of Service

35. All the Committee's views on this are agreed, so far as affects Anaesthetics, Emergency Attendances, and Practitioners' Lists.

#### Certification

36. The effect of the Act is to require doctors to issue to their patients, without charge, certificates reasonably required under or for the purposes of any public enactment. The Minister will do his best to help the profession to comply with this obligation by publishing a list of certi-

ficates which seem to him to come within the requirement. Meanwhile, he has taken steps to have an interdepartmental Committee on Medical Certificates appointed with the object of reducing the general burden of certification on doctors, and the whole position will be reviewed as soon as this committee has reported.

### Health Centres

37. The Minister agrees that the Central Health Services Council shall have a Standing Advisory Committee, or a special subcommittee, on Health Centres. It has never been intended that any practitioner should be compelled in any way to practise in a health centre. Building limitations will delay the development of the health centre idea, which the profession itself has advocated. Lessons must be learned from experience, and all types of centre must be tried, always with the help of expert central advice and control. Doctors and other professional people participating in a centre must be free to practise their profession in their own way, and must be given all proper voice in the internal arrangements of the centre. Indeed, the whole new venture of the health centre—which, if properly conducted, should be certainly of as much interest to the profession as to the Minister—will depend upon the co-operation of the profession with the Minister in an attempt to give publicly provided facilities for the personal and family doctor and dentist to give the best possible service to his patients.

#### Assistants

38. The Minister entirely agrees with the views expressed by the Committee under this heading.

### Collective Responsibility

39. The Minister is in general agreement with the Committee's views on collective responsibility and a central fund. His more detailed proposals are set out under the heading of Remuneration, in paragraphs 26 and 27 above.

### HOSPITAL AND SPECIALIST SERVICES

#### Transfer of Hospitals

40. The Act lays on the Minister a statutory obligation to provide an adequate hospital service. If he is to be able to discharge this obligation he must clearly have transferred to him all existing hospitals which are essential for the provision of the service now, and must have powers to acquire land and premises—if necessary compulsorily—essential for the development of the service to meet future needs.

41. For the purpose of transfer, therefore, the definition of hospital must be wide enough to embrace all units—normally describable as hospitals—which are essential to the service. But the power given to the Minister to exclude hospitals from transfer shows that no absolute monopoly of hospital provision is in view, and that it is not intended to transfer such units as are not required for the new service. Each unit liable to transfer is already being given the opportunity to advance any good reasons for its exclusion. In general the Minister would regard any private nursing home, which happened to prove to be legally liable to transfer, as having *prima facie* grounds for exclusion, and would normally exclude it subject to hearing any views of the appropriate Regional Hospital Board. It is by this means, rather than by amendment of the definition in the Act, that the points raised by the Committee can best be met; and indeed any definition which could be devised would inevitably give rise to cases which could be met only by this procedure. Nursing homes run for profit are of course, not transferable at all.



42. As to the acquisition of land and premises, it would be impossible to exclude entirely from the Minister's powers the acquisition of hospitals, when the very purpose for which the powers are conferred is the provision of a hospital service. But it is also clear that the acquisition of a number of small private nursing homes would be a thoroughly uneconomic and unsatisfactory method of developing the service. It is, as a matter of common sense, only very exceptionally that any question of acquiring private or voluntary hospitals or clinics after the appointed day might be likely to arise.

43. It is hoped it will be possible early in 1948 to "disclaim" all hospitals whose transfer is not required for the service. The Minister is obtaining the views of Regional Boards, but it is with the Minister that the final decision (both in principle and in individual cases) lies.

#### Hospital Accommodation for Private Patients

44. The Minister's intention is that the allowance of treatment of private patients in any private accommodation set aside in a hospital shall extend to all practitioners who are members of hospital staffs in the service and who wish also to engage in such private practice by agreement with their patients. But it would be impracticable to lay down a definite obligation in this, since the extent to which any such arrangement is possible must depend on the local availability of facilities.

45. When treating private patients in private accommodation in a hospital, the doctor will be using facilities provided at the public expense. It therefore seems natural that reasonable limits should normally be set to the charges made to the patient for the personal benefit of the practitioner. It is intended that the limits should not be set in any way unduly low, and that there should be adjustment within the maxima to the circumstances of the patient by private arrangement between him and the doctor. In addition, however, the Minister is prepared—where circumstances make it possible—to allow a proportion of the available private beds to be used without any prescribed maximum charge. He will examine how this can best and most fairly be done.

46. It should be clear that there is a complete difference between the position of the patient in accommodation provided under Section 4 and that under Section 5 (both referred to in the Committee's statement). The former is taking advantage of the public service, and is paying only for the additional amenity of a single room or small ward. The latter has elected not to take advantage of the public service, but to seek his hospital treatment outside it.

47. Under Section 4 the only charge payable by the patient is that for the additional cost of the separate accommodation. The reference in debate to the recovery of medical fees was intended not to refer to this, but to deal with the position where no separate private pay block may exist and where any accommodation for purely private patients may therefore be set aside in certain rooms or small wards; but this would be done under Section 5 and not under Section 4.

48. The extent to which purely private pay-bed accommodation is made available and treatment of private patients in hospital allowed must clearly depend on the size of the demand and on the extent to which facilities can be provided without detriment to the main health service. The special provision made for it in the Act is, however, a clear indication of the intention that it will be made available, and that action taken under Section 4 or otherwise will not be such as to exclude private arrangements.

49. Where a pathologist or radiologist participating in the service also engages in private practice, it will be open to

him to enter into agreed arrangements for attendance on private patients in private pay-bed accommodation within prescribed maximum fees under the Act.

#### Method of Preference of Patients to Specialists

50. The Minister accepts in the main the proposals made by the Committee. It is contemplated that the patient will normally obtain specialist advice through his family doctor, who will refer him with a written statement of the case. Exceptionally, however, the patient may seek specialist treatment direct—for example, from a venereal diseases clinic. With regard to diagnostic facilities, it will be an objective of the service that reasonable facilities should be available directly to general practitioners; but the first call on hospital facilities must be to meet the needs of the hospital service, and only as they can be developed will they become more generally available.

#### Appointment of Specialists

51. It is proposed that appointments of medical staff up to and including registrars at non-teaching hospitals should be made by the Hospital Management Committees. Senior appointments, however, should be made by the Regional Boards on the advice of an appointments committee constituted according to the nature of the appointment but including in all cases representatives of the Management Committee or Committees concerned. The Minister agrees that the more exact constitution of these committees must be worked out at an early date and he proposes to do so. He also shares the view that it would be an advantage for the appointments committees for non-teaching hospital posts to include university representatives and expert assessors from other regional areas, and guidance to this effect will be given to Regional Boards.

#### General Terms of Service

52. The Minister notes the Committee's views on the method of remuneration of specialists, which he will have to consider further with the profession when he has received the report of the Spens Committee on Specialists. As to the domiciliary service, he considers that specialists should, as widely as practicable (though not universally), be expected to accept as part of their duties the undertaking of domiciliary work within defined limits. The principles proposed by the Committee for the operation of the service accord with his own views.

#### Chairmen

53. The Minister thinks that any views expressed by Boards of Governors and Management Committees about the succession to the chairmanship should clearly be given full weight; but their position as his direct agents in administering the service makes it essential that the final decision should lie constitutionally with the Minister in each case.

#### LOCAL HEALTH AUTHORITY SERVICES

##### Statutory Health Committee

54. It was the decision of Parliament that local health authorities, as responsible local government bodies, ought not to be dictated to on the co-optation of non-elected members on their Health Committees. The Minister has no powers of compulsion in the matter and would not wish to seek them. Nevertheless, he has encouraged—and will continue to encourage—local authorities to use the powers conferred on them to co-opt non-elected people so as to secure, among other objectives, the inclusion of representatives of the medical profession in the area. As the figures quoted by the Committee show, the majority of authorities have done so.

### Remuneration

55. The Minister agrees with the Committee. The details of future negotiating machinery are at present under discussion with the profession and all other professions concerned.

### Decentralization of Local Health Authority Services

56. The Committee is under a misapprehension here. Schemes of decentralization, as so far advocated by the Minister, cannot themselves result in depriving the county district medical officers of health of any part of their work. The Act itself—irrespective of any decentralization—governs any effect the service may have on these officers.

## MENTAL HEALTH SERVICES

### Division of Responsibility

57. The Minister fully recognizes the importance of the points raised in this paragraph and his views have been conveyed both to Regional Hospital Boards and local health authorities in the documents already issued to them.

58. In a memorandum on the mental health services issued to Regional Boards, there is the following passage:—

"It will be apparent that the efficient administration of the mental health service will depend in a crucial degree upon the effective linking of the operations of the Regional Boards on the one hand and of the local health authorities on the other."

The need for close co-operation is emphasized throughout the memorandum and several parts of it refer specifically to the possibilities of joint user of officers, including psychiatrists.

59. In a circular issued to local health authorities on the mental health services the importance is stressed of maintaining close touch with the Regional Boards and the Hospital Management Committees, and also the desirability of arranging for joint user of officers, including psychiatrists. Local health authorities have been asked to include in their proposals (which have to be submitted for approval under the Act) the extent to which they propose to arrange for the joint user of specialist medical officers of the Regional Boards.

60. As to grouping, the circular says:—

"Two or more authorities may agree arrangements for the joint user of an officer having special qualifications or experience in mental health work to act as medical adviser to their mental health service subcommittees."

### Regional Psychiatrists

61. Memoranda already issued to Regional Hospital Boards indicate the Minister's view that the Boards should appoint a mental health services committee or subcommittee and a Regional Psychiatrist. The status of the latter post, and its remuneration, have been discussed with the Mental Health Services Subcommittee of the Negotiating Committee, as a result of which the proposed scale of salary has been reconsidered. This has now been fixed at a figure which, in the Minister's opinion, should attract men of appropriate standing to fill these posts.

## SUPERANNUATION

### Provision for Added Years

62. Doctors are not alone among professional people who have a lengthy training period before entering on remunerative employment. The superannuation scheme goes a great way to meeting them by providing that a doctor will become superannuable as soon as he enters a

hospital post, which—it is hoped to secure—will include the last year of his training after qualification but before registration. For the average doctor, this will happen at about the age of 23 or 24. From then onwards his service will build up in the scheme through his various employments in hospitals, clinics, and practitioner service. He will be able to retire at 60, though if he stays on till 63 or 64 (when he will have done his forty years' service), he will get a larger pension. In comparison with, for example, the local government scheme now, he will be much better off because at present his service does not begin to count until he has taken up a local government appointment which may be after a period of practitioner service and certainly after his training hospital work and he cannot retire until he has done forty years' service or reached the age of 65.

### Immediate Cover against Incapacity or Death

63. Other public service schemes require a period of qualification before benefits are payable. In the proposed scheme it is five years for death gratuity and a gratuity on incapacity and ten years for pension on retirement on age or incapacity. The scheme requires no medical examination and it cannot take on a quite unknown liability in respect of people who may be unsound lives, without some preliminary period of service.

64. As to elderly doctors who come in at the beginning, they will get compensation for the loss of their right to sell their practices; and this represents what they would normally have expected to get, quite apart from the further benefits provided by the new scheme.

### The Suggestion that the Proposed Widow's Pension is Inadequate

65. The widow's pension is one-third of the pension which the doctor would have got had he retired on account of incapacity at the time he died. Any increase on this would have meant diminishing other benefits in the case of married doctors. Moreover, this widow's pension will be in addition to the new national insurance arrangements which after July 5 next will apply to everyone. It should be remembered that this is the first major public service scheme which has included a widow's benefit at all.

66. As to the reductions to be made where the wife is younger than the husband, no reduction at all is made where the man is under 42 or in any case where the wife is not more than two years younger. The more advanced the age of the man the greater will be the pension which he has earned and therefore the larger the amount from which the widow's pension is derived. No reduction at all is made whatever the difference in age while the widow has to look after children of school age.

### Provision for Transfer of Superannuation Rights for a Medical Officer going from Local Government to University Service

67. The local government scheme for this purpose cannot be altered in regulations made under the National Health Service Act. It is fully agreed, however, that it is a desirable object and that the earliest opportunity will be taken to import it into the local government law.

### Provision for Secretaries and Dispensers of Practitioners in the Service

68. Any such arrangement as the Committee suggest would have to apply to all such people. It would raise considerable difficulties because there must be a substantial amount of part-time service and temporary employment among these employees. To such persons a superannuation

Provided that, if the aggregate number of medical practitioners included on the appointed day in lists of medical practitioners providing general medical services, or lists of medical practitioners providing services under any provisions in force in Scotland corresponding with the foregoing provisions of this Part of this Act, falls short of seventeen thousand seven hundred, the said sum of sixty-six million pounds shall be reduced by an amount calculated by multiplying the number by which the said aggregate number falls short as aforesaid by one seventeen thousand nine hundredth part of sixty-six million pounds.

### (3) Regulations shall

(a) prescribe the manner in which and the time within which claims for compensation are to be made, and provide for determining whether any claimant has suffered loss by reason of the matters referred to in subsection (1) of this section and, if so, the extent of that loss;

(b) provide for the distribution of the said aggregate amount among the persons who have suffered such loss as aforesaid, having regard to the extent of their respective losses;

(c) prescribe the manner in which and the times at which the compensation is to be paid, and secure that, except in such circumstances as may be prescribed, it shall not be paid until the retirement or death of the medical practitioner concerned, whichever first occurs; and

(d) provide for paying out of moneys provided by Parliament interest at 2½% per annum on the amount of the compensation payable to any medical practitioner, in respect of the period from the appointed day until the time when the compensation is paid;

and before making any regulations under this subsection the Minister shall consult such organizations as may be recognized by him as representing the medical profession.

(4) For the purpose of determining the appropriate proportion of the said sum of sixty-six million pounds—

(a) the aggregate amount of the losses in respect of which compensation will be payable under this section and under the corresponding provision for Scotland, respectively, shall be calculated in such manner as the Treasury may direct; and

(b) the said sum of sixty-six million pounds or, as the case may be, the said sum as reduced in pursuance of the proviso to subsection (2) of this section shall be apportioned as between England and Wales on the one hand and Scotland on the other, having regard to the said respective aggregate losses, and the amount apportioned to England and Wales shall be the appropriate proportion of that sum for the purposes of this section.

## Association Notices

### SCHOLARSHIPS IN AID OF SCIENTIFIC RESEARCH

The Council of the British Medical Association is prepared to receive applications for Research Scholarships as follows: An Ernest Hart Memorial Scholarship of the value of £200 per annum, a Walter Dixon Scholarship of the value of £200 per annum, and four Research Scholarships each of the value of £150 per annum. These scholarships are given to candidates whom the Science Committee of the Association recommends as qualified to undertake research in any subject (including State medicine) relating to the causation, prevention, or treatment of disease. Preference will be given, other things being equal, to members of the medical profession.

Each scholarship is tenable for one year starting on Oct. 1, 1948. The scholar may be reappointed for not more than two additional terms. A scholar is not necessarily required to devote the whole of his or her time to the work of research but may hold an appointment at a university, medical school, or hospital, provided the duties of such an appointment do not interfere with his or her work as a scholar.

In addition, applications are invited for the first award of the Insole Scholarship of the value of £250 for research into the causes and cure of venereal disease.

#### Conditions of Award: Applications

Applications for scholarships must be made not later than Friday, April 30, 1948, on the prescribed form, a copy of which will be

supplied on application to the Secretary of the Association, B.M.A. House, Tavistock Square, London, W.C.1. Applicants will be required to furnish the names of three referees who are competent to speak of their capacity for the research contemplated.

### SPECIAL REPRESENTATIVE MEETING

Notice is hereby given that on the requisition of the Council a Special Representative Meeting of the British Medical Association will be held in the Great Hall, B.M.A. House, London, W.C.1, on Thursday, Jan. 8, 1948, at 11 a.m. The business of the meeting is to consider recommendations of the Council relating to

(1) a statement on the Minister's reply to the Negotiating Committee's representations; and

(2) the impending plebiscite of the medical profession.

By order of the Chairman of the Representative Body,

CHARLES HILL,  
Secretary.

### CONSULTANTS AND SPECIALISTS COMMITTEE

#### REGION 16

As a result of the ballot held to fill the vacancy caused by the resignation of Dr. M. A. Snodgrass, Mr. G. T. Mowat, F.R.C.S.Ed., F.R.F.P.S., has been appointed representative of Region 16 of the Consultants' Roll on the Consultants and Specialists Committee for the remainder of the session 1947-8.

### NATIONAL ASSISTANCE BILL

A Special Committee of the Association has been appointed to consider and report to the Council on the above Bill. The object of the Bill, among others, is to "terminate the existing Poor Law and to provide in lieu thereof, for the assistance of persons in need by the National Assistance Board and by local authorities." The Bill would give power to the Minister of Health or, as respects Scotland, the Secretary of State to make regulations providing for the payment of compensation to officers who suffer loss of employment or loss or diminution of emoluments attributable to the passing of the Act. The Minister's power, however, enables him only to make regulations in respect of persons engaged in such full-time work as may be prescribed. Part-time public assistance district medical officers, whether or not they are permanent and have security of tenure, are therefore excluded.

In reply to representations made before the introduction of the Bill, the Ministry stated that it could not depart from the general principles of compensation which are being adopted in current legislation—the principle that there should be no compensation in the case of part-time officers. The Special Committee intends to pursue the matter and has requested the Minister to receive a deputation.

### Branch and Division Meetings to be Held

DUMFRIES AND GALLOWAY DIVISION.—At Cresswell Counties Maternity Hospital, Dumfries, Sunday, Dec. 21; 3.30 p.m. Dr. Robert McWhirter: The Scope of Radio-Therapy in Malignant Disease.

### TRADE UNION MEMBERSHIP

The following is a list of local authorities which are understood to require employees to be members of a trade union or other organization:

County Borough Councils.—Barnsley, Gateshead.

Metropolitan Borough Councils.—Fulham, Hackney, Poplar.

Non-County Borough Councils.—Dartford, Leyton, Radcliffe (limited to future appointments), Tottenham, WallSEND.

Urban District Councils.—Denton, Droylsden, Houghton-le-Spring, Huyton-with-Roby, Portslade, Redditch (restricted to new appointments), Stanley (Co. Durham), Tyldesley.

Scottish Burghs.—Motherwell and Wishaw.

# BRITISH MEDICAL JOURNAL

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## ACUTE POLIOMYELITIS

WITH SPECIAL REFERENCE TO EARLY SYMPTOMATOLOGY AND CONTACT HISTORIES

BY

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In the middle of August, 1947, the Middlesex Hospital offered to the London County Council a unit of 30 beds for the early treatment of cases of acute poliomyelitis. Although the diagnosis of poliomyelitis could be confirmed in only 54 of the 104 cases which were admitted up to the middle of October, sufficient points of interest arose to warrant their description. The following classification was adopted: (1) non-paralytic, 24 cases; (2) paralytic, 26; (3) polio-encephalitis, 4; (4) abortive poliomyelitis, 6; (5) incorrect diagnosis, 44.

### Early Symptomatology

*Prodromata.*—Prodromal symptoms suggesting a stage of systemic infection were present in 70% of the non-paralytic and paralytic cases. The symptoms were those that are common to certain other infections—namely, headache, a shivering feeling, malaise, a generalized muscular aching, and fever. To these were sometimes added either signs of an upper respiratory infection such as sore throat or coryza, or a gastro-intestinal upset such as nausea, vomiting, or diarrhoea. The duration of this prodromal stage varied from 14 days to a few hours. In 9 of the 10 patients who became severely paralysed, signs of invasion of the nervous system preceded the appearance of constitutional symptoms. In a few cases the history suggested the "dromedary" type of prodromata.

### Non-paralytic Form

In deciding whether a case should be classified as abortive or non-paralytic we were guided by the presence of meningeal signs and by changes in the cerebrospinal fluid, if the latter was normal, despite the presence of severe headache, the case was considered as abortive, but if in addition to these findings nystagmus was present the case was labelled as non-paralytic.

Headache was the main symptom of the meningeal stage of the disease. At the onset it may be referred to the back of the head, but more usually it is frontal in distribution and throbbing in character: it was sometimes described by patients as the worst headache they had ever experienced. Pain referred to the neck or down the back was not uncommon. All degrees of neck stiffness were met with. In a mild form this showed itself by an inability on the part both of the patient and of the examiner to approximate the chin to the chest: during this manoeuvre the patient expresses discomfort in words or by facial expression. In the course of a routine examination of the

nervous system no abnormality may be detected beyond those already mentioned. In other cases certain minor signs may be found which clearly indicate invasion of the central nervous system, but since they are not accompanied by paresis such cases should be grouped as non-paralytic. The commonest of these signs is nystagmus; this may occur in lateral or vertical fixation, and may be either of the horizontal or the rotatory type. Its disappearance in the course of convalescence signifies its relationship to the infection. Of 24 non-paralytic cases 14 showed this sign. The following may be cited as a typical example of the non-paralytic form.

*Case 52.*—L. E., a girl aged 17, was well until Oct. 5, 1947, when she felt sick and retired to bed. Next day the temperature was 99° F. (37.2° C.), the headache was worse, and she vomited three times. On Oct. 7, when seen in casualty department, apart from mild backache she had no other symptoms. She was admitted for lumbar puncture. The cerebrospinal fluid contained 35 lymphocytes and 29 polymorphs per c.mm.; protein, 40 mg. per 100 ml.

Depression or absence of one or more deep reflexes was found in a few of the non-paralytic cases, either without any evidence of paresis or with a minimal degree of weakness which passed off in the course of a day or so.

### Paralytic Form

As a general rule prodromata and meningeal signs preceded the onset of paralysis. Both our previous and recent experience of poliomyelitis confirmed the importance of severe low backache as a local sign in poliomyelitis, particularly when the lower dorsal and lumbar cord is attacked. In the majority of our cases sensory symptoms were prominent at the onset. They were confined to or more pronounced in that part of the trunk or limbs which subsequently became paralysed. Pain was a common early symptom, while tenderness of the skin and pins-and-needles or a numb sensation were occasionally present. The following case illustrates this point.

*Case 14.*—Mrs. K., aged 30, noticed soreness around the abdomen on Sept. 4, 1947; her clothes hurt her and any light touch on the skin was unpleasant. By the evening the soreness had spread to the front of both thighs. Next day the temperature was normal. She complained of severe headache and aching at the back of the neck and in her limbs and back. On the 6th the temperature was 99° F. (37.2° C.); the pain in the legs had disappeared, but her left leg was now completely useless and the right leg partially so. She was admitted to hospital on

Sept. 7; the temperature was 102° F. (38.9° C.). The following signs were noted: marked neck rigidity, horizontal nystagmus, and a severe degree of paralysis of both lower limbs with diminution of the deep reflexes. Cerebrospinal fluid showed: cells, 94 lymphocytes per c.mm.; protein, 100 mg. per 100 ml.

Muscles supplied by the same spinal segments may show a considerable variation in the extent to which they are paralysed. For example, in the upper limb the deltoid may be severely paralysed while the biceps and brachial radialis may show only a temporary and mild weakness. The extensors of the wrist may relatively escape compared with the triceps and extensors of the fingers. Similarly, the sternal portion of the sternomastoid may be more affected than the clavicular portion. Although these facts are not new, attention is drawn to them because of their diagnostic importance. Coarse fasciculation or muscular twitching, although not an uncommon early sign in children, is seldom seen in adults; it was observed in only two cases in the present series. Lastly, minor degrees of paresis are easily overlooked unless a systematic examination of the skeletal muscles is made.

*The Myelitic Form.*—This has received little mention in the classical descriptions of the disease. The clinical picture may be that of an acute dorsal myelitis, differing in no way from that due to other causes. A stage of flaccid paraplegia with extensor plantar responses, sensory loss on to the abdomen, and retention of urine is followed by a residual spastic paraplegia with minimal sensory loss. The combination of meningitis and acute myelitis with a lymphocytic pleocytosis in the cerebrospinal fluid should suggest the diagnosis, but only if other causes such as syphilis can be excluded. A partial myelitis characterized by temporary paraesthesiae and combined upper and lower motor neurone lesions is somewhat more common. The following is a typical example.

*Case 5.*—W. A., a youth aged 17, was driver's mate in a lorry which left Yorkshire bound for London on July 21, 1947. At 9 p.m. he felt a sudden dull ache in the lower part of his back: this pain passed off within an hour. At midnight he noticed a gradual onset of numbness in the left hand and the fingers, which felt dead. Within an hour the numbness had spread up to his elbow; at the same time he noticed a weakness in this limb. At 4 a.m. the following day the numbness was noticed in the toes, and within a quarter of an hour it had spread half-way up the left thigh. The leg became weak, and on getting out of the lorry he limped. At 8 a.m. there was a gradual onset of numbness in the right hand and arm, with weakness. At 10 a.m. the numbness had spread to the abdomen, lower chest, and groins. At 12 noon he was admitted to hospital. The temperature was 98.2° F. (36.8° C.). He stated that he had no headache and that he felt quite well. There was no neck rigidity. Both upper limbs were markedly weak, except abduction and flexion of the elbows. Paralysis of finger movements was complete in the left hand and partially so in the right. The triceps-jerk was absent on the left side. There was a generalized weakness of both lower limbs, left more than right. The left knee-jerk was depressed, the remaining lower-limb reflexes were exaggerated. The left plantar response was equivocal, the right flexor. There was diminution to cotton-wool and pin-prick in both hands; doubtful pin-prick and thermal loss on right side below D2. Cerebrospinal fluid: cells, 7 lymphocytes and 1 polymorph per c.mm.; protein, 30 mg. per 100 ml. On July 24 the temperature had remained normal since admission and there was good recovery in extension of left wrist, but triceps, extension of fingers, and small muscles of left hand as well as of right were still severely paralysed. Reflexes in left leg were now brisker than on right, left plantar response extensor, right flexor. On Aug. 16 he was much improved: mild residual weakness in left triceps and intrinsic muscles of both hands, left more than right, with early wasting. Left plantar response was still extensor. Sensation was now normal.

When the case was first admitted the absence of fever and meningeal signs and the prominence of sensory

symptoms suggested an acute myelitis rather than poliomyelitis. However, after 48 hours the distribution of the paresis in the arms and the greater loss of power in the quadriceps as compared with other muscle groups in the left leg established the diagnosis of poliomyelitis.

### Polio-encephalitis

Several factors account for the varied symptomatology that may occur in polio-encephalitis. First, although the virus of poliomyelitis is highly neurotropic for motor nuclear masses in the brain stem and spinal cord, it may attack other components of the nervous system. Secondly, although the brain stem is mainly affected, there is clinical and histological evidence that in polio-encephalitis higher levels of the brain may not be spared. Lastly, the relative incidence of polio-encephalitis and the signs arising from it vary considerably from epidemic to epidemic. Drowsiness may be present in the initial stages. In only one of our four cases of polio-encephalitis was it marked, although it appears to have been a prominent feature in a certain number of cases in the recent epidemic. Coma in our experience is rare. A degree of mental confusion with subsequent amnesia is not uncommon. Nystagmus is an important sign of invasion of the brain stem; it may occur alone or be associated with cranial-nerve or spinal paralyses. Pyramidal signs are not uncommon in polio-encephalitis.

There is a clinical picture which we have not previously encountered and which so far as our inquiry into the literature goes has not been reported in any previous outbreak of the disease. Some of the features of this unusual condition have been described by Strickland (1947), Marmion and Sandilands (1947), and one of us (McAlpine, 1947).

*Case 28.*—R. P., a captain in the U.S. Army aged 32, complained on Aug. 11, 1947, of mild backache, which persisted until the 21st, when he developed a headache, sore throat, and aching pains in the neck and legs. He vomited once and had mild diarrhoea. The temperature was 100° F. (37.8° C.). During the next few days he improved. Nystagmus was noticed for the first time on Aug. 25. On the 27th he was unable to raise his head because of muscle weakness and the nystagmus had increased. Next day he was admitted to hospital. The temperature was 98.8° F. (37.7° C.). He complained of backache, weakness, and blurring of vision. He was markedly euphoric, with emotional lability. His memory was good for both recent and past events; his orientation and co-operation were excellent. There were no disturbances of micturition and his sleep rhythm was normal. A slight degree of neck rigidity was noted. He showed violent jerky conjugate movements of the eyes both laterally and on elevation. There was a large rotatory element in the movements especially on lateral fixation. The slightest movements of the eyes, the act of blinking, and even an emotional stimulus would produce this phenomenon. After an object was fixed for a few seconds the ocular disturbance subsided. Occasionally, spontaneous movements would appear, though these may have been due to attempted voluntary fixation unnoticed by the observer. With the violent lateral movements a synchronous lateral tremor of the head and neck developed which was very obvious to the patient and which he could not control. The ocular movements were full and the pupils and other cranial nerves were normal except that he disliked lifting his head from the pillow. Jaw-jerk was unaffected. Power, tone, and co-ordination were normal in the limbs. In the arms the tendon reflexes were unaffected, but they were considerably exaggerated in the legs. The right plantar response was flexor, the left extensor. He had marked hyperaesthesia to stroking of the abdomen. There was no sensory loss. Cerebrospinal fluid contained 53 lymphocytes and 1 polymorph per c.mm.; protein, 80 mg. per 100 ml. The condition remained stationary for two days, and then the head movements disappeared. Both plantar responses became flexor by Sept. 2, but the eye movements were still very active, though much less so than formerly.



The euphoria was now less evident, and he continued to improve. He was transferred to an American Army hospital on Sept. 12, and still showed eye movements to the left and vertically.

Orzechowski (1927) described two forms of these spontaneous eye movements: (a) an ataxic dysmetria due to cerebellar disturbance, and (b) opsoelonia due to a lesion in the basal ganglia. Cerebellar signs, though not observed in our case, may sometimes be present. A common mechanism acting through the median longitudinal bundle may explain the synchronization of the head and eye movements, but the precise physiological basis of this unusual condition will be determined only at necropsy.

The incidence of polio-encephalitis in our series was very small, but during the recent epidemic we had the opportunity of seeing a number of cases in other hospitals in which varying degrees and combinations of cranial-nerve palsies have been present; these have not differed from those described previously in this and other countries. Details of these palsies as they occurred in cases in the London area will shortly be published by Sir Allen Daley.

Of the early symptoms of bulbar palsy, difficulty in swallowing and in talking are the commonest. In the following case stridor was the presenting symptom; other atypical features were the relative absence of fever and of changes in the cerebrospinal fluid.

*Case 53.*—R. A., a girl aged 17, was well until Nov. 5, when she developed a headache which had disappeared by the evening. Next day she woke up with a cough, which worsened during the morning. About noon she found great difficulty in getting her breath. She was seen in the casualty department and was admitted to the E.N.T. department at once, where on laryngoscopic examination Mr. J. P. Monkhouse found a complete bilateral abductor paralysis. When seen at 3.30 p.m. by one of us her temperature was 99° F. (37.2° C.), pulse 106. There was a marked degree of dyspnoea with inspiratory stridor. The voice was feeble and husky and she had difficulty in swallowing. The palate was paretic. Both sternomastoids and trapezii were weak. The tongue could not be protruded beyond the line of the teeth. The limbs were normal. At 4.30 p.m. tracheotomy was performed. On Nov. 7 the temperature was normal. She complained of numbness of both hands, but no weakness could be detected. Nystagmus was now present. Palate and tongue movements had slightly improved; swallowing was less difficult. Further improvement was noted on the 8th. Cerebrospinal fluid showed: 1 polymorph per c.mm.; protein, 25 mg. per 100 ml. She continued to improve, and on Nov. 21 the tracheotomy wound was closed. Speech was normal apart from a mild nasal quality, and she no longer had difficulty in breathing and swallowing. There remained a mild residual paresis of the palate and of the abductors.

This case illustrates the value of tracheotomy as a life-saving measure in the bulbar form of the disease.

### Cerebrospinal Fluid

The majority of our cases showed changes in the cerebrospinal fluid typical of poliomyelitis—namely, a moderate pleocytosis with a slight increase in the protein content. However, in eight out of the 30 cases of poliomyelitis and polio-encephalitis the cell count was less than 10 per c.mm. The average interval between the appearance of meningeal signs and lumbar puncture in these cases was four days. A normal cell count during the febrile stage of the disease may occasionally be met with. It occurred in approximately 5% of Service cases of poliomyelitis in the Middle East and India between 1941 and 1945. A high protein figure may be seen during the first two or three days of the illness, but is more frequent after the first week; it is usually accompanied by a pleocytosis, but occasionally may occur independently of it as in two of our cases. In three cases the protein exceeded 100 mg. per 100 ml. In one of these the fluid was examined on

the eighth day after the appearance of meningeal signs; the cell count was 12 lymphocytes per c.mm., and the protein was 180 mg. per 100 ml. This dissociation between cell count and protein increase has previously been recorded in poliomyelitis, although it is best known in connexion with acute toxic or febrile polyneuritis (Guillain-Barré syndrome).

### Differential Diagnosis

The corrected diagnosis in 44 cases admitted as acute poliomyelitis was as follows: tuberculous meningitis, 3; pyogenic meningitis, 2; tonsillitis, 10; pneumonia, 6; typhoid fever, 2; gastro-enteritis, 2; various neurological conditions, 7; miscellaneous, 12.

*Tuberculous Meningitis.*—Acute poliomyelitis usually attacks individuals in good general health and the prodromal symptoms are of short duration, whereas in a typical case of tuberculous meningitis indefinite symptoms have been present for more than two weeks. A lymphocytic pleocytosis and an increase in the protein of the cerebrospinal fluid are characteristic of both conditions. The estimation of chlorides in the early stage of tuberculous meningitis may occasionally show a figure only slightly below normal—i.e., about 700 mg. per 100 ml. The characteristic fall in chlorides may be delayed and be obtained only if specimens are examined over a week or two (Smith and Daniel, 1947). Lastly, despite modern methods of staining, the tubercle bacillus may be overlooked unless a prolonged search is made. However, in practice this difficulty in diagnosis is only likely to arise initially, since the course of the illness and the continuation of fever for more than a week should suggest tuberculous meningitis rather than poliomyelitis.

*Pyogenic Meningitis.*—The clinical picture in the early stages of a pyogenic meningitis and of poliomyelitis may be indistinguishable except that as a rule in the former rigors may occur and pyrexia tends to be more pronounced. It is essential that lumbar puncture should be carried out at the earliest possible moment in every case presenting meningeal signs. The general similarity between these two conditions is exemplified by the following case admitted as polio-encephalitis.

Mrs. R. J., aged 36, was well until Aug. 19, when she had severe abdominal pain. She had a miscarriage of twin foetuses 13 weeks old on Aug. 10, but she felt quite well the next day and got out of bed on the 12th. For the next two days she remained in bed with severe backache. On the 15th she was unable to walk upstairs owing to weakness and giddiness, and on the following day her legs were weak and she had occipital headache. On the 17th the temperature was 103° F. (39.4° C.). She had several rigors and vomited on taking solids or fluids. On the 18th she had a rapid onset of deafness. Next day she felt better but complained of marked weakness in the back and legs. On Aug. 22 she was admitted to hospital. The temperature was subnormal and she appeared collapsed, dehydrated, and stuporous. Neck rigidity was marked. Among the positive findings were nystagmus, an exaggerated jaw-jerk, and deafness, which subsequently proved to be of the nerve type. Both plantar responses were extensor. Other findings were auricular fibrillation and mitral stenosis. Blood pressure was 110/80 and there were signs of consolidation of both bases. A diagnosis of pneumococcal meningo-encephalitis was made. Cerebrospinal fluid was purulent: 14,000 cells per c.mm. (96% polymorphs). Culture grew pneumococci. Pneumococci were also grown from the blood and sputum. This patient eventually recovered after systemic and intrathecal penicillin, intravenous sulphamezathine, and digitalization. Recovery of hearing was an impressive feature in the early stages of treatment.

*Acute Benign Lymphocytic Meningitis.*—There can be no doubt that in this country a form of benign or aseptic meningitis exists which is caused by one or more strains of a virus differing from that originally described by

Armstrong and Lillie (MacCallum, Findlay, and Scott, 1939). Further, it must be realized that this form of virus meningitis may appear in epidemic form. Nevertheless, we are not convinced that up to the present time this condition has been at all common in this country, although it should be added that many cases were seen in Service personnel in the Middle East during the late war. The symptomatology is so similar to that seen in the prodromal and meningitic stages of poliomyelitis that no separate description is called for. Involvement of the central nervous system is rare in benign lymphocytic meningitis. The degree of pleocytosis in the cerebrospinal fluid is, as a general rule, greater than in poliomyelitis, counts of over 500 cells being not uncommon. As in poliomyelitis, polymorphs may predominate initially. Of the other conditions complicated by a lymphocytic meningitis only mumps and glandular fever (mononucleosis) may be mentioned. In both conditions signs of an encephalitis may rarely accompany those of meningitis. In glandular fever the enlargement of glands, the course of the illness, and the result of a Paul-Bunnell test should suggest the diagnosis.

**Epidemic and Other Forms of Encephalitis.**—Epidemic or lethargic encephalitis has not occurred in epidemic form in this country for over 20 years. Sporadic cases are seldom recognized in the acute stage, the diagnosis being made in retrospect in a case of Parkinsonism. It may be difficult to classify a case of encephalitis showing drowsiness and ocular paresis unless other cranial-nerve or spinal palsies are present. As to the other forms of encephalitis which may occur in this country, precise knowledge is lacking not only of their incidence but also of the viruses responsible for them, but it would appear that such cases are comparatively uncommon. Now that the virus of acute poliomyelitis is well established in Great Britain it should be assumed that it is the usual cause of brain-stem encephalitis accompanied by signs of meningitis unless there is good proof to the contrary. The majority of the cases of meningo-encephalitis which occurred in the London area in 1946, and which were attributed by Jennings (1947) and more recently by Laurent (1947) to an unknown virus, appear to have been similar in most respects to those seen in the recent epidemic of poliomyelitis. In Jennings's series 22 patients showed signs of meningitis or of a meningo-encephalitis. Cranial-nerve palsies and/or pyramidal signs were relatively common. With one exception the cell count in the cerebrospinal fluid was increased. In 13 "influenzal" or "non-meningitic" cases headache and slight stiffness of the neck were the chief features of a brief febrile illness. The cerebrospinal fluid in these cases was normal. These appear to have been abortive cases of poliomyelitis.

#### Contact Histories

Since the work of Wickman (1907) it has become increasingly clear that abortive cases of poliomyelitis and healthy carriers of the virus are of more importance in the spread of the disease than the paralytic case. Reference has already been made to the symptomatology of the abortive case, which differs little from the prodromata of the disease itself except that catarrhal or intestinal symptoms may constitute the whole illness. The significance of minor illnesses preceding or accompanying an outbreak of poliomyelitis can be firmly established only by proving or disproving the existence of the virus in the pharynx or faeces of such patients by means of a passage to monkeys or cotton-rats. Unfortunately, facilities in this country for this type of work are at present extremely limited.

In an attempt to determine a possible source of infection patients and relatives were carefully questioned concerning

the occurrence of minor illnesses in the family, at school, and among friends or fellow workers. In 19 of 54 paralytic and non-paralytic cases a positive history was obtained. In five cases symptoms were those of an upper respiratory or intestinal infection. In the remaining 14 cases constitutional symptoms were followed by headache severe enough to suggest a mild meningitis. Eight of these were admitted to the Middlesex or some other hospital as suspect cases of poliomyelitis; in three of them there was a pleocytosis in the cerebrospinal fluid.

The following is an example of minor illnesses, suggestive of abortive attacks, in a family of which one member suffered from a non-paralytic form of the disease.

**Case 50.**—R. J. W., aged 11½. Between July 22 and 29, 1947, he suffered from sore throat, mild headache, and fever. At the beginning of August he was apparently well, though pettish, but on the 16th he was again unwell and feverish for a day. He complained of aching in the shoulders on the 23rd, and on the following day of stiffness in the neck. On the afternoon of the 24th his temperature was 101° F. (38.3° C.). Next day the shoulder-ache was no longer present, but he had mild headache, and was admitted to hospital; temperature normal. The only abnormal sign was a mild degree of neck stiffness. The cerebrospinal fluid showed 28 lymphocytes per c.mm.; protein, 30 mg. per 100 ml. The patient had one brother and two sisters, aged 10, 7, and 4 respectively. Between Aug. 7 and 12 both sisters were in bed with a temperature of 102° F. (38.9° C.). The elder girl had headache; the younger had no headache, and fever lasted only one day. Between Aug. 17 and 20 the elder girl had a recurrence of headache and complained of stiffness of the neck; a temperature of 100° F. (37.8° C.) was recorded on one of these days. The father had fever and headache between Aug. 13 and 16. The charwoman's child, aged 8, a contact of the children, was unwell with fever between the 14th and 21st. The mother stated that several other children in the same road, as well as their parents, had "stomach-aches and slight fever" about this time.

The following family history is of interest as it would seem possible that the mother and son were both infected by the daughter.

**Case 2.**—Miss A. L., aged 24, and her mother were on holiday at the seaside from Aug. 18 to 25. Her brother (Case 1) and her father remained at home in London. On the 18th Miss A. L. suffered from diarrhoea and backache, which lasted for 36 hours. On her return to London (Aug. 25) she complained of aching pain in the lower part of the back and both loins; she was drowsy and slightly jaundiced. The temperature was normal. These symptoms lessened over the next few days. On Sept. 3 a "rheumatic" type of pain in the back spread to the right shoulder and down to the hips, followed next day by headache. On the 8th she noticed stiffness of the left leg on getting out of bed, and on the following day there was weakness of both legs. On admission to hospital on the 11th she showed signs of mild paralysis in the lower limbs. On Aug. 25 her mother "felt rotten" and had fever for one day only.

**Case 1.**—M. L., aged 21, brother of Case 2. On Aug. 30, five days after his mother's and sister's return from holiday, he complained of pain across the chest, backache, and abdominal discomfort. Temperature was 100° F. (37.8° C.). A mild degree of jaundice was present. By Sept. 4 he felt better, but the next day he noticed stiffness of the neck, slight sore throat, followed in a few hours by severe headache and profuse sweating. On the 6th he felt a dull ache in the back and both legs. Headache had disappeared by the 9th, but his neck was still stiff and for the first time he noticed weakness in both arms and legs. On admission on Sept. 11 a mild degree of paralysis in the left arm and both legs was noted.

Examples of two nurses contracting the disease from patients they had nursed have previously been given (McAlpine, 1945). One of our cases is also interesting in this connexion.

**Case 5.**—This patient (W. A.) was in all probability the source of infection in a nurse. The diagnosis of poliomyelitis was not

made until 48 hours after his admission; during this period he was nursed without precautions. Nurse B. C. nursed him from the day of his admission (July 21) to July 25. Three days later she had a dental extraction but was well until the 29th, when she complained of pain behind the sternum and of a slight aching pain in the left wrist. On July 31 the headache was marked: temperature 100° F. (37.8° C.); cerebrospinal fluid: 18 lymphocytes and 1 polymorph per c.mm.; protein, 30 mg. per 100 ml. Slight weakness of extensors of wrist and fingers of left hand was noted on Aug. 1.

Nothing is known of the factors that render a person susceptible to an attack of poliomyelitis. The concept that immunity to the disease is conferred in childhood by a subinfective dose of the virus is not entirely borne out by recent facts (Van Riper, 1947). Sabin (1947) has pointed out that there is evidence to suggest that there may be no relationship between an attack of the disease or the passing of an epidemic through a community and the appearance of a neutralizing antibody as tested for against a single standard strain of virus, and occasionally even against some more recently isolated strains. Burnet and Jackson (1939) have stated that poliomyelitis antibody is not a result of exposure to or infection by the virus of epidemic poliomyelitis. During the past quarter-century there has been a definite rise in the age incidence of the disease in all poliomyelitis countries. Furthermore, the disease and the mortality rate have both been more severe in adolescence and in adults than in children. Such information as is available about the recent epidemic in this country would seem to confirm this tendency. One of our cases—a doctor's wife—apparently passed the infection to her brother-in-law, aged 30, but failed to infect her own two children, with whom she was in much closer contact, despite the fact that one, aged 3, had had a dental extraction during the time she showed prodromal symptoms and the other child, aged 5, had had a tonsillectomy a few days before.

Two of our cases gave a previous history of close contact with poliomyelitis in the early febrile and paralytic stages of the disease, yet both cases remained well at that time but contracted the disease in the recent epidemic.

**Case 23.**—Mrs. C., aged 21. During September, 1938, when 12 years of age, she was on holiday and sharing a bed with her sister. The sister developed headache, high temperature, and general malaise, followed by severe paralysis of her right leg. A diagnosis of poliomyelitis was made. Mrs. C. continued to share her sister's bed until the latter was removed to hospital. She herself remained perfectly well, but contracted a mild attack of poliomyelitis on Sept. 2, 1947.

**Case 28.**—Captain R. P., aged 32. In 1945 in Washington, U.S.A., he shared a room with another man, aged 28, who developed headache, aching all over, and stiff neck, followed by paralysis of the small muscles of his right hand. He was removed to hospital as a case of acute poliomyelitis. For two days he was fed and cared for by Captain R. P., who remained well at that time but contracted polio-encephalitis on Aug. 21, 1947.

Thus it would seem that if a child or an adult is exposed to the virus and does not develop paralysis, immunity either may not occur or may be short-lived. Judging by recent reports, second attacks of the disease are not so rare as were formerly supposed. In Alves and Pugh's (1947) case eight and a half years elapsed between the attacks. The three examples recently reported by Lipscomb (1947) concerned officers in India. In one of these the second attack occurred within six months of the first. A similar short interval was recorded by Cunningham (1947). Variations in the strains and virulence of the virus may in part explain second attacks of poliomyelitis, although it is possible that unknown factors underlying susceptibility may be of equal importance.

## Summary

Symptomatology in 54 cases of acute poliomyelitis is discussed—24 of the cases belonged to the non-paralytic form. There were no deaths.

Several case histories are given, including an example of a rare ocular complication (opsoclonia), as well as an unusual case of bulbar paralysis successfully treated by tracheotomy.

Attention is drawn to certain atypical features in the cerebrospinal fluid.

In nearly one-third of the proved cases contact histories suggested the probability of an abortive attack of the disease in other members of the family or in friends.

In this country the virus of acute poliomyelitis should now be regarded as the usual cause of a benign type of lymphocytic meningitis and of a brain-stem encephalitis accompanied by meningitis.

A brief reference is made to the problem of immunity.

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# POLIOMYELITIS

## THE PRE-PARALYTIC STAGE, AND THE EFFECT OF PHYSICAL ACTIVITY ON THE SEVERITY OF PARALYSIS

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### [PRELIMINARY REPORT]

The current epidemic of poliomyelitis provides an opportunity of studying the clinical features of this disease which is fortunately seldom available in this country. Though a great variety of symptoms have been reported in the present epidemic (Kelleher, 1947) many students of other epidemics have insisted that the pre-paralytic symptoms and signs in poliomyelitis are specific, and that it is possible to diagnose the disease before paralysis develops (Kauders, 1938; Gordon, 1932; Aycock and Luther, 1928; Adamson and Dubo, 1942).

A history of great physical exertion preceding the onset of severe paralysis has often evoked comment in cases of poliomyelitis (de Rudder and Peterson, 1938; Tucker, 1941), but no attempt (so far as I am aware) has been made to investigate this aspect of the problem statistically.

It is generally agreed that a study of the pre-paralytic symptoms gives no clue to whether or not paralysis will develop. Further, the changes in the cerebrospinal fluid in the pre-paralytic stage are equally abnormal whether or not paralysis subsequently develops (Collier, 1927; Adamson and Dubo, 1942).

It is not surprising, therefore, that in recent years attention has been directed to the physiological state of the

lower motor neurone in relation to its susceptibility to the virus (Rivers, 1942).

A striking phenomenon in this connexion has been that if the anterior horn cell is engaged in regenerating its neurone—that is to say, if the peripheral nerve originating in these cells has been sectioned a few days previously—then these anterior horn cells are quite immune to experimental infection with the virus (Howe and Bodian, 1942). It is by no means impossible, therefore, that physical activity at a certain stage of the disease might alter the motor neurone physiology in such a way as to influence its vulnerability to the virus.

The present investigation aimed at analysing the early symptoms and physical activity in a group of patients convalescent from poliomyelitis who were old enough to give an accurate account of their symptoms, and at comparing the various clinical features of the disease with the degree and site of paralysis. The scheme used for recording the main facts (see Form) provides a convenient method for recording the pattern of the disease. All the cases except five occurred during 1947 in this country. To ensure uniformity all case records were made by me.

Type of Form used for Recording the Clinical Features and the Amount of Physical Activity  
POLIOMYELITIS

Case No .....	Hospital .....
Name .....	Seen on .....
Address .....	Age .....
Occupation .....	Handed: R L .....
Prodromal illness and special features:	

Days of the Disease										
	1	2	3	4	5	6	7	>7		Ceased
Date and time:										
Symptoms										
Pain, neck ..										
.. back ..										
.. head ..										
.. shoulder R L ..										
.. upper limb R/L ..										
.. trunk ..										
.. thigh R L ..										
.. leg R L ..										
Anorexia ..										
Vomiting ..										
Fever ..										
Restlessness ..										
Sleeplessness ..										
Irritability ..										
Catarrhal ..										
Bulbar and other ..										
Special ..										

Days of the Disease											
	1	2	3	4	5	6	7	8	9	10	>10
Date											
Paralysis											
Cranial nerves ..											
Swallowing ..											
Diaphragm ..											
Sternomastoid ..											
Neck ..											
Shoulder R ..											
Shoulder, L ..											
Arm, R ..											
Arm, L ..											
Forearm and hand, R ..											
Forearm and hand, L ..											
Trunk ..											
Intercostals, R ..											
Intercostals, L ..											
Abdomen, upper ..											
Abdomen, lower ..											
Thigh, R ..											
Thigh, L ..											
Leg ..											
Dorsiflexors, R ..											
Dorsiflexors, L ..											
Plantar flexors, R ..											
Plantar flexors, L ..											

Day of Disease	Description of Physical Activity	Score
Day minus 3 and earlier		
Day minus 2 .. ..		
Day minus 1 .. ..		
Day 1 (mark relation to first symptom)		
Day 2 .. .. .		
Day 3 .. .. .		
Day 4 and later ..		

\* With the aid of a calendar most patients were able to describe with remarkable clarity their symptoms on the days preceding paralysis. Lest the features of the disease might vary in different regions cases were seen in various parts of the country, including Oxford, London, Edinburgh, and Manchester.

Meningitic Symptoms

The so-called meningitic-symptoms in the pre-paralytic stage are of special importance, for it is only by the study of these that one can hope to diagnose poliomyelitis before paralysis develops. These symptoms may, however, present in widely differing ways, and they vary greatly in severity. At first the meningitic symptoms may be slight and appeal to the patient to precede the real onset of the disease. Again, severe pains may occur, say, in the thighs for a few hours only, and may be followed by a period of perhaps 24 hours in which he feels quite well.

For the purpose of the present analysis meningitic symptoms were taken to include all those which caused pain in the head, spine, trunk, or thighs; a general feeling of aching all over was not included.

There is no doubt that in some cases the patient feels unwell before the meningitic symptoms develop; but, as the meningitic symptoms are so important for diagnosis, in this study Day 1 of the disease is taken as the day on which the first meningitic symptoms appear. In Table I the relation between the onset of meningitic symptoms at P and the appearance of paralysis at P is clearly shown. It is evident that in the majority of cases the meningitic symptoms precede paralysis by three or more days. The detailed analysis and correlation of symptoms, site of paralysis, etc., must wait for a later study.

The so-called meningitic symptoms often suggest nerve root irritation and may indicate that the virus travelling up the peripheral nerves has reached the vicinity of the meninges. Experimentally, the virus travels up the peripheral nerve at 2 to 3 mm. per hour (Howe and Bodian 1942), and does not reach the spinal cord until the day preceding paralysis (Bodian and Cumberland, 1947). Another misleading feature of the pre-paralytic stage is that prior to the onset of paralysis the patient's symptoms often become less severe; he feels better, and may think that his illness is passing.

Meningitic symptoms appeared in the pre-paralytic stage in all but one case (No. 22) of this series. The initial site of meningitic pain was as follows: back of the neck, or subjective neck stiffness, 11 cases; dorsal spine or scapula region, 5 cases; lumbar spine, 5 cases; sacral spine, 4 cases; chest (bilateral), 6 cases; one or both thighs, 2 cases; head (frontal or general), 10 cases. In most cases two, three, or more of these symptoms developed during the pre-paralytic

TABLE I.—Record of physical activity in the pre-paralytic stages in 44 cases of poliomyelitis. The † in Day 1 indicates the onset of the first meningitic symptom, and P gives the onset of paralysis. The footnote gives the method used for scoring the amount of physical activity and the severity of paralysis.

No.	Sex	Age	Day -2	Day -1	Day 1		Day 2		Day 3		Day 4		Day 5		Day 6		Day 7		Degree of Paralysis
					a.m.	p.m.	a.m.	p.m.	a.m.	p.m.	a.m.	p.m.	a.m.	p.m.	a.m.	p.m.	a.m.	p.m.	
1	F	33	+	+	++	↑	±	±	bed	bed	bed	bed	P					Paralysis became worse on Day 9	Moderate
2	F	17	+	+	↑	+	++	++	++	++	bed	P							Severe
3	M	25	++	++	↑	++	++	++	++	++	bed	P							Moderate
4	M	14	+	+	↑	+	±	±	bed	P									Slight
5	F	14	+	+	↑	+	bed	bed	P										Very severe
6	M	37	++	++	↑	++	++	++	++	++	+		bed	P					Severe
7	M	11	+	+	↑	+	+	+	+	+	bed								Slight
8	M	20	++	++	↑	++	bed	bed	bed	bed	bed		bed	P					Very severe
9	M	19	++	++	↑	++	++	++	++	++	Respirator								Slight
10	M	43	+	+	↑	±	bed	bed	bed	bed	P								Very severe
11	M	12	+	+	↑	+	+	+	+	+	+		bed		P				Slight
12	M	18	?	?	↑	↑	bed	bed	bed	bed	bed		bed	P					Moderate
13	M	16	++	++	↑	↑	bed	bed	bed	bed	bed		bed	P					"
14	F	31	+	+	↑	↑	bed	bed	bed	bed	bed				P				Slight
15	F	10	±	bed	bed	bed	bed	bed	bed	bed	P								Severe
16	F	14	+	+	↑	↑	bed	bed	bed	bed	P	bed		bed		bed		bed	Nil
17	M	32	+	+	↑	↑	bed	bed	bed	bed	bed	P							Severe
18	F	20	+	+	↑	↑	bed	bed	bed	bed	bed	P							Slight
19	M	10	+	+	↑	↑	bed	bed	bed	bed	bed	P							"
20	M	17	+	+	↑	↑	bed	bed	bed	bed	bed	P							"
21	M	20	+	+	↑	↑	bed	bed	bed	bed	bed	±		±		bed	P	±	P on Day 9
22	F	21	+	+	↑	↑	bed	bed	bed	bed	bed	±		±		bed	P	±	"
No meningitic symptoms in this case—excluded from Tables I and II																			
23	M	10	+	++	↑	↑	bed	bed	bed	bed	bed	bed							"
24	M	14	+	++	↑	↑	P	bed	bed	bed	bed	bed		P					Moderate
25	F	30	+	+	↑	↑	bed	bed	bed	bed	bed	bed		P					Slight
26	F	9	+	+	↑	↑	bed	bed	bed	bed	bed	bed							"
27	F	11	+	+	↑	↑	bed	bed	bed	bed	bed	bed							"
28	M	12	+	+	↑	↑	bed	bed	bed	bed	bed	bed							Very severe
29	F	21	++	++	↑	↑	±	bed	bed	bed	P	Respirator							Slight
30	F	8	+	+	↑	↑	±	bed	bed	bed	bed	bed	P						Very severe
31	F	22	+	+	↑	↑	±	bed	bed	bed	bed	bed	P	Respirator					"
32	F	20	+	+	↑	↑	±	bed	bed	bed	bed	bed	P	Respirator					Slight
33	F	32	++	++	↑	↑	bed	bed	bed	bed	bed	bed	P						Severe
34	F	21	++	++	↑	↑	bed	bed	bed	bed	bed	bed	P						Very severe
35	M	16	+	+	↑	↑	bed	bed	bed	bed	bed	bed	±	±					"
36	M	42	++	++	↑	↑	bed	bed	bed	bed	bed	bed	±	±					"
37	M	20	+	+	↑	↑	bed	bed	bed	bed	bed	bed	±	±					"
38	M	20	++	++	↑	↑	bed	bed	bed	bed	bed	bed	±	±					"
39	M	19	++	++	↑	↑	P	±	±	±	±	±	Respirator						"
40	F	33	++	++	↑	↑	bed	P	±	±	±	±	Meningitic symptoms slight and late				Respirator		"
41	F	28	±	±	↑	↑	bed	bed	bed	bed	bed	bed	bed						Slight
42	M	8	+	+	↑	↑	bed	bed	bed	bed	bed	bed	bed						Nil
43	F	8	+	+	↑	↑	bed	bed	bed	bed	bed	bed	bed						"
44	M	16	++	++	↑	↑	++	++	++	++	+	P						Respirator on Day 9	Very severe

Physical activity scores for each 24-hour period.—Nil = In bed. ± = Not more than 1/4 day light work—e.g., resting in house with a short walk. + = Average light work—e.g., secretarial, housework, school. ++ = Average or heavy manual work, factory or labourer or school with football or other athletic sports. (In Table III where physical activity for a period of more than 24 hours is recorded the scores for the days concerned are added together.)

Paralysis Grading.—Nil: no paralysis even temporary. Slight: no severe paralysis anywhere at any time—full recovery expected. Moderate: multiple moderate paralysis or severe paralysis of a few muscles in one limb. Severe: bilateral severe paralysis at any level including trunk, or gross paralysis of one limb. Very severe: severe and extensive paralysis such as trunk and both lower limbs or severe paralysis of all four limbs.

stage. For example, in the cases which presented with head pain, other symptoms developed as follows:

- Case 6: 24 hours later, pain in both thighs.  
 " 13: 12 " " neck stiffness.  
 " 16: 48 " " neck and shoulder pain.  
 " 17: 24 " " neck stiffness.  
 " 27: 48 " " lumbar pain.  
 " 28: 12 " " neck and back pain.  
 " 35: 12 " " neck pain.  
 " 39: No other symptom noticed till paralysis developed.  
 " 42: 24 hours later, neck pain and stiffness.  
 " 43: " " " neck stiffness.

The cases which presented with chest pain developed other symptoms rather late:

- Case 10: 72 hours later, pain in back.  
 " 18: " " " lumbar pain.  
 " 21: 48 " " sacral pain.  
 " 34: 24 " " headache and, 12 hours later, sacral pain.  
 " 41: 4 days later, lumbar pain.  
 " 44: 3 " " headache.

The chest pain reported in six cases is of special interest as its characteristics resemble closely the chest pain of epidemic myalgia (Bornholm disease). This pain is usually bilateral and referred to the lower half of the thorax; it is aggravated by a deep breath and often associated with, and indeed may consist chiefly in, a hyperaesthesia with tenderness on pressure over the lower chest.

It is clear, therefore, that though a variety of initial symptoms may be observed, the vast majority of cases

show meningitic symptoms by the time they are seen by their doctor—say within 24 or 36 hours of the onset of the pre-paralytic stage. I have not observed in this series the signs on examination at this stage, but it may be emphasized that neck and spinal rigidity are the most important signs. There may also be slight jerky movements of the limbs or eyes, while examination of the cerebrospinal fluid is of great value in confirming the diagnosis. A misleading feature may be that the patient both looks and feels well, and may have little or no fever. For example, a patient with severe neck pain when seen at a hospital out-patient department was told to return next day for an x-ray examination of his neck: 24 hours later he developed extensive paralysis. Another example is that of a young woman who, owing to severe lumbar pain, was thought to have kidney disease: within 12 hours she was almost totally paralysed, and was kept alive by a respirator. A remarkable feature of many of these cases is that when the initial symptoms have developed the patients do not feel ill. It is clear, however, that when the patient is old enough to describe his symptoms an analysis of these, combined with signs due to rigidity of the spine, gives a fairly specific clinical picture in most cases of poliomyelitis. These cases then require only examination of the cerebrospinal fluid for confirmation and in order that meningitis may be excluded.

#### Physical Activity and Paralysis

In the course of this study it soon became apparent that the patient's activity during the pre-paralytic phase varied to a remarkable degree. This seemed to be due to the fact



that the early "meningitic" symptoms are often of insufficient severity to force the patient to go to bed or indeed even to modify his routine work. It is clearly desirable that the information available regarding the degree of physical activity should be correlated with the severity of paralysis in such a way that the figures can be handled statistically.

Tables II and III relate the degree of paralysis to the amount of physical activity during the 24 and 48 hours following the onset. I am greatly indebted to Dr. R. B. Fisher for the further analysis of this material.

### Statistical Analysis

The number of cases in this survey is too small to warrant a detailed analysis, so that attention is best directed to broad classifications and practical conclusions. The paralysis gradings have therefore been grouped into the two classes of (a) patients in whom full recovery is likely (*nil* and *slight*), and (b) those in whom some residual impairment is likely (*moderate*, *severe*, and *very severe*).

Using these broad classifications, it was first shown that the history of exercise before the onset of meningitic symptoms has little bearing on the prognosis. Four patients are excluded from this analysis—two because of the vagueness of the history of meningitic symptoms (Nos. 22 and 39), one because of doubt concerning the degree of activity before meningitic symptoms (No. 12), and one because the short interval between meningitic symptoms and paralysis precluded inclusion in the later stages of the analysis (No. 24).

All the remaining 40 patients were up and about on the day before meningitic symptoms appeared, and all but three were engaged in their ordinary activities. Separating them into lighter ( $\pm$  and  $+$ ) and heavier exercise ( $++$ ), we get the following association between exercise in the day preceding meningitic symptoms and severity of the disease:

	Lighter Exercise	Heavier Exercise
Full recovery expected	16	4
Residual impairment expected	11	9

Although the proportion more severely affected is greater in the heavier exercise group, there is such a high probability (0.1–0.2) of obtaining as great (or greater) a difference by chance in sampling from a population in which there was no association between exercise and prognosis that we may say there is no significant effect of exercise, in this time period, on prognosis.

If, however, we examine the effect of exercise after the appearance of meningitic symptoms the findings are very different. Bringing in Case 12, which can no longer be validly excluded, and dividing the patients into those in bed and those indulging in any degree of normal activity, we have for the first 24 hours after the onset of meningitic symptoms:

	Rest	Exercise
Full recovery expected	10	10
Residual impairment expected	1	20

The probability of getting such an extreme distribution by chance is less than 1 in 800, so that one can be confident that complete rest in bed in this period has a profound effect on prognosis. All patients taking to bed at this time remained there for the course of the illness, so that the effect observed is of exercise starting in the 24 hours succeeding the onset of the meningitic symptoms.

The data provide one more answer of direct importance. If we exclude the 11 patients who were in bed in the first 24 hours after meningitic symptoms, and examine the effect of rest starting in the second 24 hours, we have the distribution:

	Rest	Exercise
Full recovery expected	8	2
Residual impairment expected	2	18

and the chance of obtaining so extreme a distribution by chance is a little less than 1 in 3,000.

Thus over all we find, differentiating from the remainder those patients in whom rest in bed is instituted in either the first or the second 24 hours after the onset of meningitic symptoms, the distribution of cases by prognosis to be as follows:

	Rest	Exercise
Full recovery expected	18	2
Residual impairment expected	3	19

This distribution is even more striking than in the preceding two sets of figures; and, in fact, the figures understate the influence of exercise, since two of the cases in the lower left quadrant of the table fall into the "moderate" classification of paralysis, whereas all but one of the 15 cases in the "severe" and "very severe" categories of paralysis fall in the lower right quadrant.

These data, therefore, show quite unequivocally that, irrespective of exercise before the appearance of meningitic symptoms, institution of rest in bed as early as possible after these symptoms have appeared has a profound effect on the course of the disease.

It is difficult from analysis of this material to evade the conclusion that *physical activity in the pre-paralytic stage of the disease gravely reduces the resistance of the spinal cord cells to the virus and should therefore be avoided at all costs.*

Excessive physical activity has for long been suspected as an aggravating factor, but the present study suggests that relatively minor degrees of physical activity are also dangerous. The psychological study of those who develop severe paralysis would be of interest, for it has been said that during an epidemic the disease affects "the best child in a family," who may also be the most courageous or stoical and continues physical activity without complaint after the first meningeal symptoms have developed. Certainly the severe cases of paralysis in the present series furnish many tragic records of courage and determination to continue work or play after symptoms began. The worst cases in this series are all those which required an artificial respirator owing to respiratory paralysis. The persistence in normal activity after the first meningitic symptom is a striking feature of every one of these cases.

**Case 9.**—A paratrooper aged 19. *Day 1:* From 11 p.m. the previous evening to 2 a.m. there was severe lumbar pain which kept him awake; he kept moving restlessly to change his position. On getting up in the morning he felt shivery and had little appetite. Heavy training manoeuvres as usual during the day. Slept well that night—no return of lumbar pain was noticed. *Day 2:* He does not remember pain, but had some difficulty in getting down to fasten his boots in the morning. He still had little appetite and felt shivery. During the morning he took part in heavy infantry manoeuvres and carried machine-guns up a hill. By 2.30 p.m. his legs began to feel weak and he noticed lumbar pain. By evening both lower limbs and right arm were completely paralysed. *Day 3:* The paralysis spread to his trunk muscles; there was some vomiting. *Day 4:* Respiration failed—respirator required. Six weeks later he was still in the respirator and there was little recovery in his muscles.

**Case 29.**—A female factory-worker aged 21. *Day 1:* Wakened with pain in the neck, back, and head. She worked all day in the factory, and the journey to work involved travelling for an hour each way. She vomited and noticed something peculiar about her eyes; she thought she might be getting infantile paralysis. *Day 2:* After sleeping well she still had pain in the neck, back, and head. She got up and walked (15 minutes) to see her doctor, who told her she had a chill, so she returned home, went to bed, and took castor oil. *Day 3:* The pains were less severe. She remained in bed and felt rather better. In the evening some friends called and she sat up in bed talking to them for four hours (6 to 10 p.m.). Within an hour of her friends' leaving she noticed weakness of her limbs. *Day 4:* By early morning she was totally paralysed, her respirations were failing, and when she reached hospital she was severely cyanosed and was at once placed in a respirator. Ten weeks later there was very little recovery, and she was still unable to breathe without the respirator.

**Case 31.**—Female aged 22; taken ill overseas while serving in the W.R.N.S. in 1944. *Day 1:* Wakened with a very severe sacral pain which spread into both thighs—the worst pain she has ever experienced. Otherwise she felt fairly well and worked all day at the office. While at work the pain was so severe that she could not refrain from groaning. In the evening the pain

was still severe, but she went out to a dinner party. She returned to her billet at 10 p.m., but the pain was of such a nature that she could not lie down in comfort, so she sat at a table all night, getting up to walk about from time to time to ease the pain. Day 2: She reported sick after this sleepless night, and was sent to hospital. She was able to walk to the ambulance, and to put herself to bed in hospital. During the afternoon and evening she developed complete paralysis of her lower limbs and trunk; she was put in a respirator, which was required for five weeks. Three years later there was no recovery in the lower limbs or trunk; the upper limbs were normal.

Case 32.—A female aged 20; taken ill shortly after arriving in Egypt. Day 1: Wakened with severe pain in both scapular regions. Spent the day shopping and looking round Cairo. Day 2: After sleeping well the severe shoulder pain was still present and headache developed. She continued her normal activities and enjoyed a large lunch. During the morning she ate a large number of fresh dates. She rested in the afternoon, as her pain and headache were very severe, but at night she helped to entertain friends to dinner and games. She was able to eat a good dinner, but her pain and headache were severe and it was a "frightful strain" to appear well to her guests. She vomited that evening, but was able to sleep. Day 3: She remained in bed but was very restless. Severe pain in her back developed and her temperature was raised. She slept well that night. Day 4: The pain was not quite so severe, and she was able to walk to the ambulance which took her to hospital. During the afternoon complete paralysis quickly developed in all limbs and trunk, her respiratory muscles failed, and by evening she was put in a respirator. A year later very little recovery had occurred, and the respirator was still required at night to enable her to sleep.

Case 38.—A mechanic aged 20; taken ill in August, 1946. He subsequently said that he would ignore a pain unless it was severe. He had been training for football every evening after his day's work. Day 1: While coming off the football field he caught his back while going under an iron bar. This minor injury "hurt him much more than it should"—so much so that after training for a further five minutes he went home. The back pain continued, but otherwise he felt well and had a good night. Day 2: The pain and back stiffness continued. He tried to get out his motor-cycle to go to work, but found it too heavy, so stayed at home. In the evening he walked (five minutes) to see his doctor. He slept well that night. Day 3: He was so stiff that he could not bend to tie his shoes, but he again walked to see his doctor in the morning, and then lay on his bed for most of the day. Day 4: The pains were worse, and were now very severe in his neck and had spread to all his limbs. His appetite was poor and he vomited. During this day severe paralysis developed quickly in all his limbs and trunk. He did not feel very ill, and was propped up in bed at home. Day 5: He developed difficulty in swallowing, retention of urine, and some vomiting. Day 6: His headache and pains ceased, but breathing was difficult. Day 9: He was put in a respirator, where he remained for six weeks. Fourteen months later there was still severe paralysis of all four limbs and trunk.

Case 40.—A housewife aged 33. The day before the first meningeal symptom she did a heavy day's work. Day 1: Normal housework, but by evening noticed a dull ache in her back which made her want to bend backwards. There was also pain in the head and thighs. It was difficult to get comfortable in bed, but she got relief from a pillow under the small of her back and slept well. Day 2: She awoke with severe pain in the back and scapular region, and less severe pain in both thighs. She felt stiff and could only move slowly. She debated with herself whether to leave her husband and family to get their own meals, but thought it "a bit mean" and struggled on. She hates "to be beaten by anything." She therefore fed her baby and cooked the meals, but this was a great struggle, and she sat about the house restlessly trying to find ease for her back, and trying one chair after another. During the day she took about 12 tablets of codeine co., which helped her headache but gave little relief to the pains in her back and limbs. That night she got little sleep and restlessly changed her position in an attempt to get relief. Day 3: Her back and limbs were less painful, but she had no desire to

eat and felt feverish. She remained in bed most of the day, sleepless and restless. During the evening her thighs and trunk felt a little weak. That night she was again restless and sleepless. Day 4: After a bad night she called in her doctor for the first time. She was now aching all over, with high fever and vomiting, but the pain in the back was much less and occurred only on movement. During the day there developed severe paralysis of the trunk and lower limbs. On the sixth day the paralysis rapidly spread to the upper limbs. She was admitted to hospital on the seventh day and had to be put in a respirator at once, as her breathing had failed.

Case 44: A schoolboy aged 16. Day 1: Developed a feeling of constriction in his chest, which he felt specially on taking a deep breath. He also had slight pain in the right groin. He attended school, and in the evening he ran in a 100-yards race. Day 2: Symptoms unchanged, but in the evening he had a stiff feeling on bending. He felt well, sat examinations, and played a hard rackets match, losing 3 games to 1. Day 3: Symptoms continued, and for the first time he felt "seedy." After school he ran a half-mile race, and did not do as well as he expected. Day 4: The symptoms continued, but after lunch he developed a severe headache. He played tennis for half an hour, and that evening reported sick for the first time. He was put to bed, sleepless and restless. During the night severe paralysis developed in his trunk and lower limbs, and his arms also became weak. He kept moving his legs till they would move no longer, and developed retention of urine. On the ninth day his breathing became difficult and he was put in a respirator for three days. Four months later there was still gross paralysis of his trunk and thighs. The upper limbs were recovering well.

Therapeutic Applications

These case records make distressing reading in view of the evidence afforded by this study that physical activity is dangerous in the pre-paralytic stage. The danger of physical activity throws an extra responsibility on the practitioner regarding the need for early diagnosis. It is particularly important that he should be familiar with the possible ways in which the disease may present, so that strict rest can be enforced in all cases of doubt. Further, it is clear that restlessness in bed, pain, and resulting muscle spasm should be controlled, but I am not yet in a position to advise on the best drugs to use for this purpose. The need for complete rest in bed is very evident and the patient should lie quietly, moving or using his limbs as little as possible.

It should be emphasized that these records indicate not only that severe exercise in the pre-paralytic phase is highly dangerous, but that physical activity of any kind may be harmful. Tables II and III show that none of the patients

TABLE II.—Physical Activity During 24 Hours Following First Meningeal Symptom

Severity of Paralysis	Nil	Slight ±	Moderate ±	Severe ±+
None .. .. .	3	—	—	—
Slight .. .. .	7	5	3	2
Moderate .. ..	2	1	3	1
Severe .. .. .	—	—	5	—
Very severe ..	—	1	4	5

TABLE III.—Physical Activity During 48 Hours Following First Meningeal Symptom

Severity of Paralysis	Nil	=	±	±±	±±±	±±±±
None .. .. .	2	1	—	—	—	—
Slight .. .. .	16	5	3	3	—	—
Moderate .. ..	—	—	1	—	—	—
Severe .. .. .	—	—	—	—	—	—
Very severe ..	—	1	—	—	—	—

who stayed in bed after the onset of symptoms developed severe paralysis, and that all those who indulged in much physical activity for the two days following the first

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meningeal symptom developed paralysis which was usually very severe. (Case 22 was excluded from these tables.)

## Summary

Forty-four patients convalescent from poliomyelitis, who were old enough to describe their symptoms, were questioned at length regarding their early symptoms and also the amount of physical activity during the early days of the disease.

The so-called meningeal symptoms appear in nearly all cases during the pre-paralytic stage of the disease and are of great value in diagnosis. These symptoms are often more suggestive of involvement of nerve roots than of meninges. They consist of pain in the head, neck, dorsal, lumbar, or sacral spine, scapular region, thighs, or the lower chest.

The meningeal symptoms may be slight or severe. At their onset the patient may be afebrile and may feel quite well. The meningeal symptoms may abate and the patient feel better shortly before paralysis develops.

Physical activity of any kind during the pre-paralytic stage increases the danger of severe paralysis. Complete physical rest in bed during the whole of the pre-paralytic stage seems to protect the patient from severe paralysis.

This study would never have been attempted but for the encouragement given by Dr. Allan McFarlan. I am particularly indebted to Dr. P. M. Daniel for helpful criticism, and to the following for access to cases under their care: Dr. H. C. Jennings, Oxford; Dr. W. H. Kelleher, London; Dr. A. Joe, Edinburgh; Dr. L. Guttman, Stoke Mandeville Hospital; and the Medical Superintendent of Monsall Hospital, Manchester.

NOTE—Case records giving the details required for this study will be welcomed for further analysis.

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## POLIOMYELITIS AND POLIO-ENCEPHALITIS

### THE CASE FOR A REVIEW OF TERMINOLOGY

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From studies of clinical reports on cases notified as poliomyelitis and polio-encephalitis during the present epidemic it is evident that value can be obtained from a review of the varied manifestations of this disease, and an attempt made to correlate them into a reasonable clinical classification. As a result of this review certain recommendations are put forward.

**Illness of Infection.**—The existence of a true illness of infection is now accepted. This usually takes the form of mild fever and headache, with or without a nasopharyngitis, lasting one to two days, or of gastro-enteritis. Its onset probably occurs one to four days after the infection. Cases have been described in which the patients suffer from this initial illness but do not subsequently develop paralysis. Such cases are recognizable only among contacts of poliomyelitis during the course of an epidemic or unusual prevalence.

It is impossible, in the state of our present knowledge, to estimate the proportion of persons who have an illness of infection, but it may well be very large, and it is unknown as yet whether they assist in the spread of the disease as temporary carriers; such a possibility, however, must be entertained.

**Incubation Period of Recognizable Poliomyelitis.**—This is normally seven to 14 days, but there are outside limits of two days to 25 days, although it has been recorded that the virus was discovered in the stool of a person who developed clinical signs 19 days later. A few cases are on record of patients suffering vague signs and symptoms, persisting throughout the whole of the incubation period from the illness of infection—tingling in a muscle or muscle group, restlessness at night, listlessness, or vague signs of being off colour (Gartside, 1947).

**Proposed Classification.**—The subsequent progress of the disease may follow different courses. Clinically each case may be put into one of the following two categories: (1) non-paralytic poliomyelitis—(a) subclinical and (b) clinical; (2) paralytic poliomyelitis—(a) spinal, (b) bulbar, and (c) bulbo-spinal. In this classification—a clinical one—it will be noted that the term "abortive" has not been included in the types of disease. It is thought better to discontinue the use of this term, as "abortive" encourages a wrong concept of the subclinical cases (see below)—are abortive cases—like the subclinical cases (see below)—are particularly when it is appreciated that these two types form by far the greatest number of cases in an epidemic, have an equal if not more important role in the spread of the disease than the paralysed case, whose activities are necessarily restricted by virtue of the illness. Abortive cases should be termed "non-paralytic poliomyelitis," as there is no difference in the initial symptoms and signs of this type and those cases which go on to paralysis.

### Non-paralytic Poliomyelitis

#### Subclinical Poliomyelitis

In 1945 a team of workers in Chicago made a detailed study of 22 children after a known exposure to a case of poliomyelitis (Casey, 1946); 14 had a febrile illness between seven and 25 days after exposure. No comparable illness occurred in a group of 15 children, not so exposed, who lived near by. Among the 14 children who developed fever one had frank poliomyelitis; two had frank poliomyelitis without paralysis but with stiff neck, stiff back, head-drop, and increased cells and protein in the cerebrospinal fluid; four had fever and mild symptoms without stiffness in back or neck, or paralysis, but two of these gave a cerebrospinal fluid protein above 45 mg. The other seven children (the subclinical group) had axillary temperatures between 98.8° and 99.8° F. (37.1° and 37.7° C.), but seemed to have no symptoms; four of these, on lumbar puncture, gave protein figures of 45 mg. or more. Stool examinations revealed the presence of the virus just before or at the onset of the symptoms among most of the contacts with fever.

Though the figures are small, and further investigation is necessary, it does seem to indicate that poliomyelitis, during an increased incidence of the disease, is a mild, widespread, highly communicable disease particularly of young children, leaving no paralysis. It is impossible to state just how widespread is the dispersion of the virus, but it can with confidence be said that it is very considerable.

#### Clinical Poliomyelitis

It is felt that undue stress has been laid on the term "prodromal stage" or prodromal signs and symptoms, with the tendency to regard those cases which do not progress

beyond this stage as abortive cases, but the production of any prodromata is dependent on the virus having already gained entry to the body and on its producing its effect, so that, strictly speaking, there is no true prodromal illness, unless one regards the illness of infection as such.

In those cases in which symptoms referable to a prodromal period are present the virus has already gained a footing, but its action is slowed down, and instead of producing a clinical paralysis as a presenting sign it causes other effects referable to the central nervous system.

To indicate the march of the virus in the central nervous system after its invasion Faber (1933) describes the clinical features of the early stages of the disease as occurring in two phases.

**Phase 1.**—Drowsiness or restlessness and listlessness or irritability, mild fever, inversion of sleep rhythm, possibly vomiting, anorexia, and constipation. It is suggested that these symptoms are explicable by a subcortical origin in the thalamus or hypothalamus probably due to involvement of the brain stem or basal nuclei. Many cases do not progress any further than this stage, and recover rapidly and completely.

**Phase 2.**—Thalamic and hypothalamic symptoms persist, but the virus spreads to the posterior columns and root ganglia, producing sensory symptoms—neck stiffness, increased reflexes, muscular ataxia and tremors, muscle spasm, and spontaneous pains in muscles when the patient is touched or even approached.

In many cases the symptoms produced by phases 1 and 2 merge gradually one into the other, but often they are separated by a distinct interval with complete abatement of symptoms ("dromedary" cases). The severity of these early signs and symptoms bears no relation to the extent or degree of the ensuing paralysis or to the subsequent course of the disease.

The disease may halt at the end of these two phases and complete recovery take place. These are the true non-paralytic cases. If the early signs and symptoms were mild such cases were usually labelled "abortive"—i.e., abortive only in reference to the non-production of paralysis—but are nevertheless overt cases of infection by the virus.

Support for this concept of the disease, postulating some degree of general infection with a progressive invasion of the central nervous system, is given by Bodian (1947), who advances the theory, supported by neuropathological evidence, that every case of poliomyelitis has demonstrable pathological lesions in the brain.

The virus has been demonstrated in mesenteric and cervical lymph nodes and in the abdominal sympathetic plexus. Should further advances in laboratory technique simplify the demonstration of the virus it is a matter for speculation whether it will be discovered regularly in the blood and parenchymatous organs generally throughout the body. Such a possibility cannot be excluded on the existing evidence.

#### Lumbar Puncture

In this epidemic it has been the experience of many clinicians that changes have been discovered in the cerebrospinal fluid in the early stages of the disease—in some cases when the diagnosis was doubted and the clinical signs and symptoms of central nervous system involvement were minimal or absent. Fluids taken early tend to show a moderately increased cell count. Polymorphonuclear cells may amount to 90% of the total, but most specimens show lymphocytes and mononuclear cells almost exclusively. A slight rise in the protein content may or may not be found. The pressure is not often raised, but negative findings in the cerebrospinal fluid in the early stages do not necessarily exclude a diagnosis of poliomyelitis. Paralysis not infrequently develops later, after such a report has been obtained. The findings of Casey *et al.* (1946), described

under the heading of subclinical poliomyelitis, illustrate that changes are produced in the cerebrospinal fluid in a large number of persons who have been contacts of the disease in the presence of an epidemic or increased incidence of poliomyelitis.

Lumbar puncture is a valuable diagnostic aid in subclinical and non-paralytic cases, but should be carried out only after deciding that a degree of urgency to establish the diagnosis exists, because some clinicians believe that unnecessary manipulation of a poliomyelitis patient may increase the extent of the paralysis, should it occur, and lengthen convalescence.

#### Polio-encephalitis

From a study of the clinical reports on cases that have occurred in this epidemic it is obvious that many of those which have shown signs and symptoms of non-paralytic poliomyelitis—i.e., in one or both of the phases described by Faber—have been notified as polio-encephalitis. Other clinicians have based the diagnosis of polio-encephalitis solely on the production of cranial-nerve palsies—on the basis that the pathological lesion is within the skull. It is obvious that no single clear clinical picture of what constitutes polio-encephalitis is universally accepted.

In 1912, under the original Notification Order, it was not thought necessary to refer specially to acute polio-encephalitis—as the generic term "poliomyelitis" was comprehensive enough to cover all cases of the illness, including those in which cerebral symptoms predominated. In 1919, when cases of the then obscure encephalitis lethargica began to appear, it was decided to supplement the Regulations of 1912 and to require the separate notification of polio-encephalitis. This was to allow a differentiation between the incidence of the two diseases.

In 1919 the ratio of polio-encephalitis notifications to poliomyelitis was 1:10 (56:539). The comparative ratio for 1947 up to the end of October was 1:12 (587:7,438). This leads to the assumption that there has been neither any great variation in the number of cases exhibiting cerebral symptoms nor of the criteria adopted by practitioners in making the diagnosis polio-encephalitis; but confusion does exist, and must continue to exist so long as symptoms referable to one stage of a disease are singled out as a requirement for a separate notification. It is more paradoxical in the light of recent literature, which tends to show that in all cases of poliomyelitis pathological lesions can be demonstrated in the brain. It is therefore illogical to require the separate notification of polio-encephalitis.

#### Paralytic Poliomyelitis

As suggested above, cases which develop a lower motor neurone lesion may adequately be classified as (a) spinal type, (b) bulbar type, (c) bulbo-spinal type.

In the majority of cases in which paralysis occurs the virus exerts a selective action on the anterior horn cells of the lumbar and cervical enlargements of the spinal cord (the spinal type). In many cases signs of involvement of the cranial nerves appear either alone (bulbar type) or combined with peripheral nerve lesions (bulbo-spinal type). Because the bulbo-spinal cases form a large proportion of all clinical cases it is convenient to recognize them as a clinical group. These include all cases of paralysis in limbs, diaphragm, intercostals, abdominal muscles and neck and back muscles, and of the cranial nerves—all lower motor neurone lesions.

In 1885 Strümpell (quoted from Peabody *et al.*, 1912) described cases for which he used the term "polio-encephalitis." The onset was sudden, with fever, vomiting, and convulsions: after this the child (24 cases—all under

6 years of age, and 19 below the age of 4) developed a hemiplegia. Occasionally a monoplegia, or even an ataxia without paralysis, was noted. There was no atrophy or wasting of the muscles. Athetosis and disturbances of speech and intelligence were sometimes sequelae. Other similar cases of this type with spastic paralysis have occasionally been recorded in medical literature. These cases, presuming that they were true cases of poliomyelitis, could be accurately termed of cerebral type, with the site of the lesion in the motor cortex. It is possible that a true cerebral type exhibiting an upper motor neurone lesion will eventually be a recognized clinical type occurring in poliomyelitis, although Bodian (1946) produces evidence for the cerebral origin of spasticity in poliomyelitis in monkeys without lesions in the cord. It is wiser not to include this cerebral type until it is generally accepted that upper motor neurone lesions can be produced in monkeys and that the virus can be isolated from lesions producing these symptoms in man, and to restrict the clinical types of paralytic poliomyelitis for classification to bulbo-spinal, which category will include all cases producing signs of bulbar paralysis or of spinal paralysis alone, or both combined.

### Notification

Under existing regulations poliomyelitis is notifiable to the Registrar-General as poliomyelitis or polio-encephalitis. It would be an advance if the regulation making the separate notification of polio-encephalitis as distinct from poliomyelitis was superseded by one reverting once more to the generic term "poliomyelitis," which is to be used as a synonym for polio-encephalomyelitis. And if, in the future, poliomyelitis infections were to be classified as (a) poliomyelitis, non-paralytic, (b) poliomyelitis, paralytic, great assistance would be given to the medical officer of health and other epidemiologists in whose hands lies the responsibility for the control of epidemics in general and of preventing further cases of poliomyelitis in particular. The further division of non-paralytic cases into subclinical and clinical varieties has no place in an essentially administrative procedure like notification, but the information it would reveal would be invaluable in field investigations, were it easily available.

### Summary

The essential importance of the subclinical case and the mild non-paralytic case in the spread of the disease is demonstrated.

The concept that the diagnosis should take into account the signs and symptoms of involvement of the central nervous system other than paralysis is stressed.

The problem of the diagnosis of polio-encephalitis is discussed, and as a result a proposal is made to supersede the regulation requiring the notification of polio-encephalitis as a separate clinical entity and to revert to the single generic term "poliomyelitis" (syn. polio-encephalomyelitis).

The term "abortive" is discussed, and a suggestion is made that further differential notification is desired the classification should be non-paralytic and paralytic.

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In order that the superannuation scheme under the National Health Service may function satisfactorily from the appointed day, the Ministry of Health has requested voluntary hospitals to supply relevant particulars of their employees. The scheme does not apply to medical schools attached to teaching hospitals.

## DIFFERENTIAL DIAGNOSIS OF JAUNDICE BY FLOCCULATION TESTS

BY

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The differentiation of jaundice due to obstruction of the larger ducts from that of hepatic origin is sometimes very difficult, particularly in patients over 40 years old. The van den Bergh test—a qualitative reaction—has proved of little value for this purpose, and many other tests of hepatic function have been tried singly and in combination. From the published reports of this work one or other of the flocculation tests would seem to be the best single diagnostic procedure, and they also have the advantage of being simple to carry out and requiring only small amounts of serum. Their chief disadvantage is that positive reactions occur in a small proportion of patients without evidence of hepatic disease.

These tests are more popular in the U.S.A., and although they have been used in this country, particularly by MacLagan (1944a, 1944b, 1947) and by Dick (1945) and Maizels (1946), it appears from comment in a leading article (*Lancet*, 1946) that their application is still not widely appreciated here. For that reason this report on the results obtained with the cephalin-cholesterol flocculation and serum-colloidal-gold tests has been drawn up.

The cephalin-cholesterol flocculation test was introduced by Hanger (1939) as an empirical procedure. Later work with electrophoresis showed that in parenchymatous disease of the liver there was an increase of the gamma fraction of the plasma globulin and a decrease of albumin. From the results of experiments *in vitro* Moore and his co-workers (1945) attributed flocculation of cephalin-cholesterol emulsion and also the precipitation of colloidal gold to these changes; Gray (1940) introduced the latter test. Positive results are reported commonly in hepatic and rarely in obstructive jaundice, and the tests are accordingly claimed to be useful in the differential diagnosis of these two conditions.

### Material and Technique

Our intentions in this investigation were to determine the value of two flocculation tests in jaundice, to establish that negative results were the rule in normal subjects, and to observe the results of the tests on patients without clinical evidence of hepatic disease. Accordingly observations were made on 110 patients with diseases of the liver, of whom 74 showed jaundice, on 100 controls drawn from donors of blood, and on 281 patients who suffered from a variety of conditions but showed no clinical evidence of hepatic disease. Both tests were carried out on the same sample of serum from each of the 491 subjects tested.

**Cephalin-Cholesterol Flocculation Test.**—The method and the technique for the preparation of the emulsion were those of Hanger (1939). The cephalin was used immediately, without a period of storage, to make the stock emulsion. This showed no change in sensitivity when kept as long as three months in a refrigerator, as Dick (1945) has recorded. The test was read at 24 hours.

**Colloidal-Gold Reaction.**—The method was that of MacLagan (1944a). The gold sol was made according to the method of Mellanby and Anwyl-Davies (1923).



**Interpretation.**—The results of both tests are customarily given as 0, 1+, 2+, and so on up to complete flocculation or precipitation, which is 4+ with the cephalin and 5+ with the gold test. It has always seemed to us difficult, if not impossible, to differentiate, for example, 2+ from 3+, and in this series only 3 gradings have been used: no flocculation (or precipitation), flocculation present, and flocculation complete.

### Results of Tests

(1) **Normal controls.**—For this group blood donors were used ranging in age from 16 to 60. All seemed well except eight who suffered from hypertension. The plasma bilirubin was within normal limits in all. In the 100 normal controls no flocculation was found with either test.

(2) **Patients without Clinical Evidence of Hepatic Disease.**—Positive results with both tests have been recorded in patients of this category. With the cephalin test the proportion of such have ranged from 3% (Pohle and Stewart, 1941) to 18% (Wade, 1946). Later reports have indicated that, in particular, positive flocculation tests are common in rheumatoid arthritis (Carter and MacLagan, 1946), thyrotoxicosis (Pohle and Stewart, 1941), severe anaemia (MacLagan, 1944a), virus diseases and other infections (Gray, 1940; Pohle and Stewart, 1941; MacLagan, 1944a), and heart failure (Gray, 1940; Carter and MacLagan, 1946).

The results of observations with both tests on 281 patients are shown in Table I. Negative reactions were found with cephalin emulsion in 91.8% and with gold in

TABLE I.—Results of Cephalin and Gold Tests on 281 Patients without Clinical Evidence of Hepatic Disease

Group	No. of Cases	Negative		Positive		Complete Precipitation	
		Ceph- alin	Gold	Ceph- alin	Gold	Ceph- alin	Gold
C.N.S. ..	32	32	32	0	0	0	0
Nephritis ..	15	15	15	0	0	0	0
Cardiovascular ..	31	30	28	1	1	0	1
Peptic ulcer ..	32	28	29	3	2	1	1
Infections ..	61	51	49	9	8	1	4
Sundry ..	88	83	81	4	6	1	1
Anaemia ..	11	10	10	1	0	0	1
Rheumatoid arthritis	11	9	3	2	4	0	4
Total ..	281	258	247	20	21	3	12
Percentage ..	..	91.8	87.9	7.1	7.5	1.1	4.2
Percentage excluding rheumatoid arthritis	..	92.2	90.4	6.6	6.3	1.1	2.9

87.9%. Complete precipitation of gold occurred in 4.2%, but complete flocculation of cephalin in only 1.1%. Analysis of the groups into which the cases were divided gave the following results. In patients with disease of the nervous system and with nephritis neither test was ever found to be positive. Nephritis of all types and in all stages was investigated, but the finding of Maizels (1946) that the cephalin test is sometimes positive was not confirmed. Positive tests occurred in 4 out of 32 patients with peptic ulcer, 2 of whom had had recent bleeding. The occurrence of positive reactions in the group of patients with infections was inconstant and appeared to bear no relation to the nature or severity of the infection or to the presence or absence of fever. For example, 1 patient with subacute bacterial endocarditis showed maximum-positive reactions to both tests, but 3 others, equally ill, gave negative results. Similar inconsistencies were also seen in the heterogeneous group labelled sundry. Two out of 11 patients with diabetes and 3 out of 8 with thyrotoxicosis gave positive reactions; this may have been evidence of a special tendency, but the numbers are too small to be certain. In rheumatoid arthritis, however,

the incidence of positive gold reactions was undoubtedly high—8 out of 11 patients. If this group is omitted from consideration, the incidence of positive reactions with the cephalin and gold tests in patients without clinical evidence of hepatic disease becomes almost the same (Table I), the incidence of positive reactions being less than 10%.

(3) **Hepatic Disease with Jaundice.**—The results of observations on 74 jaundiced patients are shown in Table II. The clinical diagnosis of the cause of the

TABLE II.—Results of Cephalin and Gold Tests on 74 Patients with Jaundice

	No. of Cases	Negative		Positive		Complete Precipitation	
		Ceph- alin	Gold	Ceph- alin	Gold	Ceph- alin	Gold
Obstructive jaundice: Tumour or calculus	32	27	27	4	5	1	0
Percentage ..	..	84.4	84.4	12.5	15.6	3.1	—
Hepatic jaundice: Cirrhosis and subacute necrosis	18	0	2	2	2	16	14
Banti's syndrome ..	4	2	1	1	2	1	1
Acute infective hepatitis	17	5	2	6	5	6	10
Homologous serum jaundice	3	3	3	0	0	0	0
Total hepatic jaundice	42	10	8	9	9	23	25
Percentage ..	..	23.8	19.0	21.4	21.4	54.8	59.5

jaundice was substantiated by operation, post-mortem examination, and in a few instances by puncture biopsy, or was considered reasonably certain from the course of the disease—as, for example, in most instances of acute hepatitis.

In the 32 patients of the obstructive group positive reactions occurred in less than 16% of both tests. Complete precipitation was noted once with cephalin and not at all with gold. In contrast, the group of 42 patients with hepatic jaundice showed positive results in 76% of cephalin and 81% of gold tests. In more than half precipitation was complete. Analysis of the subgroups of hepatic jaundice shows that a positive gold test was present in all patients with cirrhosis or subacute necrosis of the liver. The cephalin test was positive in all but one, and with both tests precipitation tended to be complete. Both tests were negative in three patients with homologous serum jaundice.

In Table III are shown the findings with the two tests in patients with disease of the liver but without jaundice.

TABLE III.—Results of Cephalin and Gold Tests on 35 Patients with Hepatic Disease without Jaundice

	No. of Cases	Negative		Positive		Complete Precipitation	
		Ceph- alin	Gold	Ceph- alin	Gold	Ceph- alin	Gold
Metastatic carcinoma	8	5	7	0	1	0	0
Cirrhosis, including Banti's syndrome	4	2	0	3	2	3	6
Reticuloses ..	4	2	2	2	0	0	2
Haemochromatosis	2	2	2	0	0	0	0
Chronic leukaemia ..	3	3	0	0	0	1	1
Cardiac failure with hepatic enlargement	11	8	7	2	3	0	0

Negative tests were found in all but one case of metastatic carcinoma of the liver. Positive results were found in cirrhosis and in Banti's syndrome. In a small group of 9 patients with reticuloses, haemochromatosis, and chronic leukaemia both tests were found to be positive on three occasions. Of 11 patients with cardiac failure and hepatic

enlargement flocculation tests were positive in 3. Carter and MacLagan (1946) observed positive gold tests in 11 out of 28 cases and found no relation between the size of the liver and the incidence of positive reactions in cardiac failure.

### Discussion

In a series of patients of both sexes without clinical evidence of hepatic disease the incidence of positive reactions was under 10% with both tests if rheumatoid arthritis was excluded. Although the mechanism of both tests is apparently due to the same changes in the plasma protein (Moore *et al.*, 1945), it was noticeable that the reactions were not always parallel in the same plasma, and indeed a negative result with one test sometimes accompanied a positive with the other. The number of patients suffering from conditions other than hepatic diseases (in which other workers have reported a high incidence of positive results) was rather small, and in only two groups could these findings be confirmed. The 8 positive gold reactions in rheumatoid arthritis could be accepted as significant even in a group of only 11 patients. The next highest incidence of positive reactions was in the group of 61 infections, in which 16.4% of cephalin tests and 19.6% of gold tests were positive.

In 200 patients without jaundice MacLagan (1944a) found 31, or 15.5%, who showed positive gold tests. He considered that virus infections, or constitutional disturbance with fever or cachexia, were associated with all of these positive reactions, which did not, however, invariably accompany these conditions.

### Differential Diagnosis of Jaundice

In jaundice due to obstruction of the larger ducts by tumour or gallstones negative results were the rule. Positive reactions were obtained in 5 out of 32 patients, and in 3 of these jaundice had been present for more than four weeks. On the other hand negative results were found in several patients who had had complete biliary obstruction for over two months, a finding which did not support the view that positive tests are found only when the hepatic cells are damaged by obstructive jaundice of long duration. The practical point is that the flocculation tests tend to be negative in obstructive jaundice whatever its duration. In contradistinction a high proportion of patients with hepatic jaundice gave positive results. Difficulty in differential diagnosis of hepatic from obstructive jaundice may arise, particularly in patients suffering from subacute necrosis of the liver and acute infective hepatitis. In the former, both tests were invariably strongly positive (7 cases). In the latter, positive results, particularly with the gold test, were usual, but exceptions were occasionally noted.

Maizels (1946) states that jaundice accompanied by negative flocculation tests should improve within two weeks if it is due to hepatitis. In this connexion it may be observed that mild attacks were not necessarily accompanied by negative tests, since complete precipitation was observed in 2 patients whose plasma bilirubin never rose above 3.0 mg. per 100 ml. Of the two patients who gave negative results, one was not tested until convalescent and the other was a mild case who improved rapidly. Hanger and Gutman (1940) recorded negative cephalin tests in arsenical jaundice, and Turner *et al.* (1944) in a small proportion of patients with hepatitis due to yellow-fever vaccine. In the latter, hepatic-function tests remained unimpaired and the results resembled those found in obstructive jaundice. Three patients with homologous-serum jaundice in this series gave negative results to both tests. From these findings flocculation tests are of no value in

diagnosis so far as homologous-serum jaundice is concerned, but in that group the history provides a useful indication.

In cirrhosis, jaundice is not usually a prominent feature, and difficulty in differential diagnosis is less likely to arise. Positive tests were the rule.

As regards the relative incidence of positive results with the two tests, of 110 patients with hepatic lesions cephalin flocculation was observed in 48 and gold precipitation in 54. Of 270 patients without clinical evidence of hepatic disease, rheumatoid arthritis being excluded, the cephalin test was positive in 21 and the gold in 26. If rheumatoid arthritis, in which a high proportion of gold tests are positive, was excluded, the results were much the same with both tests and particularly in the group with jaundice. Since the gold test is carried out with standard solutions of known chemical constitution it would appear to be the procedure of choice.

### Summary

Observations were made with the cephalin-cholesterol flocculation and serum-colloidal-gold tests on 491 subjects comprising 100 normal controls, 110 patients with hepatic disorders, and 281 patients without clinical evidence of liver disease.

In 100 controls both tests were negative.

Of 270 patients without clinical evidence of hepatic disease the cephalin test was positive in 7.8% and the gold test in 9.6%. Positive results with both tests were found in all conditions in this group except diseases of the central nervous system and nephritis, but appeared to be most frequent (excluding rheumatoid arthritis) in patients with acute infections. No constant factor could be found in these or other members of the group to account for the positive flocculation tests. Rheumatoid arthritis was associated with 8 positive gold reactions in 11 patients.

Of 32 patients with obstructive jaundice both tests were positive in 15.6%; complete precipitation was infrequent. In contrast 76.2% of cephalin and 81% of gold tests were positive in jaundice of hepatic origin, and complete precipitation was noted in more than half the cases.

In persistent jaundice due to cirrhosis or subacute necrosis positive reactions were the rule and were helpful in differentiating the condition from obstructive jaundice.

The gold test would appear to be the more satisfactory of the two procedures since it is carried out with standard solutions of known chemical constitution.

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The Essex Hospitals Joint Advisory Council was formed following conferences called by the Nuffield Provincial Hospitals Trust. The primary purpose of the Council was the discussion, so far as it related to the County of Essex, of the factual parts of the 1945 Report of the Surveyors of the Hospital Services of London and the Surrounding Area. The Council set up a subcommittee to consider and advise on the problems raised by the Survey, and the report of this subcommittee is now available and can be obtained from the Nuffield Provincial Hospitals Trust, 12 and 13, Mecklenburgh Square, London, W.C.1.

## PARACOLON BACILLUS INFECTION CAUSING CHOLECYSTITIS AND SUPPURATIVE HEPATITIS

BY

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In the following case, which occurred after an attack of dysentery, the somewhat rare sequels of acute cholecystitis and suppurative hepatitis developed, and a paracolon bacillus was recovered from the blood stream and from the gall-bladder during the infection and from the lesions in the liver at necropsy. This organism did not seem to be identical with *Bact. asiaticum*, but appeared to produce an infection of an equal if not a greater degree of virulence.

### Case History

An officer aged 36 was admitted to a British general hospital in Calcutta on June 7, 1945, complaining of acute pain in the right hypochondrium, which had come on suddenly ten hours previously. He had vomited several times. There was no history of dyspepsia or biliary colic. He had served in India for thirteen months, and his only other illness had been an attack of "clinical dysentery" eight weeks previously.

On admission he was in obvious pain and very distressed. The temperature was 101.4° F. (38.55° C.), pulse 102, and respirations 20. There was tenderness in the right hypochondrium, with guarding of the muscles of the right upper quadrant but no rigidity. The urine contained no albumin or sugar, but there was a deposit of phosphates. No other abnormal physical signs were elicited. A diagnosis of acute cholecystitis was made. The following day he was still in pain and lay curled up on his right side. By the next day rigidity of the muscles of the upper right abdomen had developed.

**Operation** (Lieut.-Col. Leedham-Green).—The liver was normal but the gall-bladder was seen to be plum-coloured and distended. Aspiration of the gall-bladder yielded pus. The common bile duct was normal in colour and not dilated. Cholecystectomy was performed and the abdomen closed with drainage. The common bile duct was not explored. On opening the removed gall-bladder viscid pea-green fluid was found but no mud or stones. The mucosa was not grossly ulcerated.

**Histological Report.**—Microscopically, section showed ulceration of the mucosa and infiltration of the whole thickness of the wall of the gall-bladder with inflammatory cells. The capillaries were distended and hyperaemic. The submucosa and muscular layers were oedematous and packed with polymorphonuclear leucocytes. Pus from the gall-bladder yielded an atypical (anaerogenic) paracolon bacillus in pure culture.

**Post-operative Course.**—On the day after operation it was disturbing to find the patient drowsy and still complaining of the pain in his right side, which was as severe as before the operation in spite of the removal of an obviously diseased gall-bladder. This pain diminished gradually during the days that followed, but it was difficult to assess its intensity accurately since his drowsiness was succeeded by increasing restlessness with intervals of delirium. For the first few days after operation his temperature remained around 101° F. (38.3° C.) and subsequently swung between 97° and 100° F. (36.1° and 37.8° C.). Blood culture on June 14 yielded an anaerogenic paracolon bacillus which appeared to be identical with the organism from the gall-bladder. A blood count on June 18 showed: R.B.C., 3,430,000; W.B.C., 6,800 (polymorphs 76%; lymphocytes 24%). A course of sulphamezathine (total 54 g.) produced no clinical improvement, although a second blood culture on June 20 was negative. By June 27 he had become jaundiced and bedsores had developed over the sacrum. Increased

tenderness over the lower border of the liver was again noticed. He died on July 11, 32 days after operation.

**Post-mortem Report.**—The liver was enlarged (weight 8½ lb. —3.74 kg.) and of a mottled grey-green colour. The cut surface showed small haemorrhagic areas alternating with pale areas in an irregular pattern. Scattered throughout the liver substance were friable necrotic areas containing yellowish-green material which appeared to be a mixture of pus and bile. The hepatic and common bile ducts contained thick, viscid green bile. The mucosa of the ducts was deeply stained with bile and appeared to be chronically inflamed. There was no obstruction to the flow of bile, which was found staining the food residue in the stomach. The spleen was enlarged and friable. The kidneys were congested. Evidence of embolic spread to other sites was not seen and no significant changes were found in the other organs. Microscopical examination of the liver revealed multiple pyogenic abscesses scattered throughout its substance. Parenchymatous cells had survived in small areas, but those on the periphery of the abscesses showed an advanced degree of fatty degeneration. The bile ducts near the abscesses were filled with bile and polymorphonuclear leucocytes. In those areas where normal liver tissue survived, the portal and central hepatic veins showed no pathological change. Section of the spleen and kidney revealed no evidence of embolic spread of infection.

**Bacteriology.**—The organisms recovered from the aspirated contents of the gall-bladder and from the blood had identical characters. Each was a Gram-negative motile rod and formed a pellicle on incubation in broth. Each gave identical biochemical reactions as follows:

Lactose ..	A	Maltose ..	A	M.R. ..	—
(slow: 48 hrs.)		Saccharose ..	A	V.P. ..	—
Glucose ..	A	Dulcitol ..	—	Citrate ..	—
Mannitol ..	A	Indole ..	+		

A = production of acid. No gas was produced in any carbohydrate on incubation up to 21 days.

**Serological Reactions.**—Neither organism was agglutinated by the stock *Salmonella* sera (including a non-specific *Salmonella* serum containing the common antigenic components of the group) nor by the stock dysentery-group sera. Against the patient's own serum agglutination occurred as follows:

Serum	June 22		June 29		July 10	
	Patient	Control	Patient	Control	Patient	Control
Organism B ..	1/500	Nil	1/1000	Nil	1/2500	Nil
Organism G ..	1/500	Nil	1/1000	Nil	1/2500	Nil

Organism B isolated from blood culture, organism G from gall-bladder.

An organism isolated at necropsy from one of the abscesses in the liver had identical biochemical reactions and was agglutinated by the patient's serum to a titre of 1/500. Facilities for the antigenic analysis of these organisms were not available.

Judged by its biochemical reactions the organism appeared to belong to the paracolon group. Numerous workers who have studied the paracolons (Dudgeon and Pulvertaft, 1927; Fothergill, 1929; Jones, Orcutt, and Little, 1932; Kennedy, Cummings, and Morrow, 1932; Sevitt, 1945) have experienced difficulty in classifying them. In our case the organism seemed to be related to Group B of Dudgeon and Pulvertaft's classification or to Group IV in that of Sevitt. According to Sevitt, organisms of Group IV are antigenically heterologous and not antigenically related to the Flexner bacilli nor to *Bact. alkalescens* as are certain other strains of paracolon bacilli.

We record our thanks to Professor Sir Lionel Whitby for his comments on the bacteriology of this case, and to Colonel W. Bruce, late R.A.M.C., officer commanding B.G.H., and the Director-General, Army Medical Services, for permission to publish.

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## Medical Memoranda

### Uveoparotid Syndrome (Heerfordt's Disease)

The syndrome of uveitis-parotitis-polyneuritis, or Heerfordt's disease, is now well recognized as one of the manifestations of sarcoidosis or lymphogranulomatosis benigna. A number of cases of the syndrome have been described in which attention is drawn to the changes in the cerebrospinal fluid, but examination of these cases suggests that such changes, if present, are slight and of no diagnostic importance. Attention is here drawn to a case of Heerfordt's disease, with gross changes in the cerebrospinal fluid demanding major consideration in diagnosis. Moreover, the changes found, despite the very mildest indications of polyneuritis, strongly suggested a polyneuritis of the toxic-infective kind.

#### CASE REPORT

An upholsterer aged 17 was admitted to hospital on June 25, 1946, complaining of malaise, anorexia, frontal headache, and mistiness of vision for five days. His medical and family histories revealed nothing of note. Examination showed a well-developed youth, somewhat flushed, with a pyrexia of 100° F. (37.8° C.), the only finding on admission being a mild bilateral iridocyclitis. Both conjunctivae were markedly injected, the corneas hazy, and the pupils irregular, with a sluggish light response. No synechiae or keratic precipitates were found. The remainder of his central nervous system, including his fundi, was normal.

On June 28 he was found to have a right facial palsy of the lower motor neurone type, and it was noted that the knee-jerks, which had previously been present, were now absent. His temperature had settled, the eye condition remained unchanged, but his headache was less severe. On July 1 a slight but definite swelling, tender to palpation, affecting the pre-auricular portion of the right parotid gland was noted. Examination of his central nervous system on this date showed bilateral facial paralysis of lower motor neurone type and complete absence of all deep reflexes in both arms and legs. There was no weakness or wasting of the limb or trunk musculature. Abdominal reflexes were brisk and the plantar responses flexor. There was no loss of superficial or deep sensation.

A blood count gave the following result: R.B.C., 5,200,000 per c.mm.; Hb, 106%; colour index, 1; white cells, 13,000 per c.mm. (polymorphs, 83%; eosinophils, 1%; lymphocytes, 12%; monocytes, 4%). The cerebrospinal fluid on July 1 was clear and under normal tension—cytology: W.B.C., 68 per c.mm. (lymphocytes, 96%; polymorphs, 4%), R.B.C., 7 per c.mm.; total protein, 220 mg. per 100 ml.; globulin, a heavy excess; glucose, 74 mg. per 100 ml.; chlorides, 620 mg. per 100 ml.; films, no tubercle or other organisms seen; culture, sterile; W.R., negative; Lange, 1111211000.

On July 3 a tender swelling was noted in the left parotid region, similar to that on the right side. The blood W.R. and Kahn test were negative and x-ray examination of the chest revealed nothing abnormal. On July 8 the cerebrospinal fluid showed W.B.C., 60 per c.mm. (lymphocytes, 98%; polymorphs, 2%); total protein, 120 mg. per 100 ml.; globulin, a fair excess; glucose, 78 mg. per 100 ml.; chlorides, 650 mg. per 100 ml.; Lange, 1112344321; films, no tubercle or other organisms seen. The cerebrospinal fluid on July 17 showed W.B.C., no excess; total protein, 90 mg. per 100 ml.; globulin, a fair excess; glucose, 54 mg. per 100 ml.; chlorides, 700 mg. per 100 ml.; Lange, 0001111000.

The patient's condition remained unchanged for about a week, and then gradually began to improve. The swelling of his face disappeared, and the deep reflexes returned. The bilateral facial paralysis likewise slowly improved, the left side more rapidly than the right. He was finally discharged home, completely recovered, on Aug. 23.

#### COMMENT

Since the original description by Heerfordt in 1909, many cases of uveoparotitis have been described, but in few have changes in the cerebrospinal fluid been found. In the cases described by Feiling and Viner (1921) and Macbride (1923) the only abnormality detected in the cerebrospinal fluid was a slight increase of lymphocytes—15 and 18 per c.mm., respectively. On the other hand, Middleton (1946) stated that pleocytosis and increased proteins in the cerebrospinal fluid may occur in the uveoparotid syndrome, but gives no reference to any specific case or cases.

There can be little doubt that the above case was one of Heerfordt's disease. The occurrence of bilateral facial palsy and the loss of tendon reflexes together with the cerebrospinal fluid changes would have led to a diagnosis of infective polyneuritis, but the association of these findings with uveitis and

parotitis, and the absence of motor weakness and sensory changes, complete the diagnosis of Heerfordt's disease. The possibility of mumps with complicating polyneuritis and iridocyclitis is excluded by the onset of iridocyclitis and facial paralysis before the development of parotid swellings.

I wish to thank Dr. Blake-Pritchard, consulting neurologist, and Dr. W. G. Sears, medical superintendent, for their kind assistance with this case, and Dr. A. B. Rosher for the laboratory investigations.

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Mile End Hospital, London, E.1.

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### Ulceration of Wedding-ring into Phalanx

Below is presented a clinical curiosity which may well be unique, for I have been unable to find any reference to a similar case.

#### CASE HISTORY

The subject was a lady, aged 73, who was being treated for hypertensive heart failure, diabetes mellitus, and iron-deficiency anaemia. It was noticed that under almost all circumstances she kept her left hand hidden beneath the bedclothes. She was persuaded with some difficulty to uncover it, and after some adhesive strapping had been removed the following interesting condition was disclosed. Two-fifths of the circumference of her wedding-ring of 22-ct. gold lay within a tunnel passing through the proximal phalanx of the left ring-finger (Fig. 1). The remaining three-fifths lay outside the finger. The ring could be freely rotated through the tunnel.

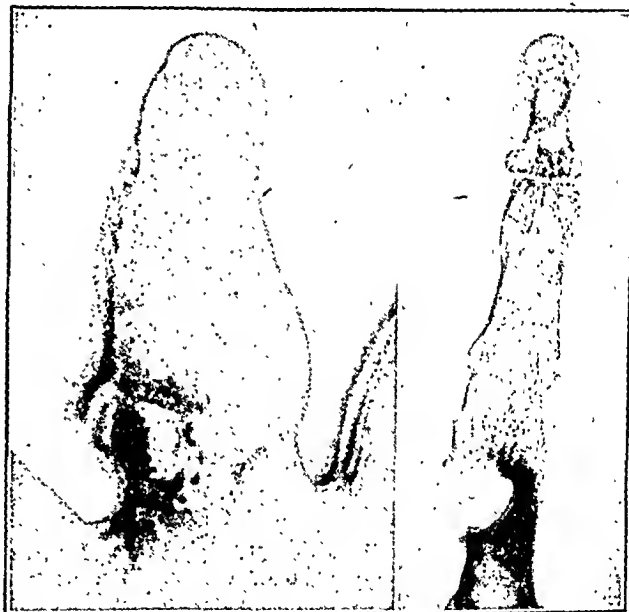


FIG. 1

FIG. 2

The latter was not epithelialized, yet there was no sepsis or discharge. Skiagrams showed erosion of the greater part of the thickness of the proximal phalanx and bony ankylosis of the proximal interphalangeal joint. Dr. Pezeshgi kindly removed the ring, after which the tunnel and its two orifices soon healed. A skiagram of the finger 15 months later showed only a very slight filling in of the bony defect (Fig. 2).

#### COMMENT

The means whereby the ring came to lie in this curious position were as follows. Originally there had been an engagement ring placed distally to the wedding-ring, and, being of lower carat and therefore harder than the wedding-ring, it had by constant friction worn a sharp-edged bevel on the distal rim of the latter. Some fifteen years ago this sharp edge had abraded the skin, and repeated trauma had induced a progressively deepening ulceration. The ring sank slowly deeper, until six years later a bridge of soft tissue covered by skin grew over the now sunken portion. Penetration continued until the present state was reached and the deep portion was more than half-way across the thickness of the finger.

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## Reviews

### OBSTETRICS AND GYNAECOLOGY

*The Essentials of Obstetrics and Gynecology.* By William Albert Scott, M.B., F.R.C.S.(Can.), F.R.C.O.G., and H. Brookfield Van Wyck, M.B., F.R.C.S.(Can.), F.R.C.O.G. (Pp. 390; 91 illustrations (13 in colour). 27s. 6d.) London: Henry Kimpton. 1947.

The authors of this new textbook from the Toronto school attempt to set out briefly the fundamentals of obstetrics and gynaecology, bearing in mind the composition of the basic course of lectures given to undergraduates in the university. They considered that an outline of the subject that afforded a simple exposition without including controversial matter might be useful to undergraduates, who tend to flounder when they start a new subject unless guided systematically through the mass of detail accumulated in more exhaustive treatises. The authors have succeeded admirably in their task, and the student may learn from this book the essentials of the two subjects without having his mind burdened with details of treatment (which in any case are constantly changing) that can be found, if required, in books of reference.

While the whole book is good, some sections are outstanding, notably those on the physiology of pregnancy and on hyperemesis gravidarum. It is regrettable that in discussing placenta praevia the authors do not mention expectant treatment unless the patient is in labour. They state that the object of treatment is "the termination of the pregnancy in a manner that will control blood loss during the process and yet carry the least danger to the mother." Surely another object is to secure the survival of the child—in so far as that does not conflict with the safety of the mother. If expectant treatment is never used, prematurity will be unduly common and the sacrifice of child life unnecessarily great. We are unable to agree with some of the statements made in the chapter on toxæmia, such as "the first warning [of the onset of pre-eclamptic toxæmia] is usually some degree of albuminuria"; and "it must be remembered that the longer the toxæmia lasts the greater the probability of permanent renal damage." The description (at p. 101) of Credé's method of expressing the placenta is inaccurate and might be dangerously misleading to a beginner. On p. 172 the authors promise to describe the operation of breech extraction in the chapter on operative obstetrics, but we cannot find any reference to it there or elsewhere.

The authors cover gynaecology in 150 pages, yet omit little of importance, and find space for separate short chapters on sterility, contraception, and diseases of the intestinal tract in relation to gynaecology. The chapter on ovarian tumours is particularly good, and little of importance is omitted from its 20 pages. The illustrations are particularly clear (and are original) with the exception of that of the Krukenberg tumour, which fails to show the tumour's characteristic feature—that is, the signet ring cells.

We strongly recommend the book to the student and practitioner. The latter, though he will have to refer to larger books for many details of treatment, will yet find much of value in it, as the reviewer has done.

F. J. BROWNE.

### A NATIONAL PROBLEM

*Unwanted Child.* By Dr. Eustace Chesser. (Pp. 169. 12s. 6d.) London: Rich and Cowan.

The purpose of this book is to draw attention to the tragedy of the unwanted child—and a grim picture it is, as the case histories reveal. The author suggests measures of prevention (which he admits are not new) in a clear, forceful, and readable style. He does not discuss how to deal with the unwanted child himself once the deprivation of love and security has had its almost inevitable effect, perhaps because by then the degree of mental disorder is so great that little can be done unless it is possible to remould entirely the outlook and character of the unfortunate victim. Prison cannot effect such a change, and the most painstaking psychotherapist, who can treat only the very few, experiences great difficulty.

Dr. Chesser has many interesting things to say on this most troublesome social problem. For example, he insists that parents should recognize their own share of blame in the processes by which their children have gone wrong, especially if these children have been unwanted. The faults of the parents are chiefly due to selfishness and ignorance, and unless the ignorance can be dispelled in one generation it is likely to recur in the next. He draws attention to the variety of circumstances which lead parents to resent the birth of children. Discussing the anomalies of the law of alimony for unmarried mothers, he points out how relatively seldom the meagre allowance (20s. a week maximum) is sought. Obviously some reconsideration of the law is required so that it may satisfy the real need of the unfortunate without being open to abuse by the vindictive woman. He pleads that our new education, when it really fulfils its function, should include social education and the training of the emotional life as well as factual instruction, and he mentions the evils of sex ignorance and the need for a guide to more rational sex education. There is an interesting but certainly controversial chapter in which the author suggests extending permission for "legal" abortion in the interests of the mother's health, mental as well as physical, and draws attention to the position of the child who might indeed be better never to have been born. There are a useful bibliography, a list of societies interested in such social problems, and recent statistics of births, infantile mortality, and affiliation orders.

R. G. GORDON.

### FIELD HYGIENE

*Handbook of Preventive Medicine.* Air Publication 1269b. (Pp. 213; illustrated. 7s. 6d.) London: H.M. Stationery Office. 1947.

This R.A.F. *Handbook of Preventive Medicine* is better than any previously issued Service manual on the subject. The material has not been substantially changed in this edition, but for the first time the reader does not have the uncomfortable feeling that the writers saw service in the South African War.

There are full accounts of the basic methods for keeping troops in the field healthy, disposing of waste material, supplying clean water, field-cooking, disinfesting, etc., and the sections incorporate the advances in knowledge made possible by recent research and war experience. The chapter on the physical environment is very full, and the section on thermal environment, where the physiology of heat and fluid loss are also considered, is particularly good. It is disappointing to find so little said on industrial hazards, nothing systematic on mental hygiene, and only a few sketchy remarks on food inspection. It is surprising to read in the section on infectious disease that all malaria cases should be nursed under nets. No problems specific to aviation medicine are discussed. It is difficult to see why there should not be a joint Services manual on this subject, for the problems and the approach to it are essentially the same.

J. M. MACKINTOSH.

### MONOGRAPH ON SILICOSIS

*La Silicosis Pulmonar.* By Dr. Hugo Dooner. (Pp. 195; illustrated. No price given.) Santiago de Chile: Empresa Editora Zig-Zag, S.A.

Chile being a country where there are many miners, Dr. Hugo Dooner has not found it difficult to collect material for his monograph on pulmonary silicosis. He says that he has studied the problem in South Africa as well as in the mines of Potrerillos in his own country. Beginning with a brief historical outline, in which he attributes the first clinical description to Hippocrates, who named the condition "miner's phthisis," Dr. Dooner passes on to define the modern conception of the pneumoconioses and to determine the aetiological importance of silica. He then discusses the significance of free silica, the density and size of the silica particles in the atmosphere to which the worker is exposed, the quantity of silica present in the terrain being mined, and the length of exposure. He also considers, under predisposing factors, other infections in the respiratory tract—for example, sinusitis, chronic bronchitis; the constitution of the worker



(those of a "lymphatic" constitution having a greater predisposition); and the type of work undertaken in the mines. Then follows a section on the pathology of the condition, which is marred by the few and indifferently reproduced photomicrographs, the degree of whose magnification is not given.

In a monograph such as this we had hoped for a discourse on the pathological features (and especially the complications) rather than a statement of facts already well known. Dr. Dooner rightly emphasizes that the diagnosis of silicosis depends little on symptoms and signs: a history of exposure and expert radiological interpretation are all-important. This being so, it is unfortunate that the fourteen skiagrams included are so poorly reproduced that even such a gross lesion as a large cavity (for example, that marked by arrows in Fig. 15, p. 123) requires the eye of faith to distinguish it. Moreover, the author intends many of these skiagrams to illustrate the numerous existing elaborate classifications of silicosis—North American, South African, English, German, and South American—and this aim is hardly achieved. It seems a pity that more has not been made out of such material.

A. MORTON GILL.

### RIPE RECOLLECTION

*The Occasion Fleeting.* By Hugh Barber. (Pp. 200. 15s.) London: H. K. Lewis and Co. 1947.

Dr. Hugh Barber has written the best sort of autobiography. In these essays he has drawn an attractive self-portrait, setting himself solidly between covers so that the reader may share his experience, his pleasures, his ideas, and his prejudices. Their chief merit lies in the author's shrewd observation of men and women, in his devotion to his profession and his care for its traditions. The publication of these essays just now has a particular importance because physicians of the author's generation not only forged the link between the art and science of medicine, but they have carried the ideals of English medicine from the death of the old system to the birth of the new. There is much here to inspire and encourage the young medical practitioner—particularly the family doctor—as he emerges into his new status, and also not a little to warn him. For the author says to him in effect, "You are packing for your journey; well, I should take this with you; and this, too, it would be a misfortune to discard; that looks old-fashioned and a bit threadbare, but like the gold-headed cane it has a tradition behind it."

These essays are witty, allusive, colloquial in style, and they are crowded with quotation and anecdote. They are garnished with delightful fables, of which the following short example must serve:

"'Some people,' said the Healthy Man, 'recommend a routine medical examination once or twice a year.'

'Yes,' said the Doctor.

'You, yourself,' said the Healthy Man, 'could have such an examination without expense and with little inconvenience.'

'Yes,' said the Doctor.

'When were you examined?' asked the Healthy Man.

'I hardly remember,' said the Doctor. 'Once, I think, as a medical student, once for life insurance before I got married, and again in the 1914 war for military service.'

'I see,' said the Healthy Man. 'Thank you.'

Of the author's writing it may be said that he has studied the best masters, but he does not seek to imitate them. If one may borrow a metaphor from his beloved game of cricket, although his bat has a short uplift he knows where to put his left foot and his left elbow; he knows too what he can do and, Yorkshire-like, is neither frightened by this knowledge nor deterred by the spectators; while, most important and most characteristic of all, he is never tempted to wild indiscretions half-way down the pitch. Altogether this is a book which any senior physician would be glad to have written and which any young physician would do well to read.

D. V. HUBBLE.

*Éléments de Physiologie Humaine* (Paris: Librairie Maloine. Paper 150 fr.; bound 350 fr.) is one of a series written by Prof. L. Launois and intended for students at the Faculté de Pharmacie of Paris. He seems to stress the chemical aspect, but it is up to date and well written despite its sometimes having the appearance of a compilation. There are relatively few figures—probably because the book is intended as a companion to a course of lectures.

### BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

*Internal Medicine in General Practice.* By R. P. McCombs, B.S., M.D., F.A.C.P. 2nd ed. (Pp. 741. 42s.) Philadelphia and London: W. B. Saunders Company. 1947.

An account of the medical problems most commonly met with in general practice.

*XII Conferencia Sanitaria Panamericana.* Nos. 3-10, 12, 15, 17, 20-30. Caracas: Editorial Grafolit. 1946.

Papers read at the conference.

*Science News V.* Edited by John Enogat. (Pp. 165. 1s.) Penguin Books. 1947.

Essays in popular science on such topics as microscopes, meteors, speleology, and rain.

*Synopsis of Obstetrics.* By J. C. Lützenberg, B.Sc., M.D.; F.A.C.S. 3rd ed. (Pp. 416. 27s. 6d.) London: Henry Kimpton. 1947.

A synopsis with many diagrams of the elements of obstetrics.

*Collected Papers of the Mayo Clinic and the Mayo Foundation.* Vol. XXXVIII. Edited by R. M. Hewitt, B.A., M.A., M.D., et al. (Pp. 915. £3 3s.) Philadelphia and London: W. B. Saunders Company. 1947.

A collection designed primarily to meet the requirements of the general practitioner and general surgeon.

*A Textbook of Pathology.* By William Boyd, M.D., Dipl. Psych., M.R.C.P.Ed., F.R.C.P. 5th ed. (Pp. 1,049. £2 8s.) London: Henry Kimpton. 1947.

This well-known textbook includes new material on botryomycosis, giant-cell pneumonia, alloxan diabetes, renal anoxia, folic acid, and pathogenesis of poliomyelitis.

*Patología Digestiva.* Vol. II. Edited by B. V. Fuentes and A. Munilla. (Pp. 782. No price.) Buenos Aires: Espasa-Calpe. 1947.

The pathology, diagnosis, and treatment of disease of the alimentary tract; with summaries in English.

*The Appendix.* By R. J. McNeill Love, M.S., F.R.C.S., F.A.C.S. (Pp. 186. 12s. 6d.) London: H. K. Lewis. 1947.

A manual on the appendix, normal and diseased, based on an experience of over 5,000 appendicectomies.

*Nothing New Under the Sun.* By J. P. Lockhart-Mummery, F.R.C.S., M.A. (Pp. 178. 12s. 6d.) London: Andrew Melrose, Ltd.

Short articles for the layman on medicine and science; illustrated with woodcuts.

*Essentials of General Anaesthesia.* By R. R. Macintosh, M.A., M.D., F.R.C.S., D.A., and F. B. Bannister, M.A., M.D., D.A. 4th ed. (Pp. 358. 30s.) Oxford: Blackwell. 1947.

A textbook for the medical student and postgraduate.

*Vitamine e Bioregolatori.* Part I. By O. Carere-Comes. (Pp. 150. No price.) Turin: Edizioni Minerva Medica S.A. 1947.

An account of the vitamins.

*Practical Biology for Medical and Intermediate Students.* By C. J. Wallis, M.A. 2nd ed. (Pp. 396. 21s.) London: William Heinemann. 1947.

In four parts: Microscopical Technique, Elementary Biochemistry, Plant Biology, and Animal Biology.

*A Manual on Dental Metallurgy and Non-Metallic Materials* By E. A. Smith. 6th ed. (Pp. 391. 16s.) London: J. and A. Churchill, Ltd. 1947.

A general account of the metals and non-metals used in dentistry.

*Annual Review of Microbiology.* Vol. 1. Edited by C. J. Clifton, et al. (Pp. 404. 36s. or 56s.) Stanford, California: Annual Reviews, Inc. London: H. K. Lewis. 1947.

Includes papers on malaria parasites, bacterial metabolism, antibiotics, immunization, and respiratory viruses.

## BRITISH MEDICAL JOURNAL

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## MR. BEVAN'S GLOSS

The Council of the B.M.A. met on Dec. 17 to consider the Minister of Health's written reply to the document presented to him by the Negotiating Committee, and on the same day issued a statement to the Press which is recorded elsewhere in this week's *Journal*. The Minister has, in fact, published two statements. The second was a detailed reply to the points made by the Negotiating Committee. The first was in the form of an appeal to the individual doctor and is worth examination. "Hardly any major step," the Minister writes, "to better social services (in which doctors, above all, are interested) has provoked more misstatements or misunderstandings than the National Health Service Act." Mr. Bevan then goes on to attempt to clear "some of the more fundamental points which must be exercising many doctors' minds." In this appeal the Minister would seem to deny the reality of the well-grounded objections the medical profession has to certain important features of his Act. His appeal is in its general effect a misstatement of fact, made none the less a misstatement by the persuasive language in which it is couched. He says, for example, that there is no hierarchy of supervision, when the whole administrative structure of the Act is a pyramid of lesser hierarchies with the Minister himself the arch hierarch at the apex. He slurs over the existence of the Medical Practices Committee, which is to "supervise" or—to use plainer language—to control. He does not mention the fact that the chairmen of various administrative bodies from Local Executive Councils upwards are to be appointed by him. To state that the doctor is not "under orders" is to evade the plain fact that the Minister has set up a mechanism for distributing doctors, with facilities for appeal to him against the decision of the Medical Practices Committee. The Executive Council will propose, and the Medical Practices Committee will dispose—another synonym for "direct." The doctor, according to Mr. Bevan, is "not employed." Every family doctor in the public service will receive a basic salary, not through an insurance scheme but from public funds. At the meeting with the Negotiating Committee on Dec. 2 and 3 the Minister referred to the doctors in the new Health Service as "public servants." If one is a servant of the State in receipt of a salary, by what process of reasoning does Mr. Bevan reach the conclusion that doctors are "not employed"? It may be that the majority of doctors when they have to decide this issue may be content to be employed by the State as State servants, and once they have got used to the idea of being

paid partly by salary called basic they may become accustomed to being paid altogether by salary. It would be a logical sequence of events. It would be inevitable, however gradual. But if the medical profession should decide to take this step it should at least know exactly what it is doing, and should not be deceived by Mr. Bevan's misstatement if they are to avoid misunderstanding.

"It is the essence of a successful National Service," Mr. Bevan observes, "that both doctors and the Government co-operate in getting the nation as a whole to benefit by it." No one could agree more with Mr. Bevan than the Negotiating Committee, which through its six sub-committees has been discussing so many problems with the Minister's officers during the past year. But Mr. Bevan's idea of co-operation is to refuse to accept any one of the Negotiating Committee's arguments for amending the Act, although Mr. Bevan encouraged the Committee to resume discussions with the possibility of amendment in mind. The conflict between Mr. Bevan and the profession centres round one fundamental principle, and no assurance or gloss of interpretation from him can alter this fact. The National Health Service Act commends itself to the political party in power because it leads unmistakably to the eventual establishment of a whole-time State medical service. We must remember what Parliamentary spokesmen have themselves said. Mr. Somerville Hastings in an article<sup>1</sup> in 1939 wrote: "To sum up then, there is no rational stopping-place between the first incursion of the State into preventive medicine and a fully developed State medical service." That is the doctrine. During the debate on the Second Reading of the Bill in the Commons in April, 1946, Mr. Bevan, in reply to Mr. Reid's observation that he was "out for a full-time salaried service as soon as he feels he can impose that upon the country," made this prophetic statement: "There is all the difference in the world between plucking fruit when it is ripe, and plucking it when it is green." Mr. Reid pressed his point by quoting from the Labour Party's pamphlet published in April, 1943: "In the Labour Party's opinion it is necessary that the medical profession should be organized as a national full-time salaried pensionable service." Mr. Arthur Greenwood, then Lord Privy Seal, removed any doubts anyone may have had by stating: "What was published by my party in 1943... we of course stand by... and we shall continue to march on in the light of that policy." Mr. Bevan marches on.

A State medical service is something to which the medical profession has always been resolutely opposed, because it believes that the restrictions and frustrations of a State service geared to a top-heavy administrative machine would prevent that intellectual freedom which is so essential to medicine as a science and an art. No matter what his party, the Minister of Health is first and foremost a politician, whose decisions are largely governed by political ambitions and fears. The office of Minister of Health is for the politician a step up or a step down on the political ladder. To put into the hands of such a political figure such power over the destinies of medical men as the Minister now seeks is to turn the hands of the clock back—not forward. But since 1939 we have become so inured

<sup>1</sup> *Med. Q.*, 1939, 61, 167.

to being directed by this, that, or the other Government Department that we tend to accept it as the natural shape of things to-day.

The Minister states that he "is confident that the profession will join with him, as constructive and often properly critical partners, in getting it under way." As the Minister has refused to act as a result of proper criticism before the Act starts, how can the profession have any confidence that their collective voice will have any effect in the future unless it happens to be an echo of their master's voice? We know well how reluctant medical men in the Public Health Service or in the Municipal Hospital Service are to voice their criticisms or, having voiced them, to let their names appear in the columns of this *Journal*; we meet their difficulties when possible by allowing them to remain anonymous. What real freedom of expression of opinion will there be under Mr. Bevan's Act when the consultant and specialist are employed in a State hospital and the general practitioner is receiving his salary from State funds? Mr. J. Johnston Abraham, an eminent medical man who speaks with the authority of one connected with a well-known firm of publishers, points out in our correspondence columns this week that no official employed by the Ministry of Education is allowed to write educational books unless express permission has been given, and this Ministry, he observes, claims the royalties earned, on the ground that the authors are full-time officials. The Minister of Health, no doubt, will retort that we are raising another bogey and will give another assurance. But we have here an example of what happens, and Mr. Abraham is not overstating the case when he writes: "In medicine such a situation would be disastrous, for articles or books criticizing official lines of treatment might be frowned upon, held up, or even suppressed." To use a phrase the Minister is fond of, "the very essence" of medicine is freedom. The National Health Service Act is the first and most important step towards denying the medical profession this freedom. If the medical profession does not hold this to be an absolute good necessary to its fruitful evolution, or if it does not believe that its real freedom is threatened by the Health Service Act, then it will presumably accept Mr. Bevan's invitation to co-operate with him in starting the new Service next July. If, however, the medical profession, after deep reflection upon "the essence" of Mr. Bevan's proposals, concludes that this Act is the first and irrevocable step towards a whole-time State medical service, then it must have the courage and the integrity of mind to refuse to serve under the Act until it has been amended in those particulars which the profession holds to be essential to its continued existence as a body of free men.

## LESSONS OF THE POLIOMYELITIS EPIDEMIC

Three contributions to this issue of the *Journal* give further proof that the epidemic of poliomyelitis which is now subsiding has added to our knowledge of the disease. The epidemic was unusual for this country not only in its severity but in the uncommon syndromes which it caused. The presence of an epidemic leads, of course, to the recog-

nition of many bizarre forms of the disease which might otherwise be misdiagnosed, and to the notification of transient and benign forms which at other times remain undiagnosed. McAlpine and his colleagues (p. 1019) have recognized this, and they draw attention to certain forms of the disease which they classified as either abortive or non-paralytic according to the absence or presence of minor signs of involvement of the central nervous system. These cases have been common in the present epidemic, and Murray (p. 1028) recognizes similar types but would prefer to divide the non-paralytic cases into clinical and subclinical categories, thus avoiding the term "abortive," which is misleading. He emphasizes the important part played by these cases in the spread of infection, and says that Casey's experience in the Chicago epidemic of 1945 "does seem to indicate that poliomyelitis, during an increased incidence of the disease, is a mild, widespread, highly communicable disease particularly of young children, leaving no paralysis." Non-paralytic and often ambulant cases in fact play a much greater part in the spread of poliomyelitis than the frankly paralytic patients immobilized in hospital.

Unfortunately, advance in our knowledge of the epidemiology of the infection in the British Isles has been limited by the complete lack of the necessary experimental animals—primates. This shortcoming has been redressed in some measure by the results of experimental work already published by Bodian,<sup>2</sup> Sabin,<sup>3</sup> and others in America. It is still too soon to assess the epidemiological lessons of the present epidemic, but much may be learnt from the two large-scale investigations now in progress.<sup>4</sup>

The clinician's main interest has been in the recognition of the unusual cases and in their treatment. The Ministry of Health<sup>5</sup> quite early in the outbreak indicated some of the neurological changes which might be seen in different cases. Kelleher,<sup>6</sup> in an article specially contributed to the *Journal*, quoted a number of cases in which there was early involvement of the cranial nerves. Some of McAlpine's cases showed complicated supranuclear ophthalmoplegias, sensory loss, widespread involvement of bulbar nuclei, and even transverse myelitis.

Scheinker's<sup>7</sup> important study of the histopathology of the central nervous system clearly revealed how easily these widely different clinical pictures may arise. Study of the whole nervous system of six cases confirmed the widespread inflammatory response of the tissues associated with localized parenchymal destruction of motor elements which has been described previously. Scheinker then showed that these two changes are independent. The first is a response to the invasion of the whole nervous system by the virus, while the second gives evidence of its specific lethal effect on motor neurones.

Ritchie Russell considers elsewhere in this issue (p. 1023) the physiological state of the motor neurone at the time of the invasion in relation to the degree of paralysis which

<sup>1</sup> *Amer. J. Dis. Child.*, 1946, 72, 661.

<sup>2</sup> *J. Amer. med. Soc.*, 1947, 139, 1148.

*J. Amer. med. Ass.*, 1947, 134, 749.

<sup>4</sup> *British Medical Journal*, 1947, 2, 698; and 677.

<sup>5</sup> *Ibid.*, 1947, 2, 141.

<sup>6</sup> *Ibid.*, 1947, 2, 291.

<sup>7</sup> *Arch. Neurol. Psychiat.*, 1947, 57, 565.

<sup>8</sup> *Neural Mechanisms in Poliomyelitis*, 1942 New York.

results. The basis of this work was the interesting experiment of Howe and Bodian<sup>8</sup> which showed that anterior horn cells that had had their peripheral extensions sectioned shortly before were immune to experimental infection with the poliomyelitis virus. Clinical observers have commented upon the association of great physical exertion in the pre-paralytic phase of the illness with a severe degree of paralysis, but no attempt seems to have been made to investigate this point statistically. Russell has studied carefully 44 patients who were convalescent from poliomyelitis and who were old enough to describe in detail their symptoms and their activities in the first few days of the disease. His conclusion, which appears to be statistically sound, is that muscular work at the time of neuronal invasion is closely related to subsequent neuronal destruction. The stoical patient who struggles on becomes helpless; those who retire to bed at the onset of the first symptoms do well.

If Russell's preliminary conclusions are confirmed, early diagnosis will become more important than ever and it will be necessary to insist on complete rest in bed right from the start of what the patient may deem a trivial illness. According to Russell, the so-called meningitic symptoms appear in nearly all cases during the pre-paralytic stage and are often more suggestive of involvement of the nerve roots than of the meninges. The Middlesex workers point out the difficulties in differential diagnosis at an early stage of the disease; but whether the patient's first complaint is of pain resembling that which occurs in epidemic myalgia or of true meningitic symptoms suggesting the possibility of a benign type of lymphocytic meningitis, any continuance of physical activity would be unwise. Diagnosis at an early stage can be made only by the general practitioner, but it is clear that such early diagnosis is of the utmost importance for the patient's future as well as for the limitation of infection.

### MISTLETOE

"Cure Guaranteed" was the notice that Dr. Schutzmacher<sup>1</sup> displayed in his surgery window and which made him a wealthy man. Surely the drug that he most favoured in his prescriptions must have been extract of mistletoe, for physicians and laymen throughout the ages have acknowledged that it cures every disease, is an antidote to all poisons, and promotes longevity, prophetic dreams, good fortune, and happiness. Gerard<sup>2</sup> described in 1597 how "if it be used in outward applications it draweth humors from the deepest and most secret parts of the body," and it was commonly prescribed to heal wounds, especially those sustained in the hunt. The disease for which it has always been regarded as pre-eminently beneficial is epilepsy, for clearly a plant that clings tenaciously to the upper branches of trees without ever being blown to the ground or growing there must be a specific remedy for the "falling sickness." For that reason sprigs were tied round the necks of children in Wales and Brittany.

Unfortunately its powers seem to have waned to-day, perhaps because we have lost the art of preparing what was once so efficacious a remedy. The Druids, who venerated above all things this evergreen parasite and the oaks upon which it seldom grew, procured it with ritual circum-spection. According to Pliny<sup>3</sup> a priest arrayed in white climbed the tree and cut down the mistletoe with a golden

sickle, catching it in a white cloak as it fell. On no account might it be severed from its host with iron, nor was it allowed to touch the ground, which was unclean and would have contaminated it—a prohibition familiar enough in the era of asepsis. Whatever its powers may have been, the *B.P.C.* praises them cautiously, pointing out that, since its active principle is a vasodilator, it has been administered to lower blood pressure and to relieve precordial pain; it mentions, however, that "it has been found useful in cases of hysteria and chorea."

The science of medicine has changed more than has popular medicine since Anglo-Saxon and mediæval times, and it no longer allows us to expect each newly discovered drug to be a panacea, nor prompts us to search for one. The quest of the alchemists over many centuries for the elixir vitae that should cure all maladies of body and mind appears to us now as a barely intelligible confusion of thought—the passionately misspent youth of chemistry. But lest we scorn those apparently sterile crucibles we might bear in mind T. S. Eliot's reply to the observation that "the dead writers are remote from us because we know so much more than they did."—"Precisely, and they are that which we know." Medical men by means of their training come to know the dead in that sense, and for that reason the alchemists and their ways of thought seem remote from us. Knowledge of history is both an introduction and a parting. Among our patients, however, we find many who still travel these primitive ways of thought, for advertisements continue to appeal successfully with their offers of magical cure-alls: a particular ointment or lotion or physic will both heal our skins and bring us romance. The panaceas are still with us, even if rejected by medical men. The mental attitude that leads to belief in them is not confined to primitive minds, it is merely misused by them; for philosophers and mystics have discerned behind the many appearances the one reality, while peasants have confused the two. If an essence of healing can be conceived of underlying the diversity of remedies, surely that elusive virtue can be imparted in a cunningly prepared decoction, dispersing the blemish, making the crooked straight, and bringing happiness under the oak tree. That golden bough, the mistletoe, is still called "cure-all" in the modern Celtic speech of Wales, Scotland, Ireland, and Brittany.<sup>4</sup>

Though usually forbidden as a decoration in churches because of its pagan association,<sup>5</sup> it has always been indispensable in the home at Christmas time, and we understand that the Board of Trade has relented so far as to allow the importation of "limited quantities" from France this year. In one capacity, at any rate, mistletoe remains a panacea. Hanging from the ceiling—"to the imminent peril of all the pretty housemaids," as Washington Irving<sup>6</sup> remarked in the more spacious days of a century ago—it is still the emblem and instigator of love; and poets and psycho-analysts unite in agreeing that Eros can cure all our ills. We would therefore commend infusion of mistletoe as a certain remedy for some of the disorders that seem to be reported with increasing frequency, such as depersonalization and vagitus uterinus. We have yet to hear of its failure to cure these conditions. At this festival may it diminish demands for certificates, telephone calls, and broken nights, and at least act as a sweetener of the austerity prevailing in our new-model Merry England.

<sup>1</sup> Shaw, G. B., *The Doctor's Dilemma*, London.

<sup>2</sup> Herbal, quoted by Mitchell, C. M., in *The Shakespeare Circle*, 1947. Birmingham: Cornish Brothers.

<sup>3</sup> *Naturalis Historia*, XVI, 249 et seq.

<sup>4</sup> Frazer, J. G., *The Golden Bough*, 3rd ed., 1914, Part VII, Vol. 2.

<sup>5</sup> Brand, J., *Popular Antiquities*, Vol. 1, 1841. London: Charles Knight.

<sup>6</sup> *Satiric Droll*, revised ed., 1860. New York: Putnam.

## SYNTHETIC VITAMIN A

The significance of "fat-soluble A" as a factor necessary for the growth of rats was recognized by MacCollum<sup>1</sup> more than thirty years ago. Subsequently vitamin A was second only to vitamin D in having its biological activity explained chemically. Steenbock<sup>2</sup> traced a close parallelism between vitamin A and the yellow colour in fruits and vegetables. Then in 1928 Euler<sup>3</sup> found that pure carotene possessed biological activity. Moore<sup>4</sup> demonstrated that carotene is the precursor of true vitamin A, which is a colourless substance produced only by animals. Karrer<sup>5</sup> confirmed that vitamin A was a carotenoid derivative, and suggested the structural formula which later work has vindicated. There has, indeed, been no serious challenge for the last sixteen years to the conclusion that vitamin A is essentially the  $\beta$ -carotene molecule cut in half and converted from a hydrocarbon into an alcohol. It consists, therefore, of a  $\beta$ -ionone ring to which is attached a long polyene side-chain terminated by the hydroxyl group.

This chemical structure, although relatively simple, indicates a high degree of instability towards oxidation and various chemical reagents, so it is not surprising that other vitamins, such as B<sub>1</sub>, C, E, K, and riboflavin, should have been isolated, identified, and synthesized before vitamin A. The slow rate of progress cannot be blamed on lack of effort. Karrer in Switzerland and Heilbron<sup>6</sup> in Britain both ranked among the world's leading organic chemists, have devoted much energy and ingenuity to the problem, and have greatly extended our knowledge of the chemical properties of the vitamin. Other workers have had varying degrees of success in either synthesizing the vitamin in impure form<sup>7,8</sup> or synthesizing biologically active derivatives of the vitamin, notably the corresponding methyl ether.<sup>9-11</sup>

During the past two years, however, such rapid advances have been made by two young Dutch chemists, van Dorp and Arens, that a successful synthesis of vitamin A on a manufacturing scale seems at last in sight. Their first success was the synthesis of the carboxylic acid corresponding to vitamin A.<sup>12</sup> This new derivative is said to be no less active than natural vitamin A when administered orally as its sodium salt.<sup>13</sup> It differs from all other forms of the vitamin and its precursors in failing to produce stores of vitamin A in the liver when given to rats in great excess of the physiological requirement.<sup>14</sup> It is also claimed that the acid is only slightly less active when injected subcutaneously than when given orally,<sup>12,15</sup> which suggests that it might be valuable in the treatment of patients with impaired intestinal absorption.

More recently the same workers claim in a preliminary communication that they have synthesized vitamin A itself.<sup>15</sup> Starting with  $\beta$ -ionone, a substance readily obtainable from vegetable sources, they built up the C<sub>11</sub> ketone corresponding to vitamin A by a procedure which had previously been found successful. This compound was next

treated with ethoxyethylene magnesium bromide to form a C<sub>22</sub> ketone. Partial hydrogenation of this product, followed by rearrangement and hydrolysis by means of hydrochloric acid, caused the loss of two carbon atoms, with the formation of the C<sub>20</sub> aldehyde of vitamin A. Spectroscopic tests indicated that this material was identical with the aldehyde obtained by the oxidation of natural vitamin A. Reduction with aluminium isopropoxide gave vitamin A itself, although not yet in purified form. While we must await a detailed account of this ingenious synthesis before assuming that this is the last word, it is obvious that the successful production of pure vitamin A, at least on a laboratory scale, cannot be long delayed. Great credit is due not only to our Dutch colleagues but to all who have preceded them in writing this long and difficult chapter in nutritional research.

## INTRA-ARTERIAL PENICILLIN

The intramuscular injection of penicillin is the most wasteful method of drug administration known; only a minute proportion of the dose reaches the site of a localized infection. Local application, while much more economical, is effective only when an infection is superficial or involves the walls of a closed cavity. A kind of compromise between these two methods is the injection of penicillin solution into the artery supplying an infected area. First employed by Ribeiro, this method has been tried by several other surgeons, and is reported on favourably by J. O. Shaffer,<sup>1</sup> who maintains that only in this way can the drug be enabled to penetrate into certain types of infected tissue. That material injected intra-arterially escapes from the artery into its area of supply and remains there he has proved by injections of radioactive phosphorus, the distribution of which was subsequently followed with a Geiger counter. A series of such experiments enabled him to show that the highest local concentration was obtained by making the injection while a sphygmomanometer cuff was applied to the limb at a pressure of 80 mm. Hg; this is in practice retained in position for 10 minutes after the injection. The dose of penicillin usually given, whether into the brachial or the femoral artery, is 50,000 units in 10 ml. of saline; one or two such doses are given daily. Forty patients have been so treated, some receiving many injections, without any untoward accident. Shaffer gives accounts of 17 cases, a number of which had been given penicillin in ordinary doses intramuscularly without effect. A large proportion of these were examples of diabetic gangrene: presumably tissue so affected is a special example of an area not reached by penicillin given in the ordinary way, owing to its poor blood supply. Very rapid subsidence of inflammatory changes was usually observed, and similar effects are claimed for the treatment of ordinary cellulitis and even acute osteomyelitis.

This method is evidently worthy of further study, both from the point of view of the scope of its clinical usefulness, and experimentally with a view to finding out what concentration of penicillin can be attained in the infected area and for how long. It should not be difficult to determine how much penicillin escapes from an artery when venous return is occluded for 10 minutes; if in fact any substantial proportion escapes, the local concentration will certainly be much higher than that attained by any other method. But for the comparative difficulty of intra-arterial injection and its painfulness, to which Shaffer does not allude, this might be the ideal method of treating septic conditions of limbs when frequent intramuscular injections are impracticable.

<sup>1</sup> *J. A. M. A.*, 1915, 23, 181.

<sup>2</sup> *Science*, 1919, 50, 352.

<sup>3</sup> *Biochem. Z.*, 1928, 203, 370.

<sup>4</sup> *Biochem. J.*, 1930, 24, 692.

<sup>5</sup> *Helv. chim. Acta*, 1931, 14, 1431.

<sup>6</sup> *J. chem. Soc.*, 1935, 1, 584; *ibid.*, 1936, 1, 561; *ibid.*, 1937, 1, 755.

<sup>7</sup> Kuhn, R., and Morris, C. J. O. R., *Ber. dtsch. chem. Ges.*, 1937, 70, 853.

<sup>8</sup> Milas, N. A., *Science*, 1946, 103, 581.

<sup>9</sup> Kipping, F. B., and Wild, F., *Chem. Ind.*, 1939, 58, 802.

<sup>10</sup> Oronchik, W., *J. Amer. chem. Soc.*, 1945, 67, 1627.

<sup>11</sup> Ider, O., Koffer, M., Huber, W., and Ronco, A., *Experientia*, 1946, 2, 31.

<sup>12</sup> Arens, J. F., and Dorp, D. A. van, *Nature*, 1946, 157, 190.

<sup>13</sup> Dorp, D. A. van, and Arens, J. F., *ibid.*, 1946, 158, 60.

<sup>14</sup> Arens, J. F., and Dorp, D. A. van, *ibid.*, 1946, 158, 622.

<sup>15</sup> Dorp, D. A. van, and Arens, J. F., *ibid.*, 1947, 160, 189.



## MORPHINE AND DUODENAL SECRETION

The fact that morphine causes a varying degree of spasm in the 'terminal portion of the common bile duct' is now becoming generally known, and it is recognized that the use of morphine is undesirable after operation on the gall-bladder because of the pain caused by the rise in intrabiliary pressure. Lagerlöf<sup>2</sup> has now published observations on the effect of morphine on the pancreatic secretion in man. He collected the duodenal secretion in patients who had undergone cholecystectomy, stimulating a flow of juice by injecting secretin intravenously. He then compared the juice with that obtained when secretin and morphine were injected together. The duodenal juice consisted of both pancreatic secretion and bile. The injection of morphine was observed to result in a diminished volume, a diminished enzyme (amylase) concentration, and a diminished bilirubin concentration. In spite of the smaller volume of juice, the concentration of amylase fell to one-fifth to one-tenth of the concentration after secretin was given alone. The fall in bilirubin concentration was great enough to render the duodenal juice colourless for 20 minutes in two of the patients. Lagerlöf emphasizes that this change occurred in patients whose gall-bladders had been removed and in whom the injection of secretin alone did not interrupt the flow of bile. In normal subjects the bile is diverted to the gall-bladder and does not enter the duodenum. Consequently Lagerlöf concludes that the fall in bilirubin in the duodenal juice which he observed after giving morphine was due to contraction of the sphincter of Oddi. The patients also suffered from attacks of pain after receiving the morphine. The amount of bicarbonate in the duodenal juice after the injection of morphine was lowered though not so much as the amount of amylase and of trypsin, and Lagerlöf suggests that there was a decreased delivery of pancreatic juice to the duodenum.

It is evident from these observations that the common practice of prescribing morphine to relieve the pain of acute pancreatic disease needs reconsideration. The most active analgesic which does not cause spasm of smooth muscle, but on the contrary relaxes the spasm, is pethidine. Its use is still limited despite its relatively powerful action, apparently because its analgesic effect is not uniform in different individuals. Some medical men observing this have concluded that pethidine is unreliable, not realizing that patients vary just as much in their response to morphine.

<sup>1</sup> Busch, W. L., McGowan, J. M., and Walters, W., *Surg. Gynec. Obstet.*, 1936, 63, 451.

<sup>2</sup> *Acta physiol. scand.*, 1947, 13, 306.

## NEW WAYS OF TREATING URAEMIA

Attention has previously been called in this country<sup>1,2,3</sup> to the work of Kolff on the treatment of uraemia by means of a dialysing apparatus, the "artificial kidney." Blood is led from the heparinized patient through a long cellophane tube wound round a drum which rotates in a bath of specially prepared saline. By means of this ingenious machine, which was developed under great difficulties in occupied Holland, large amounts of urea can be separated from the blood in cases of uraemia; other toxic changes, such as a high potassium and low alkali reserve, can be corrected as well. Thus in one instance the blood urea was reduced by the artificial kidney from 425 to 140 mg./100 ml. and 146 g. of urea were removed by the rinsing fluid in six hours. Kolff has now published in full his experience with this method up to the present time.<sup>4</sup>

<sup>1</sup> *British Medical Journal*, 1947, 2, 216.

<sup>2</sup> *Lancet*, 1946, 2, 720, 726.

<sup>3</sup> *Ibid.*, 1947, 1, 106.

<sup>4</sup> *New Ways of Treating Uraemia*, 1947, J. and A. Churchill, London. Price 10s. 6d.

Kolff also describes a technique for peritoneal lavage. The major difficulty here is that large quantities of sterile fluid—about one litre per hour for 36 hours—are required to achieve the same result as that brought about by the artificial kidney in six hours. There is, too, a considerable risk of peritonitis, though Kolff's method, which he describes in detail, avoids any exposure of the sterilized saline solution. Lavage through isolated loops of ileum is also being considered. These are all technical advances which Kolff has explored with great skill. In an almost hopeless series of patients there are now seven survivors who might have died but for this new type of technical medical intervention. Treatment by the artificial kidney is most likely to be successful in uraemic patients whose kidneys are not too grossly damaged.

In the last chapter of his book Kolff gives a short account of the recent work by his fellow-countryman, Prof. Borst, on the treatment of uraemia by a non-protein high-calorie diet (200 g. butter and 200 g. sugar daily). On this diet the protein breakdown in the body is reduced considerably below the supposed minimum of 45 g. daily, and the daily excretion of urinary urea may be no more than 1-3 g. This method is of special value in the treatment of the more chronic forms of uraemia; the acute disorders may be better met by active technical procedures. We look forward to hearing more from our Dutch colleagues on these interesting developments, and meanwhile they are to be congratulated on their ingenuity and energy in tackling what was often regarded as an irretrievable medical disaster.

## TETRAETHYLAMMONIUM BROMIDE

The demonstration by Acheson and Moe<sup>1</sup> that the tetraethylammonium ion blocks the transmission of nervous impulses through autonomic ganglia in animals has excited interest and has led to extended observations on its action and possible uses in man. The bromide or chloride salt may be injected intravenously as a 10% aqueous solution in doses of 200 to 500 mg., or intramuscularly in doses not exceeding 20 mg. per kilo body weight. The autonomic ganglionic block is complete and affects both the sympathetic and parasympathetic systems. A recent report by Lyons, Moe, and others<sup>2</sup> summarizes observations made on over 400 subjects.

After a suitable intravenous injection autonomic activity virtually ceases, but peripherally acting drugs like adrenaline and acetylcholine may still exert their effects. On the sympathetic side the most important result is the release of vasoconstrictor tone. The blood pressure falls, especially in hypertensive subjects, and there is marked orthostatic hypotension. The venous pressure also falls, and the blood flow in the extremities is increased and the skin temperature rises. The heart rate and cardiac output—measured with the ballistocardiograph—are also increased. On the parasympathetic side the gut and bladder are temporarily paralysed; salivary secretion is diminished, and sweating ceases.

The drug has already proved useful in the treatment of vasospastic states and should be particularly valuable in the treatment of peripheral embolism. Its effects on hypertensive patients harmonize more or less with the results of later lumbodorsal sympathectomy, but no linear correlation has been established. It has proved at least the equal of all other methods designed to release vasomotor tone in order to predict the results of sympathectomy in cases of peripheral vascular disease. For obvious reasons it is an impracticable therapeutic agent, but it should prove an asset to research workers in many fields.

<sup>1</sup> *J. Pharmacol. exp. Therap.*, 1945, 84, 189.

<sup>2</sup> *Amer. J. med. Sci.*, 1947, 213, 315.

## AVOIDABLE MENINGITIS

*Memorandum drawn up by the Public Health Laboratory Service and the London Sector Pathologists' Committee*

Every operative procedure entails some risk to the patient, but in simple operations such as spinal puncture the risk ought to be practically negligible. Meningitis occurring after the withdrawal of cerebrospinal fluid or the administration of a spinal anaesthetic is a grave reflection on the methods used in many hospitals, for these "accidents" can be avoided by the adoption of a simple and reliable technique. That such a technique is not in fact universally employed is attested by the number of cases of avoidable meningitis reported in the literature during the past few years. Furthermore, as Garrod (1946) points out, "There is a natural reluctance to publish anything which may appear discreditable. . . . It is therefore probable that meningitis following spinal anaesthesia has been far commoner than the literature of the subject would suggest." This statement is endorsed by surgeons and anaesthetists whenever the subject is discussed.

### Nature and Sources of Infection

This memorandum is not concerned with meningitis secondary to some primary infective focus already present in the patient at the time of operation. It refers solely to meningitis that results from the direct inoculation of micro-organisms into the spinal canal. The organisms most frequently incriminated are *Pseudomonas pyocyanea* and related organisms which can multiply in water at room temperature; less often staphylococci and other skin contaminants may be responsible. Some of the water bacteria fail to grow in ordinary culture media incubated at 37° C.; hence many cases have been diagnosed as irritative or aseptic meningitis which were probably the result of bacterial infection of the meninges. Organisms normally regarded as non-pathogenic may produce infection if they gain access to the very susceptible meninges.

The sources of contamination may be listed as follows: (1) apparatus inefficiently sterilized, or contaminated during use; (2) "sterile" water or saline used to rinse the apparatus; (3) hands of operator and assistants; (4) skin of patient; (5) anaesthetic, antibiotic, or other solutions.

### Preventive Measures

The ideal would be to adopt the full aseptic ritual of a surgical operation for every spinal puncture. In many cases the time and place render this impossible. The following recommendations are therefore offered, not necessarily as ideal procedures but as practical methods applicable in nearly all circumstances.

**Apparatus.**—If facilities are available, all apparatus, including manometer, should be enclosed within suitable containers and sterilized either by autoclaving at 15 to 20 lb. per sq. in. (1.04–1.37 kg. per sq. cm.) pressure for 20 minutes or by dry heat at 160° C. for an hour. The complete outfit can then be held ready for use at any time. If dry heat is used, the rubber tubing of the manometer should be sterilized by boiling. For syringes and needles dry heat is preferable but ordinarily necessitates the use of all-glass syringes. (Glass syringes with metal nozzles which will withstand dry heat at 160° C. for two hours are now being manufactured.) Full details of these methods together with recommendations for a hospital syringe service are given in the M.R.C.'s War Memorandum No. 15 (1945) on "The Sterilization, Use, and Care of Syringes."

If autoclaving or dry-heat sterilization cannot be employed, all apparatus should be sterilized immediately before the operation by boiling for 5 minutes, preferably in distilled water. A sterilizer with a perforated lift-up tray should be used; at the end of boiling the tray is removed, placed in the inverted lid covered with a sterile towel, and left to cool. In the occasional emergency which may arise in the patient's home a perfectly clean saucepan with a lid may be used. After boiling, the water should be drained off and the saucepan left with the lid on until cool. Methods of chemical disinfection such as soaking in spirit should not be used.

**"Sterile" Water and Saline.**—These probably constitute the greatest source of danger. Hospital supplies are frequently

contaminated either from inadequate sterilization initially or from contamination during previous use (Smith and Smith, 1941). Thus the Winchester bottle of "sterile" distilled water or saline, used repeatedly until empty, has frequently been incriminated as the source of water bacteria found in contaminated or infected cerebrospinal fluid. If apparatus is sterilized as recommended above, rinsing and cooling solutions become quite unnecessary and their use should be abandoned.

**Hands of Operator.**—The operator should scrub up as for a major operation, or alternatively should don dry sterile surgical gloves. When gloves are not available it is important that his hands be dry before he handles any apparatus; this may be accomplished by rinsing with industrial spirit and/or drying with a sterile towel. Where needle and syringe have to be assembled, the needle should be handled with sterile forceps. From this point onwards the operator should touch nothing except the sterile instruments and the skin of the patient until the operation is finished. The trocar when withdrawn should be laid on a sterile towel; otherwise it may infect the spinal fluid if it is introduced again to clear the needle.

**Skin of Patient.**—Thorough washing with soap and warm water followed by thorough, not perfunctory, swabbing with tincture of iodine or 70–90% alcohol will leave little risk of contamination of the needle by the patient's skin. The area treated should be the entire area exposed and the skin should be quite dry before puncture is made.

**Anaesthetic and Antibiotic Solutions.**—No cases of meningitis have been traced to the presence of bacteria in anaesthetic solutions contained in sealed glass ampoules. Such ampoules are preferable to rubber-capped bottles intended for repeated use. The sterilization of the outer surface of an ampoule is difficult and attended with such pitfalls that it is better not to attempt it. The ampoule should be opened, after swabbing the neck with 70% alcohol applied with sterile swabs, by an assistant whose hands have been scrubbed and dried. It may be held in a sterile towel or piece of sterile lint. The operator must then introduce the needle of the syringe into the ampoule without fouling the mouth. Other forms of container should be avoided except where absolutely necessary. If a rubber-capped bottle has to be used, the cap should be thoroughly swabbed with 70% alcohol or tincture of iodine and held in a sterile towel by the assistant. The bottle should be returned to the central sterilizing depot after use each day.

The intrathecal injection of antibiotics such as penicillin and streptomycin demands the same high standard of aseptic technique, and all precautions should be taken to ensure that the solutions themselves are sterile.

### Reporting of Cases

The general adoption of the measures recommended here would without doubt reduce the incidence of "accidental" meningitis but would not close every possible loop-hole for infection. Further safeguards can be found only if cases are thoroughly investigated as and when they occur and with the employment of specialized bacteriological methods. The Public Health Laboratory Service will willingly co-operate with the hospital pathologist or other officer in carrying out such investigations as are required.

Gratitude is expressed to Sir Hugh Cairns and Prof. Wilson Smith for the help they gave in the preparation of this memorandum.

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The Pottery (Health) Special Regulations, 1947, issued on Oct. 1 control the use of lead, flint, and quartz in industry. After the expiry of one year from the making of the regulations only leadless or low-solubility glaze may be used in a factory to which the regulations apply in the manufacture of pottery other than glazed tile. A period of two years from the making of the regulations shall apply to factories where the manufacture of glazed tiles was suspended after Sept. 3, 1939, and resumed under the same occupation not later than one year after the making of the regulations. After three months from this date the use of ground or of powdered flint or quartz is prohibited for certain purposes except in slurry or paste.



"Well, what damn' fool excuse for extra rations are you going to make this time, Mrs. Lumbumbago?"

A MERRY CHRISTMAS

The Editor and his staff wish readers of the *B.M.J.* a Merry Christmas. In our highly professional columns there is little room for conscious humour, though the compositor occasionally breaks through the editorial defences, as on the occasion when he set the heading to a short paragraph as "Psychotherapy as a cause of illness" instead of "Psychoneurosis. . . ." And there was a lamentable lapse of the pen when we allowed a contributor, in his description of a gadget, to write: "In the hands of my colleague, Dr. X, this has turned out to be completely foolproof." The penultimate sentence of a long leading article on a controversial matter began, "These are the facts we have to face." The compositor, no doubt, felt he was removing all ambiguity when he substituted the word "fads" for "facts." Humbled by his criticism we nevertheless stuck to our guns and restored the original word.

There is no bright piece of news to cheer the hearts of doctors this Christmas. We have our Minister of Health, and he has his Act. The witch-doctor, happy anarchist, had no Minister, no Ministry, no awkward Acts of Parliament, no doctor's dilemma. Intense individualist, he flourished in a state of complete insecurity. In asking Giles, the famous cartoonist of the *Sunday Express*, to brighten the Christmas number of the *B.M.J.* with a cartoon we described to him some of the current frustrations of doctors. His comment appears on this page.

If there is a witch-doctor at the core of the practitioners of the art and the science, medicine nevertheless advances, and we take pride and comfort in this fact. So that readers

may be right up to date with the more recent advances we print below some of the most outstanding that have been recorded in the past weeks.

RECENT ADVANCES

Special Specialist

When asked by the chairman of East London Juvenile Court to-day the title of a book he had stolen, an 11-year-old boy replied: Why I am a Christian. He was remanded in custody for a special psychiatrist's report.—*Evening Standard*, Dec. 8, 1947.

Hints to the Newly Qualified

Look out for false hips of buckram (£1 a pair), canvas frills sewn under the waistline, boned hip seams, and padded pockets for hip fullness.—*Evening Standard*, Nov. 27, 1947.

Co-education ?

Heathfield School, Harrow, is now a Public [sic] Independent School with a Board of Governors under the chairmanship of Sir Alfred Hurst, K.B.E., C.B. Miss Norris is still head mistress.—*The Times*, Oct. 25, 1947.

Caught in the Slips

A profusely illustrated account of the ball-bladder, its diseases, and the treatment of them.—*British Medical Journal*, 1947, 2, 299.

Calories and Levitation

Other simple methods of giving energy to the human body are walking barefooted on wet or dewy grass, wet stones or concrete, paddling in sea or stream, and smelling flowers. . . . A tired man or woman really crawls along supported from

the ground upwards. As an experiment I suggest that such a person should visualize that he is supported from above his ears by a chain which lifts him so that his feet just touch the ground.—*Sunday Express*, Nov. 30, 1947.

### Rabbit Pie

Dr. F. R. SELBIE has now succeeded in transmitting the Shope papilloma virus to its 9th passage in domestic rabbits. This has been done with the aid of contaminating micro-organisms; but just which ones are responsible has yet to be decided.—*Lancet*, 1947, 2, 835.

### Wedding of the Year

#### MARRIAGES

JOHNSTON, Dr. C. L., with Lord Moran and Dr. Brooks, for a period of six months as from October 1, 1947.—*St. Mary's Hospital Gazette*, 1947, 53, 239.

### Reproduction by Simple Fission

It is . . . for almoners and health visitors to multiply as fast as they can, since they are the eyes, ears, and tongues—the scouts, the field telephone, and the intelligence department—of the health service.—*Lancet*, 1947, 2, 875.

### Tied Cottage?

Some of the difficulties anticipated by the Committee will be met by enabling the Executive Council to buy the house for the incoming doctor.—Minister of Health's "Memorandum on the Statement of the Negotiating Committee's Views," para. 25.

### Not So Recent

"Mr. Walter Whitehead, in proposing 'the Houses of Parliament,' stated that there was still much that the Legislature could do for the medical profession."—*British Medical Journal*, 1897, 2, 1865.

## ORGANIZING A GERIATRIC DEPARTMENT

BY

L. COSIN, F.R.C.S.

Medical Superintendent, Orsett Lodge Hospital, Essex C.C.

There can be no doubt that the aged sick and infirm need more skilled medical attention than is at present available; the provision of this would lead to improved classification and increased rehabilitation, and greatly reduce the number of old people who are bedfast.

To arrive at these results the available hospital accommodation will have to be reorganized to provide:

(1) *Acute geriatric wards*, where most patients will have their investigation and treatment completed in less than six months. (2) *Long-stay annexe wards for the permanently bedfast*. (These two types of wards will require a full nursing service.) (3) *Long-stay annexe wards for frail ambulant patients*. It is surprising how great a proportion of patients previously considered permanently bedfast can occupy this type of ward for a large part of their stay in hospital. Even patients with malignant disease are happier and feel better when they are able to do something for themselves, and are out of bed for part of the day. (4) *The "resident home" type of accommodation for the more robust patients*. Ultimately it is hoped that this type of patient will be moved out of the immediate hospital environment to a small hostel or resident home provided by voluntary bodies or the local authority. Considerable economies can be effected in nursing staff in these last two classes of patient.

### The "Resident Home" Ward

With wards closed owing to the present nursing shortage it should be easy to provide one small unit for the resident home. As soon as a sufficient number (twelve to twenty) of ambulant patients are available the resident home ward could be pro-

vided with one part-time nurse to smooth out the administrative difficulties of the first six months. Later she could be transferred to the "long-stay annexe" ward for frail ambulant patients. One or two nursing orderlies would usually be needed to help the nurse in charge. I prefer no night supervision of the resident home ward except the routine three visits by the night Superintendent, as such patients should be well able to look after themselves. If any nursing treatment, apart from minor dressings, is required patients should be moved back to the "active geriatric ward" for a short period. It is inadvisable to allow a period of more than a day or two in bed, as full nursing supervision should not be provided. Patients who have spent four to six weeks in the resident home ward under such a regime may be considered suitable for a resident home away from the hospital.

At the end of six months resident homes for both males and females should be filled, and another ward be taken over for this work, as probably no outside resident home would be available. By then the part-time nurse and orderlies would have settled down to their routine and the unsuitable patients have found their most suitable environment. No great amount of geriatric rehabilitation would have taken place, but a medical survey would have established the number of patients permanently bedfast, the number of patients who would most likely improve from a short course of physiotherapy and re-education in walking, and probably a larger number who would require more treatment and physiotherapy before recumbency could end.

### Long-stay Annexes

The staffing of a long-stay annexe ward for the frail ambulant cases should not be difficult, for only one full-time nurse or sister-in-charge will be required for twenty to thirty patients, with one part-time nurse for off-duty periods. The rest of the staff would consist of male or female ward orderlies. One orderly for each six patients is the minimum required, while a night orderly service must be provided.

It should now be possible to provide one large ward, at first subdivided by curtain partitions, as the long-stay annexe for the permanently bedfast, and it is here that adequate staff must always be available. This ward should have a large number of senior part-time mature nurses, whose outside interests obviate the sapping of morale by their hospital duties and who are able to offer the best service to these most unfortunate people. We must keep our young nurses and trainees in the active geriatric wards, where progress towards recovery is the keynote of treatment and interest in the patients is not stultified because they are permanent.

Dr. Marjory Warren (1946) has drawn attention to the great advantage of segregating permanently incontinent patients; similar provision should be made for the mentally confused, many more of whom should be ambulant. The frequent use of cot-beds and narcotics in restraining the restlessness of old people kept recumbent for long periods is too common to be coincidental. Now cerebral vascular disease has several components, of which the cerebral oedema accompanying the subacute and acute periodic ischaemias is prominent. If to this composite picture we add the cerebral oedema of recumbency and the frequent presence of a high serum bromide, as well as the restlessness due to a disorientated old person trying to get out of bed to empty his bladder or bowels, we can picture what happens. How often have we seen a pitched battle fought in the ward between several nurses and an elderly man more aware of his bodily needs than are his attendants? On the few occasions when the patient wins he disgusts the staff by defaecating or micturating at the side of his bed. The picture of a distressed patient struggling to prevent the soiling of his bed while the nursing staff are struggling to keep the bed soiled would be amusing if it were not so often repeated.

Get these patients up into a suit of clothes; sit them up to the table at meals; take them to the lavatory at frequent intervals. It will then soon be found that those capable of walking to the lavatory unaided will do so and relearn the regular habits of childhood; others will need assistance from orderlies. In this way much of the incontinence of recumbency will be cured, for it is largely due to faecal retention with overflow. For other patients it may be found necessary to give an enema once or twice a week. By these means the regular bedpan

rounds, four-hourly linen changes, and routine "back" rounds are completely eliminated. The nocturnal quiet of a ward under such conditions must be seen to be appreciated.

The immediate difficulty of staff shortages will again be mooted; but here also male or female orderlies under the supervision of one or two part-time nurses will provide invaluable help.

I have described this clinical picture at length as an example of failure to accept the degree of physical disability as the indication for permanent bedfastness. It has been my experience that far too many mild cases of senile dementia and cerebral arteriosclerosis were left needlessly in bed, thereby throwing extra work on nurses.

The bathing of these patients can be organized on a team basis on one morning a week. By the use of two orderlies for bathing—one for drying, and one or two to run a shuttle service with wheel-chairs from ward to bath and back—some thirty patients can be dealt with in four hours. Further economy can be effected by a team of two following up and making the beds.

The medical profession has for too long cast its less pleasant responsibilities upon an uncomplaining nursing staff; we must now reconsider the part our depleted nursing services are to play if they are to be used efficiently. We must consider ways and means of saving nurses' time.

### Medical Staff

Three factors that will control geriatric care in the next few years are the persistent shortage of nursing staff, the variable conditions prevailing in municipal hospitals, and the lack of doctors and physiotherapists trained in geriatrics. An immediate solution of this problem everywhere cannot, therefore, be contemplated, but it will be possible to organize a small number of efficient geriatric departments where aged patients can be properly treated and rehabilitated, so that nearly 50% can either be sent home or be given accommodation near the hospital and not require a full nursing service.

We may then concentrate our nursing and physiotherapy staff upon active geriatric wards, where rehabilitation may take up to one year but in most cases should not exceed six months. A geriatric department in a district hospital should comprise:

1. *A general physician*, who should be experienced in geriatrics, with available pathological, radiological, and electrocardiographic departments. I am making no plea for a new specialty or a new status. Geriatrics differs in no wise from general medicine, except that greater attention must be paid to the problem of multiple pathologies and their effect upon the vascular system as a whole. The medical aphorism that a man is as old as his arteries is the basic fact to which the geriatric general physician must always pay due attention.

2. *A physician experienced in physical medicine*. The organization of physiotherapy is the key to the whole problem of geriatric rehabilitation, for physiotherapy must be applied skilfully and with due regard to the patient's physical disability as the most important criterion of bedfastness.

3. *A psychiatrist*. The medical staff of the nearest mental hospital would be a very useful choice, because so many old people now sent to mental hospitals could be adequately cared for and improved physically and mentally in a more helpful environment where emphasis is laid upon the patient's recovery. These patients could then be sent to a long-stay annexe for the mentally confused, or to their own homes without any mention of mental hospitals. So many of these old people with mild senile dementias and cerebral arteriosclerosis need little or no mental treatment at all, but a well-organized kindly discipline with adequate nutrition, some supervision, and gentle occupations. Once again, with so many ambulant patients of this type there is little need for nurses. In view of the impending changes in lunacy certification, if a small proportion of beds were put aside in a geriatric department for this type of case another problem would be ameliorated, while the true senile dementias needing a mental hospital environment would go there after a most sympathetic general medical review of their condition.

4. *A good general surgical service*. This should not be difficult to organize in any area. It is not necessary to emphasize the importance of ophthalmology to the aged.

5. *A urological surgeon* skilled in primary prostatectomy and perineal resection is essential to prevent the drain on hospital beds, nurses' time, and surgeons' time of over-prolonged or permanent suprapubic drainage.

6. *An orthopaedic surgeon* to deal specially with the problem of the fractured upper end of the femur. An active policy of rehabilitation will result in many more patients, whatever their physical or mental condition, being submitted to an operation which, in my experience, produces less shock than being bounced on and off a bedpan several times daily or submitting to frequent changes of bed-linen. Dr. A. J. Lee has shown us that even in the presence of electrocardiographic changes the "immediate" mortality is very small with a well-administered anaesthetic which prevents the possibility of anoxaemia. Incidentally a general anaesthetic given by an experienced anaesthetist is always preferable to a local anaesthetic, for there is less possibility of anoxaemia developing; the shallow respiratory excursion so common in old age may not be sufficient to prevent anoxaemia, especially where a basal anaesthetic is used to supplement the local.

I see no objection to the insertion of a Smith-Petersen pin or applying well-leg traction if by this means a patient's last days are eased and the nurses' work is lessened: sandbag "immobilization" cannot be considered as, in any way satisfactory to patient, surgeon, or nursing staff. Another great waste of nurses' time and hospital beds is treatment of a fractured femur by prolonged traction or Whitman's plaster immobilization for many weeks.

It follows, therefore, that the use of the body as an immobilizing force providing countertraction, in old people at least, must be reconsidered from three points of view. First, there is no doubt that the work of the nursing staff is increased; secondly, the incidence of joint and muscle stiffness is raised, delaying the application of physiotherapy and thereby greatly prolonging its period of application and wasting the physiotherapist's time; thirdly, the method of immobilization increases the incidence of respiratory complications, including pulmonary embolism following phlebotrombosis of the calf and foot veins. Dock (1944) has pointed out that necropsies with complete leg dissections show that 30% of all hospital patients from the age of 17 to 90 have thrombi in the veins of the calf; in adults who have been in bed for two weeks or longer the incidence reaches 60%, while nearly all show necroses and inflammatory reaction in the calf muscles.

### Nursing Staff

Geriatric patients need more nursing and medical attention during the period of active rehabilitation, while as soon as they are ready they can be transferred to a long-stay annexe ward without a nursing service or to a long-stay annexe for bedfast cases. Our depleted nursing service could then be concentrated upon 50 to 60% of the patients, which amounts to almost doubling the available nurses. The active geriatric wards could carry out their routine on a minimal basis of one nurse to four patients, while the 10% permanently bedfast cases would also need at least one to each four patients. It is becoming increasingly obvious that many more nursing orderlies, male and female, will therefore be required.

The correct psychological approach in the acute geriatric ward demands active group rehabilitation, and this is best carried out by the physiotherapist and her orderlies. I have found that the nursing staff cannot accurately assess when an old patient is fit to start rehabilitation or begin getting out of bed; thus the process is slowed. It is wiser, therefore, to hand over the rehabilitation of all physical lesions, either organic or postural, to the physiotherapist and her orderlies as soon as the physician finds no physical reason for further delaying rehabilitation. When more nursing staff trained in this branch of medicine are available this decision can be reviewed. The nursing shortage will be ameliorated by the future interchangeability of district hospital nursing staffs, but for the time being nursing orderlies (three to each ward) will have to be utilized. Indeed, they serve a very useful function in the routine of a ward, performing many non-nursing duties and leaving the nursing staff more time to carry out their work.

It is essential to provide a geriatric service, for a good medical, surgical, and nursing service alone will not help restore old people to activity; only the correct psychological and physiotherapeutic approach can effect this, by affording competitive group and individual rehabilitation, with each patient at a different stage of recovery. As soon as surgical, ophthalmic, orthopaedic, and urological problems have been dealt with the patients should be transferred to the helpful and less hurried atmosphere of the active geriatric ward; for elderly persons obtain no benefit in the noise and bustle of the acute surgical ward, while to see patients 40 to 50 years their junior improving rapidly and going home is to them often nothing but an irritation.



### Premises

Having carried out a geriatric scheme as described in premises by no means ideal, I am satisfied that most public assistance institutions can be utilized temporarily for the provision of the desiderata previously mentioned: active geriatric wards; long-stay annexe wards for patients up part or all day; long-stay annexe wards for the residuum of geriatric bed-fast cases needing constant nursing; and resident homes, which can often be outside the hospital.

The size of the first unit will depend upon the nursing and physiotherapist staff available, but so long as 24 nurses and 12 orderlies, with one or two physiotherapists and four physiotherapist orderlies, can be obtained, it should be possible to run a unit of 100 beds.

We must clearly differentiate between a geriatric service as applied to newly admitted patients and the more difficult and painstaking work of gradually releasing hospital beds and nurses used up in nursing old people who require rehabilitation after years of neglect. It is imperative, however, that the first steps taken should be to solve the more difficult task, as in this way the effects of the nursing shortage can most rapidly be ameliorated. We must be sure that a gradually increasing part of the nurses' time is spent in the active geriatric wards, leaving part-time senior nurses to treat the relatively few permanently bedfast in their long-stay annexe wards. The more this policy is carried out the less will the nursing shortage be felt. It might be expected that an early result of the work of the geriatric departments would be a gradual decrease in the number of beds required. This cannot be the case for some years because of the rapidly increasing number of old people.

### Summary

The view is expressed that improved care of the aged sick must depend upon the organization of a geriatric department in the hospital system.

The medical profession must change its attitude towards these patients from that of resignation to the inevitability of endless months in bed to active investigation, ensuring that each patient has the optimum chance of enjoying even limited activity and independence.

The need for reawakening the nursing staff's interest by the more optimistic approach of the medical profession is stressed.

The importance of physiotherapy in rehabilitating the aged is demonstrated.

Medical staff must consider therapeutic approaches which will economize nurses' time.

The insistence that nurses spend the maximum period of time actively nursing the sick in the active geriatric wards will decrease the unpopularity of this work.

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## ROYAL MEDICAL FOUNDATION OF EPSOM COLLEGE

### PENSION, SCHOLARSHIPS, GRANTS

The Council of Epsom College invites applications for a vacant "France" pension of £30 per annum for a necessitous medical man fully 55 years of age who has been registered for five years. Forms of application may be obtained from the Secretary's Office, Epsom College, Surrey.

There are also available: (a) Other pensions for medical practitioners or widows, when vacancies occur; (b) scholarships and grants for children of either sex, not necessarily orphans, but candidates must be of public-school age and in need of such help; (c) grants from the Eastes Trust for the relief of registered members of the profession of any age, their widows and orphans, and educational assistance for their daughters or sons.

## STATEMENT BY THE COUNCIL OF THE BRITISH MEDICAL ASSOCIATION

December 18, 1947

The Negotiating Committee has now completed the work of presenting to the Minister of Health the views of the medical profession on the National Health Service Act, 1946. The Minister of Health has replied to the views of the Negotiating Committee. Every doctor should study carefully both documents, since, as the Minister himself has said:

"Every doctor will have to decide for himself when the proper time comes whether or not he should take part in the new Service, and the profession as a whole will be free to determine their views on the Service when they know what it is to be."

It is now the profession's duty to decide its collective attitude to the Act prior to the making of individual decisions by those doctors affected.

In his reply the Minister acknowledges that the medical profession has worked untiringly for a comprehensive health service to be available to all who need it. The medical profession itself has helped to formulate the plan, a contribution which has too often been ignored by opponents of the profession. The profession objects, not to the aim itself, but to the methods proposed, under the present Minister, to achieve it. It would be useless to disguise that on this subject the differences between the Minister and the profession are deep. On no single major issue has the Minister responded to the reasoned arguments of the profession.

Family doctors entering the Service will be the salaried employees of the State. There is no escaping this conclusion. That the public may not draw from this the deductions which are obvious to most medical men is the tragedy of the present situation. A man can be genuinely responsible only to one master. Until now that master, for the medical profession, has been its patients, to serve whom is its vocation. The need for single-minded devotion of the doctor to those under his care has been for centuries the first lesson to be taught to the young medical student by his teacher. Like other men, the doctor must gain a livelihood. For that livelihood he has been dependent until now on his own skill and his patients' recognition of this. Henceforward for those entering the Service there will be new loyalties and different paymasters—the all-powerful State, whose purposes are not necessarily those of medicine. To-day a doctor's advice is given without fear or favour, and is accepted—within the limits of ordinary human fallibility—as having but one sole object: to help his patient. To-morrow, when the doctor's attention—and loyalty—are divided between his patient and his paymasters in Whitehall (controlled, as these in turn will be, by extraneous considerations of national finance and other non-medical considerations), who knows what conflicts of duty and interest may not occur?

These are not imaginary bogies, conjured up by an alleged "reactionary" profession to impede the progress of "a great social reform." When the Negotiating Committee asked for the abolition of the "basic salary" idea it well knew what it was about.

It is significant that the Minister puts forward no arguments in favour of a universal basic salary. He stated in his letter of Jan. 6, 1947, that the question was still open and that he wished to discuss it with the profession. No such discussion has taken place. Now his arbitrary decision is that every general practitioner must be a salaried officer. The only argument ever used by a member of the Government in support of a universal basic salary is the one used by the Lord Chancellor in the House of Lords when he argued that the salary method was needed for the control of certification. If this is so, the public is vitally concerned. Public safety demands that the individual doctor shall be free to certify what he finds in his patient without fear of Government influence. At the outset the State salary is to be £300 a year. But this figure can be varied by the present Minister or a successor upwards or downwards by simple Regulation and at any time he chooses.

A further safeguard on the independence of medicine disappears with the abolition of goodwill in public general

practice. Nor will any practitioner be able to enter public practice without the ultimate approval of a committee in Whitchall. Do these changes taken together mean that the medical profession must ultimately become the full-time salaried servants of the State? Can they mean anything else? Were they ever intended to mean anything else—bearing in mind the published policy of the party in power?

### Contradictions in Act

This is the central issue, and it is an issue of principle. But since the Act affects every doctor, every doctor will look closely at the terms and conditions to be imposed upon him. Doctors are human, with wives and families of their own to care for. No more than other men can they be expected to appreciate expropriation, injustice, or State-imposed uncertainty about their future. The Negotiating Committee has been advised on high legal authority that certain sections of the Act are contradictory. It is also advised that the Minister's interpretation of these clauses is mistaken in law, and that in any event such ambiguity exists as to render it difficult and dangerous for doctors in partnership to determine whether or not they should enter the Service. These legal arguments have been brought to the attention of the Minister. He has made no attempt to counter them, preferring to say that if he is proved to be wrong in his interpretation he will—presumably if still in power—proceed so to amend the Act as to make his own interpretation legally correct. Meanwhile he leaves it to the individual practitioners to fight out the issues in the courts at their own expense. Needless to say, no amount of retrospective legislation, if such indeed proves eventually to be necessary, can put right the transactions which will have taken place on the false assumption that the Minister's interpretation is correct. Whatever happens, flagrant injustices will have been perpetrated—injustices which could have been averted had the Minister consented to amend these clauses before the Act comes into force instead of afterwards. Here in fact was the crucial test of the genuineness of the Minister's declared intention if convinced by argument to amend the Act. He has declined to amend. Did he ever intend to amend?

In the field of hospital and specialist services the Minister makes some concessions which may or may not survive his tenure of office. Meanwhile they may relieve some of the anxieties of specialists. The main changes are to remove the ceiling of professional fees for a proportion of private beds and to promise not to take over nursing-homes even though they are not conducted for profit. A number of other issues are raised by the documents. For example, there is no evidence in the Minister's reply of any relationship between the proposed remuneration of the general practitioners and the recommendations by the Spens Committee, which he accepted in principle. The profession has repeatedly asked that, before a doctor is dismissed from the Service he should have the right of an appeal to the courts against the Minister's ruling. This right of appeal, which would be a protection for the public as well as for the profession, is still denied.

### Plebiscite of the Profession

The issue now rests with the profession. On Jan. 31 a plebiscite of the whole profession will be taken, and on the results of that plebiscite the British Medical Association will determine its future action. It must be made clear that, whatever the result, no doctor will be advised not to render service to his patients or not to continue with his professional work. If the profession decides against service, consultants and specialists will be advised to continue with their hospital work, meanwhile refraining from entering into contract with regional hospital boards; general practitioners will be advised to continue with their practices but without entering into contract with local executive councils; public health officers will be advised to continue with their work under local authorities. Parliament has given to every doctor the right freely to enter or not to enter the Service. Indeed the Minister, in his reply, draws attention to this right. The medical profession, while never willing to withdraw its service from the public, is fully entitled to say that the State Service offered is, in its considered view, opposed to the best interests of the public and the profession.

The task now before the profession is to strip the non-essentials from the essentials, to distinguish between the shadow and the substance. Despite the Minister's promise that if convinced he would seek amendment of the Act, he has remained unconvinced and impervious to argument; and thus for nearly a year we have worked at the conference table to no purpose.

There remain one final question and one central issue. Does the Service as described by the Minister conflict with the traditions and standards of a great profession? There is only one answer the Council of the Association can give to this question. It does so conflict.

### NATIONAL (WAR) FORMULARY

Amendment No. 1, 1947, of the *National (War) Formulary* (see Aug. 9, p. 225, for other alterations) approved by the N.W.F. Committee is as follows:

- P. 14. *Prokayvit* amended to read "*Prokayvit Oral*."
- P. 15. Entry added:—*Rybarvin (Solution)*: Compound Spray of Adrenaline and Atropine, N.W.F.
- P. 20. *Capsula Pluravit*. Title replaced by *Capsula Vitaminorum (Caps. Vitamin)*. Synonym is retained.
- P. 33. *Linctus Codeini* N.W.F. Title amended to read *Linctus Codeinae* N.W.F.
- P. 34. *Linctus Diamorphini* N.W.F. Title amended to read *Linctus Diamorphinae* N.W.F. "Note" also amended to read *Linctus Diamorphinae* B.P.C.
- P. 34. *Linentum Merhyllis Salicylatis* B.P.C. Formula amended to include: Rape Oil, for alternative use with Arachis Oil and Cotton-seed Oils.
- P. 47. *Mistura Potassii Bromidi et Nucis Vomicae*. The word "to" is inserted in the last line of the formula.

Where medical practitioners continue to order on N.H.I. prescriptions "*Caps. Pluravit*," the chemist is being informed that he shall dispense *Caps. Vitaminorum*. Manufacturers are asked to make immediate arrangements to use the title "*Caps. Vitaminorum*." A title similar to the one originally chosen by the N.W.F. Committee for the N.W.F. multiple vitamin capsule has been granted registration as the trade mark of a particular manufacturer, who, however, is agreeable to the disposal of stocks at present held.

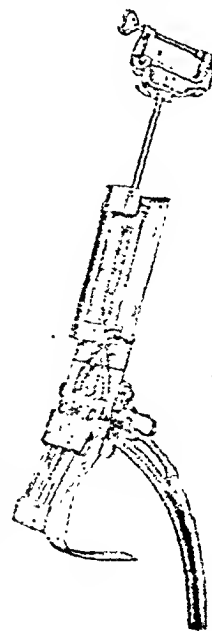
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#### SELF-CONTROLLED THREE-WAY SYRINGE DEVICE

Dr. DAVID A. HERD (Leeds) writes: I have recently designed and constructed a three-way syringe device which can be completely controlled by one hand, thus allowing the other free to hold the needle in the chest. It consists of a rectangular recess and clamp which holds an ordinary Record 50-ml. syringe; to this is attached a three-way piece from which rubber tubes pass under spring-controlled thumb levers (C., chest; W., waste; D., disinfectant). To facilitate the positioning of the sterile tubes under their respective levers the device can be made to break in half by means of a friction hinge. The piston end is attached by a screw clamp to any suitable fixture, such as the end of a bed or couch. It will be seen that the usual syringe action is reversed.

The advantages of the device are: (1) Syringe and chest needle are entirely under the control of the operator. The patient's chest can be aspirated or washed out at his bedside without assistant or nurse. (2) No special syringe is required. (3) All parts are easily detached for sterilizing or replacing. (4) There are no taps to block or get out of order.

Further information can be obtained from Messrs. Reynolds and Branson, Ltd., Briggate, Leeds, who have now agreed to make the instrument.



## Reports of Societies

### AGGRESSION AND EMOTIONAL DEVELOPMENT

A meeting of the Section of Psychiatry of the Royal Society of Medicine was held on Dec. 9 for a discussion on "Aggression in relation to emotional development, normal and pathological." The chair was taken by Sir DAVID K. HENDERSON. The attendance was so large, including members of the Child Psychiatry Section of the Royal Medico-Psychological Association and the Medical Division of the British Psychological Society, that an adjournment had to be made to a bigger hall.

#### The Contribution of Psycho-analysis

Miss ANNA FREUD spoke of the changes brought about in child psychology by psycho-analysis. These included a re-orientation of the role of instinctive urges in the development of the child. In pre-analytic psychology childhood was regarded as a peaceful period of progressive growth in which the instinctive urges were not a disturbing element, but analytical psychology ascribed to such instincts the main role in the shaping of personality. When the demands made by the environment clashed with the claims of the instinct, the ego had to find a solution. It might choose either to act in submission to environment and opposition to instinct, in which case the child was "obedient" or "good," or to submit to the claims of instinct against the outer world, in which case the child was "naughty." The child was faced with a painful tension within or the threat of injury or punishment from without, a conflict which served as a constant stimulus towards the development of higher function and finally shaped the personality.

Psycho-analytic theory placed the whole of the instinctive urges under two headings: sex and aggression. Infantile sexuality was shown not only to exist but to have perverse manifestations, which made it more difficult of acceptance as a normal, regular, necessary occurrence. The aggressive character of the infantile urges did not escape notice, but it was at first attributed to the cruel nature of infantile sexuality itself. Aggressive outlets were found at an early stage directed against the child itself—as, for example, the head-knocking activities of infants—which were on the verge of abnormal behaviour and might sometimes result in real injury. Biting was another self-destructive activity. It was essential that these aggressive urges should be directed away from the child's own body to outer objects, and at a later age aggression became more normal. It was still self-destructive, but it was vested in the super-ego and directed, not against the body, but against the ego itself.

Thus the factors in child behaviour, Miss Freud continued, included both erotic and aggressive elements. Those who had to do with toddlers knew the exhausting kind of love which they had for their mothers, and which drove some young mothers to the point of despair. Aggressive love threatened to destroy its object. Later the mixture of sex and aggression came to be of a more adult nature; boys at this level dominated but also protected their mothers. They sought to impress and thereby to subdue the loved object. They might fluctuate between being manageable and unmanageable, between the so-called good and bad, but most variations came within the range of the normal. In recent years special interest had been directed towards pathological aggressiveness in young children, mostly orphans or children in broken homes or in institutions. They were not mental defectives, but were uncontrollable, showing either pleasure or complete indifference with regard to the damage they did to things or the suffering they inflicted on persons. The handling of these children was a baffling problem and a challenge to child psychiatry. The pathological factor in these cases was not in the aggressive tendencies themselves but in the lack of fusion between these and other urges. The aggressive urges, not being brought into fusion and thereby partially neutralized, remained free and were manifested in cruel independent destructiveness. Appropriate therapy would be directed to the emotional development with a view to securing this fusion.

#### Instinctive Behaviour

Dr. CLIFFORD SCOTT, who paid a tribute to Sigismund and Anna Freud for the new understanding they had brought to child psychology, said that in the early weeks of an infant's life it was not easy to separate the drives, wishes, and instinctive attitudes and study them in isolation; nevertheless, they were on sure ground biologically when they thought of instinctive urges as leading to consciousness in the form of desire, appetite, and hunger, and, in a suitable situation, to satisfaction. They were less sure of the point at which the line leading to satisfaction was altered and the new attitude of aggression became manifest. From clinical observation of both children and adults, especially mentally affected children and psychotic adults, there was much evidence that instinctive behaviour became more and more energetic until finally, if satisfaction did not occur, disorganization began. It was necessary to distinguish between two happenings in early life—that which led to satisfaction, and that which led to frustration and the development of aggression. Once aggression had occurred it was remembered, repented, developed, and exploited, and its repetition involved associated fantasy. At any stage of development it was as important to assess the nature of aggression as it was to assess the type of sexual development. Inhibited aggression in the presence of inevitable frustration presented a most difficult problem. It was one of the most important pointers in childhood to the possibility of psychosis in later life. Exaggerated aggression was another problem to which much of the psycho-analysis done in this country during the last twenty years had provided some answer. There was a splitting of the ego in such a way that the loving and the aggressive aspects were kept widely separate, thereby preventing normal development. It was necessary to strike a balance between the destructive use of aggression and the opposing use of love before behaviour could be rightly discussed in terms of normal and abnormal.

Dr. D. W. WINNICOTT said that in aggressive children any one act of aggression must involve the whole child; no aggressive act could be treated as an isolated phenomenon, and the child must be considered in his environment and in his relation to adults. It must be remembered also that even the maturing child contained within himself various degrees of immaturity. The child must be considered as a person having fixations at immature levels, also as in a labile emotional state, liable to be aggressive and to recover therefrom given a suitable environment. Prior to the integration of personality there was non-purposive aggression. The baby kicked in the womb, but it could not be assumed that it wanted to kick its way out. The infant chewed the nipple with its gums, but it could not be assumed that it wanted to hurt. The integration of personality did not arise at one particular point; it came and went, and with it there arose purposive behaviour. From then onwards the child who was aggressive meant to be aggressive.

Dr. Winnicott traced the emotional development of the child up to the emergence of a feeling of guilt as the result of his aggression, the guilt referring to the damage he had done to the loved person. In this way much aggression was transferred to a social function. Frustration acted as a seduction away from guilt towards the defence mechanism; there was an easing of guilt, but love lost some of its valuable aggressive components. It was important to study the complex series of defence mechanisms in any attempt to understand the child who had reached this stage of emotional development. In health the child's interests were directed both towards external realities and towards his inner world, but in ill-health the relationship might be reorientated, so that the "good" was concentrated within and the "bad" was projected; thus the child became pathologically introverted, and at such a point regularly became aggressive. Many children continued to live in their inner world, as indeed did many adults, never achieving a capacity for objectivity. The inner world to the child was localized primarily in the belly, and secondarily in the head or some other specific part of the body. If the child who had reached some power of organization had experience of, for example, quarrelling between his parents, the quarrel, so to speak, continued to live inside him, and a certain amount of energy was directed towards attempting to control the internal

bad relationship. When the internal bad relationship took over he developed aggression like the quarrelling parents themselves. Clinically there appeared a dramatization of badness, manifested by kicking, passage of flatus, and the like, or alternatively a kind of suicidal attempt, aimed at destroying the bad within the self. In the more mature child the story was the same, but the accent was on genital rather than oral experiences. To ensure maturity stable conditions of environment were essential.

### Frustration Theory of Aggression

Dr. JOHN BOWLBY said that the persons to whom the small child exhibited the greatest aggressiveness were the members of his family, for whom he had also a feeling of affection and on whom he was dependent. Hatred of loved persons predisposed the child to the development of mutually antagonistic systems within himself, with consequent self-hatred and self-damage characteristic of the instability of the neurotic person. A study based on the observations of parents showed that angry outbursts were most frequent during the second year of life. As the child got older the outbursts were fewer and more purposive. Poor health and hunger predisposed the child to outbursts, and increased aggression, overt or repressed, could be traced to a number of emotional situations of a frustrating kind occurring during the first three or four years of life and brought about by an autocratic discipline or an over-protectiveness on the part of the mother, or by the separation of the small child from the mother, which gave him a feeling of insecurity. It was only in situations such as these, when the child's relationship to his parents had been badly affected, that pathological sequelae appeared. An objection to the frustration theory was that certain children were sent into paroxysms of rage at minor frustrations which other children took in their stride, but when these cases were investigated the frustration theory was confirmed, for the child who reacted to minor frustrations with rage was the child who had already undergone a major frustration. The experience of an increasing number of children's psychologists was that the child whose primary need for good relations with his mother had been frustrated was the child who reacted to pin-pricks with disproportionate outbursts. It might be that genetic factors enabled some children to tolerate frustration more easily than others, but genetic factors should not be invoked too easily to explain aggressiveness.

Any proposal to bring up children without frustrating them was manifest nonsense, but on the extent to which it was possible to reduce frustration depended in a great measure the prevention of mental illness and instability. Studies should be carried out by workers analytically trained in the study of human relationships. Children would develop favourably and without undue aggression if in their early years they were continually with parents who wanted and enjoyed them, and who were able to develop a give-and-take relationship, neither insisting on autocracy nor making doormats of themselves. This was not to prescribe the impossible. Despite the mistaken teaching of many doctors, some educationists, and even a few psycho-analysts, many children were already brought up in this way.

In some general discussion Dr. MELANIE KLEIN expressed surprise that the question of heredity had not entered into the discussion. She could not agree that thumb-sucking was an attribute only of the abnormal child; it was instinctive in the search for comfort. Dr. STENGEL said that Freud's dualistic theory, especially the concept of the fusion of the erotic and aggressive impulses, had been of great help to him as a general psychiatrist in attempting to understand the reactions of the child. Dr. FELIX BROWN mentioned the importance of the factor of sibling jealousy in the development of aggressiveness.

### Criticisms

Sir DAVID HENDERSON, from the chair, in closing the discussion, said that he thought that Miss Freud had given a too optimistic picture. She had suggested that with the fusion of the erotic and aggressive instincts, accomplished almost automatically, good behaviour would result. He found this a little difficult to grasp, and he wondered how far this theoretical

conception had been proved in practice. With regard to Dr. Scott's contribution, he himself could not differentiate, as apparently Dr. Scott did, between hate and aggressive love. Where did love cease and aggression become the paramount factor? As for Dr. Winnicott's theory, he thought it would be difficult to establish before a judge in court or a board of medical assessors. It did not seem right to have theoretical concepts without actual facts being given in support of them, at least facts on which dogmatic statements could be made. Dr. Bowlby, he thought, had not paid enough attention to genetical constitutional factors, though every practical psychiatrist would weigh up the environmental situation before accepting a genetical explanation.

The trouble with such a discussion was that too much was attempted, and owing to shortness of time no speaker had been able to develop his very complicated theme.

The openers briefly replied.

### PENICILLIN IN ACUTE OTTIS MEDIA

At a meeting of the Section of Otolaryngology of the Royal Society of Medicine on Dec. 5, under the presidency of Mr. DONALD WATSON, the subject of penicillin treatment in acute suppurative otitis media was discussed.

Dr. A. YOUNG presented a study of a series of cases in Mr. Simson Hall's department of the Edinburgh Royal Infirmary. The number of cases, extending over the period from early 1946 to June, 1947, was 115. All cases with a previous history of deafness or discharge were excluded, also all cases which on admission appeared to require immediate mastoid operation, all cases of children under 5, and all cases with a history of over one month's duration. The fact that a patient had been given a sulphonamide before being referred to the department had to be disregarded. Penicillin was given by intramuscular injection in doses of 200,000 units daily for in-patients, with three-hourly injections of 25,000 units, and in doses of 100,000 units twice daily for out-patients. As time went on and penicillin became more easily available and less costly, larger total doses were given; the average was 1,300,000 units, equivalent to just over six days' treatment, and the maximum was 2,500,000 units. Oily preparations of penicillin were tried in the case of out-patients, but they complained of pain and discomfort and preferred the lesser inconvenience of more frequent attendances.

Of the 115 cases 10 were bilateral. The drum was perforated and discharge was present in 56 and the drum was bulging in 44 cases. In cases of perforation and discharge x-ray examination of the mastoid at the start of treatment showed some degree of opacity. The commonest organisms found on culture were haemolytic streptococci, and less often staphylococci. In no case was a penicillin-resistant organism encountered. Paracentesis was performed in only 8 cases, and there was no evidence to show that the cases in which it was not done suffered any impairment of function which might have been avoided.

A dry ear followed penicillin treatment alone in all but 6 cases; in 6 cases a simple mastoid operation was necessary, and one required in addition removal of adenoids. In 10 cases there was recurrence of infection; in 2, more than one recurrence. In one case signs of meningitis accompanied the recurrence. The simple mastoid operation was done in two of these cases before final healing. The time taken for the ear to become dry averaged 7-8 days, and the time for the drum to return to normal and for normal hearing of the whispered voice to be recovered was 11 days in the cases in which suppuration had been present and 9 days in the cases in which it had not. Comparable figures for cases treated with sulphonamides were 9 days for the ear to become dry, and 17 days for the drum to return to normal if suppuration had been present, and 14 days if it had not.

In 8 of the cases there remained some defect in hearing. In only one was this at all marked; in the other 7 it could be described as slight. Hearing tests were repeated at intervals until it appeared that no further improvement was to be expected. In some cases satisfactory audiograms were obtained

in two or three weeks; in others it was necessary to follow up the cases for months. The hearing levels for each frequency were averaged out, and showed for the different ranges an average comparative loss of hearing of from less than 5 up to 10 decibels. At 256 frequency, for example, the average loss was 2.5 decibels, made up of 59 cases with no comparative loss of hearing, 20 with a comparative loss of 5 decibels, and 13 with a loss of 10 or more. At the beginning of the investigation alternate cases were treated with sulphonamides, but after a time this was given up. The average audiograms for the cases treated with sulphonamides showed remarkably little difference from those treated with penicillin, but, of course, the number of cases was smaller. The results of penicillin treatment in recovery of function for all practical purposes might be considered remarkably good.

#### The Reason for the Investigation

Mr. I. SIMSON HALL said that the public was demanding penicillin on the slightest provocation, and the wave of enthusiasm which greeted its introduction made it all too easy to assume that here was the answer to the otologist's prayer. It seemed that although in the severer complications of otitis media it was undoubtedly a wonderful addition to their armament, yet in the treatment of the slighter and earlier forms of otitis there was much still to be learned. The neurosurgeons declared that penicillin failed to penetrate into an intracranial abscess so long as there was tension within that abscess. There was considerable tension in the middle ear, and if there was no penetration of the drug into the middle-ear cavity obviously paracentesis would be an essential preliminary where there was an acutely bulging drum. A patient was given 250,000 units of penicillin and twenty minutes later a paracentesis was done. Before doing the paracentesis the contents of the middle ear were aspirated and submitted to a bacteriologist with a view to discovering whether there was penicillin or the products of penicillin within the affected fluid. The bacteriologist reported that there was a satisfactory degree of bacteriostasis in the middle-ear fluid, which was assumed to mean that penicillin had in fact penetrated the middle-ear cavity. More work on this point needed to be done.

With regard to the final results of treatment, the residual hearing defect in a number of cases was not great, but it remained to be seen what happened to these people in ten or more years' time. Eighteen to twenty months' observation was far too short. Within the last month 22 patients had been seen in whose cases previous x-ray records were available. Examination of the films together with the audiometric records seemed to show that although there was a degree of mastoid involvement it was not of any special significance; 11 of the 22 now had normal hearing and 11 some impairment.

The advantage of penicillin over the sulphonamides seemed to be that patients returned to normal some 4 or 5 days earlier; but penicillin treatment must be given regularly, and the general impression was that four-hourly treatment was the ideal. It was difficult to imagine a busy general practitioner carrying out penicillin treatment four-hourly, and it was something of a relief to find that sulphonamide treatment, so far as late results were concerned, seemed to hold its own in the field. Therefore his feeling was that in general domiciliary practice reliance should be placed chiefly on the sulphonamides.

#### Penicillin-resistant Strains

Within the last week, Mr. Simson Hall added, there had been published a paper<sup>1</sup> showing an analysis of *Staph. pyogenes* infections and indicating that the proportion of penicillin-resistant cases had risen from 12.5 to 38% in a year. It might be inferred that in a matter of months penicillin as a means of treatment in staphylococcal infections would be a back number. Happily, the same proportion did not obtain with streptococcal strains, but the percentage of streptococcal strains which were penicillin-resistant was increasing. One of the chief reasons advanced for penicillin resistance was inefficient administration. As a major factor in the production of autogenous

intracranial disease the streptococcus seemed to be on the way out and the staphylococcus and others on the way in, and in future it was likely that these infections would be encountered with increasing frequency.

He had been asked what he considered to be the proper dosage of penicillin. He had no certain knowledge. The enormous doses which had been fashionable in some places were very attractive in theory, but he doubted whether they were on a substantial basis. Finally, he reaffirmed his view that these valuable drugs were an adjunct to surgery, not an alternative, and said again that his remarks applied to early acute otitis media only.

#### General Discussion

A large number of speakers took part in the general discussion. Mr. T. B. LAYTON put it forcibly that the appearance of a case of chronic otitis media was a sign of failure on the part of the parents, the general practitioner, or the surgeon. Mr. E. G. COLLINS said that penicillin treatment disturbed the bacteriological balance when a mixed infection was present, and under the local application of penicillin or the use of penicillin lozenges *B. proteus* and the coliform organism took on a greater activity. Mr. J. H. OTTY opposed Mr. Simson Hall's suggestion that where penicillin could not be given efficiently sulphonamide drugs should be used; he was afraid of their masking effects. Mr. W. A. MILL, on the contrary, doubted whether masking was a real danger if proper precautions were taken. Mr. L. GRAHAM BROWN said that masking was a real thing, but it did not occur so much now because practitioners were aware of the danger.

Mr. G. EWART MARTIN supported Mr. Simson Hall's assertion that the sulphonamides and penicillin were adjuncts; they should not be regarded as the only treatment. It was necessary to get back to the education of the otologist on normal lines, not with penicillin in the background the whole time. Mr. R. SCOTT STEVENSON raised the question of Eustachian catheterization. Mr. GAVIN YOUNG said that formerly cases of acute mastoiditis were met with once or twice a year; now, as a result of inadequate chemotherapy, the number had multiplied. Mr. F. C. W. CAPPS would like to have seen, alongside the cases presented by the openers, a series which had been treated on the old orthodox lines by drainage. Mr. R. L. FLETT said that a good deal turned upon the appearance of the tympanic membrane. Mr. H. V. FORSTER pleaded for the treatment of cases of otitis media in hospital so far as possible. Mr. P. SCOTT referred to the danger of masking, especially with penicillin tablets given for use at home. Mr. A. MACKENZIE ROSS said that any child with acute earache should be under the supervision of an otologist. The PRESIDENT (Mr. Donald Watson) said that the ultimate hearing depended on the amount of scar tissue in the ear, whether penicillin was used or not, and whether otosclerosis would follow these treatments in a few years' time was an open question.

Mr. SIMSON HALL, in reply, said that he had not been able to arrive at any rational explanation of the high-tone loss which had occurred in many of these patients. With regard to masking, he thought that this occurred with penicillin just as often as with sulphonamides. These were agents which they were not taught as students to use; they had had to learn their use for themselves, and they had still to learn the danger signs.

#### METALLIC CONTAMINANTS IN FOODSTUFFS

The Food Group of the Society of Chemical Industry held a joint meeting with the Society of Public Analysts on Dec. 3 for a discussion on the occurrence, physiological importance, and estimation of metallic contaminants in foodstuffs.

Mr. G. E. FORSTNER said that metals or trace elements should be regarded as contaminants only when present in such amounts that the safety limit for the health of the consumer was transgressed. A trace element had been defined as one that was widely distributed but rarely exceeded 20 parts in a million in the food consumed. The limit for arsenic fixed by the Royal Commission in the early part of this century—the Commission set up following an outbreak of poisoning due to arsenic in beer—was 4 parts. The importance of natural

<sup>1</sup> "Staphylococcal Infection due to Penicillin-resistant Strains." Mary Barber, M.D. *British Medical Journal*, Nov. 29, p. 863.



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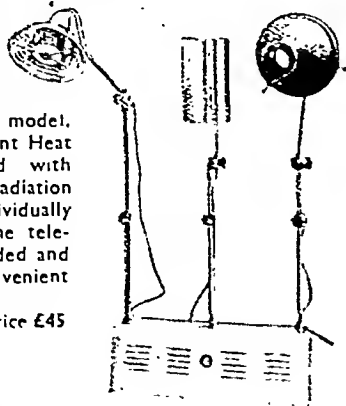
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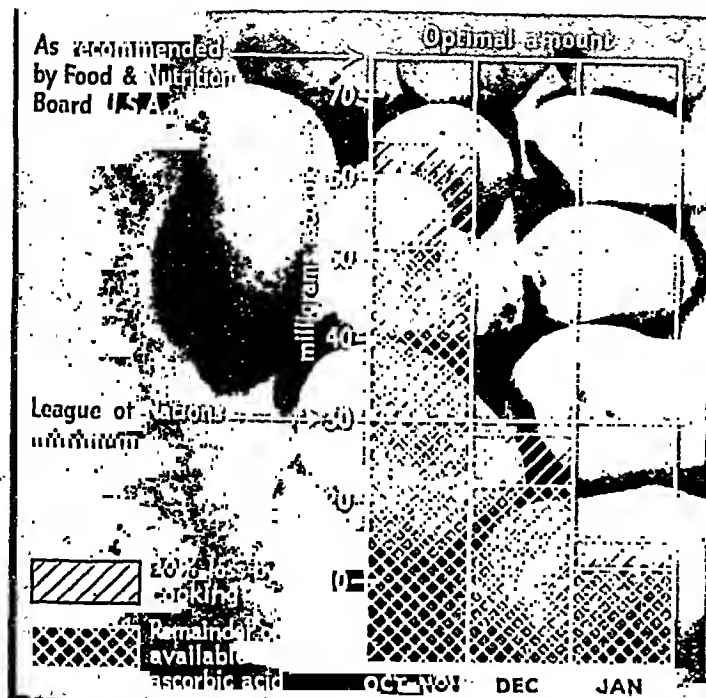
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(*The Lancet*, Nov. 15, 1947, p. 730).

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arsenic in food was not at that time appreciated; not until 1926 was it recognized that the limits for other foods could not apply to certain fish. Dried herbs, especially parsley, had been found to contain arsenic up to 8 parts in a million. The general situation concerning arsenic was quite satisfactory.

Lead, a cumulative poison, was in a different category. Sea crustaceans had a natural lead content of some 7 parts in a million. Sardines also contained lead, and a limit of 5 parts in a million was fixed for imported sardines. Beer and cider might contain lead, and so might tea and desiccated cocoa, owing to the lead linings of the chests. Up to the last year or two curry powder with 50 parts of lead had been found and from 10 to 20 parts were not infrequent. An undue proportion of samples of corned beef had been found in recent years to contain lead; of 218 samples, 4 contained more than 100 parts in a million, and 7 between 50 and 100 parts.

Before the war port medical officers of health fixed a limit for copper in tomato products of 100 parts in a million. Published work showed that the natural content of copper in tomatoes was 35 to 40 parts. Copper was an invariable micro-constituent in marine invertebrates and in calf's liver and other foods, and was regarded as an essential nutritional element for which it was difficult to fix limits: A limit of 30 parts would meet most cases; a figure higher than this argued careless preparation and should give rise to suspicion. The same was true of anything above 100 parts of zinc, which was not an important contaminant. The only metal other than arsenic for which a limit had been fixed by official recommendation was tin, which was found mostly in canned foods such as loganberries and acid fruits, but with the use of lacquered cans tin contamination was very small. Carrots sometimes had a high tin content. In Gruyère cheese wrapped in tinfoil as much as 600 parts of tin in a million had been found. Of other metals, cadmium was responsible for a food-poisoning outbreak among 60 airmen in New Zealand in 1944, due to food stored in cadmium-plated vessels. Selenium was a problem in certain parts of the United States owing to some property of the soil; it caused a vague illness. The speaker pointed out the difference between pre-war and present conditions. Formerly there was no hesitation in sacrificing consignments of food on suspicion, but now food had to be conserved as much as possible.

#### Public Health Aspect

Mr. G. W. MONIER-WILLIAMS, Ph.D., F.R.I.C., said that arsenic and lead were in a class apart because of their toxicity in small amounts; copper, zinc, and tin were responsible for chronic as distinct from acute poisoning. The limits of arsenic content recommended by the Royal Commission had never been given statutory force, but they were generally accepted as standards. They might be criticized as too severe, but the Commission's view was that the presence of arsenic in food was purely adventitious, and that in good commercial practice the arsenic content could be kept below the specified limit. The later discovery that sea-fish contained relatively large amounts did not alter these requirements, for while arsenic in fish could hardly be said to be natural, it appeared to be comparatively non-toxic.

Lead was almost as toxic as arsenic, and was a good example of a cumulative poison. It was stored in the body, especially in the bones, and in certain circumstances could be liberated again into the blood stream and might give rise to symptoms of poisoning long after the actual ingestion of the lead. Lead was more easily absorbed from liquid than from solid food. An average daily intake of 2.5 mg. in cider could cause lead colic. Instances of lead colic following the eating of sardines were on record. With a high-calcium diet lead absorption was low, and with low-calcium diets it was high. The normal amount of lead ingested in food and water and inhaled dust was said to be 0.4 mg. a day. It was possible that much of the lead which appeared in the faeces had been absorbed by the liver or into the general circulation, and afterwards excreted. It was widely held that the maximum limit of lead in domestic water supplies was 0.5 part in a million. A limit should be set to the total intake of lead from all sources at 1.0 or 1.25 mg. daily, and tolerance for different foods calculated on that basis. Some authorities considered that a daily intake of 1.0 mg. might

eventually prove toxic and be responsible for nervous symptoms and conditions of slight ill-health. Women were more susceptible to lead than men, but workers in lead industries seemed to be able to ingest large amounts without symptoms. A statutory limit for lead in food was long overdue. It should represent the highest standard reasonably to be expected from manufacturers and distributors. With all the knowledge there was about the toxic action of lead it was remarkable that, with two or three small exceptions, no specific regulations or even agreed limits were in force, nor was there any control over lead pipes, glazes, enamels, or lead solder in food packing.

Acute poisoning from copper and zinc in food had occurred on several occasions, but there were practically no records of chronic poisoning due to the continued ingestion of small quantities. There was evidence that these metals were in fact absorbed and carried to the liver by the portal blood, and from the liver returned to the intestine by way of the bile duct. It was not easy to determine how much passed through the alimentary tract unabsorbed and how much was absorbed and subsequently returned to the intestine. Was the passage of these metals through the liver and their possible retention in the liver without significance? It must be assumed that in some cases the liver was less efficient than in others. A strong argument for the control of copper in foods lay in its effect on oxidation, particularly on the oxidation of ascorbic acid. What was the "doubtful" range of copper? The normal intake from food was 2.0 to 2.5 mg. daily, but this might be considerably higher if the diet contained liver, nuts, etc. The view might be taken that extraneous copper, zinc, and tin were in general undesirable and unnecessary and should be kept to the lowest limit by a scheme of standards with a fairly wide margin for contingencies; but the allowable might tend to become the normal, and an increase rather than a reduction of daily intake result. Public health might be better served by dealing promptly with the grosser forms of contamination, particular attention being given to liquids.

#### Trace Metals in Nutrition

Mr. W. F. J. CUTHBERTSON said that cobalt and copper had been shown to be essential for the nutrition of ruminants, and copper, manganese, and zinc for such animals as the rat. The function of cobalt and manganese was that of an enzyme activator; the function of copper was the synthesis of haemoglobin and cytochrome oxidase, and of zinc that of carbonic anhydrase. In human nutrition the amount of copper requisite for adults had been stated tentatively at 2.0 to 2.5 mg. a day, of manganese 4 mg. a day, and of zinc 12 mg.; and in the case of children, of copper 0.1 mg. per kg. of body weight per day, and of manganese and zinc 0.2 to 0.3 mg. Copper deficiency in the human adult had never been satisfactorily described, but in the infant it had been shown that copper deficiency could result in a type of anaemia which was resistant to iron but cleared up with the addition of copper to iron. In the rat and mouse the characteristic symptoms of manganese deficiency were derangement of sexual function and interference with ovulation ending in sterility in both sexes; in the chick there was an abnormality in bone growth. Human beings probably require manganese, although no deficiency disease attributable to manganese lack had been described. The required amounts of manganese, which was particularly associated with cereals, were assured in the meanest diet. Symptoms of zinc deficiency in the rat and mouse were failure of growth and particularly loss of hair. Here again it was deduced that zinc was essential in human nutrition. In spite of the fact that no deficiencies had been recorded. It was considered that zinc might have some part to play in insulin metabolism.

Mr. N. L. ALLFORT and Mr. D. E. GARRATT described the various techniques employed in the estimation of metallic contaminants, and the latter pointed out that the introduction of statutory limits had its drawbacks. With arsenic and lead which were cumulative poisons, the aim should be complete elimination. The use of an inflexible standard for arsenic, such as 1.4 parts in a million, was unimaginative. Discretion might be used and tolerances allowed with food adjuncts which were consumed only in small quantities; but here again, while synthetic substances introduced into food might at first be in

small proportions, the proportion might grow larger. Copper and zinc were necessary for human needs and were not cumulative poisons. The tolerance limits, until further physiological information was available, should be those necessary to prevent gross contamination of food products. He suggested that the first steps towards laying down desirable limits for different foods should be in the form of a schedule prepared by the Society of Public Analysts to which analysts and commercial firms might be expected to conform. Mr. A. C. BACHARACH gave examples of the difficulties of laboratory experiments, and suggested that changes in dietary pattern needed to be watched with great care. One of the things which should be attended to in diet in addition to caloric intake, vitamin intake, protein intake, etc., was the question of trace metals. It was easy to put too much in, but easy also to take too much out.

### PROGNOSIS OF MENTAL DISORDERS

At a meeting of the Manchester Medical Society on Nov. 5, Dr. G. HOWARD KITCHING said that mental disorders fell into four principal groups. A reduction of cerebral capacity if congenital represented mental defect; if acquired it constituted one of the forms of organic dementia. Confusional states might be included in this group. The prognosis of mental defect was, of course, hopeless. In the organic dementias the ultimate tendency was downhill but often with surprisingly long remissions, especially if the onset was acute and associated with some toxic cause.

Reduction of co-ordination included all those diverse conditions which had as a fundamental feature a discrepancy between thinking and feeling—the schizophrenic-paranoid series of illnesses. In general the prognosis of this group of disorders was bad. Cases with an acute onset had better prospects than those of insidious onset, and the prognosis was much affected by the duration of the condition. Obsessional disorders might also be included under this heading.

Reduction of control was found in the group in which affective disorders or disturbances of feeling showed themselves by excessive elation, depression, or anxiety. The response of affective disorders in general to E.C.T. was specific and dramatic; it cured many of the minor cases as well as most of the major ones.

The fourth group included the psychoneuroses, hysteria, and anxiety hysteria, in all of which the provoking situation appeared to be a predominant factor. A strong element of constitutional predisposition had to be postulated in these patients because the situations which provoked these disorders were common to all people, whereas the neurotic reactions were not.

Prognosis might be considered collectively or individually. The number of people certified annually in any community was an index of its activity in mental hygiene. Psychiatric social workers and a vigorous interest in mental hygiene increased the number of certified cases by facilitating their direction to the appropriate hospitals. In England the figure was 5 per 1,000. In any community the amount of serious crime varied inversely as the number of people certified, and one mental hospital bed was roughly the equivalent of one prison bed. Discharge rates were completely fallacious. The average length of stay in an institution was more than ten years, or one-sixth of the duration of life, which meant that in an average lifetime one person in 33 was certified at some time or another. Statistics tended to show that a psychosis was essentially a chronic and relapsing illness, analogous in medicine to gout, allergy, psoriasis, and diabetes. Considered statistically, the value of new therapeutic procedures, such as insulin for schizophrenia, was problematical.

### Recent Advances

The individual prognosis in cases of affective disorder had been completely altered by electro-convulsion therapy. The prognosis in cases of involutional depression untreated was that one-third got well, one-third remained stationary, and one-third went downhill. With E.C.T. one might confidently expect a recovery rate of 80% or over. E.C.T. was almost equally

valuable in states of elation, which were much less common than depressive states, but it appeared to have little value in schizophrenia or in other psychoses. For schizophrenia the majority of workers favoured insulin shock therapy, which reduced the duration of the patient's stay in hospital and gave a higher proportion of remissions in acute cases. Such improvements were often not maintained and the long-term results tended to approximate to those of the untreated disorder.

Prefrontal leucotomy had also altered the prognosis of mental disorder. The results were difficult to assess because, as it produced irreversible changes, the operation was not tried in early cases until other methods had failed. It cured many depressive and agitated states which had failed to respond to E.C.T., had been followed by good results in schizophrenia, and in many cases changed a socially unacceptable into a socially acceptable psychosis.

At a meeting of the Devon and Exeter Medico-Chirurgical Society on Nov. 20 Mr. W. J. BISHOP discussed some of the notable medical figures of the South-west during the past three centuries. Starting with Robert Vilvain, of Exeter, who published a book of epigrams in 1654, Mr. Bishop talked of Richard Spicer, Antony Salter, and Sir Simon Baskerville the Rich, who was buried in St. Paul's. He mentioned John Attwell, who obtained spectacular cures by prescribing milk and apples, was renowned for piety and benevolence, and lived to a great age. John Bidgood was "haughty and repulsive," and, though professing the motto "Use all men ill," rendered to his patients every possible attention. In *Lancelot Greaves* Smollett immortalized the early career first as a surgeon's apprentice and then as a naval surgeon of James Yonge, of Plymouth. In later life he was made a member of Surgeons' Hall without examination—a signal honour; became a Fellow of the Royal College of Physicians, having first been assured that the "catechizing should be plain and the fees low"; and in 1702 was admitted to the Fellowship of the Royal Society.

Mr. Bishop noted the close association between the physicians of Exeter and Exeter College, Oxford. Other Oxford colleges, however, educated some of these physicians, notably William Musgrave, who was first an undergraduate and later a Fellow of New College. John Blackall and "the able, amiable, and humane" Hugh Downman were Balliol men. The celebrated Sir George Baker, who discovered the cause of Devonshire colic, was educated at Eton and King's College, Cambridge. Other famous or notorious characters touched upon were John Huxham, James Parsons, John Shebbeare, Thomas Glass, John Mudge, John Wolcot, John Sheldon (the amateur balloonist), Bartholomew Parr, John Cunningham Saunders, Thomas Slapton, and the Budds of North Tawton.

At a meeting of the Liverpool Medical Institution on Nov. 27, with the president, Dr. H. WALLACE-JONES, in the chair, Dr. LENNOX JOHNSTON read a note on the cure of tobacco smoking. Dr. Johnston said that, owing to the imposition by tobacco addicts of a powerful "drug taboo," adequate knowledge of the facts about smoking was as difficult to acquire to-day as was an adequate knowledge of sex at the beginning of the century when the sex taboo was at its height. Mr. F. E. STOCK described a new incision for thoraco-lumbar splanchnicectomy, which began just behind the posterior axillary line and passed downwards to a point just in front of the anterior superior spine. Finally, Dr. JOHN A. ROSS discussed stereoscopic screening and described in detail Weigelt's method applied to x-ray screening.

On Dec. 1 the Ministry of Health took over from the Ministry of Supply general responsibility for purchasing medical supplies to meet Government requirements. This transfer is in conformity with the general policy of handing over various wartime functions of the Ministry of Supply to the appropriate Government Department. The change over was effected under the Transfer of Functions (Medical Supplies) Order, 1947, which was published on Nov. 21. It involved the transfer to the Ministry of Health of the functions, responsibilities and staff of the Directorate of Medical Supplies, including those of the Penicillin Production Control and the related Contracts Branch of the Ministry of Supply. All correspondence, which was formerly addressed to the Directorate of Medical Supplies, should from Dec. 1 be addressed to the Secretary, Ministry of Health, Whitehall, London, S.W.1. The telephone number (Abbey 7738) remains unchanged, but the new telegraphic address is "Localise, Parl, London."

# Correspondence

## Censorship

SIR,—Under any form of Ministry of Health administration in which medical practitioners become State servants a situation may arise similar to that now obtaining in the Ministry of Education. Here no official is permitted to write educational books unless express permission has been given; and even when this is granted the Ministry have claimed the royalties earned, on the grounds that the authors are full-time officials.

In medicine such a situation would be disastrous, for articles or books criticizing official lines of treatment might be frowned upon, held up, or even suppressed. We see this form of censorship in communications from officers in the Services, where permission has still to be obtained from higher authorities even now when the need for secrecy is no longer an excuse. The whole idea of such a censorship in civil life is inimical to freedom of thought. We do not want to see any such restriction in the expression of opinion in scientific medicine. It is to be hoped therefore that these fears will be borne in mind by the Negotiating Committee, and a definite statement obtained that there shall be no attempt to restrict expression of opinion in medical literature, and that the labourer shall obtain the full reward of his labour even though he be a whole-time official.—I am, etc.,

London, W.1.

J. JOHNSTON ABRAHAM.

## The Extent of Neurosis

SIR,—Dr. T. J. Burke's reply (Dec. 6, p. 929) admirably expresses a prevalent attitude of the G.P. to the functionally ill. But who can be so expert at helping neurotics as the seasoned G.P.? Handicapped by lack of time set aside for psychotherapy he yet achieves much by sympathy and advice based on his understanding of his patients and their circumstances. He is the front-line fighter against disease, perpetually up against the problems that harass mankind. Who are the back-room boys who can do so much more for his neurotic patients than he can, given time?

Dr. Burke hopes that more psychiatric clinics will be set up in the near future. I hope that those clinics will be set up and staffed mainly by G.P.s like Dr. Burke, each attending for two three-hour sessions weekly. So I would ask him to agree that family doctors who are family men are better qualified to treat functional illness than protected products of mental hospitals for all their D.P.M.s (which for the purposes of this argument may be described as the barriers of neurology and terminology set up to hide the barrenness of official psychotherapy). In fact the vast bulk of the treatment of neurosis and incipient psychosis is left to the G.P. In theory too it should be recognized that many holders of D.P.M.s have poorer chances than many G.P.s of understanding the issues involved in functional illnesses.

It must be acknowledged that some form of training analysis, which helps the doctor to recognize in himself the tendencies exhibited by functionally ill patients, is of great assistance to the doctor. So there would be room alongside G.P.s in these much needed clinics for whole-time psychotherapists capable of providing training analyses and of tackling the most difficult cases. But thorough work on functional illness needs to be done by G.P.s if any effective impression is to be made on the mass of neurosis that afflicts our nation.

The question remains whether half a dozen or so hours a week are too much to ask from overburdened G.P.s. My answer is that the enlightenment they would gain by observing cures of neurosis would enable them to avoid wasting perhaps as much time on palliative treatment of symptoms, and they would also gain skill in dealing with other problems that overburden and debase them and their patients.

In support of the proposition that doctors with more general than specialized experience can, if they take the time and trouble, see cases of neurosis clear up before their eyes, I submit a report of a case in which the few interviews averaged less than half an hour each (with due acknowledgments for help and permission to publish to Dr. E. Graham Howe).

X., aged 27, with one child and a wife three months pregnant, complained of palpitations and dizziness following the death of his mother six months previously.

He was first assured that his dreams could throw light on his symptoms. Two days later he was back with a dream of visiting his wife in hospital to give her a ring; he was angry to find that she had lost her engagement ring; then she had turned into his mother. And he agreed with me that he might be reluctant to allow his wife to become the mother of his children rather than remain more of a mother to himself. He was asked why he was reluctant to allow such changes to happen. To the fourth interview he brought a dream of being in a dark tunnel with light showing dimly at the far end. And he was asked whether his change from the womb to the world had been difficult and whether he habitually found changes difficult. He came to the fifth interview with the information that he had been a 12-lb. baby, and that some years back he had slight palpitations and dizziness for a period of months prior to doing some growing up. By then he was free of symptoms and wanting to return to work. But he was back a week later confused and miserable, and was told that in him dark hours tended to precede dawns. He next appeared three weeks later, saying that he had stayed away from the provoker of such violent changes in himself, but gratefully reporting that he had worked through some previously repressed grief at the loss of his mother and had reviewed his stubborn reluctance to accept changes in a series of vivid memories. He was relieved and hopeful, and was prepared to live and work as the father of a family. His palpitations and dizziness were gone.

Neither this case report nor my provocative assertions can contain more than fragments of the truths involved. But that G.P.s should allow themselves to be stuck in the position of having eyes and seeing not and having ears and hearing not the facts about their patients' functional illnesses—no, Sir, it just cannot be done.—I am, etc.,

Ruislip, Middlesex.

WILLOUGHBY CLARK.

## Battle Neurosis Treated with Leucotomy

SIR,—Dr. D. W. Winnicott states (Dec. 13, p. 974) that he has lost hope that leucotomy will be refused by doctors to those who cry out for it. This kick from an eminent analyst calls for reproof. There is probably no harder or more lonely medical path nowadays than that of a thinking analyst or psychotherapist. With little or no interest from universities or colleagues, closed schools of thought, fantastically inadequate training facilities and educational propaganda, there is little to uphold such a worker except the courage of his patients who choose to work through analysis rather than gain relief by tissue destruction and the memory of past patients who are now whole and living full, useful lives.

Small wonder that many a young doctor is allowing himself to be shepherded. I will not yet use the word directed, along the broad highway of D.P.M. to a safe, established appointment, where all the latest methods of physical treatment are used. Educationally the present generation of doctors is probably more sinned against than sinning. Encouragement and help from high quarters rather than laments would be welcome.—I am, etc.,

London, W.1.

ALICE E. BUCK.

## The Waning Power of Penicillin

SIR,—I think the degree to which the power of penicillin is waning has been very much overemphasized. In my recent article "Staphylococcal Infection due to Penicillin-resistant Strains" (*British Medical Journal*, 1947, 2, 863) I was referring to a selected group of cases. A very high proportion of these patients had had penicillin before the swabs from which I isolated penicillin-resistant staphylococci were taken, and in other cases the infection probably occurred during their stay in hospital. While it is possible that institutions using large quantities of penicillin are breeding penicillin-resistant staphylococci at the expense of sensitive strains, it is very unlikely that this is happening to anything approaching the same degree in the community at large. Penicillin is still the most powerful weapon we possess against staphylococcal infection, and, while previously mentioned observations make it clear that its indiscriminate use should be avoided, it is of the utmost value in the treatment of such cases as Dr. Thyne refers to in his letter in your issue of Dec. 13 (p. 974).—I am, etc.,

London, W.12.

MARY BARBER.



SIR.—In all the literature on this matter that I have read the general explanation of reduced efficiency of penicillin seems to indicate that the bacteria have acquired a tolerance to penicillin by reason of small doses given in mild conditions, usually by local application. It ill becomes a general practitioner with no special knowledge of pharmacology to dispute this explanation, but it has occurred to me that the penicillin itself may have lost some of its potency by reason of long-continued cultivation of *Penicillium notatum* in the laboratory. The analogy of a bacterial culture of, say, *B. pestis* losing some of its virulence by culture *in vitro* might apply to penicillin.

After all, penicillin is a biological product and not a synthesized substance, and its rapid production under artificial conditions might adversely affect its potency. *P. notatum* in its natural state feeds on a large variety of organic substances, but commercially it is bred presumably on a very limited number of media. Can it be that *P. notatum* (like some of us) is getting tired of its monotonous diet and is losing some of its virility, if the latter quality can be attributed to a vegetable? Whatever the real explanation may be, it is certainly time that the experts investigated the matter. I am beginning to feel guilty whenever I prescribe a bottle of troch. penicillin.—I am, etc.,

Holcombe Rogus, Somerset.

J. V. MAINPRISE.

### Staphylococcal Infection by Penicillin-resistant Strains

SIR.—An important cause of the multiplication of penicillin-resistant strains of *Staphylococcus pyogenes* is the indiscriminate local use of penicillin in the treatment of skin diseases. Penicillin, at any rate in cream or ointment form, has little or no therapeutic value even in conditions generally regarded as superficial infections by pus cocci. Moreover, penicillin is responsible more or less directly for the conversion of many trivial and benign dermatoses into severe and troublesome cases of acute dermatitis.

Penicillin, originally puffed as a talisman of immunity on the battlefield, has been the subject of such intense advertisement that it is demanded by patients who, thanks to 50 years of compulsory education, can more or less recognizably lip its name. Our figures at the Skin Hospital correspond with those of Dr. Mary Barber (Nov. 29, p. 863). We have also seen several penicillin-resistant  $\beta$ -haemolytic streptococci.—I am, etc.,

Manchester.

J. H. TWISTON DAVIES.

### Penicillin in Scarlet Fever

SIR.—I was interested to read your annotation in the *Journal* of Dec. 6 (p. 915) on "Penicillin in Scarlet Fever," as I was the writer (French) of the paper in the *Journal of Hygiene* to which you make reference. I have to point out, however, that there is a printer's error in the reference you quote, as my paper on scarlet fever was published not in 1945 as stated, but in 1939 (Sept. 16). I think this is important, inasmuch as if my conclusions on the value of sulphonamides in scarlet fever stand unrefuted after a period of eight years more weight may be given to them than if they were only unrefuted for two years.

I may add that I have had a considerable experience of the treatment of scarlet fever since 1939, and I am still quite convinced that the sulphonamides are of little or no value—even the newer and less toxic varieties that have appeared since 1939. I am still equally far from knowing why they should be so useless. Perhaps someone with more opportunity than I now have will be able to elucidate this. I would also like to know the results of a properly controlled therapeutic trial of penicillin in scarlet fever. If you know of any such I would be much obliged if you would tell me about it.—I am, etc.,

Darwen, Lancs.

JANE O. MILLAR.

### Measles

SIR.—May I support Dr. Harwood Stevenson's advocacy (Dec. 6, p. 928) of the use of parental whole blood as a routine measure in the attenuation of measles in contacts, and particularly in the dangerous period up to the age of 5? It is a method particularly applicable to general practice, where as a rule attenuation and not prevention is the objective. There

can be little doubt that if this procedure were widely used there would be an appreciable drop in the death rate from measles.

In your leading article of June 29, 1946 (p. 991), there occurs this startling statement: "Despite the success which has been achieved in lowering the mortality from this disease it remains one of the largest causes of death among children." This fact alone would justify any safe method which could reasonably be expected to attenuate the disease, and in the *Journal* of June 30, 1945 (p. 923), I described a series of cases of 25 contacts so treated with most satisfactory results. An earlier series of cases of successful attenuation was described by Dr. T. D. Culbert (*British Medical Journal*, 1938, 2, 705). As regards dosage, I feel that if disappointment is to be avoided not less than 8 ml. of whole blood should be injected, and that it should not be reduced on account of the age of the child, for it is after all in the youngest contacts that attenuation is most important. (I do not think one would reduce the dose of diphtheria antitoxin because of the age of the patient.)

Finally, I would venture to suggest that Dr. Stevenson is a little optimistic if he expects any material attenuation when the blood is given "at any time up to the sixth or seventh day of incubation." This would probably succeed if one were using convalescent serum, but it would almost certainly fail to produce satisfactory attenuation in the case of whole blood and might well bring the method into disrepute. In my experience if it is to be really effective it should be given forthwith—that is to say, on the day when the fact of contact has been established or as soon after as possible.—I am, etc.,

London, N.W. 7.

A. H. MORLEY.

### Dogs and Poliomyelitis

SIR.—Dr. Norman Macfadyen's letter (Dec. 6, p. 930) is interesting because a paragraph in an evening paper a few days ago stated there has been an epidemic of paralysis in dogs in the eastern counties and that 300 cases had been reported: I have two "pekes," and last June one of them, after a day's malaise, became partially paralysed in her hind legs and tail. Recovery ensued in 14 days. Then a month afterwards the other, after 24 hours of lassitude, became totally paralysed in both hind legs and tail.

The lesion must have been in the dorsal cord, for both hind legs and the tail, and also the abdominal muscles, were spastic. The bladder function was unimpaired but the bowel was difficult from the loss of the muscles accessory to defaecation. The dog was very ill for a week and then got better, but the spastic paralysis remained unchanged for over two months and then recovery ensued, though the hind legs are still weak. Injury can be absolutely ruled out; and both dogs are beyond the age for distemper, and, moreover, there were no symptoms of it. It seems pretty certain that the condition was due to a virus, and the occurrence of such cases at the same time that an epidemic of anterior poliomyelitis is affecting the country is surely suggestive.—I am, etc.,

London, W.1.

VICTOR BONNEY.

### Chronic Sinusitis in Children

SIR.—Mr. F. M. Walker (Dec. 6, p. 908) raises the question of the treatment of chronic nasal sinusitis in children. This matter has been receiving attention at Warwick Hospital for some years, and the following observations may prove of interest.

In order to obviate the necessity of giving repeated general anaesthetics for antral washouts in cases that have not been cured by the use of nasal drops and attention to the general health, we have been placing a ureteric catheter into each infected antrum, some inches of the tube being strapped on to the opposite cheek, the extra-nasal end being wrapped in sterile gauze, following the technique described by R. H. Hunt Williams (*Proc. roy. Soc. Med.*, 1946, 39, 280). The antra have then been washed out from one to several times daily. Solutions we have been using are: "soluthiazole" 5%; ephedrine 0.5%; "flavazole" 1 in 2,500, with or without penicillin, 500 units per ml., in normal saline; isotonic or slightly hypertonic sodium chloride; proflavine 1 in 2,000 in normal saline.

In a recent American paper (the exact reference to which I am unable to trace at present) evidence was presented indicating that isotonic or somewhat hypertonic saline solutions were as effective therapeutically as solutions containing chemotherapeutic agents. On

a few occasions we used solutions containing several thousand units of penicillin per ml., but these sometimes caused excessive mucoid nasal discharge. A. W. Proetz (*Ann. Oto-laryng.*, 1945, 54, 94) has shown that concentrations of more than a few hundred units of penicillin per ml. interfere with ciliary action. The extranasal end of the catheter may be treated with a disinfectant before performing the washout. The amount of solution employed for each washout has varied from 7 to several hundred ml.

The lavages have been discontinued after there has been a return free from pus several times, or after a maximum period of three weeks, the catheter then being removed. A number of cases still having pus in the antra after such treatment for three weeks have been found to be free from sinusitis after a further month or two without treatment. Some others have been cured by staying in a convalescent home at the seaside. Vitamins in adequate amounts have also been administered to all these patients.

Cases not cured by such treatment have also not been cured by intranasal antrotomy, which we have found therapeutically inferior to it; also, children prefer antral lavages through a catheter as described to washouts through an antrotomy by the usual methods. These uncured cases, when the symptoms caused by the sinusitis have been sufficiently severe, have been treated by Caldwell-Luc operations, the diseased antral lining being removed. The youngest patient so treated was four years old, but in some older children also the antral cavity may be so small as to make the operation not feasible without damaging unerupted teeth. The results of this operation in children in general have been found satisfactory; no harm has resulted in any case; continuation of symptoms and signs of sinusitis is usually due to disease of other nasal sinuses, and in a few severe cases we have been able to relieve or cure them by intranasal, transantral, or external surgery to the ethmoid, sphenoid, or frontal sinuses.

In some unruly or small children who persist in pulling out the catheter we have followed the lead of G. H. Bateman (*J. Laryng.*, 1945, 60, 110), filling the antra once or twice with a paste containing penicillin, sulphathiazole, flavazole, soluthiazole, or several of these in lanette wax or plasma solution concentrated to the consistency of honey. A few cases have been cured, and some more temporarily relieved, by this method.

In our experience systemic penicillin or sulphonamide therapy for chronic nasal sinusitis, while temporarily relieving some cases, has nearly always failed to cure them. Proetz suction-displacement treatment we have also found disappointing. It has been our experience that the removal of tonsils and adenoids in cases of chronic sinusitis does not lead to its cure, that it is often more important to treat it than to remove the tonsils and adenoids, and that at any rate in very purulent cases it is best treated before this operation is done. Incidentally, bronchiectasis and chronic nasal sinusitis co-exist fairly frequently.—I am, etc.,

Warwick,

J. A. HARPMAN.

### Relief from Pain in Obstetrics

SIR.—It would be a fitting centenary tribute to Simpson if we could create and build up an adequate national organization for giving relief from pain in obstetrics. One hundred years ago James Young Simpson showed that the suffering endured by our young mothers could be reduced to a minimum, but his teaching was not understood. In 1933 R. J. Minnitt produced an automatic apparatus for the administration of gas-air analgesia; his teaching has been wilfully neglected. Can we never abolish the scandal of the "woman in pain"?

I have closely watched the results of gas-air analgesia when properly administered since November, 1933, and I have in my possession many hundreds of record papers signed by mothers stating that the vast majority of them were given adequate relief from pain. I am sorry to say that I have also received many letters from patients from all parts of England telling me of experience of indifferent analgesia. One writes: "One nurse in charge of a ward has told me that she always gives mothers the machine to use, but never turned it on." Another: "The birth of my own baby was a nightmare I shall never forget, and the gas-and-air machine provided in the County Council hospital . . . had no effect whatever." And this sad story is repeated over and over again. I know that these letters are true. I have many times visited hospitals and seen gas-air machines in such a condition that no help could be expected from their use. I have seen the gas and air administered in so careless a manner that one was left with the unhappy impression that those in charge of the administration did not care whether the patient was helped or not. Yet from the use of the latest models of gas-air machines it is possible to obtain complete

relief from pain in 95% of cases, and we have in addition the opportunity to use trilene and air, a promising newcomer.

There are two main causes for failure to give adequate analgesia: (a) lack of medical interest; (b) shortage of staff. (a) While the midwife is perfectly capable of taking charge of the administration of analgesia, yet she must have "medical interest" in her work. Machines and equipment need frequent examination by medical practitioners, as they sometimes need adjustment, and experienced practitioners should visit the labour ward to see that there is no error in the technique of administration. In all hospitals and in all districts there is need for the appointment of medical analgesists to help the midwives. The periodical visit from the manufacturer's agent is not enough. (b) There is an acute shortage of midwives, so that those in practice have too much to do. The demand for the provision of analgesia by the midwife may well be the last straw which is breaking the back of a very willing camel. If this is so, provision must be made for the creation of a body of nurse-technicians who must be trained to become "analgesists."

I criticize and condemn not the midwife nor the medical practitioner but the whole body of our countrymen and countrywomen, who callously allow hundreds of thousands of women to suffer the extremity of pain for the maximum of time when most efficient and adequate means of relief are available for the use of an organized analgesia service. Yet fourteen years after the introduction of the use of nitrous-oxide-and-air analgesia no such organization has been provided.

What a tale to tell of England one hundred years after Simpson's discovery! We have the knowledge of how to relieve pain, we have excellent machines designed for this purpose, we lack only a genuine national desire to help and an efficient national organization.—I am, etc.,

New Barnet, Herts.

JOHN ELANI.

### Obstetric Flying Squads

SIR.—The detailed account by Mr. Frank Stabler of the Newcastle-upon-Tyne Obstetric Emergency Service (Nov. 29, p. 878) must have been of great interest to many readers, especially in view of the way the development of the service has been dictated by local conditions. However, there is a danger that some may be misled into believing that the routine described is applicable to most obstetric emergencies, despite the author's remarks that "this centre is probably unique," and forgetting too the tremendous advances that have recently been made in resuscitation and transfusion, developed largely by the Army Transfusion Service.

The author's statement, "There is no doubt that the pregnant woman who has lost blood must be saved an ambulance journey," might lead one to suppose that cases of antepartum haemorrhage are best treated in the home. In most districts the opposite is true, and the emphasis should be placed upon non-interference, a strict ban on vaginal examination, adequate morphine, and admission to hospital as soon as the stage of primary shock is passed. The role of the flying squad should be that of a resuscitation unit for the continuous transfusion of the most severe cases during transit to hospital.

With reference to intra-partum emergencies, the statement, "The bad old system [my italics] of transporting these gravely ill and shocked women to hospital lessened their chances of subsequent recovery," is again open to criticism. In addition to blood transfusion and expert obstetrical handling these bad-risk cases require highly skilled anaesthesia, hospital nursing, and frequently the presence of assistants, if the occasional fatality is to be avoided. It would be interesting to know what part the anaesthetic played in the four recorded fatal cases of obstructed labour, while the obstetrician must indeed be a bold man who would set out to control a diabetic coma or tackle a ruptured uterus in the patient's home.

It is certainly among the immediate post-partum emergencies that the service finds its chief field of use, and the description of manual removal of the placenta as a life-saving operation is amply justified. Its hazards and drama may largely be removed by vigorous and enthusiastic blood transfusion pre-operatively. In those cases of retained unseparated placenta in which shock predominates over blood loss the use of "methedrine" will raise the blood pressure enough to ensure safety of operating; while thiopentone injected in small dosage into the transfusion tubing makes an admirable anaesthetic that may be administered by the relatively unskilled assistant.

In conclusion it is emphasized that in most districts the domiciliary treatment of ante-partum and intra-partum

emergencies is seldom in the patient's best interest, and an obstetric emergency service should consist primarily of an ambulance equipped as an efficient resuscitation unit with unlimited blood at its disposal. The obstetrician can thus ensure that he is not forced by circumstances to perform operations at home that would have a wider margin of safety in hospital.—I am, etc.,

Birmingham.

W. G. MILLS.

### Child-bearing and Tuberculosis

SIR,—Child-bearing and tuberculosis is still a subject which arouses strong feelings. We are grateful to your correspondents for their interest in our work and for some very appreciative remarks. We have endeavoured to make an objective judgment on this difficult subject, but we hope our figures are a sufficient basis for an opinion. It cannot be denied that the tuberculous disease in some patients becomes worse in association with pregnancy. This is a habit of tuberculous disease in non-pregnant women too, and in our experience equally common in both groups.

We too wish to emphasize the importance of the environment of the tuberculous woman who has borne a child. Efficient treatment of the disease and the best possible after-care with adequate home help are especially necessary for these patients. Whether therapeutic termination of pregnancy is advisable because the child will be born into an unsuitable environment is a moot point, but such a view would cause the termination of many more pregnancies than those of tuberculous women. Because tuberculosis carries a definite risk of relapse, we think that the patient should avoid pregnancy for at least two years after quiescence of the disease has been achieved. Yet only 22 (10%) of the patients in our series were diagnosed as tuberculous after becoming pregnant. We are surprised how often effective (or indeed any) advice concerning birth control is lacking. Of these 22, 11 were over fourteen weeks pregnant; few would advise termination at such a stage. We therefore consider that good treatment and care in adjusting the environment, including the effective prevention of pregnancy where advisable, are more important than undue optimism about the value of therapeutic abortion.—We are, etc.,

CHARLES J. STEWART.

F. A. H. SIMMONDS.

South Mimms, Barnet, Herts.

### "True" Hermaphroditism?

SIR,—Without splitting too many semantic hairs, is there any such thing as "true" hermaphroditism? Whatever gross abnormalities may subsequently be induced by hormone imbalance, what one might term the *fundamental sex* of the individual is determined once and for all at the moment of conception by a particular combination of chromosomes that apparently persists for life. Current theory does not allow for both xx and xy combinations to co-exist in one body, though in biology even the fantastic cannot be excluded. Have the chromosomes of frank hermaphrodites ever been seriously studied? The forensic implications are enormous.—I am, etc.,

Hooton, Cheshire.

J. R. EDISBURY.

### Routine Serological Tests for Syphilis

SIR.—The letter of Dr. K. G. Bergin (Dec. 6, p. 928) merits some comment. Routine serological tests are carried out in many antenatal clinics, etc., throughout the country, and with competent technique, as part of the established routine, attract no more comment from patients than the routine testing of the urine or taking of blood pressure. Where difficulties have arisen, these have in my experience most often resulted from the attitude of the medical officer or nurse, and have not been raised primarily by the patient. It is also instructive that patients accustomed to routine serological tests as part of routine antenatal surveillance comment adversely on this omission in other areas in which they may be temporarily absent.

In the City and County of Bristol approximately 75% (approximately 5,000 per annum) of pregnant women attend the health department clinics for antenatal care. Serological tests or the exclusion of syphilis have been carried out routinely since 1939, in not more than one or two cases per annum has the test been refused. Syphilis, previously undetected, has been found in less than 0.4% of patients. Facilities for the examina-

tion of serological tests would therefore be of little added advantage so far as the patients making use of the municipal services are concerned, and it is questionable whether this principle should be adopted until voluntary measures, supported by adequate health education, are shown to have failed.

With regard to marriage, surely a general medical overhaul to make certain of physical fitness is the ideal. The exclusion of tuberculosis is equally as important as negative syphilis serology, while Rh compatibility equally deserves consideration. In the past few years there has been an increasing number of patients, often of blameless antecedents—frequently engaged couples coming up together—desiring assurance of fitness for marriage, the main anxieties being venereal disease, tuberculosis, and fertility.—I am, etc.,

Bristol.

A. E. W. McLACHLAN.

### Belladonna Poisoning

SIR,—I am sure that your correspondent "R. L. G. R.A.F.V.R." (Nov. 29, p. 886) must be aware of the rules governing the storage and dispensing of the Schedule I group of poisons, which I believe includes belladonna preparations. I am therefore at a loss to understand why he had to discover "later" that it was contrary to Air Force regulations for a nursing orderly to dispense belladonna unsupervised. During my own Service career I have, through "supervising" the activities of orderlies in a station sick-quarters M.I. room, prevented disasters of like nature—e.g., concentrated phenol being used in mistake for glycerin-and-phenol ear drops; strong tincture of iodine in lieu of "argyrol" eye drops; and saturated sodium sulphate with acriflavine instead of sodium salicylate mixture.

It should always be remembered by those concerned that the so-called "nursing orderlies" in the present-day Royal Air Force may be (and too often are) unwilling conscripts, whose eyes are more accurately focused on the "demob. form" than on the labels of the dispensary bottles.—I am, etc.,

PER ARDUA AD ASYLUM.

### Nicotinamide and Blood Sugar

SIR,—I was very much interested in the two cases of diabetes mellitus described by Dr. L. Gordon (Nov. 8, p. 748). The following is another unusual case of this disease which merits publication.

#### CASE REPORT

C. W., aged 54, was admitted to our hospital on Sept. 7, 1947, as he was anxious for an operation for a large irreducible umbilical hernia which was causing disfigurement. He complained of no other symptoms, and except for mild hypertension there were no abnormal signs. Height: 5 ft. 9 in. (1.75 m.); weight: 15 st. 5 lb. (95.2 kg.). Routine examination of urine showed specific gravity 1022, glycosuria, and ketonuria. Blood-sugar curve was typical of diabetes mellitus and gave the following figures:

Time of Day	Sugar in mg. per 100 ml.	Urinary Sugar
9 a.m. .. .. .	210	++
9.30 " .. .. .	280	++
10 " .. .. .	340	++
10.30 " .. .. .	300	++
11 " .. .. .	265	++

He was stabilized on a 2,000-caloric diet with 20 units of soluble insulin and 30 units of protamine-zinc insulin every morning. Operation under local analgesia was performed by Mr. T. Eason on Oct. 8, 1947. Hernial sac containing adherent mass of omentum was excised and the wound was closed by through-and-through mattress sutures. Immediately following this operation he was free from glycosuria, needed no insulin, and two days later he was put on ordinary diet without any adverse effects. Blood-sugar curve was now of lag variety and gave the following figures:

Time of Day	Sugar in mg. per 100 ml.	Urinary Sugar
9 a.m. .. .. .	110	Nil
9.30 " .. .. .	175	
10 " .. .. .	195	Trace
10.30 " .. .. .	200	
11 " .. .. .	172	Nil

Remissions in diabetes mellitus are well known, but the above case showed dramatic improvement after the operation, needing no insulin in spite of the subcutaneous tissue becoming

septic and the wound taking some time to heal. As the hernial sac contained a mass of omentum, is it possible that this immediate improvement is caused by improved pancreatic circulation? Vasodilatation follows the administration of nicotinamide, as shown by flushing of the face, etc., and it is suggested that apart from the role of nicotinic acid in carbohydrate metabolism the beneficial effects of this drug in diabetes mellitus may partially be due to improved pancreatic circulation, and that this effect will vary with the dosage.

The patient is now in good health and has lost 11 lb. (5 kg.) in weight. He was a heavy beer-drinker prior to his admission, but he now drinks only a pint a day, and this may be a contributory factor in maintaining the improvement. I would be glad to hear your readers' views on the above case.—I am, etc.,

London, S.E.18.

S. KARANI.

### Leukanaemia and Myelosclerosis

SIR,—I wish to enter a plea for the retention of the term "leukanaemia" in regard to cases of what is now termed leuco-erythroblastic anaemia, with clinical or post-mortem evidence that a greatly damaged haemopoietic activity of the bone marrow has been supplemented by extramedullary haemopoiesis in the spleen and probably liver ("megakaryocytic" splenomegaly and megakaryocytic hepatomegaly) and possibly in lymph glands. It will, however, be convenient to exclude those cases in which the failure of medullary haemopoiesis is due to carcinomatous infiltration or other neoplastic destruction of the bone marrow. The term "leukanaemia" would then be restricted to cases in which the bone-marrow failure is due to myelophthisis or fibrotic change (myelofibrosis, if this hybrid name is permissible) or to any kind of "myelosclerosis" in which the bone marrow is gradually destroyed or replaced by non-neoplastic endosteal osteoid or osseous formation. The term "myelo-osteosclerosis" would distinguish such cases of bony myelosclerosis from "myelofibrosis."

A typical example of "leukanaemia," in the sense in which I propose to retain the term, was that which I described in 1904 under the heading "A Case of Leukanaemia with Great Hyperplasia of the Spleen and Prevertebral Haemolymph Glands and with Increase of Connective Tissue in the Bone Marrow" (*British Medical Journal*, 1904, 1, 1416, and *Trans. path. Soc. Lond.*, 1904, 55, 288). The patient was a man aged 58 years admitted to hospital suffering from great anaemia, progressive weakness, anorexia, and tinnitus. These symptoms had developed during the last twelve months; in fact, he had apparently been able to insure his life about one year before admission. He had lived in England since 1865 and had never had malaria or been out of Europe. Together with the leuco-erythroblastic anaemia there was great enlargement of the spleen and liver. At the necropsy the marrow of the shaft of the left humerus was carefully examined and found to have undergone transformation into a red substance of unusually firm consistence. This myelofibrosis was confirmed by microscopical examination. In sections of the spleen, liver, and kidneys there was absence of any reaction for free iron such as is found in pernicious anaemia. I concluded: "It is very tempting to suggest that the spleen (haemal gland) and the prevertebral haemolymph glands were actively engaged in supplementing the erythrocyte-forming functions of the diseased bone marrow." I alluded also to what French authors (as Vaquez and Aubertin) termed "anémie splénique myéloïde." In a later paper (*Mcd. Pr.*, 1928, 176, 174) I recorded another report, by Sir J. C. G. Ledingham, who kindly made a microscopical examination of the organs from my case after the one which I had reported. He drew attention to the peculiar type of myeloid transformation in the liver. "There were," he said, "numerous areas of veritable marrow, with extraordinary numbers of megakaryocytes, which occasionally showed mitosis. Some of the megakaryocytes were so large that they would not possibly have passed through the fine interacinous capillaries."

I borrowed the term "leukanaemia" from W. von Leube and from Arneht's haematological account of von Leube's case (*Dtsch. Arch. klin. Med.*, 1901, 69, 331) and H. Luce's paper (*Ibid.*, 1903, 77, 215), though my case was not exactly similar. I suppose now that my case must be classified among the cases of myelofibrosis of uncertain aetiology, with resulting sympto-

matic leuco-erythroblastic anaemia. G. Carpenter and C. M. Flory (*Arch. intern. Med.*, 1941, 67, 489) have headed a recent paper: "Chronic Non-leukaemic Myelosis: Report of a Case with Megakaryocytic Myeloid Splenomegaly, Leuco-erythroblastic Anaemia, Generalized Osteosclerosis, and Myelofibrosis." As explained by L. A. Erf and P. A. Herbert (*Ann. intern. Med.*, 1944, 21, 863), myelofibrosis is not of course synonymous with aplastic anaemia. The bone marrow in the former is fibrotic and in the latter it is fatty. Extramedullary haemopoiesis exists in the former but not in the latter.

An important clinical point is that in "leukanaemia," as I propose to limit the term, splenectomy is, as has been often pointed out, absolutely contraindicated, because the enlarged spleen (part of the conservative mechanism of extramedullary haemopoiesis) is helping to keep the patient alive.

Incidentally, I should like to know whether the condition of "polyostotic focal fibrous dysplasia" (in which I would include cases of "Albright's disease") ever leads to a condition of leuco-erythroblastic anaemia, in fact, to leukanaemia, in the restricted sense of the term which I advocate. Another question: Can there be gelatinous degeneration of bone marrow, such as is occasionally met with at post-mortem examinations, which is not merely a *paulo-ante-mortem* phenomenon but may allow the patient to live long enough to develop a resulting condition of myelofibrosis?—I am, etc.,

London, W.1.

F. PARKES WEBER.

### Pelvic Sympathectomy

SIR,—I was interested to read that Prof. J. P. Greenhill (Nov. 29, p. 859) advises pelvic sympathectomy "in cases of endometriosis in which conservatism is advisable." I agree wholeheartedly. Indeed, I have practised this for some time, and in addition I suspend the uterus to prevent retroversion due to adhesions. But I do not think Prof. Greenhill's technique goes far enough. It should be noted that he describes his operation as "Pelvic Sympathectomy" and not "Presacral Neurectomy." But he does not completely denervate the ovaries, and since endometriosis so frequently involves the ovaries it is very important to include them. Your annotator in the same issue mentioned this point with reference to the work of O'Donel Browne (1939) in the treatment of ovarian dysmenorrhoea.

Mitchell (1938) summarizes the nerves to the ovary as follows: (a) A superior group from the intermesenteric nerves and from the renal plexus. (b) A middle or intermediate group from the superior hypogastric plexus or from the hypogastric nerve. . . . It is possible that the nerve supply to the ovary may be mainly sympathetic in nature, and confined to those nerves described above as the superior and middle ovarian nerves. The inferior ovarian nerves supply filaments both to the uterus and tubes but few (if any) to the ovaries." Therefore in addition to presacral neurectomy I feel it advisable to incise the infundibulo-pelvic ligaments to complete the pelvic sympathectomy. In many cases of endometriosis this will be necessary on one side only, because pathology in the opposite ovary has already necessitated its removal.—I am, etc.,

Oxford.

G. GORDON LENNON.

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### A Medico-Nursing Society

SIR,—It is only in recent years that the importance of post-graduate medical education has received appropriate recognition. As far as nurses are concerned, however, such education is neglected and sometimes even ignored. The problem of maintaining the interests of nurses alert and up to date is not less urgent than the similar problem in relation to doctors. When I arrived at St. Bernard's Hospital as Deputy Medical Superintendent, after several years away in the R.A.M.C., a number of senior nurses requested my help in keeping their knowledge of modern developments in psychiatry and nursing abreast of the times. I found the matter presented many difficulties, such as the fact that the majority of senior male nurses and a large number of the female ones live out of hospital, most of them being married and having family obligations. After due consideration I concluded that a mere series of lectures would not in itself suffice. I sought to devise a scheme that would attract

a large number of the nursing staff and not be confined to a few enthusiasts and one that could endure perennially rather than flourish for a short time and then fade out.

Eventually I decided the solution was the formation of a society among the nurses resembling as closely as possible in function and purpose a medical society among doctors, and thus arose the St. Bernard's Hospital Medico-Nursing Society. This society has now existed for a year and continues to thrive. Since in my estimation it has so far fulfilled the purpose for which it was formed, I think it is worth while giving a brief description of its organization and activities in the hope that they may form a prototype for the formation of similar societies in other hospitals.

The society is a medico-nursing society and confines its activities to medical and nursing subjects. Discussion of administrative and pecuniary organizations and grievances is not permitted. Membership of the society is open to (1) anyone on the male or female nursing staffs, whether they be of graduate, undergraduate, student, or temporary category; (2) auxiliary personnel such as the physiotherapist, dispenser, occupation therapist, and pathological technician; (3) the hospital doctors. Members attend all club activities in their off-duty hours.

The society is administered by a committee elected by members once every year and composed of: a chairman who is a doctor (and in this case myself); two members of the senior male staff, two members of the senior female staff, and the senior tutor. Recently this has been augmented by one male and one female member of the junior—i.e., unqualified—staffs.

Meetings of the society are held once every three weeks on Mondays at 9.30 p.m. (coffee served at 9.15 p.m.) in the nurses' home. The object of holding the meetings so late is to allow the afternoon shift time to have a quick meal before coming to the meeting, and the interval between meetings is an odd number of weeks so that the shift on afternoon duty alternates from one meeting to the next. Meetings are confined to the months from October to May inclusive. Membership incurs no financial obligation and no subscriptions are demanded.

The principal functions of the society are a series of lectures, discussions, films, etc., that will prove interesting and instructive. The choice of subjects is made by members at the annual general meetings and it is left to the discretion of the committee to arrange details. Up-to-date lectures followed by discussions have been given on the following subjects: the endocrine glands; the effects of insulin and convulsive therapies; infantile paralysis and virus infections of the C.N.S. (films were shown in each case); the legal aspects of psychiatry; social and recreational activities in the treatment of psychiatric patients; recent advances in medical and surgical nursing and in the nursing profession; and tuberculosis. Two "brains trusts" have been held. The committee also hope to arrange occasional outings to places of interest such as an observation ward, a mental-defective colony, etc. The activities of the club do not preclude holding postgraduate lectures as part of the routine hospital education and a course of such lectures is now being given.

With regard to the meetings held the following points are noteworthy: (1) It is important to allow adequate time for a discussion following the address. Members greatly appreciate the opportunity to ask the lecturer questions. (2) The "brains trusts" were the most popular single events according to the opinion expressed at the annual meeting. (3) Short films were popular when followed by an explanation from the lecturer.

In conclusion may I say that any members of the medical and nursing professions who may wish to attend a meeting of this society to see how it functions will be welcome. If they communicate with the secretary or myself they will be advised of the future programme.—I am, etc.,

St. Bernard's Hospital, Southall, Middlesex

DONALD BLAIR.

### Yeast Extracts and Fat Absorption in Sprue

SIR,—Drs. D. A. K. Black and L. P. Fourman (Dec. 6, p. 928) do not deal with my criticism of judging the effects of yeast extract when combined with other therapy. My remarks were based partly on the data published in the article to which they refer, where the fallacy I mention is laid out clearly in tabulated form. Other data on which my view is based were obtained from observation of cases we studied on the Sprue Research Unit at Poona. I am interested to hear that they are treating cases of sprue in this country on yeast extract alone and maintaining them in remission. I am finding that maintenance in clinical remission in this country is in most cases achieved without any treatment at all.—I am, etc.,

Staines, Middlesex.

K. D. KEELE.

## POINTS FROM LETTERS

### Diet and the Nation's Health

Dr. R. E. CLARKE (St. Osyth, Essex) writes: I have read the report of the Hunterian Society meeting on diet and the nation's health (Nov. 29, p. 882). It was rather like a discussion between a test-tube or a laboratory guinea-pig or statistician and a family doctor. . . . Like many others I have been in the same practice for some years before the war, during the war, and since the war in an 80% rural practice with a fair sprinkling of small-moneyed pensioners and a large percentage of over 70s. Without the slightest shadow of a doubt skin troubles are many times what they used to be, digestive troubles the same, eye troubles in the shape of styes and blepharitis, inflammatory conditions following insect bites, and pricks of all sorts; anxiety states in women particularly are rampant. Here I will ask the diet experts how many calories are needed to counter the wear and tear of the body of a woman who spends an hour or two trying to get some food or clothes for the family. . . . We probably cannot be better fed at the moment, but as a profession we should not encourage the idea that we are satisfactorily fed, by talking calories and vitamins. The people themselves know that they are not nearly so well fed as before the war or even during the war.

Dr. R. M. NOORDIN (Ilford, Essex) writes: Dr. Westman (Dec. 6, p. 926) suggests that heroes are produced by misery; he ignores the thousands who died both in Germany and Russia during famine years. Those who survived were tough—very tough indeed. But it is the duty of civilization not to produce "tough heroes" (often beasts at heart) but to care for their health and build a normal nation.

### Guild of St. Luke (Anglican)

Dr. R. KELSON FORD (St. Stephen's Hospital, Fulham Road, London, S.W.10) writes: I shall be grateful if any reader can give me any information regarding the (Anglican) Guild of St. Luke. Before the recent war annual services were arranged in St. Paul's Cathedral, and the last secretary traced (Rev. Dr. Bhabha) died in 1941.

### Diet and the Nation's Health

Mr. J. BURDON-COOPER (Barrhill, Ayrshire) writes: I refer to the letter from Dr. F. M. R. Walshe (Dec. 13, p. 971). I should think it is hardly possible that there will be anyone occupied in clinical work, or whose daily work concerns the health of the people of this nation, who will fail to endorse the views he has expressed in his letter. Dr. Walshe is adept at the *mot juste*, as his students and clinical clerks knew so well, and in this instance he exactly hits the nail on the head. What he has said has needed to be said for some time now, and it is to be hoped that it will be duly noted.

### Physical Development

Capt. C. LIFFE (Richmond, Yorks) writes: After having the honour to spend six years as a serving soldier, one tends to look at the civilian medical service with a more critical eye than one did before the war, and among the many shortcomings one finds the lack of any serious provision for the development of the mental and physical weed is one of the most striking. . . . Physical-development centres set up in different parts of the country, to which young persons of both sexes could be sent for six months or longer, there to be fed well and given intensive and carefully graded physical training under expert guidance, would be a piece of high-minded and far-seeing statesmanship. The matter would not be difficult. There are plenty of P.T. instructors available and enough medical officers who have been trained in just this duty. Suitable buildings could be found because distance from home would not matter. Only a few rules would be necessary. Obey or go; be cheerful; try hard—in fact, "Come if you are willing, put yourself mind and body into our hands for a time, and then go back home with a straight back and your head held high fearing nothing any more."

### Retained Placenta

Dr. K. M. LITTLE (Walsingham, Norfolk) writes: Put the baby to suck at the nipple if the placenta does not follow in, say, 15 minutes. In about 2 to 3 minutes the mother has a great contraction, which rapidly expels the placenta. Of course this does not apply to a real retained placenta. Also occasionally the nipple is not big enough to be sucked. But it is certainly well worth a trial.

Twenty-five holders of United Nations Fellowships have arrived in Britain from Austria, China, Czechoslovakia, Greece, Poland, and Yugoslavia. They will remain in this country for from six to nine months and will study such subjects as the rehabilitation of the disabled, the manufacture of artificial limbs, the instruction of the blind, deaf, and dumb, and the social aspects of housing, medicine, and industry.



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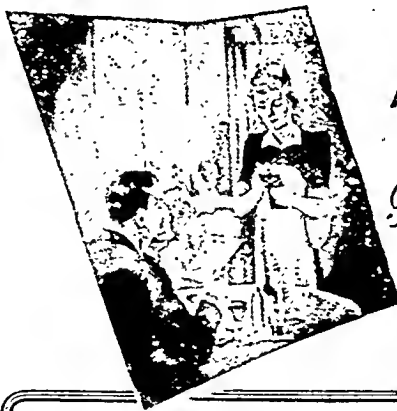
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## Obituary

### SIR BERNARD SPILSBURY, M.B., F.R.C.P.

Sir Bernard Spilsbury, whose sudden and tragic death took place in his laboratory at University College, London, on Dec. 17, was one of the most distinguished figures in forensic medicine. Sir Bernard was inevitably associated in the public mind with the unravelling of sensational crimes, and the high-lights were always upon him when he appeared, as he frequently did in the course of twenty-five years, in the witness-box in trials in which the crime had been of an unusual character. But among those best qualified to judge he had a greater reputation as an outstanding authority on the medical investigation of causes of death. For many years "Spilsbury Called In" was the favourite newspaper headline for the prelude to a story of murder or manslaughter to which some elements of mystery attached; but his best work was seen on the one hand in the patient investigation of innumerable cases which had no particular public interest, and on the other in the quieter paths of teaching, at which he excelled.



(Russell, London)

Bernard Henry Spilsbury, the son of a chemical manufacturer, was born in 1877. He was educated at Manchester Grammar School, and went on to

Magdalen College, Oxford, taking his B.A. in 1899 and proceeding to St. Mary's Hospital, London, where he qualified in 1905. At St. Mary's he came under the tutelage of the late Sir Almröth Wright, principal of the Institute of Pathology and Research, and his early work was in the bacteriological field. His first paper, contributed to the *Transactions of the Clinical Society* in the year of his qualification, was on pneumonia caused by *B. typhosus* in the course of enteric fever. Presently he became pathologist, lecturer in pathology, and curator of the museum at St. Mary's. His bent towards morbid anatomy was due to the influence of three brilliant men attached to St. Mary's at that time—namely, A. J. Pepper, the Home Office pathologist; A. P. Luff, scientific analyst to the Home Office from 1892 to 1908, who had become widely known in criminal investigation; and William Willcox, who had lately taken up the appointment as lecturer on chemical pathology and lecturer on forensic medicine at St. Mary's which he was to hold for thirty years.

With these three men Spilsbury was associated in his first famous case—the case of "Dr." Crippen, who was convicted in 1910 of wife-murder. As a result of the patient investigation of human remains found in the cellar of a house in Camden Town a fraction of a grain of hyoscine hydrobromide was isolated from portions of the viscera of the victim five months after the murder. In that same year, 1910, Spilsbury succeeded Pepper as pathologist to the Home Office, and so began his connexion with many celebrated trials which continued until he retired from active work of this kind, retaining the title of honorary pathologist to the Home Office, in 1934. He was knighted in 1923.

Spilsbury had exactly the qualities needed for such a position. He was patient in his investigations, bringing to them a disciplined mind, a critical and unprejudiced consideration, and the utmost care in arriving at his conclusions. His note-taking was voluminous; he was documented even on the most minor points, and the case-books filled with his neat writing must be a unique record in the history of crime. If his methods of investigation were beyond reproach, the presentation of his facts was equally admirable. Once, in an address to the West London Medical Society, he described the perfect medical witness, and warned doctors who had to go into the witness-box against prolixity, indistinctness, the use of jargon or superlatives, exaggeration, bias, and loss of temper. None could

accuse him of any of these faults. He was a witness after the judge's heart, giving his evidence in clear-cut fashion, never declamatory or violent in assertion, but always sure of his case and speaking with unmistakable authority.

He was lecturer in morbid anatomy at St. Bartholomew's, and in forensic medicine and toxicology at the London School of Medicine for Women; he was examiner in forensic medicine at different times to six English universities, and in pathology to the University of London. In 1913 he contributed a paper to the International Congress of Medicine on the pathological aspects of deaths under anaesthetics. During the first world war, like his colleague, Sir William Willcox, he made a special study of toxic jaundice, especially in munition workers, and presented the results to the Royal Society of Medicine. In 1924 he was Lettsomian lecturer to the Medical Society of London, taking as his theme wounds and other injuries. In 1932 he was vice-president of the Section of Forensic Medicine at the Centenary Meeting of the British Medical Association, and contributed to a discussion on the pathologist in coroners' courts, urging that the proper person to make a medico-legal examination of a dead body was an experienced pathologist who could also carry out any laboratory investigations that might be necessary. For many years he was secretary to the Medico-Legal Society, and contributed numerous papers to its proceedings, notably one on the medical investigation of crimes of violence. In 1933 he was president of that Society; his address from the chair was on certain forms of death, particularly in relation to criminal abortion. Beyond the papers which he contributed to the various societies he wrote very little, though it is understood that he had for some years been engaged in the preparation of a standard work on medical jurisprudence. His system of complete record-taking and careful indexing should make it possible for some other hand to complete the work. He became M.R.C.P. in 1924 and F.R.C.P. in 1931.

Spilsbury was not so immersed in morbid anatomy as to be indifferent to other aspects of criminal investigation. He had peculiar opportunities of studying the psychology of murderers, in particular the way in which they bore their burden of secrecy. He once gave it as his view that the murderer was impelled to make some oblique reference, if not a complete confession, to his act before his apprehension. The murderer, he said, turned the crime over and over in his mind until he arrived at some self-justification and wittingly or unwittingly gave voice to it. He had also noted the desire of many murderers for publicity. One of his first cases was that of the notorious murderer Seddon, and Spilsbury told how he had watched Seddon move eagerly to the police-court window where the press photographer could take his portrait.

In appearance Sir Bernard Spilsbury was the very opposite of what might be expected in a man whose preoccupation was with the macabre. His jovial, fresh-coloured face, his invariably correct attire, and little touches such as the flower in his buttonhole gave him the look of contented prosperity. His love for flowers and music—he was frequently seen at concerts if Beethoven or Mozart was on the programme—was well known. But in recent years he had had more than one illness, and those in close touch with him in the pharmacological department of University College, Gower Street, where he continued to work, and work hard, noticed how much he had aged. Tragedy had overtaken him in the death of two of his sons, one of them, Alan, closely associated with his father's work, and the other, Peter Bernard, who was on the threshold of his medical career when he was killed in the destruction of a part of St. Thomas's Hospital during an air attack on London in 1940.

WILLIAM CHARLES BENTALL died at Hindhead on Nov. 16 at the age of 73, after four months' illness. He studied medicine in Edinburgh, being associated with the Edinburgh Medical Mission, and shortly after qualifying, in 1901, he went to India as a medical missionary under the London Missionary Society. He became one of a line of outstanding medical men who built up the reputation of the South Travancore Medical Mission, which had a central hospital at Neyyoor and outstations and became one of the largest medical missions in the world. He settled in general practice in Southport in 1908, and threw himself with his accustomed energy not only into his professional

work but into the service of the St. John Ambulance Brigade and the board of directors of the London Missionary Society. In the Order of St. John he rose to be a knight and assistant surgeon-in-chief of the Brigade. The London Missionary Society honoured him by three times electing him chairman of the board. In his practice he was loved and honoured by his patients, and he built up a considerable reputation as a general surgeon. He was a good committee man and a capable organizer, and on his retirement from practice, in 1934, his services were soon sought by the growing A.R.P. organization. He was appointed assistant hospital officer for the South-Eastern District. After the cessation of hostilities, although seventy, he continued to serve on pension boards and committees, and in such leisure time as he allowed himself he cultivated his garden in Sussex. William Bentall was an enthusiastic traveller, and many of his holidays with his family were spent in Europe and further afield. His photographs were made into lantern slides, and his travel lectures were greatly appreciated by literary and lecture societies all over England. Those who knew him will always remember his quick boyish smile, his clear and impressive way of putting a case, his enthusiasm for any good cause, and above all his tireless energy. He leaves a widow, a son who is a doctor, and two daughters.—I. M. O.

Dr. JOHN MILLER YOUNG, who was the chief executive school medical officer for Glasgow, died suddenly on Nov. 20 at the age of 56. Dr. Young graduated M.B., Ch.B. at Glasgow University in 1914. Shortly after graduation he served in the R.A.M.C. as battalion medical officer to the 15th H.L.I. (City of Glasgow Tramways Battalion). For his services in France he was awarded the Military Cross. Unfortunately, he was so severely wounded in action that he had to undergo amputation of a leg, and his normally robust constitution was severely undermined. At no time, however, did he ever refer to his disability with any bitterness. On the rare occasions on which he did mention the injury he did so with a calm matter-of-factness which was all the more surprising in one who, in his early manhood, had been an athlete of repute. He took the D.P.H. in 1920, and became a Fellow of the Royal Faculty of Physicians and Surgeons of Glasgow six years later.

J. M. writes: Young was endowed with an essential sanity of outlook and singleness of purpose; zeal for his profession and thoroughness in execution were his dominant characteristics. In council his words were well weighed, and his criticism was always constructive. Though of somewhat austere aspect, Young was at heart one of the kindest of men and was always ready to place at the disposal of those who were in doubt or difficulty the fruits of his extensive professional experience. He never spared himself in the exercise of his duties, and the high standard which he set for himself he expected from his staff. But he was intolerant of inefficiency or complacency. Apart from his more immediate professional duties Young was a man of many interests, and his work in the Association of School Medical Officers for Scotland, of which he was honorary secretary for many years, was characterized by the same enthusiasm and thoroughness that marked all his work. The Association owes him a debt of gratitude that can never be repaid. At the time of his death Young was a member of the Scottish Council for Research in Education, and was chairman of the committee investigating the sociological conditions of school-children in connexion with the mental survey at present being conducted by the Council. As one who was intimately connected with Dr. Young for a long period of years, both as a friend and a fellow medical officer, I should like to put on record the outstanding place he held in the esteem of his colleagues. His death in the full flower of his career is a grievous loss, and the niche which he occupied in the school medical service will be indeed difficult to fill.

Dr. JOHN RICHARD LARSON died suddenly on Nov. 30 at his home in Birstall, Leicester, where he was in practice for over twenty-five years. His parents were well-known Swedish missionaries in the Middle East, and Richard Larson was born in Tiflis about fifty-four years ago. He was always a good linguist, and spoke seven languages. In his early days at burgh he took a great interest in his fellow students and a leading light in the International Club. He took the triple qualification in 1919 and two years later graduated M.B., Ch.B. at Edinburgh. Naturally he followed in the steps of his parents, and later became superintendent of the Swedish Hospital in Bethlehem, from 1921 to 1923. It was a great disappointment to him when he had to retire from this post on account of the ill-health of his wife and young family. He returned to practice in Leicester, where he had previously held a resident's post at the Royal Infirmary. He was a member of Birstall Parish Council for many years, a freemason, and divisional surgeon of the St. John Ambulance Brigade. Despite the demands of a busy practice, he led a

very full life during the war, and became local A.R.P. instructor and examiner, and was a serving brother of the Order of St. John of Jerusalem. Richard Larson never would spare himself, and now we mourn an unselfish and loyal friend. His numerous patients will miss his many acts of kindness apart from his professional skill. He leaves a widow, a daughter, and a son.—C. Y.

Dr. WILLIAM FERRIDAY JACKSON died at the Manchester Royal Infirmary on Dec. 1 after a motor accident. He qualified M.B., Ch.B. at Owens College in 1897 and took the conjoint diploma in 1899. He was senior house-surgeon to Ancoats Hospital before taking up private practice in Ardwick. He served that area faithfully even up to the time of his death. A surgical colleague described him in simple words: "This gentle character was a real ornament to the profession and was an outstanding general practitioner." Jackson was a big-hearted man who did much good. He was self-effacing but ever ready to lend a helping hand, a philosophic thought, or a wise piece of counsel to those in need. He was beloved by his many patients and his many friends. In masonic circles he was well known as a past master of Lord Stanley Lodge and a provincial officer. He was an excellent after-dinner speaker with a great sense of humour, and took great delight in music. He was for many years a justice of the peace, and served as chairman of the Manchester Division of the Association in 1934-5, of which Division he was a member since 1902. His passing leaves many sad hearts and all mourn the loss of a man devoted to all that is good in life. He leaves a widow and two daughters.

Dr. THOMAS ST. CLAIR SMITH died on Dec. 6 at the age of 71 at Chipping Norton, Oxfordshire, where he had lived for many years. He was educated at St. Paul's School, Cambridge University, and St. George's Hospital, where he took the M.B., B.Chir. in 1903. While still a schoolboy he came into prominence as a sprinter, and astonished London by beating A. R. Downer, the reigning sprint champion, in a 220-yards race at Stamford Bridge off a low handicap mark. It was expected that he would qualify for a blue at Cambridge, but he never did so, partly because he stopped growing earlier than most boys do but even more because he would not take his training sufficiently seriously. His slight, short, wiry figure was in fact more that of the typical long-distance runner than that of a sprint-racer. His interests were entirely those of a countryman, and he never practised in a town, where from a purely worldly point of view he might have attained greater material success. He served in the R.A.M.C. in 1914-18, and retired from practice some years ago.

## The Services

Major-General R. W. Galloway, C.B., C.B.E., D.S.O., late R.A.M.C., has been appointed Honorary Surgeon to the King, in succession to Major-General W. C. Hartgill, C.B., O.B.E., M.C., late R.A.M.C., retired.

Major-General R. E. Barnsley, C.B., M.C., late R.A.M.C., has been appointed Colonel Commandant of the R.A.M.C. in succession to Major-General O. Ievers, C.B., D.S.O., late R.A.M.C., whose tenure of appointment has expired.

Colonels W. H. Kerr, T.D., and J. P. Clarke, T.D., and Brigadier W. Anderson, O.B.E., R.A.M.C., T.A., have been appointed Honorary Colonels to No. 3 (Western) General Hospital, No. 8 (Western) General Hospital, and No. 5 (Scottish) General Hospital, respectively.

### DEATHS IN THE SERVICES

Capt. JAMES ARKLESS, R.A.M.C., who qualified in 1945 and was later house-surgeon at the Tynemouth Victoria Jubilee Infirmary, died suddenly in North-West Germany, on Dec. 6.

A correspondent writes: One of the younger medical officers on the staff of a military hospital, he was the most popular man in the unit. Some of us have known him only under the difficult circumstances which are faced by an Army of Occupation, but as a result of those very difficulties we have known him at his best, for here his gifts of generous living had ample scope. His death from acute anaphylactic shock following an injection of anti-tetanic serum after he sustained a minor injury will present his family and closest friends with the question why one so young, so full of promise, and so charged with vitality should so abruptly reach life's end.

## Medical Notes in Parliament

### Medical Practitioners and Pharmacists Bill

In the Committee stage on Dec. 9 Clauses 1 and 2 were ordered to stand part of the Bill. On Clause 3 Mr. JOHN EDWARDS moved amendments to meet the case of alien doctors who, although they had not served in H.M. Forces, had given valuable service in some civilian medical capacity overseas. The date "Sept. 1, 1939" was inserted to ensure that only service during the war period should count. One part of the amendments provided for aliens who served with the Red Cross, the Friends' Ambulance Unit, and similar bodies in co-operation with the British Forces. Another part was intended to cover alien doctors employed as civilians who had looked after the medical welfare of prisoners of war, internees, and the civilian population generally in British territories overseas which had been the scene of military operations or which had been in enemy occupation. Mr. Edwards said the limitation which applied to doctors who settled in the United Kingdom would apply also to these people.

Mr. WALTER ELLIOT said the Opposition did not propose to offer any objection to these amendments. Nevertheless they widened the Bill to some extent and he asked whether the Minister had had consultations on this point with the professional organizations concerned. These organizations thought they had been generous in opening the *Register* to a considerable number of new entrants.

Mr. EDWARDS said that he was not aware of any difficulty with the professional organizations on this point. There might seem to be a widening, but relatively few people would be covered and the House ought not to leave out persons who had rendered meritorious service but who did not happen to be in the Forces.

Mr. ELLIOT said he thought the general purpose of the amendment, which was to ensure that people were not left out because of some technical objection, was sound. The liberality of the learned profession of medicine was displayed in its acceptance of this addition to the already considerable opening of the *Register* to which this Bill gave effect.

The amendments proposed by Mr. Edwards were then accepted. On the motion that the Clause as amended stand part of the Bill, Mr. GALLACHER asked whether an American osteopath and other types outside the recognized medical fraternity in this country could be included for the purposes of the Act. Mr. HOUSE asked a similar question about an American naturopath. Mr. EDWARDS replied that the answer was "No."

The Clause as amended was then ordered to stand part of the Bill. On Clause 8 Mr. J. EDWARDS moved to insert a provision that where a direction for registration under this section was given the General Medical Council might include a direction that the right to registration should be subject to payment of a fee not greater than the fee for registration as Commonwealth practitioners or as foreign practitioners under Section 11 or 12 of the Medical Act, 1886. Mr. Edwards said it would be invidious that distinguished visitors who came here for our benefit and not primarily for their own should pay a fee, but the postgraduate student was here for his own advantage and in such cases a fee could be justified. Work would be entailed in following the movements of such a student. It had therefore been decided to give the Council power in such cases to charge a fee not exceeding the present £5, and to leave the Council free to reduce or to waive the fee if it thought fit.

Mr. GALLACHER suggested that after the passage of this amendment medical M.P.s should cease to object to the demand of the trade unions that those who came into an industry should become members of the union and pay their dues.

Mr. ELLIOT said the House was not dealing with the British Medical Association but the General Medical Council, a statutory body over which the medical profession had no rights at all.

The amendment proposed was agreed to, and, on the motion that the Clause as amended stand part of the Bill, Mr. SOMERVILLE HASTINGS said the less able the doctors who came to study our methods were the more anxious they were to take home to their own country some demonstration of their ability. If they could carry home a certificate that they had acted as house-surgeon in a British hospital they would be greatly pleased, and their patients would be much impressed. He realized the desirability of distinguished doctors coming here, but if the smaller fry were allowed to treat in our hospitals cases which they were not allowed to treat outside, it was a bit dangerous. He wished to see the Clause tightened up if possible. As it stood it left the public in hospital at the mercy

of people less well qualified and less able to treat disease than those who qualified in the ordinary way here.

The Clause as amended was ordered to stand part of the Bill and the remaining Clauses were approved without amendments. The Bill as amended then passed through Report Stage and Third Reading without further discussion.

On Dec. 16 the House of Lords considered the amendments made by the House of Commons in the Medical Practitioners and Pharmacists Bill. Lord HENDERSON, for the Government, said these amendments were simple and straightforward. The scope of the provisions had been carefully limited and had evoked no objections from the medical profession, who had been kept informed of what was now proposed.

The House concurred in the amendments to Clause 3 and also with one in Clause 8 giving the General Medical Council power to charge a registration fee, not exceeding the normal fee, for postgraduate students.

### Food Stocks

On Dec. 12 Mrs. AYTON GOULD expressed concern about the cuts in food which she said were impending in the New Year. She urged the Government to use up existing stocks, particularly of sugar and bacon, in January and February when the vitality of the people was at its lowest and mortality was highest. She pointed out that it was impossible to feed at school more than half the children of school age.

Lord WINTERTON asked for a medical examination of the weight and general condition of those children who received school meals and of those who did not.

Mrs. CASTLE said steps should be taken to get the maximum amount of vegetables into the homes.

Dr. EDITH SUMMERSKILL said the suggestion that the nation should now eat into its stocks might emanate from an imprudent housewife, and would not leave enough at the end of the rationing period. While shortages continued the Ministry of Food made special arrangements to safeguard the vulnerable groups of the population and had given them extra rations. The Ministry conducted special surveys each month so that any deterioration in the condition of those groups was brought to its notice immediately. In co-operation with the Ministry of Health and its Standing Committees, the Ministry of Food continued to observe the condition of the people of the country. Medical inspectors of schools co-operated with it.

### Advance Information

MR. ASTERLEY JONES asked the Minister of Health on Dec. 19 if his attention had been drawn to premature disclosure in the Press of an account of the proceedings in his recent discussions with the doctors. (See annotation entitled "Advance Information" in the *Journal* of Dec. 20, p. 1005.)

MR. BEVAN, in a written Parliamentary reply, stated: Yes, Sir. In certain newspapers I have been accused of premature disclosure of matters which were discussed by me with the Negotiating Committee of the profession and which it was agreed should not be published before to-day. The discussions in question took place between some 40 representatives of the profession or officials of the British Medical Association, the Secretary of State for Scotland, myself, and some officers. So far as my right hon. friend, myself, and our officers are concerned, I can state categorically that no disclosure of any kind has been made or condoned. The motives underlying these statements can only have been to embitter my relations with a profession whose co-operation I am sincerely seeking. Fortunately, I do not believe that many in the profession are actuated by such motives.

**Surgical Boots.**—Mr. BELCHER said on Dec. 16 that he was aware of the difficulties in obtaining surgical boots. Special assistance had always been given to surgical boot makers whose work was held up by lack of materials. The Board of Trade was introducing a further scheme to enable types of leather normally reserved for export to be bought for surgical boots. There had been some success in finding European volunteer workers for surgical boot making.

**N.H.S. Administration.**—Col. STODDART-SCOTT inquired on Dec. 11 whether the Government's decision with regard to Ministers' replies to Parliamentary inquiries about nationalized industries also referred to nationalized hospitals and the specialist and other services administered by Regional Hospital Boards. (This decision ruled out Parliamentary questions on detailed administration.) Mr. BEVAN replied: "No, sir." He added that the Health Ministers would be answerable for these services and therefore for their administration by the local or regional bodies set up for the purpose. But it was to be hoped that the proper responsibilities of those bodies would not be diminished by too many inquiries on detailed day-to-day matters unless some point of general importance was involved.



## Universities and Colleges.

### UNIVERSITY OF CAMBRIDGE

The Raymond Horton-Smith Prize for 1946-7 has been awarded to M. G. P. Stoker, M.D., for his thesis on a laboratory investigation of the Rickettsial diseases of India. J. F. Stokes, M.D., was *proxime accessit* for his thesis on the terminal stages of infective hepatitis.

Titles of degrees were conferred by diploma on the following members of Girton and Newnham Colleges during November: L. A. Farquharson, M.B., B.Chir., J. K. Goodacre, M.B., B.Chir., G. F. Jacob, M.B., B.Chir., I. Kane, B.A., M.B., B.Chir., P. D. Kilner, M.B., B.Chir., and R. M. Licence, M.B., B.Chir.

On Dec. 6 the degree of M.B., B.Chir. was conferred (by proxy) upon G. A. Bracewell.

The following candidates have been approved at the examination indicated:

FINAL M.B.—*Part I (Surgery, Midwifery and Gynaecology)*: N. Allsup, V. E. Amassian, J. C. Barker, G. P. Blanshard, D. G. Bonham, M. D. M. Bowen, P. H. Brighi, I. W. Broomhead, R. W. Brown, D. T. Cox, E. H. Eason, W. J. D. Eberlie, C. P. E. Elliott-Binns, P. Fehrsen, D. V. G. Feltham, J. E. Forster, R. A. Fox-Linton, I. W. de G. Gregory, R. H. Griffith, J. L. Hansell, I. Henderson, C. Q. Henriques, J. L. Hine, M. Honey, J. B. Howells, P. B. Hughes, P. V. Ingram, G. W. C. Johnson, D. G. Julian, E. A. Kauffmann, W. I. N. Kessel, W. M. Keynes, H. A. Lomax, I. S. Longmuir, P. H. Lord, J. A. MacDougall, A. G. Mackenzie, B. K. Madden, J. Mander, H. Middleton, P. F. D. Naylor, G. W. Page, C. M. B. Pare, K. N. J. Pocock, A. Polak, S. Powell, T. M. Robinson, R. A. Ryan, F. R. Ryle, J. E. S. Scott, R. T. Sears, L. Sefton, J. M. L. Shearer, R. S. Smith, P. W. Sole, E. F. Southill, W. F. W. Southwood, D. I. Storey, C. H. Talbot, R. G. O. Taylor, J. P. D. Thomas, K. R. Wallace, W. R. Walsh, J. C. Wardill, D. B. J. Wardle, G. H. Warrick, A. L. Wells, H. I. Williams. *Women*: C. B. Alvey, J. Bean, E. M. Bennett, R. M. Bower, Mrs. K. H. Cohen, P. M. Glasspole, M. H. Jerwood, Mrs. L. M. Rochelle, Mrs. H. B. Roxburgh.

### UNIVERSITY OF LONDON

The British Postgraduate Medical Federation of the University has awarded Postgraduate Travelling Fellowships for 1947, tenable for one year, to S. C. Gold, M.B., B.Chir., M.R.C.P., of St. George's Hospital (Dermatology, Switzerland and U.S.A.); A. Hargreaves, M.B., B.Chir., of University College Hospital (Dermatology, Switzerland and U.S.A.); R. Shackman, F.R.C.S., of the British Postgraduate Medical School (Surgery, U.S.A.); and D. B. Taylor, M.B., B.Ch., of King's College (Pharmacology, U.S.A.).

### UNIVERSITY OF MANCHESTER

The following candidates have been approved at the examinations indicated:

FINAL M.B., Ch.B.—Mary K. Astin, A. Coady, M. B. Edwards, D. D. Hilton, R. A. Kershaw, A. Kinsey, C. I. Moss, R. Ormerod, J. F. Parry, F. A. Rainford, O. R. W. Sejrup, B. Stone, Margaret E. Thorp, R. J. A. Webb, H. W. Wilson, P. Wolf, D. H. Wright. *Part I*: Helen E. Mafr, K. D. Pinson, A. D. Robinson, A. M. Sellars, H. L. Wolfe, D. H. Yates.

DIPLOMA IN PSYCHOLOGICAL MEDICINE.—*Part II*: G. Christie, F. Howarth, Mrs Helen E. Smith.

### ROYAL COLLEGE OF SURGEONS OF ENGLAND

At an ordinary meeting of the Council of the College held on Dec. 11, with Sir Alfred Webb-Johnson, Bt., President, in the chair, the following were elected to the Fellowship in Dental Surgery: Mr. H. Chapman, Mr. L. C. Attkins, Mr. W. B. Grandison, Mr. Bowdler Henry, Prof. H. H. Stones, Mr. R. Weaver, Mr. C. W. Roberts, Mr. H. G. Watkin, Mr. A. G. Allen, Mr. J. F. Pilbeam, Miss Eleanor M. Knowles, Mr. G. H. Leatherman, Prof. G. L. Roberts, Mr. R. Cocker, Mr. P. J. Stoy, Mr. B. W. Fickling, and Prof. E. L. Sheridan.

It was reported that the late Mr. Frédéric F. Burghard, C.B., M.D., M.S., F.R.C.S., had left a bequest to the College for the endowment of research scholarships. The Council gratefully received from Mr. H. B. Willett the gift of a portrait of John Abernethy.

The following hospitals were recognized in respect of the resident surgical posts required of candidates for the Final Fellowship examination: Whipp's Cross Hospital, London, E. (the two house-surgeons); Ingham Infirmary, South Shields (resident surgical officer); Taunton and Somerset Hospital (three house-surgeons, for the period of one year in the first instance).

Sir Hugh Cairns, K.B.E., D.M., F.R.C.S., Nuffield Professor of Surgery in the University of Oxford, left England on Dec. 23 for a three-months visit to Australia and New Zealand as the first of his Arthur Sims Travelling Professor. He will deliver lectures, make contact with leading medical scientists, and take part in research and postgraduate teaching. Arrangements are being made for

Sir Hugh Cairns to visit the principal medical centres of South Africa in the summer of 1948. It is confidently hoped that the institution of this Travelling Professorship will not only do much to stimulate the development of medical science for the benefit of mankind but that it will also prove a further valuable link between the Nations of the Commonwealth.

Diplomas of Membership were granted to R. G. Donaldson (Westminster), and B. C. Luker and G. G. Parsons (St. Thomas's).

Diplomas in Child Health were granted, jointly with the Royal College of Physicians of London, to M. B. Gamat and A. D. M. Jackson.

Diplomas of Fellowship were granted to the following successful candidates:

W. A. D. Drummond, D. D. Cranna, J. R. St. G. Stead, H. A. Pearce, N. E. James, B. S. S. Acharya, I. Jacobson, C. M. Squire, A. D. Bateman, R. W. Gunderson, J. N. M. Parry, G. H. A. Simmons, W. W. Wilson, N. L. Crabtree, J. C. A. Innes, A. J. S. Bell Tawse, R. C. Fuller, W. McC. Scott, H. D. S. Vellacott, R. P. M. Miles, B. H. Price, B. C. Rowlands, H. P. Guerrier, D. N. Fuller, H. O. Jones, B. W. Wells, R. C. Connolly, M. H. Wostenholm, G. A. Barclay, J. F. North, R. P. Warren, J. F. R. Bentley, J. F. N. C. Ward-McQuaid, W. E. S. Bain, J. R. Thompson, S. M. Chris, S. R. Mawson, P. P. Rickham, J. Fry, F. I. Tovey, I. Hivazi, F. V. Stonham, C. D. Clark, M. T. Greig, L. N. Bartholomew, J. R. Grimoldby, J. Burke, K. B. Burnside, N. C. Hughes, A. C. R. Sharp, R. E. Gibbins, K. N. McNamara, H. M. J. Windsor, K. R. Archer, J. A. Key, R. F. Lowe, E. M. Nanson, D. P. Sansford, P. R. H. Slade, A. W. Sutherland, R. C. Willis, S. Acharya, J. R. Addison, D. Aiken, T. J. Butler, J. P. Fleming, D. McD. Kenny, K. N. Morris, B. Mukopadhyaya, Jean M. Sandel, S. Banerjee, A. A. Brown, R. P. Jepson, M. Laird, T. F. Miller, I. Barnat, A. Hulme, L. I. W. Cox, K. N. Dastur, A. W. Fowler, I. Macnab, J. B. Parikh, A. E. Carter, F. G. Westgate.

### ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH

At the annual meeting of the College held on Dec. 4 Dr. W. D. D. Small, C.B.E., was elected President, and Dr. R. Cranston Low, Prof. L. S. P. Davidson, Drs. J. D. S. Cameron, C.B.E., H. I. Wallace, and I. G. W. Hill, C.B.E., and Sir David K. Henderson were elected to form the Council for the ensuing year. Sir David K. Henderson was nominated Vice-President. Drs. R. Cranston Low and A. Ninian Bruce were elected Representatives of the College on the Board of Managers of the Royal Infirmary of Edinburgh for the ensuing year.

### ROYAL COLLEGE OF SURGEONS IN IRELAND

The following candidates were successful in the Fellowship examinations: D. P. Beckett, R. E. Fenelon, R. S. Murray, J. R. McElroy.

The Fellowship was conferred on Dr. John Bunting on Dec. 12

### ROYAL COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS

At a meeting of Council held in the College House on Nov. 22, with the President, Mr. William Gilliat, in the chair, the following were formally admitted to Membership of the College: Robert John McConnell Jamieson, Joan Edith Warner Mackie, Stephen Parlee (*in absentia*), and Ada Sau Haan Wong (*in absentia*).

The following candidates have satisfied the examiners for the Diploma in Obstetrics:

K. D. G. Abbott, E. A. J. Alment, G. J. Amiel, G. Anderton, J. K. Armstrong, W. C. Astley, Winifred N. Backhouse, A. B. Backus, Henrietta E. Banting, C. P. Bennett, W. R. Bodenham, C. C. Bowley, M. Bruser, C. J. Champ, J. S. L'A. Chesshire, S. N. Cole, J. Colquhoun, Janet E. V. Copland, J. M. G. Costello, H. H. Crabb, R. Crawford, R. C. Cummin, D. V. Cummins, Nora C. Curran, R. Cutts, C. H. De Boer, N. S. Devi, C. J. Dewhurst, L. W. D. Drabble, W. J. Friend, R. W. Grayburn, E. G. Hall, A. Hanton, S. L. Hetherington, N. M. O'C. Driscoll, V. Drosso, J. G. Dumoulin, A. Eckford, D. F. Edmiston, M. S. Ellensweig, J. Eskell, J. Firth, J. H. Fisher, G. H. Flack, H. D. Freeth, H. J. Friend, R. W. Grayburn, E. G. Hall, A. Hanton, S. L. Hetherington, N. M. O'C. Hewett, G. E. Hicks, R. Hodgkinson, E. J. Holloway, D. R. Hughes, A. Hunter, R. W. Hutchinson, C. G. Irwin, S. B. Jahan, E. W. Jeyaratnam, A. Joffe, F. W. Johnson, E. P. Jones, E. W. Jones, R. A. S. Keighley, P. G. S. Kennedy, R. W. Kennon, P. M. Kerr, J. E. Kerton, B. T. Kiehl, Muriel G. King, G. Kirtane, W. H. Laird, J. L. Lawrence, R. P. Lawrie, J. B. Lawson, J. McL. Lees, M. H. Lloyd, Mary Love, H. McColl, Kathleen A. McDonald, R. McIntosh, Muriel MacKenzie, A. G. MacLeod, J. C. MacWilliams, A. S. Majury, H. N. Mansfield, Anna Mathan, T. K. Maurice, T. D. F. Money, Ivy M. Morgans, M. F. Morton, W. H. Oesterlein, G. C. Pattanayak, J. H. Patterson, P. C. A. Posford, G. Quane, W. J. Ramsay, E. B. Rayner, D. H. Read, D. D. Li. Reet, Jocelyn G. Reynolds, H. Roberts, P. S. Robinson, E. S. Rogers, Monica H. Roper, J. Rushton, G. T. Rutherford, Helen Samson, Mary A. Saunders, P. G. Seed, Elizabeth S. M. Sherrard, D. W. Shields, Irene M. S. Sloper, L. Smalley, A. A. Smith, E. M. Southern, Elizabeth M. Stokes, A. Taylor, A. P. Walker, J. Watson, Joyce Watson, A. E. B. de Courcy Wheeler, J. Wilbush, Mary L. Williams, R. B. Wilson, C. H. F. Wood, Esme M. Wren, R. B. Wright.

### FACULTY OF RADIOLOGISTS

At the recent examination for the Fellowship of the Faculty of Radiologists the following candidates satisfied the Fellowship Board: *Radiodiagnosis*, J. E. Blewett, M.D., D.M.R., W. J. Latham, M.R.C.S., L.R.C.P., D.M.R.D., S. A. Maddocks, M.R.C.S., L.R.C.P., D.M.R.E. *Radiotherapy*, E. Millington, F.R.C.S.Ed., D.M.R.

No. 49

## INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Dec. 6.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1947					1946 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	46	4	21	2	—	40	5	22	—	—
Deaths .. ..	—	1	2	—	—	—	—	—	—	—
Diphtheria .. ..	205	21	38	28	8	313	31	91	33	7
Deaths .. ..	3	1	1	—	—	4	—	1	—	—
Dysentery .. ..	93	11	34	1	—	76	13	23	—	—
Deaths .. ..	—	—	1	—	—	—	—	—	—	—
Encephalitis lethargica, acute .. ..	—	—	—	—	—	1	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Erysipelas .. ..	—	—	41	8	5	—	—	45	8	6
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Infective enteritis or diarrhoea under 2 years .. ..	—	—	—	—	—	—	—	—	—	—
Deaths .. ..	59	2	12	31	3	69	6	19	59	2
Measles* .. ..	2,799	149	371	204	1	6,466	239	225	44	179
Deaths .. ..	1	—	—	2	—	3	—	—	1	2
Ophthalmia neonatorum .. ..	45	4	10	—	—	60	4	9	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Paratyphoid fever .. ..	8	—	—	—	—	6	2	—	1(B)	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenza .. ..	530	25	8	2	16	677	56	7	4	4
Deaths (from influenza)† .. ..	19	3	1	—	2	21	6	3	—	1
Pneumonia, primary .. ..	—	—	340	16	—	—	—	331	25	—
Deaths .. ..	38	—	5	17	—	—	46	—	—	13
Polio-encephalitis, acute .. ..	6	—	—	—	—	1	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Polio-myelitis, acute .. ..	70	3	11	4	—	14	—	1	10	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Puerperal fever .. ..	—	—	8	—	—	—	—	14	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Puerperal pyrexia‡ .. ..	112	12	9	1	—	128	9	8	1	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Relapsing fever .. ..	—	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Scarlet fever .. ..	2,027	132	337	55	59	1,277	109	360	37	39
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Smallpox .. ..	—	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Typhoid fever .. ..	—	—	2	2	1	7	2	—	4	2
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Typhus fever .. ..	—	—	—	—	—	—	—	—	—	—
Deaths .. ..	—	—	—	—	—	—	—	—	—	—
Whooping-cough* .. ..	1,488	102	53	48	7	1,783	105	247	87	33
Deaths .. ..	4	—	—	1	—	6	1	3	—	—
Deaths (0-1 year) Infant mortality rate (per 1,000 live births) .. ..	373	49	60	27	19	410	51	67	45	22
Deaths (excluding stillbirths) .. ..	5,563	861	722	205	155	4,647	727	621	216	142
Annual death rate (per 1,000 persons living) .. ..	—	—	15.0	12.9	—	—	—	13.7	—	—
Live births .. ..	7,975	1327	962	304	212	9,620	1453	1158	462	271
Annual rate per 1,000 persons living .. ..	—	—	19.4	19.2	—	—	—	23.3	—	—
Stillbirths .. ..	210	24	29	—	—	254	24	65	—	—
Rate per 1,000 total births (including stillborn) .. ..	—	—	29	—	—	—	—	53	—	—

\* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

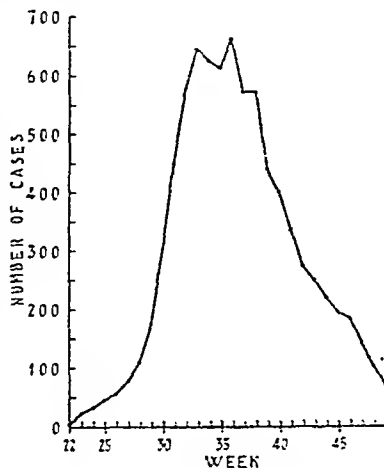
† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

## EPIDEMIOLOGICAL NOTES

## Poliomyelitis

The chart here reproduced illustrates the course of the poliomyelitis epidemic from the week ending May 31 (3 cases) to the week ending Dec. 6 (70 cases). It shows well the steep rise in the number of notifications from the week ending July 12 (110 cases) to the week ending Aug. 16 (646 cases), followed, after a slight fall, by the peak figure of 662 for the week ending Sept. 6. There has since been a steady decline in the number of notifications. The total number of cases notified during the 28 weeks was 8,157. This is the uncorrected figure, and it will be recalled that the 6,192 notifications for the September quarter have now been corrected to 5,077 (Dec. 13, p. 982). In the opening pages of this issue of the *Journal* there are three articles on different aspects of poliomyelitis, and reference should also be made to a leading article at p. 1038.



## Discussion of Table

In *England and Wales* increases were recorded in the notifications of scarlet fever 262, measles 27, and dysentery 16. There were decreases in the incidence of acute pneumonia 37, poliomyelitis 33, whooping-cough 25, and diphtheria 11.

A rise in the incidence of scarlet fever was reported from all areas, but the increase was largest in the northern section of the country. There was a continuing rise in the South in the notifications of measles, and the largest increase was Northamptonshire 121; in the North there was a fall, and the largest decreases were Glamorganshire 89, Yorkshire West Riding 46, Durham 44, and Cumberland 41. Relatively small fluctuations were reported in the local trends of whooping-cough. The only large variation in the returns of diphtheria was a decrease of 15 in Lancashire.

Seven of the 8 cases of paratyphoid fever were notified in Yorkshire West Riding, Kirkburton U.D., where 7 cases were also notified in the preceding week. The chief centres of dysentery were Lancashire 24 (Manchester C.B. 11, Liverpool C.B. 8); Warwickshire 10 (Royal Leamington Spa M.B. 7); and Glamorganshire 9 (Cardiff C.B. 6). The largest returns of poliomyelitis during the week were Middlesex 8 and Lancashire 8.

In *Scotland* increases were recorded in the notifications of measles 34 and acute primary pneumonia 31; there was a decrease in the notifications of diphtheria 14.

In *Eire* increases occurred in the incidence of whooping-cough 20, measles 14, and diphtheria 8. The notifications of diarrhoea and enteritis decreased by 14. The increase in cases of measles was contributed by outbreaks in Dublin, Rathdown No. 1 R.D. 40, and Galway, Ballinasloe R.D. 21. The largest increase in the incidence of whooping-cough was 10, in Waterford C.B. An outbreak of diphtheria involving 8 persons was reported from Meath, Navan R.D.

In *Northern Ireland* only one case of measles was notified, a decrease of 22, while the notifications of scarlet fever increased from 47 to 59.

## Quarterly Returns for Scotland

Births during the September quarter were equivalent to a rate of 20.8 per 1,000, which was 2.7 above the average of the corresponding quarter of the five preceding years. The infant mortality was 50 per 1,000 registered live births, being 5 above the figure for the September quarter of 1946 but 4 below the five years' average. Stillbirths were equivalent to a rate of 31 per 1,000 total births. Maternal mortality was 2.0 per 1,000 live births and was 0.8 below the five years' average. The general death rate was 10.6 per 1,000, being 0.8 below the five years' average. Deaths from epidemic diseases included 27 from whooping-cough, 7 from measles, 5 from diphtheria, 9 from cerebrospinal fever, and 8 from influenza. The death rate from all forms of tuberculosis was 69 per 100,000, and

from respiratory tuberculosis 55. The death rate for all forms of tuberculosis was 3 lower than the five years' average; the death rate from respiratory tuberculosis was unaltered.

### Annual Report for Scotland, 1945

During 1945 Scotland had the lowest birth rate ever recorded, the smallest number of deaths since 1861, and the greatest number of marriages, with the exception of 1940. The infant mortality was 56 per 1,000 births, the lowest rate ever recorded in Scotland. An analysis of the infant mortality by social class reveals differences. It had been expected that the improved dietaries for pregnant women which had virtually levelled social class differences in diet would remove the difference in infant mortality between the social classes. This had not occurred, but the opposite has been found for stillbirths. In 1939 there was very little difference in the stillbirth rate of the five social classes, but in 1945 the rate varied from 20.9 per 1,000 for the wives of professional men to 39.1 among the wives of unskilled labourers.

## Medical News

### Institute of Social Psychiatry

The Institute of Social Psychiatry met on Nov. 15, under the chairmanship of Dr. Noel Harris, to discuss therapeutic social clubs. About 50 psychiatrists and psychiatric social workers were present. The next meeting will be held on Jan. 14, 1948. All superintendents and medical officers in charge of out-patients, who have started or who are interested to start a club, are invited to get in touch with the Institute of Social Psychiatry at 7, Fellows Road, London, N.W.3.

### St. John's Hospital for Diseases of the Skin

An appointment system for all patients will start at St. John's Hospital for Diseases of the Skin (5, Lisle Street, Leicester Square, London, W.C.) on Jan. 1, 1948.

### New Rules Governing Poisons

The Poisons (Amendment) Rules 1947 (S.R. & O. 1947 No. 2555) will come into operation on Jan. 1, 1948. They provide for some relaxation in the restrictions at present imposed on the sale of nicotine dusts containing not more than 4% of the poison and of ointments and dressings containing sulphonamides. It will no longer be necessary for an entry to be made in the poison book in respect of any sale of nicotine dusts within the specified limit. It will be lawful to sell ointments and dressings containing sulphonamides without the prescription of a doctor, but these articles remain subject to the provisions of Section 18 (2) of the Pharmacy and Poisons Act; therefore sales must still be entered in the poisons book and the purchaser's signature obtained. It will no longer be necessary for the "dose to be taken" to be included in a prescription directing the supply of any Fourth Schedule poison which is to be used for external treatment only.

The remaining Rules have the effect of making permanent certain provisional Rules made during the war in respect of the sale of brucine in surgical spirit and of strychnine for the destruction of rats and moles. They do not make any change in the existing law other than to omit from the restrictions on the sale of strychnine any reference to the use of the poison by a purchaser after the transaction has been completed (Rule 29A of the Poisons Rules 1935-46).

Copies of the Rules may be bought (price 1d. net) from H.M. Stationery Office

### Will

Dr. Sydney Arthur Monckton Copeman, F.R.S., who died on April 11, left £71,296.

## COMING EVENTS

### Family Life

The Family Relations Group is organizing a conference on "Education for Family Life" to be held on Jan. 5-6, 1948, at King's College, Strand, London, W.C.2. Further details and application forms may be obtained from Mr. Cyril Bibby, Family Relations Group, 69, Eccleston Square, London, S.W.1.

### Medical Society of the L.C.C. Service

The annual general meeting of the Medical Society of the L.C.C. Service will be held at County Hall, Westminster Bridge, London, S.E., on Wednesday, Jan. 7, 1948, at 4.15 p.m., when the retiring president, Dr. R. C. Harkness, will deliver his presidential address on "Medical Staff Problems in Municipal Hospitals, Past, Present, and Future."

### Genetics

The 8th International Congress of Genetics will be held in Stockholm on July 7-14, 1948.

### Congress of Psychology

The International Congress of Psychology will be held at Edinburgh on July 23-29, 1948, under the presidency of Emeritus Professor James Drever, whose son, Prof. James Drever, of the University of Edinburgh, is arranging the programme. The secretary is Prof. Godfrey Thomson.

## APPOINTMENTS

The Royal Society has appointed Dr. K. Bailey, of the Biochemical Laboratory, Cambridge, to an Alan Johnston, Lawrence and Mosley Research Fellowship into the problems of human and animal health and diseases and the biological field related thereto. Dr. Bailey will work at the Biochemical Laboratory in Cambridge on the proteins of muscle fibril. The Society has also appointed Dr. G. S. Dawes, of Worcester College, Oxford, to a Foulerton Research Fellowship in Medicine. Dr. Dawes will work at the Department of Pharmacology, Oxford, on the left ventricle reflex. Both appointments date from Jan. 1, 1948.

Prof. D. F. Cappel, M.D., has been appointed chairman of the Technical Committee of the Scottish National Blood Transfusion Association in succession to the late Sir John Fraser, Bt., K.C.V.O., M.C., M.D., Ch.M., F.R.C.S.Ed.

BEETHAM, K. W., M.B., Ch.B., D.M.R.T., Radioltherapist, Hull Royal Infirmary.

FALLA, W. A. S., M.D., D.P.M., Medical Superintendent, Bracebridge Heath Mental Hospital, Lincoln.

## BIRTHS, MARRIAGES, AND DEATHS

### BIRTHS

Alderson.—On Dec. 5, 1947, in Newcastle, to Sybil J. Russell, M.B., B.S., wife of Bernard S. Alderson, M.B., B.S., a second son—Richard Russell.

Cormac.—On Dec. 6, 1947, at Stockport, to the wife of Dr. C. D. Cormac, a daughter.

Helm.—On Dec. 8, 1947, at 227, Whitegate Drive, Blackpool, to Kathleen Mary (née Walters), M.B., Ch.B., wife of Harold Helm, a daughter.

Law.—On Dec. 8, 1947, at London Hospital, E., to Beryl (née Dyson), wife of W. Alexander Law, O.B.E., F.R.C.S., 21, Chalmers Crescent, Highgate, N., a son—Bruce Alexander.

Leaming.—On Dec. 7, 1947, at Ruislip, Middlesex, to Barbara (née Todd), wife of Dr. H. Leslie Leaming, a sister for Douglas—Mary Jane.

Russell.—On Dec. 6, 1947, at Clovelly, Sandown, Isle of Wight, to Hazel (née Webster), wife of Dr. A. McC. Russell, a daughter.

### DEATHS

Adam.—On Dec. 10, 1947, at 2, Avonmore Mansions, London, W., John Ewing Adam, M.D., F.R.C.S.Ed.; aged 78.

Arkless.—On Dec. 6, 1947, in N.W. Germany, James Arkless, M.B., Captain, R.A.M.C.

Brooks.—On Dec. 11, 1947, Ivan Ernest Brooks, M.B., Ch.B., of Earlsfield, Darwen, aged 41.

Carwardine.—On Dec. 9, 1947, at Hindhead, Thomas Carwardine, M.S., F.R.C.S.

Coe.—On Dec. 13, 1947, Dennis Henry Coe, M.R.C.S., L.R.C.P., of King's College Hospital.

Cooper.—On Dec. 13, 1947, at 6, Holly Place, London, N.W., Henry Cooper, D.S.O., M.R.C.S., L.R.C.P., Group Captain, R.A.F.

Curphy.—On Dec. 12, 1947, at Lansdown Nursing Home, Bath, Elizabeth Curphy, M.R.C.S., L.R.C.P.

Dowling.—On Dec. 15, 1947, in Preston, Lancs, Edward Dowling, M.D.

Findlay.—On Dec. 13, 1947, at 16, Murrayfield Drive, Edinburgh, James Findlay, M.B., Ch.B., Lieutenant-Colonel, I.M.S., retired.

Freeth.—On Dec. 16, 1947, at 134, Cheam Road, Cheam, Surrey, Charles Mead, Maidenhead, aged 57.

Gilmour.—On Dec. 10, 1947, at Queen Elizabeth Hospital, Birmingham, Edward Raymond Gilmour, M.D., D.P.H., D.T.M., Medical Officer of Health, Leamington Spa.

Gunn.—On Dec. 14, 1947, at 234, Manchester Road, Audenshaw, nr. Manchester, William Gillespie Bryson Gunn, M.B., Ch.B.

Johnston.—On Dec. 15, 1947, at 19, West Avenue, Bryn Newydd, Prestatyn, Francis Johnston, M.D.

Marriott.—On Dec. 10, 1947, at Royal Masonic Hospital, William Marriott, M.R.C.S., L.R.C.P.

Maxwell.—On Dec. 13, 1947, Aymer Douglas Maxwell, M.C., M.B., Ch.B., aged 58.

Milligan.—On Dec. 11, 1947, at The Firs, Guildford, James Knowles Milligan, M.R.C.S., L.R.C.P., aged 65.

Moody.—On Dec. 11, 1947, William Ernest Moody, M.R.C.S., L.R.C.P., aged 67.

Perrott.—On Dec. 10, 1947, at 140, Clayhall Avenue, Ilford, Essex, George Francis Donaldson Perrott, M.R.C.S., L.R.C.P.

Poston.—On Dec. 11, 1947, Sallie, the beloved wife of Henry Poston, M.Ch., F.R.C.S.Ed., of "Malone," Manor Road, Cheddle Hulme, Cheshire.

Seecombe.—On Dec. 16, 1947, at 134, Cheam Road, Cheam, Surrey, Charles William Seecombe, M.R.C.S., L.R.C.P.

Smith.—On Nov. 13, 1947, at Melbourne, Australia, Julian Augustus Romaine Smith, M.D.

Spilsbury.—On Dec. 17, 1947, Sir Bernard Henry Spilsbury, M.B., B.Ch., F.R.C.P.

Stewart.—On Dec. 8, 1947, at The Elms, Gerrards Cross, Bucks, Rothway Charles Stewart, M.R.C.S.

Woolley.—On Dec. 16, 1947, at 8, Somerhill Road, Hove, Jasper Maxwell Woolley, M.D., Lieutenant-Colonel, I.M.S., retired.

## Any Questions?

### Protection against Colds

**Q.**—Has it ever been demonstrated that either vitamin supplements or oral vaccines give any protection against colds and influenza to workers in factories and offices?

**A.**—There is no satisfactory objective evidence that vitamin supplements, beyond what is required for a properly balanced diet, or "anticatarrhal" vaccines given orally or by injection, have any prophylactic value against the common cold. (For a review of the evidence see Browning, *Control of Common Fevers*, 1944.) If, on the other hand, there is evidence of a deficiency in any vitamin in a community, resistance to infection by the virus of the common cold and, more particularly, to secondary bacterial infection might be lowered; in which case vitamin supplements might serve a useful purpose. Thus, cod-liver oil or concentrates supplying vitamins A and D, and orange juice or its equivalent containing vitamin C, are given to babies and young children, whose requirements are relatively greater than those of adults. The prophylactic injection of vaccines containing influenza virus A and B has in controlled trials given encouraging results, although precautions may have to be taken to ensure that the vaccine contains the particular serological type of virus that is prevalent in the community at risk.

### Circumcision in Small Boys

**Q.**—In the case of boys aged 3 to 5 years, what is the accepted view on the advisability of operation where a long but retractable foreskin causes no symptoms or difficulty?

**A.**—There has been a reaction against indiscriminate circumcision. If the prepuce of a small boy is easily retractable and is not causing any symptoms there is no reason why it should be removed. It is, of course, possible that at a later period in life it may predispose to balanitis and have to be removed, but to operate now on the assumption that this will necessarily be the case would be absurd.

From a psychological point of view, the effects of circumcision performed under proper conditions and with an anaesthetic correctly administered do not differ from those of any other procedure. But the operation done in infancy without an anaesthetic often predisposes to neurosis, especially if the infant is not given the immediate comfort and reassurance of the mother. It may be true that in the first few days of life an infant has no cutaneous sensation of pain, but the operation can nevertheless produce profound shock, both surgical and psychological, predisposing to anxiety states. This may show itself later in a horror of operation or the sight of blood. In other cases the tight prepuce is a cause of erection and masturbation, which leads the parent to seek the surgeon's aid. In such a case circumcision may be interpreted by the boy as punishment for his sexual feelings, and in turn lead to sexual repression and later to partial or complete impotence; or it may lead to anxiety whenever the sex feelings are even normally aroused. Once again reassurance and affection from the mother will help to counteract the idea of punishment and guilt. But these are only predisposing causes of an anxiety neurosis, which does not materialize unless later untoward experiences precipitate it. The presence of the mother both immediately before and after any operation in infancy may be a worry to the nurse, but her absence is a worry to the infant, filling it with separation anxiety. The question is: Which is considered the more important?

### Coitus during Pregnancy

**Q.**—(a) When should coitus be discontinued during a normal pregnancy? (b) Are there any dangers associated with intercourse during pregnancy? (c) Does the pregnant woman derive benefit from coitus, and is it possible for her to have an orgasm? (d) Should an abdominal support be worn during pregnancy?

**A.**—(a, b) Coitus should be avoided during the last month of pregnancy, and preferably during the last two or even three

months; otherwise there is a slight but appreciable risk of inducing premature labour and of introducing into the vagina pathogenic organisms capable of causing infection during and immediately after labour. During the first three months it may cause abortion, but the risk is so small that, providing there is no roughness, it can be disregarded in normal cases. When, however, there is a history of previous abortions coitus should be forbidden during the first trimester, and often during the whole of pregnancy. Any danger of injury to the softened and highly vascular vaginal walls is avoided by reasonable care.

(c) It is still disputed whether a woman at any time receives direct physical benefit from the act of intercourse or from the absorption of constituents of seminal fluid; the evidence is inconclusive. However, it is reasonable to regard it as beneficial for a woman to satisfy sex desire during pregnancy and to preserve marital harmony. The reactions of pregnant women to coitus vary; usually sex desire and the capacity for reaching orgasm are retained, but they may be less intense, especially in the later months.

(d) The majority of women carry their first pregnancy without discomfort and do not require any support. If they need support at all it is during the later weeks or months, when the support should be designed to grip the pelvic girdle and also to carry the weight of the uterus with a sling-like action rather than to constrict it. During second and subsequent pregnancies, however, when muscles and ligaments are less efficient, most women obtain a good deal of comfort from a maternity belt, and there is no reason why one should not be worn as soon as the need is felt. The necessity for a support should be assessed in each individual case, and is judged by the presence or absence of backache, sacro-iliac pain, and other muscular and ligamentary discomforts.

### Climate and Longevity

**Q.**—During a recent visit to Switzerland I gained the impression that there were fewer elderly people than in Great Britain. What is the average age in different countries? Where can I find information on the effects of climatic conditions on health?

**A.**—The average age of the population is never given in official statistics, but a comparison can be made by considering the proportion above a certain age. The following table illustrates the kind of variation that might be expected:

Year	Country	Percentage of Total Population	
		Aged Over 60	Aged 75 and Over
1941	Switzerland .. ..	13.1	2.5
1940	England and Wales ..	14.5	2.7
1941	Canada .. ..	10.2	2.1
1940	United States .. ..	10.4	2.0
1941	Éire .. ..	14.6	3.1
1940	Norway .. ..	12.6	3.2
1931	Spain .. ..	9.6	1.7

The three chief factors that influence the proportion of old people in the population are the birth rate, the death rate, and migration. There is a vast literature on climatic conditions and health. The easiest introduction would be to read papers given before the Section of Balneology and Climatology of the Royal Society of Medicine.

### Trichlorethylene Poisoning

**Q.**—In a factory where trichlorethylene is used for dry cleaning many of the workers complain of headaches and indigestion, and at least one has collapsed. Can death occur from inhalation of these fumes? Is trichlorethylene a cumulative poison, and are any permanent ill effects likely to result from constant inhalation? What is the first-aid treatment for collapse due to inhaling the fumes?

**A.**—The most striking characteristic of trichlorethylene is its acute narcotic action. Lehmann (*Arch. Hyg., Berl.*, 1911, 74, 1) says it is to chloroform as 1.7 to 1. Trichlorethylene is used industrially chiefly for metal degreasing and as a non-inflammable cleaning agent, but with proper control of working conditions there should be little or no fume from this narcotic.

### Secretariat

As has been stated above, the General Assembly left to the Council the question of the general organization of the secretariat. It considered, however, the desire expressed by the Latin American associations for the specific recognition of the Spanish culture in the Association's organization. They proposed the adoption of Spanish as a third official language, and the appointment of a Spanish Assistant Secretary, whom they offered to finance without cost to the Association. The Assembly adopted the first proposal. With regard to the second it recognized that, with the development of the Association's work, it might become desirable to appoint perhaps several assistant secretaries in different parts of the world. It therefore instructed the Council to include this matter in its consideration of the general organization of the secretariat and recommended for acceptance the kind offer of the Latin American associations.

### Proxy Voting in Assembly

The General Assembly referred to the Council for consideration a suggestion by Australia that provision should be made in the by-laws for voting by proxy in the General Assembly in order that far distant member associations, which might be unable to send delegates to a meeting of the General Assembly, should not thereby lose their voting power.

### War Crimes

After a discussion of the motions on the agenda by Denmark and Great Britain and the British memorandum relating to the attitude of the profession to war crimes, and after hearing statements by members of the Assembly and by a French medical victim of war crimes, the Assembly appointed a small committee to formulate a recommendation. The following report of the committee was subsequently adopted by the Assembly.

(i) That a report on crimes committed since 1933 by doctors and medical organizations in Germany and other countries and on this violation of the medical ethic be prepared and made available to doctors throughout the world.

(ii) That the World Medical Association solemnly condemns the crimes against human beings committed by certain members of the medical profession such as are described in the British memorandum.

(iii) That every doctor at the time of receiving his medical degree or diploma be required to subscribe to the following oath: "My first duty, above all other duties, written or unwritten, shall be to care to the best of my ability for any person who is entrusted or entrusts himself to me, to respect his moral liberty, to resist any ill treatment that may be inflicted on him, and, in this connexion, to refuse my consent to any authority that requires me to ill-treat. Whether my patient be my friend or my enemy, even in time of war or in internal disturbances, and whatever may be his race, his race, his party, his social class, his country, or his religion, my treatment and my respect for his human dignity will be unaffected by such factors."

(iv) That the World Medical Association endorse judicial action by which members of the medical profession who shared in war crimes are punished.

(v) That the World Medical Association request the German medical syndicates to make the following public declaration: (a) We, members of the German medical syndicate, are aware of the very large number of acts of cruelty committed both by individuals and collectively since 1933 in mental hospitals and in concentration camps and of the violation of the medical ethic. These acts have resulted in the death of some millions of people. A large number of our members have been implicated in these acts, either as instigators or as technical agents or as actual perpetrators. (b) We regret that the organized medical profession in Germany has not made any protest and has been content to ignore these acts, of which it could not have been unaware. (c) We undertake solemnly to condemn these crimes, to expel from our organization the criminals who committed them, and to remind all our members of the responsibility not only to life, but to human personality, dignity, and honour.

The Assembly instructed the Council to prepare a report incorporating these resolutions and also to take into consideration the following motion by the Netherlands:

That the Council be instructed to prepare a report on the collaboration of medical practitioners in the preparation of means of warfare.

### Matters Referred to Council

During the course of the meeting the General Assembly also referred the following matters to the Council for appropriate action or investigation and report:

(i) The general arrangements for the organization and publication of a bulletin or journal; (ii) the preparation of a report on the inquiry into the present position of the medical profession in relation to the State; (iii) the motions of Luxembourg, supported by Australia, recommending the preparation of a comparative statement of standards of training for the medical profession and conditions of registration, and of a comparative statement on the qualifications of specialists; (iv) the following motions by India:

(a) That the Council be requested to study and report on the question of the advertisement of cures and medicines in the lay press; (b) That the Council be requested to study and report on the question of unqualified and unauthorized medical practice;

(v) the preparation of Standing Orders to govern the procedure of meetings of the General Assembly; (vi) the appointment of auditors.

### Second Annual Meeting

The General Assembly decided to hold its 1948 meeting in Prague, the exact date being left to the Council to decide.

The General Assembly elected Dr. J. Stüchlick (Czechoslovakia) to preside over its Annual Meeting in 1948. He therefore becomes President-Elect for the year 1947-8. The General Assembly elected Dr. O. Leuch (Switzerland) as Treasurer of the Association for the period 1947-50.

### Council 1947-8

The General Assembly elected the first Council. Dr. Zahor (Czechoslovakia) and Dr. Glorieux (Belgium) having resigned after election, the Council for 1947-8 is composed as follows:—Ex-officio President: Prof. E. Marquis (France); President-Elect: Dr. J. Stüchlick (Czechoslovakia); Treasurer: Dr. O. Leuch (Switzerland); Chairman: Dr. T. C. Routley (Canada); Vice-Chairman: Dr. D. Knutson (Sweden); Drs. L. H. Bauer (U.S.A.), J. A. Bustamante (Cuba), P. Cibré (France), A. Hartwich (Australia), P. Z. King (China), J. A. Pridham (Great Britain), S. C. Sen (India), L. G. Tornel (Spain).

### Meeting of Council

At the conclusion of the General Assembly's proceedings the Council held its first meeting. Pending the establishment of a permanent office and the appointment of a full-time secretary, the Council appointed Dr. Charles Hill (Great Britain) as Honorary Secretary of the Association, with temporary headquarters at B.M.A. House, London.

The Council will consider the conditions of service to be offered for a full-time secretary and will make arrangements for receiving and considering applications for the appointment. It hopes that national medical associations will make known in their countries the offer of the appointment so that the field for the selection of the right person may be as wide as possible.

In accordance with the General Assembly's acceptance of the principle of the appointment of assistant secretaries, Dr. Bustamante, Secretary of the Pan-American Medical Confederation, was appointed Honorary Assistant Secretary for matters pertaining to the Latin American countries.

I hope this brief note will give a general idea of the results of the First Annual Meeting and of the work which the Association is to undertake during the coming year. The World Medical Association is now an established organization, and the Council trusts that every national medical organization will give it its full support.

CHARLES HILL  
Honorary Secretary

The Cheshire Protection of Practices Committee has issued a report summarizing its activities since the beginning of the war. The scheme resulted in a total of £98,418 being given to insurance practitioners serving with the Forces. The report pays tribute to the organizing ability of Mr. F. T. West, the Administrative Officer.



## TERMS OF COMPENSATION FOR OFFICERS OF THE INDIAN MEDICAL SERVICE

The Armed Forces Committee has had under consideration the terms of compensation for officers of the Indian Medical Service which were announced by the Government in a White Paper in April of this year. Following correspondence with the Commonwealth Relations Office on a number of points arising out of these terms, a deputation of representatives of the Committee met senior officials of the C.R.O. on Oct. 10 to discuss points of criticism and obscurity arising from the White Paper. The following is a summary of the representations made by the Committee, and the replies of the C.R.O.

### Basis of Compensation

The Committee commented on the fact that in the case of I.C.S. officers compensation was based on the completed years of service, whereas I.M.S. officers, in common with officers of the R.I.N. and I.A., have their compensation based on age. As there is considerable variation in the age of entry of officers of the I.M.S., the Committee recommended that where it can be shown that compensation based on age reacts to the disadvantage of an officer it should be possible for him to have his compensation based on years of service if the latter basis is more favourable.

The C.R.O. stated in reply that the difference in the bases of calculating compensation was due to the fact that in the I.C.S. the date of retirement was governed by years of service, whereas in the I.M.S. and other services it was governed by age. Moreover, while the age basis of compensation might in certain cases reduce compensation, it was equally true that if the years of service criterion were adopted for I.M.S. officers many would be penalized, particularly officers who entered the service late and had comparatively short service by the date of transfer of power. For example, an officer aged 39 with 9 years' service would have his compensation reduced from £6,000 to £3,375. It was further stated that at this stage it would be impossible to vary the basis of compensation.

### Officers Retired before Aug. 15, 1947

The Committee considered that there was some case for compensation for officers who, in view of the impending change of government in India, had secured other employment before the appointed day.

In reply it was stressed by the C.R.O. that entitlement to compensation does not exist except in the case of officers who were serving on the day when power was transferred. The only exception to this is the special provision announced by the Viceroy on April 30, 1947 (*vide* para. 10 of the White Paper). An officer of the I.M.S., civil or military as the case may be, who was specially released by the Viceroy, or granted the requisite certificate of compulsory retirement by the commander-in-chief, in advance of the appointed date, remains entitled to compensation and proportionate pension. If an officer had left India on leave pending retirement before Aug. 15, 1947, and claimed that his retirement was compulsory as a result of the acceleration of the Indianization of the Armed Forces, special consideration would be given to his case, and if his claim were accepted by the Viceroy or the commander-in-chief in India under the provisions referred to above he would be eligible for compensation. Save in these exceptional cases, the grant of compensation is not admissible to any officer who proceeded on leave preparatory to retirement before Aug. 15, 1947.

The Committee understands that as a result of the acceleration of the transfer of power the number of officers who took up other employment before the appointed day is very small. In fact only one such case has been brought to the Committee's notice, and in this case the officer concerned was aware that his acceptance of the appointment was likely to jeopardize his claim to compensation.

### Transfer of I.M.S. Officers to British Armed Services

The Committee sought further information about the C.R.O.'s intention regarding the transfer of I.M.S. officers to British

Armed Services. It was the Committee's view that this could be equitably effected only on the understanding that there would be no interference with the vested rights to the maximum career of the permanent officers in the Services accepting transfer of I.M.S. officers. If this view were accepted, it must follow that these Services could not offer the same opportunity for a maximum career for those I.M.S. officers who transferred to them. The Committee also wished to know if it was proposed that the Indian Government would accept responsibility for the payment to officers who transfer to British Services of the amount required to bring the pension earned in that Service up to the sum of the pension to which they would have been entitled in the I.M.S.

The C.R.O. stated in reply that I.M.S. officers with up to 20 years' service would be accepted by the three British Services, subject to individual suitability, and then only if they could be offered an adequate career. I.M.S. officers who were transferred would be treated in the same way as officers already serving. An officer who is transferred to the medical service of one of the U.K. Forces will receive one-quarter compensation and will have his reckonable service in the I.M.S. reckoned as service for British retired pay on eventual retirement. In addition, the special element of pension carried by service in India—i.e., the Indian element—will be assessed as on Aug. 15, 1947, or the date of the officer's transfer if before that date, and the amount due will be payable in addition to the pension granted under the regulations of his new Service. That is, he will receive on final retirement the pension or proportionate pension earned by service in the I.M.S. increased by subsequent service in the R.A.M.C. or other Service. For example, an I.M.S. officer aged 35 with 10 years of reckonable service in India will on transfer to the R.A.M.C. or other Service receive £1,125 (1/4 of £4,500), and, assuming that he finally retires from the British Service after a further service of 20 years, his pension on final retirement will consist of a pension based on 30 years' service in the R.A.M.C., etc., plus the specific Indian element of pension earned by 10 years' service in the I.M.S.

The C.R.O. regretted that no possibility could be seen of H.M. Government or the new Governments in India being prepared to accept liability for bringing the combined pension finally payable up to an amount for which an officer might have qualified had he continued to serve in the I.M.S. up to the date of final retirement.

### Transfer of I.M.S. Officers to H.M. Civil Services (including the Colonial Service)

The Committee drew attention to the dissatisfaction which had been expressed at the terms offered to officers who elect to be transferred to other Crown services, particularly the Colonial Medical Service. According to the White Paper such officers would forfeit compensation and receive only a resettlement grant of £500, while there was no guarantee that a transferred officer would enjoy seniority in his new service based on his service in the I.M.S. In the Committee's view officers transferred to Crown service should either (i) receive compensation in full, or (ii) receive full credit for all their service in the I.M.S. when their seniority and rate of contract pay in the new service are determined.

In reply the C.R.O. stated that so far as the Colonial Medical Service was concerned the point referred to in (ii) was already under examination, and they undertook to inform the Committee when a decision had been reached. With regard to pension, an officer appointed to a permanent pensionable post in one of H.M. Civil Services (including the Colonial Medical Services) will receive from the date of his retirement from Indian service the pension or proportionate pension earned by him during such service, to be drawn in addition to the pay of his new service, and he will begin to earn a separate pension in his new service from the date on which he joins for duty. Any officer who obtains an appointment under the Crown which is not permanent and pensionable, or who enters the services of one of the Dominions, will remain eligible for the full amount of compensation admissible.

The Committee is seeking an assurance from the C.R.O. that an officer's full service will in fact be taken into account by all Crown services to which I.M.S. officers may be transferred.

**Transfer of I.M.S. Officers to the National Health Service**

The Committee requested a ruling on whether an officer who accepted an appointment in any National Health Service would be liable to forfeit his compensation and receive only the resettlement grant of £500.

In reply the C.R.O. stated that full compensation would be paid to I.M.S. officers who accepted appointments with Regional Hospital Boards, local executive councils, or local health authorities so long as these were not regarded as permanent pensionable posts under the Crown.

The Committee is not satisfied that service in any National Health Service might not at some future date be held to be permanent pensionable service under the Crown, and foresees the possibility that an officer joining the new Service might subsequently be asked by the Treasury to refund the amount of compensation received in excess of £500. The Committee received no assurance that such an eventuality would not occur and is pressing the Ministry of Health for this assurance.

**Leave Pending Retirement (under Military Rules)**

The Committee asked for information on the policy of converting home leave into leave pending retirement, which in some cases has deprived officers of 4 to 6 months' leave. In the Committee's view it was thought reasonable that leave pending retirement should in all cases be dated from Aug. 15, 1947, or at least from the date on which the officers were notified that their services were no longer required.

The C.R.O. explained that all I.M.S. officers in military employment on leave at the crucial date had been offered the choice of returning to India for further service in that country or Pakistan, or of having their present leave converted into leave pending retirement. The C.R.O. defended this action by explaining that an officer was not permitted to take ordinary leave in the U.K. except on the assumption that he was returning to India, while the military rules provide that the 12 months' leave which may be granted pending retirement shall include the privilege leave standing to the officers' credit. Further, officers who declined to return to India were given the opportunity of going on leave pending retirement, dating from the commencement of their leave, or of going on release leave from Aug. 15, 1947—i.e., 56 days plus one additional day for every day of overseas service at appropriate Indian rates of pay.

**Review of Pensions**

The Committee urged that the pensions of I.M.S. officers be revised particularly in regard to the assessment of proportionate pensions.

To this the C.R.O. replied that approval had been given to the revision of I.M.S. pensions, and new rates, consisting of those contained in the 1945 Pension Code for medical officers of the Navy, Army, and Air Force, with an additional Indian element are now payable to officers of the I.M.S. If, however, in certain cases it would be more favourable for an officer that his pension be assessed on the old code, this would be done.

**Additional Pensions to Officers of the Rank of Colonel and Above**

The Committee urged that the regulations for the grant of additional pensions to officers of the rank of colonel or above should apply to officers who held temporary rank of colonel and above for the necessary period during the war.

The C.R.O. stated that it had been agreed that officers pensioned under the new code should receive increased pension in respect of paid acting or temporary service in a rank higher than their substantive rank on retirement, and that in the case of officers pensioned under the old scale substantive lieutenant-colonels who had held the acting or temporary rank of colonel with pay as administrative colonel should be eligible for additional increments of pension in respect of such rank.

**Compensation Awards**

In answer to specific questions on the mode of payment of compensation the Committee was informed by the C.R.O. that

considerable progress had been made in the payment of awards, and an assurance was given that those outstanding would be dealt with as quickly as possible. All grants of compensation will be free of United Kingdom income tax, and it is unlikely that any payments will be made in India.

**INSURANCE ACTS COMMITTEE**

A meeting of the Insurance Acts Committee was held on Dec. 4. Dr. E. A. Gregg was unanimously re-elected to the chair. The Scottish Subcommittee and the Rural Practitioners' Subcommittee were reappointed, and also the Insurance Acts Committee's nominee on the Ministry of Health Distribution Committee.

Much of the meeting of the Committee was concerned with the resolutions of the recent Panel Conference. These were considered one by one and appropriate action taken. Resolutions which referred to rural practice were referred to an early meeting of the Rural Practitioners' Subcommittee. Other resolutions were noted for further discussion with the Ministry. On the question of ensuring proper representation by co-option of medical practitioners on statutory health committees of local authorities it was stated that the Minister was fully with the profession on this matter. He would be informed of cases in which committees had failed to make such co-option.

A statement was made on the agreement with the Ministry of Fuel and Power concerning the use of petrol by members of the medical profession. The statement appeared in the *Supplement* of Dec. 6 (p. 132). The Committee accorded a vote of thanks to Dr. Wand, chairman of the General Practice Committee, and to Dr. Stevenson, assistant secretary, for their efforts in this connexion.

The position of medical members of local executive councils in relation to the provision of payment for loss of remunerative time in attending meetings of such councils was raised. The experience in this respect concerning members of the insurance committees appears to be diverse, but medical members of executive councils will be more numerous, and a new policy may be indicated. It was agreed to offer no advice to individual members with regard to such claims, but to deal only with the scale of payment allowed.

The future position of the Insurance Acts and General Practice Committees upon the inception of the National Health Service Act was briefly considered, and members were appointed to discuss the matter with members of the General Practice Committee and the Organization Committee.

It was reported that the sessional fee for part-time regional medical officers had been raised to three guineas for a session of two hours, with effect from Oct. 1 last.

The question of medical records of persons no longer entitled to medical benefit was considered on a letter from the Ministry of Health. The Ministry feels that it will not be possible in any new service to revive the old insurance medical records, and in view of the fact that these are at present occupying valuable space it is proposing to advise insurance committees that they may dispose of the records in question. Several members of the Committee expressed the view that an effort should be made to prevent destruction of these records, but eventually it was decided to ask that current records should not be withdrawn from doctors, the Ministry being left to make the decision regarding old records.

Dr. J. W. Bone, treasurer of the National Insurance Defence Trust, reported that during the last twelve weeks a sum of £46,000 had been received—a record income for such a period. The total amount in hand had gone up to just upon £450,000. He mentioned significantly large contributions recently made from some areas.

The Home Office announces that Dr. Brendan O'Carroll, of South Kensington, London, S.W., is no longer authorized under the Dangerous Drugs Acts to be in possession of or to supply dangerous drugs.

## PSYCHIATRY AND THE NATIONAL HEALTH SERVICE

A conference of the Psychological Medicine Group was held at B.M.A. House on Nov. 11, principally for a discussion on psychiatry and the National Health Service. The conference, at which there was a large and representative attendance, was presided over by Dr. W. G. Masefield (Eastbourne).

Dr. W. Rees Thomas, of the Mental Health Division of the Ministry of Health, addressed the meeting on the representation of psychiatry generally in the National Health Service. He pointed out that it had been secured in the Act that a certain proportion of members of the Central Health Services Council and the Regional Hospital Boards should be representative of the mental health services. Two of the fifteen medical practitioners on the Central Health Services Council were to be selected for their knowledge of mental illness and mental defectiveness. In all these bodies, including hospital management committees, it was specifically laid down that there should be consultation with the organizations concerned, and in the case of the management committees with the senior medical staff of the hospital, before appointments were made.

In a circular sent to local authorities it had been suggested that they and Regional Boards should make arrangements for some overlapping of staff; unless there was such co-operation the staff shortage would be accentuated. On child guidance he thought the view was accepted that there must be some division of authority; education authorities would continue to have their child-guidance centres, to which if necessary psychiatric advice might be forthcoming from the regional staff. The view of the Ministry was that at the child-guidance centre the visiting psychiatrist would attend only for diagnosis and perhaps short-term treatment. Any child in need of more than that would be dealt with at the child-guidance clinics established under the Regional Board.

### Functions of Regional Boards

Dr. Rees Thomas said that development of the mental health services had naturally been unequal in different areas, and it was not expected that the new health scheme would "spring fully armed" on July 5, 1948. Practitioners would presumably draw on the specialist service for consultations in the home. This service was already being carried on by some local authorities. Out-patient departments were slowly developing. There were some 200 adult clinics in the country, some almost entirely diagnostic, others not working frequently. Such activities ought to be one of the first developments of regional mental health services. As for in-patients, there were seven or eight categories of places in which they might be received: first, the mental hospital, the background of the mental health service; then the general hospital, in which, it was hoped, the psychiatrist would have a larger part to play.

Professors of psychiatry at the teaching psychiatric units, like other people who taught, must have beds. At some time in the future each university centre would have a psychiatric unit, with beds for teaching and facilities for research and for postgraduate training. It was expected that there would be a neurosis centre in each region large enough to justify the appointment of a first-class staff. Poor Law accommodation was the worst, but it included places for more than 10,000 people who would come within the care of the Regional Boards as cases of mental illness requiring care and treatment. For this purpose it would be necessary to take over a number of former Poor Law institutions, and in this connexion he hoped that old people would receive special consideration and treatment. What he had said about mental illness applied also to mental deficiency.

### Attitude of Lay Public

Dr. J. E. Nicole (a member of the Liverpool Regional Hospital Board) said that behind the question of policy was the question of the attitude of the community towards psychiatry and mental hospitals. To a large extent the establishment of the new Service would rest with the lay community, and the general attitude of that community would determine its character. The stigma of mental illness still lingered. For example, the person to whom it fell legally

to commit a patient to a mental hospital was a magistrate, a figure associated in the public mind with delinquency. In a new and much extended mental health service there might grow a tendency, already present to a certain extent, to deal with public prejudice against mental illness, certification, and mental hospitals by means of compromise, circumvention, and appeasement, with disastrous results to psychiatry and to the patients committed to its care. Such a tendency should be vigorously resisted as being inconsistent, medically unsound, and intellectually dishonest. To fight public bias and ignorance rather than appeasing it would be the only way to ensure that patients would be treated and classified on purely medical grounds and not in a manner designed to find an easy way out of the difficulties created by social prejudice.

Dr. Nicole wondered whether those interested in mental health had done all they could to educate members of town and county councils and public-assistance committees in the aspects of mental illness as they knew them. It was very necessary, in the disposal of in-patients, to avoid any indiscriminate classification and to oppose any policy of mere avoidance of mental hospitals. Attention must also be paid to rehabilitation in its broadest sense, remembering that adequate facilities for this might be extremely difficult to provide in some of the psychiatric units envisaged in the new Service. The new Service should afford an opportunity to overcome lingering prejudices and obsolete ideas on the subject of mental disorder instead of pandering to them.

### Hospital Management Committees

The conference then turned to questions. The first concerned hospital management committees: would there be psychiatrists on them, and if so would the psychiatrists be of medical-superintendent standing or "some dubious psychiatrist down the street"? Dr. Rees Thomas referred the questioner to the third schedule of the Act, which laid it down that the members should include persons appointed after consultation with the senior medical staff.

On a further question he said that child-guidance clinics which belonged to the local education authority would remain. Other clinics might come within the definition of voluntary hospitals. But he pointed out that if the education authorities undertook the full treatment of children suffering from maladjustment they would be doing it at the cost of the local authority, whereas it might be done regionally as part of the National Health Service.

Asked to what extent the local authority would continue to develop its services, Dr. Rees Thomas said that the answer must be left to different areas. There were a large number of local authorities and a small number of Regional Boards, and the position would differ according to circumstances. Local authorities, if they wished to do so, could employ their own psychiatrists; this was in fact being done by London. It was a matter for arrangement between the authorities and the Boards. What would happen to part-time psychiatrists he did not know. Much depended upon the definition of specialists which the new Spens Committee might formulate in its report. In reply to a question as to the functions of local authorities, he said that one was the prevention of illness, which was a matter of education. It was not, strictly speaking, for the local authority to undertake the education of its local practitioners: the only people to do that were the psychiatrists employed by the Regional Board.

Dr. I. H. Jenkins asked to what extent the membership of the Board of Control would be reinforced by experts in branches of psychiatry other than mental defect or psychosis. Dr. Rees Thomas replied that there were at present four vacancies on the Board, which furnished opportunity for such reinforcement.

### Private Work

A question whether a specialist in psychiatry might also do private work was answered from the chair by the remark that the specialist could apply to be put on part-time employment. Another question was whether a doctor running a hospital psychiatric clinic as well as doing general practice would be allowed to continue both jobs under the Service. A member of the Secretariat stated it would be possible for a practitioner undertaking general medical services to undertake at the same

## Association Notices

### SCHOLARSHIPS IN AID OF SCIENTIFIC RESEARCH

The Council of the British Medical Association is prepared to receive applications for Research Scholarships as follows: An Ernest Hart Memorial Scholarship of the value of £200 per annum, a Walter Dixon Scholarship of the value of £200 per annum, and four Research Scholarships each of the value of £150 per annum. These scholarships are given to candidates whom the Science Committee of the Association recommends as qualified to undertake research in any subject (including State medicine) relating to the causation, prevention, or treatment of disease. Preference will be given, other things being equal, to members of the medical profession.

Each scholarship is tenable for one year starting on Oct. 1, 1948. The scholar may be reappointed for not more than two additional terms. A scholar is not necessarily required to devote the whole of his or her time to the work of research but may hold an appointment at a university, medical school, or hospital, provided the duties of such an appointment do not interfere with his or her work as a scholar.

In addition, applications are invited for the first award of the Insole Scholarship of the value of £250 for research into the causes and cure of venereal disease.

#### Conditions of Award: Applications

Applications for scholarships must be made not later than Friday, April 30, 1948, on the prescribed form, a copy of which will be supplied on application to the Secretary of the Association, B.M.A. House, Tavistock Square, London, W.C.1. Applicants will be required to furnish the names of three referees who are competent to speak of their capacity for the research contemplated.

### Branch and Division Meetings to be Held

**MARYLEBONE DIVISION.**—At 26, Portland Place, London, W., Tuesday, Dec. 30, 8.30 p.m. Agenda: report by Representatives on A.R.M., July, 1947; report by Lord Horder and Mr. Lawrence Abel on negotiations with Minister of Health; discussion of the following motion, "This Division deeply deplores the refusal of the Minister to accept the fundamental principles of the profession and to introduce amending legislation to the National Health Service Act, 1946. Accordingly this Division requests that, before the plebiscite, the B.M.A. Council will give the strongest possible lead to the profession not to accept service under the Act"; consideration of size of support required for successful opposition to the Act.

**SHROPSHIRE AND MID-WALES BRANCH.**—In Ballroom of Raven Hotel, Shrewsbury, Sunday, Jan. 4, 2.30 p.m. General meeting. Agenda: Discussion on National Health Service as finally decided upon by the Minister; Instructions to Representative prior to Representative Meeting in London. All medical practitioners in the area of the Branch are invited.

**WINCHESTER DIVISION.**—At Nurses' Home, Royal Hampshire County Hospital, Winchester, Sunday, Jan. 4, 11 a.m. Extraordinary General Meeting. All medical practitioners in the area of the Division are invited.

### Meetings of Branches and Divisions

#### KENT BRANCH

A meeting was held on Oct. 24, with Mr. W. E. C. Wynne presiding. Those present were Drs. G. R. F. Stilwell, F. C. Cozens, A. D. Broatch, P. Jacob Galikín, H. J. Hoby, A. V. Kelynaek, R. Prosper Liston, G. E. M. Meyer, G. C. Milner, E. G. Pringle, M. F. Prout, A. Talbot Rogers, D. M. Thomson, and J. O. Murray, and Mr. A. R. Jordan.

A letter from the honorary secretary of the Kent Area Committee, British Hospitals' Association, pointed out that the Kent Area Committee had passed the following resolution: "That this Special Committee (of medical representatives) of the British Hospitals' Association recommends the B.M.A. Council to consider the formation of a special subcommittee of the Branch Council (with appropriate representatives to be elected by hospital medical staffs) to deal at a county level with matters affecting hospital medical staffs." It was resolved that this resolution be approved and that a special subcommittee be set up, and that it consist of Mr. W. E. Heath, Dr. F. C. Cozens, and Dr. A. Talbot Rogers.

Dr. Talbot Rogers explained that the local medical and panel committee was the authorized body recognized by the K.C.C., and that so far the K.C.C. had decided not to co-opt medical practitioners. It was resolved that all steps be taken as an endeavour to obtain co-optation of medical representatives on the Kent County Council Health Committee.

It was resolved that Mr. A. R. Jordan and Mr. W. E. Heath be appointed representatives of the Kent Branch Council on the South-eastern and South-western Metropolitan Hospital Areas (Cancer Service (Cancer Act, 1939)).

### NORTHERN IRELAND BRANCH

A meeting of Branch Council of the British Medical Association, Northern Ireland, was held on Nov. 6, with Dr. T. A. Kean in the chair. Members present were Drs. Kean, Warnock, Boyd, Lyle, Boylan, Halliday, Andrews, Pyper, Hadden, Clarke, Smiley, Breen, Giff, Hemmingway, Hunter, Crozier; Messrs. I. Fraser and H. I. McClure.

Dr. Lyle inquired if the university members of Parliament had tabled the motion in the House of Commons in respect of the Topping Report. Dr. Halliday stated that on the advice of counsel this motion had been postponed and that a new clause had been drafted by counsel to be inserted after Clause 45 in the Health Services Bill to read as follows:

"The Ministry may prescribe the qualifications, remuneration and conditions of service of all or any of the officers of a health authority employed for the purposes of its functions as a health authority provided that in the case of a professional officer the Ministry shall consult such organizations as may be recognized by the Minister as representing the profession concerned."

In the past the Minister had always deplored the fact that he had not power to dictate to local authorities and other bodies. If this clause was accepted by the House and the Minister still refused to implement the Topping Report then the university members would bring forward their motion and have the whole question discussed in the House.

Dr. Halliday stated that it was of the greatest importance that a negotiating committee should be formed to meet the Minister to discuss the Regulations arising out of the Health Services Bill. This committee would not have power to commit the Association but would report to Branch Council, who would in due course seek confirmation of the Association. Discussion followed and it was agreed to nominate one general practitioner, one public-health officer, and one consultant or specialist from each Country Division. It was left to the discretion of the Divisional committees concerned whether these nominations were made by them or at a meeting of the whole Division. Dr. Hunter suggested that in the case of the Country Divisions where travelling distances would cause serious inconvenience due to petrol restrictions, etc., a Division could nominate members from another Division to act on their behalf. The Belfast Division owing to their much larger numbers would nominate four members from each group of the profession.

Dr. Crozier stated that the marriage bar imposed on women employed by the Northern Ireland Government had been discussed and a recommendation reaffirming the policy of the Association that in considering grounds for the appointment or dismissal of women medical officers marriage should not be made the reason for withholding or terminating an appointment. It had been agreed that a copy of the resolution should be sent to the Northern Ireland Government and to the Glasgow Corporation, which also adhered to the marriage bar.

#### PRESTON DIVISION

A B.M.A. Lecture was delivered on Dec. 9 by Prof. Ian Aird, of the London Postgraduate Medical School. Over seventy members were present, and Dr. W. A. Simpson, Chairman of the Division, occupied the chair.

Speaking on "Gastro-duodenal Haemorrhages," the lecturer declared that in such a condition where both physician and surgeon were concerned the importance of close team-work could not be overstressed. Careful selection of cases for operation was of the utmost importance. While operation should be resorted to only in cases where success was likely, it should not be used in cases which would recover under medical treatment. Referring to Meulengracht's exceptionally low mortality figures, he suggested that they might be accounted for by the inclusion of cases which did not in fact require operative treatment. In cases over 45 a second haemorrhage was an indication for operation, though older patients were bad operative risks. Local analgesia was recommended, though in younger patients gas-oxygen and cyclopropane might be used.

In determining operability the height of the blood urea was important and should always be estimated. Experiments on medical students who had blood poured into their stomachs by stomach tube showed a raised blood urea in these cases. This indicated that the mere presence of the blood in the stomach was a factor in the raised blood urea in haemorrhage cases.

A vote of thanks was proposed by Mr. Arnott and seconded by Dr. D. J. Davies.

### TRADE UNION MEMBERSHIP

The following is a list of local authorities which are understood to require employees to be members of a trade union or other organization:

**County Borough Councils.**—Barnsley, Gateshead.

**Metropolitan Borough Councils.**—Fulham, Hackney, Poplar.

**Non-County Borough Councils.**—Dartford, Leyton, Radcliffe (limited to future appointments), Tottenham, Walsend.

**Urban District Councils.**—Denton, Droylsden, Houghton-le-Spring, Huyton-with-Roby, Portslade, Redditch (restricted to new appointments), Stanley (Co. Durham), Tyldesley.

**Scottish Burghs.**—Motherwell and Wishaw.

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